

*Science Serving Florida's Coast*



*“Performance Counts”*

**Annual Progress Report for 2003**

**April 2004**

**Technical Paper 135**



UNIVERSITY OF  
FLORIDA

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**Rich Novak**  
*“In Memoria”*

Rich Novak, Charlotte County’s Florida Sea Grant marine extension agent, died unexpectedly on January 21, 2004, while working on a research vessel out of Morehead City, North Carolina.

Novak, 56, joined Florida Sea Grant in 1997, after working as a Sea Grant agent in North Carolina. His outreach programs in Charlotte County focused on the development of artificial reef habitat, and increasing survival of catch-and-release marine fish. He was an avid sport fisherman, hunter, and diver, and organized frequent underwater clean-up dives in the Charlotte County area. Rich was an integral part of the team of Florida Sea Grant faculty and made major contributions to Florida Sea Grant’s and Charlotte County’s fisheries and fisheries habitat programs. He died just as this implementation plan was being completed. To share his involvement, and as a professional tribute, we have left his planned activities listed in this document. While others will come behind Rich, and assist in completing the work he had planned, his influence and impact on the work of all of us and those who benefit from the work, will not be forgotten.

Novak held a bachelor’s degree in parks and recreational administration from Western Illinois University, and a master’s in forest and range management from Washington State University. He had completed doctoral work in continuing and adult vocational education at the University of Wisconsin. He was a native of Illinois.

Rich Novak will be missed by the entire Florida Sea Grant College Program family. He was a loved and appreciated colleague, and he was a friend.

**Gustavo Antonini**  
*“In Memoria”*

Gustavo (Gus) Antonini, Florida Sea Grant professor emeritus, University of Florida, died February 7, 2004, in a hit-and-run bicycle accident near High Springs, Florida, while participating in a 190 mile bike trip to Georgia.

Antonini was the creator and motivator in Florida Sea Grant’s nationally recognized Urban Boating and Waterways Management Program. In 2003, the program was named the top outreach effort among the nation’s 30 Sea Grant programs by Sea Grant Extension leaders across the nation. In 2000, the program earned a Sustainable Florida leadership award representing a best management practice for sustainable development in Florida.

Antonini had recently retired after 30 years with the University but remained active in Sea Grant’s waterways management program. He helped form a multi-disciplinary team of geographers, biologists, legal experts, planners and Sea Grant extension faculty that had been working since 1986 to improve recreational boaters’ access while reducing the detrimental impacts of boating on the marine environment.

Antonini earned an undergraduate degree in geography and geology from Columbia University in 1961; a master’s degree in geography and coastal geomorphology from Columbia in 1962; and a doctorate in geography with an emphasis in Latin America from Columbia in 1968.

He was the author of numerous boating publications, including two in a series of historical perspectives of boating and waterway development in the southwest Florida area, “A Historical Geography of Southwest Florida Waterways,” Volume I and Volume II. He was working on the third installment in the series at the time of his death. He had envisioned writing more. In addition to being an expert boater, Antonini had in recent years become a passionate cyclist. He had completed the Camino de Santiago, a cross-country ride in Spain, during the summer of 2002, and chronicled his trip through photos and journal entries.

Gus Antonini will be missed by the entire Florida Sea Grant College Program family. He was a loved and appreciated colleague, and he was a friend.

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### **1.0 INTRODUCTION**

The Florida Sea Grant College Program is committed to enhancing the practical use and conservation of coastal and marine resources for a sustainable economy and environment in a state whose coastline stretches for over 1,300 miles. 2003 represents the 33<sup>rd</sup> year for Sea Grant in Florida. The program operates through a statewide, research, education and extension partnership of state and federal agencies, businesses and citizens. All eleven public universities, three private universities, and two private non-profit research laboratories constitute this virtual college without walls. The University of Florida serves as the host campus. Florida Sea Grant is one of 31 Sea Grant programs nationwide that together form the National Sea Grant College Program as authorized by federal legislation. It is the only university-based, statewide coastal research, education, extension/outreach and communications program in Florida.

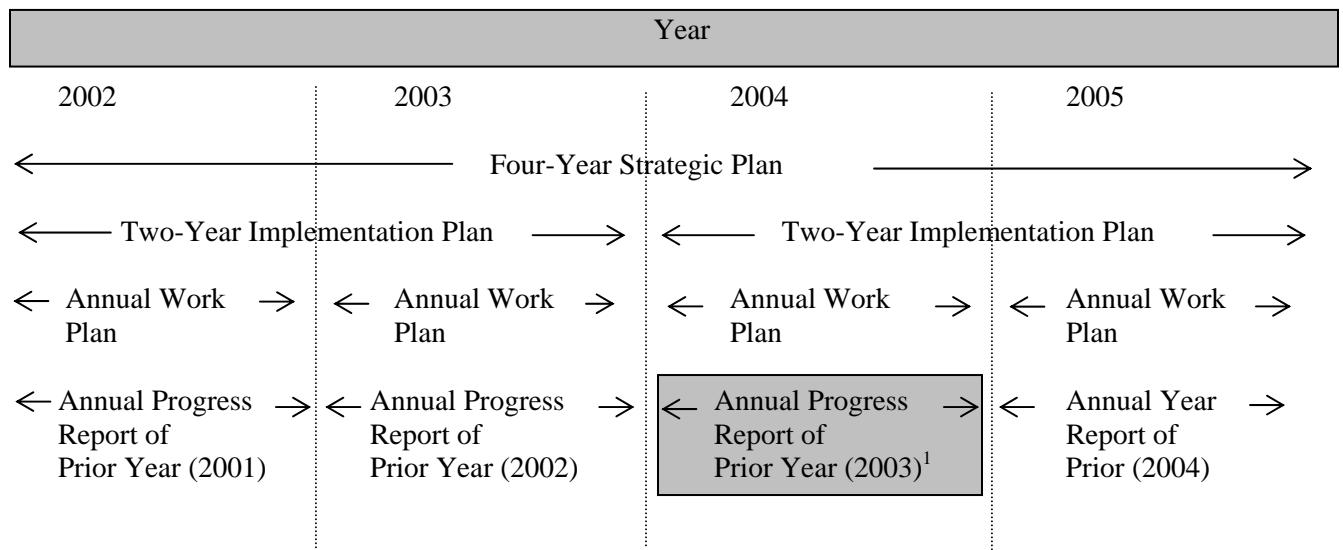
This annual progress report for 2003 is the sixth annual progress report submitted by Florida Sea Grant under the program evaluation procedures adopted during 1998 by the National Sea Grant College Program. This report covers the year 2003, but some historical data are included to provide baseline information for subsequent annual progress reports.

Florida Sea Grant had 11 different NOAA grants in effect during 2003. This annual report covers work completed and ongoing under all 11 grants.

Florida Sea Grant awards from NOAA activities during calendar year 2003.			
Number	Keyword Identifier	Start Date	Current End Date
NA76RG-0120	Omnibus Research, Extension, Communications, Management	02/01/97	09/30/03
NA16RG-1398	30 <sup>th</sup> Meeting of Aquaculture	09/01/01	08/31/03
NA16RG-1720	Aquatic Nuisance	10/01/01	09/30/03
NA16RG-2195	Omnibus Research, Extension, Communications, Management	02/01/02	01/31/06
NA16RG-2198	Oyster Decontamination	03/01/02	02/28/04
NA16RG-2258	Coastal Storms Project #8	03/01/02	11/30/04
NA16OC-2649	Coastal Data Server System	09/01/02	08/31/04
NA17RG-2992	South Florida Marine Ecosystem Outreach E/T-9	09/01/02	01/31/05
NA16RG-2225	Knauss Fellow E/ST-27	02/01/02	01/31/03
NA03OAR-4170035	Knauss Fellow E/ST-28	02/01/03	01/31/04
NA17FD-2367	Gulf of Mexico	04/01/03	11/30/04

Every Florida Sea Grant activity and accomplishment reported on in this progress report satisfied three simple but tough criteria: 1) it was based on a strong rationale; 2) it demonstrated scientific or educational merit; and 3) it produced results that are clearly useful and applicable in industry, management or science. A number of core values allow Florida Sea Grant to deliver results based on these criteria: 1) **Excellence**; Research was funded on a competitive basis, with scientific merit as the most important criterion. Extension programs were based on reviewed faculty plans of work. Communications efforts use the latest technology to achieve maximum output, visibility and citizen receipt of our science-based information; 2) **Participation**; High value was placed on the involvement of a large number of participating institutions in research, education and extension programs. Graduate student involvement was high and a diverse male and female faculty was involved, from assistant to full professors; 3) **Accountability**; Both external and internal processes were used to measure a wide range of achievements. These included tracking the scientific publication output of faculty and students, understanding the contribution to society of scientific discovery, measuring the way citizens receiving educational programs changed their behavior, and determining the economic impact or level of new business activity resulting from a research project; 4) **Connection with Users**; A strong advisory process was used to define research priorities, to plan extension programs, and to measure the impact of programs. It was also used to build public and private support for Florida Sea Grant; 5) **Partnerships**; Faculty, students, and citizens all benefited from functioning in a partnership mode. Scientific results and education projects reached greater success levels and were implemented when partners, from agencies to businesses, provided financial support to an activity.

The 2003 annual progress report in the context of Florida Sea Grant's four-year cycle strategic plan, implementation plan and annual work plan.



A summary of 2003 Florida Sea Grant accomplishments and highlights follows, with details for 2003 in the remaining ten sections of this progress report.

<sup>1</sup> Representation of this document on the timeline.

## Summary of Highlights for 2003

### 1.0 Introduction

- A total of 11 NOAA grants were active during 2003. This covered 59 individual projects.

### 2.0 Accomplishments and Benefits

Florida Sea Grant documents its accomplishments and benefits each year for research projects ending during that year and for extension and communication results achieved during the year. The following are examples for each of FSGs 10 goal areas. The complete list of accomplishments and benefits is in Section 2.0.

#### *Goal 1: Marine Biotechnology*

- At least four genes have been identified that may be regulated in pancreatic cancer cells treated with lasonolide. This may have important implications for cancer treatment and will help understand the genetic basis for the production of marine natural products.
- A “corporate report” on Florida Sea Grant contributions to marine biotechnology is underway.
- A statewide, virtual academic department of about 75 individuals for marine biotechnology continues to function and thrive.

#### *Goal 2: Fisheries*

- Shelf-edge habitat mapping in deep water habitats combined quantitative estimates of fish density and spatial habitat features for grouper in the Gulf of Mexico. Gag and scamp grouper were documented as more abundant inside protected areas than outside protected areas when habitat was similar.
- A model on marine ornamental species was developed that incorporated the conflicting effects of density dependent settlement and survival on reef fish dynamics and the influence of harvesting. Some collectors with live-rock lease sites now view these sites potentially more valuable for ornamental aquarium species production than for live-rock production.
- Over 100 attendees including 50 local lobster fishermen attended a Florida Keys spiny lobster workshop. Nine scientific presentations were made followed by a panel discussion on future research needs. Seventy-three percent of the attendees said they learned information useful to their fishing business. A dialogue was developed among the fishermen, scientists and managers.
- Sixteen scoping workshops for 200 blue crab fishermen were held. The opinions and concerns of the fishermen will be used by the Florida Fish and Wildlife Conservation Commission in developing a management plan for blue crabs in Florida.
- Florida Sea Grant fisheries Extension faculty continue to serve on the scientific committees of the Gulf of Mexico and South Atlantic Fishery Management Councils. Direct input was provided relating to management plans for reef fish, coastal pelagics, snapper and grouper.
- About 3,000 recreational anglers were taught proper fish venting techniques, catch and release practices and proper hook utilization to increase undersized released fish survival. One survey of 77 anglers indicated that 66% of them were using the techniques three months later.

#### *Goal 3: Aquaculture*

- It was determined that typical spawning techniques used in clam hatcheries will also produce blood ark and ponderous ark clam seeds with minimal operational changes in early hatchery stages. This may provide species alternatives for clam growers.
- Digital high-speed videography was used to determine the feeding performance of hatchery reared marine fish larvae. Based on this research, pilot studies are being conducted at a commercial hatchery to determine the feasibility of commercial application of the technology.

- The 14<sup>th</sup> International Scallop Biology and Culture Workshop was held in St. Petersburg, Florida, and attended by 122 participants from 21 countries.
- Clam growers were taught how to use Sea Grant developed CLAM software for record-keeping and management decisions. Eight workshops enabled 42 clam growers (91% of the statewide total) to refine their business and recordkeeping practices.
- CLAMMRS water quality monitoring stations are located in seven “Big Bend” counties. Over 25% of the active growers in these counties reviewed the “real-time” continuous water quality data posted to a web site. “Farmer-friendly” graphs were used by growers in comparing annual clam production and documenting crop insurance claims.

*Goal 4: Seafood*

- Three guides for processing of seafood in retail operations were completed. The guides include advice, illustrations and recording forms that can be used in commercial retail practices for sushi, smoked seafood and reduced oxygen packing for seafood. Participants in preparing the guides included representatives from major retail supermarket chains (Krogers, HEB, Wal-Mart, Publix, Winn-Dixie), national trade associations (Food Marketing Institute, National Restaurant Association, Association of Food and Drug officials, National Food Processors Association) and individuals from state agencies and universities.
- An oyster post harvest treatment (PHT) program has compiled the current use of PHT in operations and will serve as a benchmark of industry performance in order to meet pending regulatory goals for 2008. The initial survey indicates the Florida oyster industry will be able to comply with the first regulatory goal in December 2005.
- The annual Sea Grant Shrimp School was attended by 30 participants representing 20 processing firms from nine nations with shrimp commerce based in the USA. The school was taught jointly with the FDA. The school is recognized as the leading school for education and training in shrimp quality and safety about the world. The school has been invited to conduct similar sessions about the nation and world. Attendance for 2004 and 2005 already exceeds available space.
- The Seafood HACCP Alliance remains the national training program for mandated HACCP for seafood processing and importing in the United States. Training through 2003 occurred in every state in the nation, every USA territory, and over 20 nations shipping seafood to the USA. The course in both classroom settings and through the internet serves as the benchmark for seafood HACCP training for any seafood commerce and it satisfies mandatory training requirements for inspectors in both the State and Federal regulatory programs. The Alliance HACCP publications, based and distributed from the University of Florida with coordination with the Florida Sea Grant Program, remain the most successful and demanded UF/IFAS publications and were downloaded electronically 10,995 times from the Sea Grant Pell Depository during 2003.

*Goal 5: Water-dependent Business*

- A project sponsored by the NOAA Coastal Services Center to enhance and standardize field collection methods for bathymetric data was completed. This will result in standardized data collection procedures for use in the Southwest Florida regional waterway management system, provide a reliable and recurring source of data for areas not covered by NOAA surveys (while ensuring the data met NOAA standards for nautical charts) and document procedures for use by third party organizations in data collection.
- Florida Sea Grant and the Tampa Bay Estuary Program hosted a workshop for 30 regulatory and governmental personnel from the Tampa Bay area. The purpose was to present and discuss the historical and contemporary waterway analysis methods developed by Sea Grant for southwest Florida and the implementation of General Environmental Resource Permitting for maintenance dredging by the state of Florida.
- A two-day conference was held in November 2003 in Captiva Island to examine the problems and issues in providing water access and maintaining water dependent uses in Florida’s coastal areas.



More than 100 resource managers, marina operators, coastal property owners, boaters and developers attended. Attendees came from all parts of Florida, and five states. Discussions are now underway to hold a regional or national conference on the issue in 2005. The conference was co-sponsored by Florida Sea Grant, the Southwest Florida Marine Industries Association, and the West Coast Inland Navigation District.

- Seventy-eight clean marinas and 23 clean boatyards were designated in 2003, with 130 more in process. Sea Grant Extension faculty participate in this program along with the Marine Industries Association and the Florida Department of Environmental Education.
- ArcView GIS training in coastal resource management applications was provided in Fort Myers to ten Florida Department of Environment South District and Aquatic Preserve managers. The training is part of a process to develop a Noticed General Permit for maintenance of Lee County waterways that is based on three completed applications of the Regional Waterway Management System in Lee County.

#### *Goal 6: Water Quality*

- In-service training for 25 Extension faculty was provided on “Watershed Water Quality: Non-Point Source Pollution.” The training raised the participants’ knowledge by 30% according to pre and post-tests, 38% will use the information to create educational programs, 25% to address watershed issues and 19% to address regulatory issues.

#### *Goal 7: Coastal Habitats*

- A workshop with 75 attendees was held on “Invasive Species: Where We Are and Where We’re Going.” Participants were educators, researchers and managers from universities, governmental agencies, non-governmental groups and consulting firms. A set of priorities was developed with a focus on education and outreach.
- A six-hour teacher workshop on invasive species in the south Florida ecosystem was held for 16 K-12 teachers and environmental educators. Knowledge gained was determined by an increase from 60% pre-test score to an 80% post-test score.
- Ten planning meetings were attended and educational programs were conducted for the 21<sup>st</sup> Annual Cortez Commercial Fishing Festival. The Festival is the major source of income for the purchase of FISH Preserve. The 2003 Festival generated approximately \$45,000 in profit. To date, approximately \$190,000 has been raised towards the total purchase price of \$250,000. Additionally, approximately 1,200 citizens increased their understanding of local marine resource management issues. As a result of a presentation to the Sarasota Bay National Estuary Program Citizen Advisory Program, the Estuary Program has committed to helping sponsor the 2004 Festival.

#### *Goal 8: Coastal Storms*

- Florida Sea Grant Extension continued its second year outreach activity as a component of the Southeast Atlantic Coastal Ocean Observing System (SEA-COOS). The four Sea Grant programs (North Carolina, South Carolina, Georgia and Florida) are cooperating in this regional project. The goal is to establish a dialog with non-scientific users, identify their information needs and the preferred formats and methods of information delivery. Florida Sea Grant Extension faculty were trained on SEA-COOS, a Florida Sea Grant-based regional SEA-COOS coordinator was hired and SEA-COOS materials were presented at a major conference.

#### *Goal 9: Highly Trained Workforce*

- Five applicants (of seven total) were submitted to the Knauss Marine Policy Fellowship Program and one was selected. Forty-three percent of all FSG research funds supported graduate students. Three

graduate students and one undergraduate were given privately funded FSG scholarships. One applicant was submitted and chosen as a NOAA Coastal Services Center Fellow.

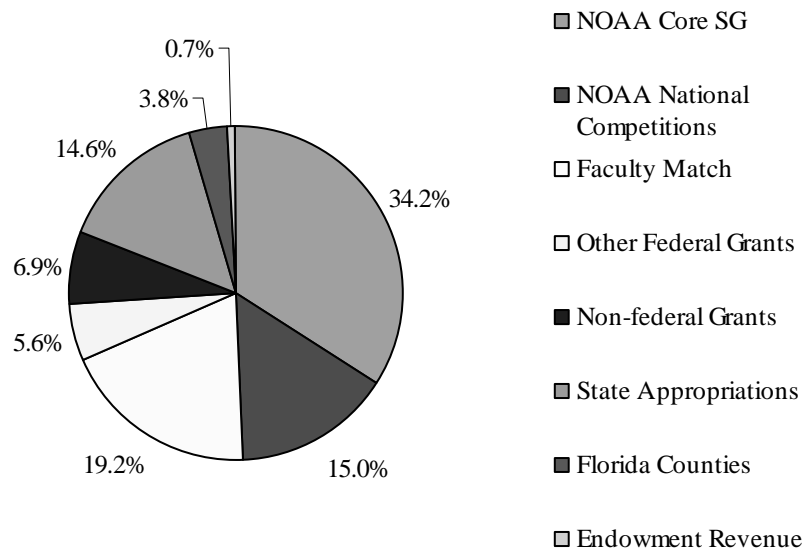
- Fourteen different academic departments and 12 different disciplines at seven Florida universities received core FSG funds in 2003.
- Four FSG sponsored seminars were held at four Florida universities.

*Goal 10: Informed Citizens*

- Florida Sea Grant ranked first among all 30 Sea Grant programs in electronic downloads (38,750) from the National Sea Grant Library. This represented 40% of all downloads from the top ten (in funding) Sea Grant programs.
- The South Florida Ecosystem Project was developed and implemented. A needs assessment was conducted through three focus groups held in the Florida Keys. This initiated an education and outreach partnership funded by the South Florida Water Management District to create and distribute educational materials dealing with coastal issues surrounding the Comprehensive Everglades Restoration Plan.
- A statewide 4-H poster contest was organized and held for Oceans Day 2003 in the State Capitol. Each winner was introduced to the legislator from their district.

**3.0 Program Funding**

Florida Sea Grant program effort for the 2003-04 fiscal year was \$5.816 million. The source of funds from eight sources are shown in the chart.



Sea Grant federal funds plus all extramural grants were 4.2 times the amount of state appropriations received by Florida Sea Grant.

**4.0 Institutions Involved**

Ten (of 16) academic institutions (both public and private) participated through the receipt of Sea Grant funding for projects and programs. In addition, ten cooperating institutions and laboratories, four NOAA offices, two state agencies, two regional management districts, five foundations and non-governmental organizations, seven companies and 37 counties participated by providing support or matching funds.

## **5.0 Projects Funded**

A total of 57 different Florida Sea Grant projects were in process during 2003. This includes 20 research, three Extension/Communications/Management and 16 program development projects within FSG's core program. In addition, 20 national strategic investment projects and four other non-federal extramurally funded projects were in process.

## **6.0 Publications**

A total of 53 different publication items (with thousands of copies) were completed and 122 are in various stages of completion. Ten web pages are being maintained. The National Sea Grant Library indicated that FSG publications showed 38,750 PDF downloads (a 41% increase from 2002) and far more than any other Sea Grant program.

## **7.0 Students**

Forty-three percent of FSG's core program research funding supported graduate students. This equates to 22% of all FSG's core program funds and support for a total of 27 students.

## **8.0 Program Awards**

Nine different (of 21) county faculty/state specialists received a local award. FSG received two statewide awards, one regional award and two national awards for various programs. One state specialist received a national award.

## **9.0 Outreach Activities**

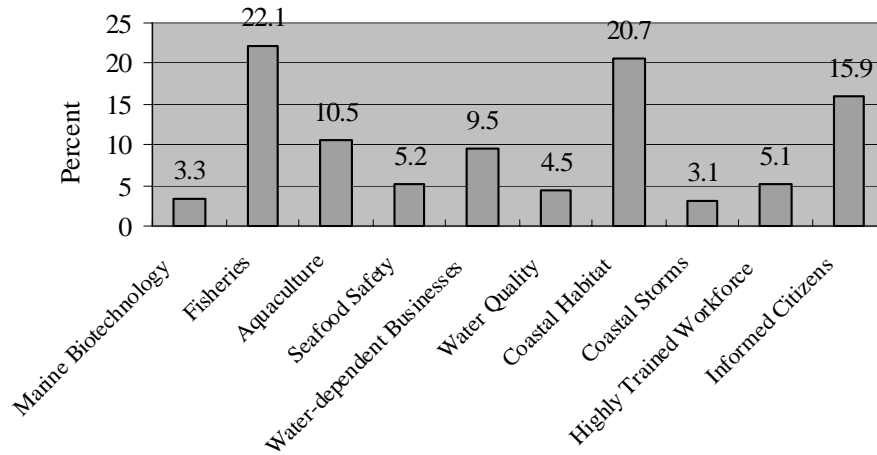
FSG continued major organized statewide or regional outreach activities in marine biotechnology, marinas and boatyards, sustainable marine fisheries, Gulf of Mexico Center for Ocean Science Education in Excellence, Coastal Storms Initiatives, Southeast Coastal Ocean Observing Systems, urban boating and waterway development and marine ornamentals. Membership continued in the Florida Ocean Alliance, a statewide consortium of university, industry and agency organizations.

Faculty continued involvement in international programs by providing leadership for the Gulf and Caribbean Fisheries Institute and on various activities in Cuba, the Virgin Islands, Brazil and Australia. Participation was provided to eight major international conferences including the hosting of the 15<sup>th</sup> International Pectinid Conference.

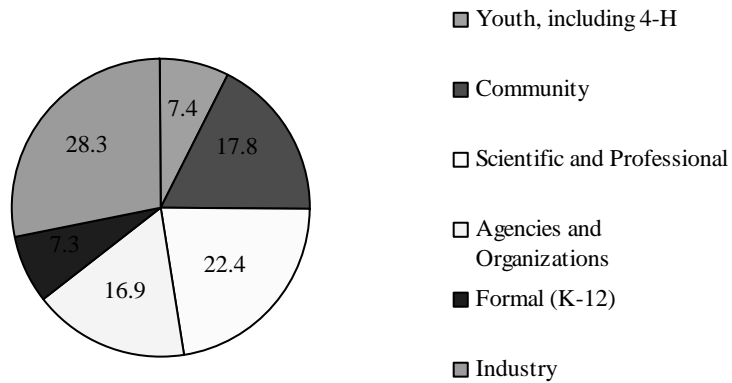
More than 20 posters and displays were produced. The FSG website was redesigned and expanded.

Over the two year period of 2002 and 2003, a total of 841 educational events were conducted.

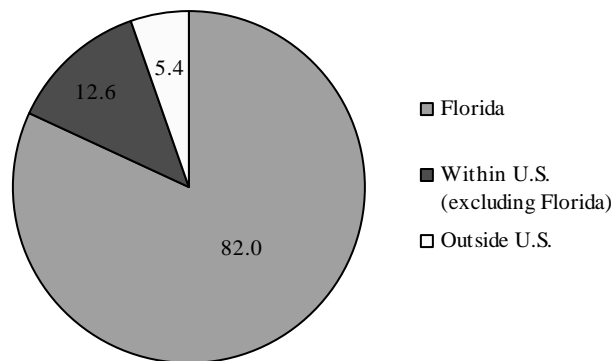
The leading Florida Sea Grant goal areas of activity are fisheries (22.1%) and coastal habitat (20.7%). Audience type has also been documented with industry education, the leading audience type (28.3%). Finally, 82% of all activity has occurred within Florida.



Percent of educational events by Florida Sea Grant goal area for 2002 and 2003.



Percent of educational events by Florida Sea Grant audience type, 2002 and 2003.



Percent of educational events by Florida Sea Grant geographic area of delivery.

## **10. Self Evaluation**

FSG's success rate in National Sea Grant competitions for full proposals was 75%, compared to the national average of 58%. The success rate for full proposals being invited on the basis of pre-proposals submitted was 25%, compared to the national average of 24%.

Fourteen of the 15 FSG institutions submitted core program research proposals and eight of the 15 received funding. Sixty-three percent of the principal investigators did not receive funding in the previous cycle.

FSG participated in seven regional projects.

The Director, Associate Director, Assistant Director for Extension and statewide Extension faculty provided service statewide, regionally and nationally by representation on both academic and non-academic boards or activities as follows: international (6); national (19); regional (3); state (7). The Director, Associate Director and Assistant Director participated in 26 publications and presentations in addition to managing the program.

### **11.0 Advisory Process**

Three statewide advisory committees and 16 county advisory committees provided input to FSG.

## 2.0 ACCOMPLISHMENTS AND BENEFITS

### Economic Leadership

#### Goal 1: Create Products and Processes from Florida's Coastal Resources Using Marine Biotechnology

- 1.1 This project provides leadership in a new direction to expand and enhance natural products research. It focuses the latest advances in biotechnology to identify and determine the mechanism of action of marine-derived compounds with pharmaceutical potential. It demonstrates the power of cross-species array technology for the development of unconventional model systems, such as marine invertebrates, to address questions in marine, cell and molecular biology. (2003). (Pomponi/Willoughby: R/LR-MB-19PD)

Results to date have identified at least four genes that may be regulated in pancreatic cancer cells treated with lasonolide. Several of these genes may have important implications for cancer treatment and may indeed help to identify the mechanism by which lasonolide inhibits the growth of cancer cells. In addition, there are 15 genes in *Tedania ignis* that may be regulated by lasonolide and that will provide important insights into lasonolide function in sponge and mammalian systems, and an understanding of the genetic basis for the production of marine natural products.

- 1.7 A statewide faculty coordinating committee organized by Florida Sea Grant to advance marine biotechnology will continue to operate. The goal is to partner with industry in a way that will yield both state and industry funds to support marine biotechnology research, education and economic growth in Florida. (Seaman/Cato)

Individuals from the committee were active in developing outreach materials and efforts, while the committee will be utilized as a whole in 2004 to facilitate strategic planning for Sea Grant.

- 1.10 To promote industry awareness of Florida marine biotechnology opportunities and constraints, outreach will communicate a profile of existing commercial activities and interests in Florida via a publication, and also in a proposed session at a national biotechnology conference (in cooperation with the national theme team) and a proposed executive continuing education workshop. (Seaman)

A science writer completed profiles of about 1,000 words for each of 24 FSG research projects, as the first step in developing a "corporate report" summary of FSG contributions in the field. Funding of the FAU Center of Excellence gave that institution leadership for executive--and teacher--education, and FSG will participate in the effort.

- 1.11 To promote faculty cooperation and exchange to enhance research and training, a statewide marine biotechnology listserv will be continued, planning for the fourth statewide summit will commence, and the feasibility of an ad hoc faculty advisory panel will be determined. (Seaman)

The faculty list-serve has continued, in affect creating a statewide, virtual academic department for Florida marine biotechnology. Plans are underway for a 2004 summit. Individuals for an industry panel have been identified and contacted.

- 1.12 To promote awareness and understanding of marine biotechnology by Extension faculty (for a topic for which no State Major Program [SMP] exists), an information packet of relevant materials and resources will be assembled and the possibility of establishing an SMP design team explored. (Seaman)

The options for a design team in marine biotechnology will be deferred until the IFAS Extension long-range plan is completed and a new system of focus areas is established. Meanwhile, informational materials were drafted for use on two websites and will be available in 2004.

## **Goal 2: Determine Production and Management Techniques Which Make Florida's Fisheries Sustainable and Competitive**

- 2.1 West Florida shelf-edge reefs are of major importance to reef fish fishery production in the Gulf of Mexico, yet little is known of the biological and geological characteristics of these reef systems. The commercial reef fish fishery of this region concentrates its effort on these shelf-ledge reefs. Virtually all of the important reef species are considered overfished; some are considered threatened. In 1999, the Gulf of Mexico Fishery Management Council set aside two 100 nautical-square-mile shelf-ledge areas for experimental purposes, providing opportunities to monitor fish demographics in protected areas. (Koenig/Coleman/Levitan: R/LR-B-51)

This work on shelf-edge habitat mapping is the first of its kind in such deep-water habitats; it combines quantitative estimates of fish density and spatial habitat features including geomorphology, habitat structuring organisms, and percent coverage. The project also developed a protocol for such mapping using either submersibles or ROVs. Data show that gag and scamp were both more abundant inside protected areas than they were outside protected areas, specifically in areas with similar types of habitat. Based on problems observed with poaching in the marine reserves, the U.S. Coast Guard and the National Marine Fisheries Service Law Enforcement Division have become more actively engaged in fisheries enforcement in closed areas.

- 2.2 Artificial reefs are a potentially powerful management tool that can be used to enhance fish production and divert deleterious impacts away from natural habitat. To date, their use is limited by some interests due to a scientific controversy over attraction-production. Solutions to this problem must quantify the negative effects of attracting fish away from natural reefs, and the positive effects of providing new habitat. (Osenberg/St. Mary/Bolker: R/LR-B-52)

The theoretical advancements of the project include a model on marine ornamental species dynamics, parameterized with previously collected field data, which incorporates conflicting effects of density-dependent settlement and survival on reef fish dynamics and the influence of harvesting (no such model had previously been developed). Field data led to quantification of the strength of density-dependence of reef fishes and a comprehensive description of settlement and migration patterns of 100 species of reef fish. Meanwhile, study of the use of live-rock lease sites as production sites for marine ornamentals has been promoted at several workshops and meetings. As a result, some collectors with live rock lease sites now view these sites as potentially more valuable for ornamental aquarium species production than for live-rock production.

- 2.3 Diamondback terrapins range along the eastern and Gulf coasts of the US and prefer the same habitat as blue crabs. Large numbers of terrapins enter crab pots and drown as bycatch. The use of bycatch reduction devices that limit the entrance size of trap funnels. (Butler/Heinrich: R/LR-B-55PD)

This is the first data set concerning the use of bycatch reduction devices (BRDs) on crab pots in Florida. Results suggest that BRDs can prevent some terrapin bycatch and mortality. Findings demonstrate that BRDs on crab pots have no adverse effect on crab capture. The project has formulated recommendations to the Florida Fish and Wildlife Conservation Commission for regulations that reduce turtle bycatch mortality in Florida waters.



- 2.6 A number of research projects and programs have been completed on the spiny lobster fishery of south Florida over the last two decades. Most of the research results have been published in scientific journals or presented to management agencies. This workshop is designed to present the results to the commercial and recreational fishing industry and participants. The goal is to increase their knowledge about the fishery, exchange ideas, and promote collaboration between the fishermen and the scientific community. (Gregory: PD-03-4)

A Florida Keys Spiny Lobster Workshop was conducted in Key West during June, 2003. The workshop was co-sponsored by Florida Sea Grant, Florida Fish and Wildlife Commission and Monroe County Commercial Fishermen, Inc. (MCCF) The purpose of the workshop was to bring lobster scientists and fishermen together to discuss the current state of lobster research and to identify future research needs. Over 100 attendees included at least 50 local lobster fishermen. Nine scientific presentations on lobster biology were provided, followed by a 1.5 hour panel discussion on future research needs. About 85 percent of the attendees who completed a workshop evaluation (n=45) said the workshop was very good and they would like to see similar workshops on other fishery issues. Seventy-three percent said they learned information useful to their fishing business. And 80 percent felt the panel discussion was useful in identifying future research needs. The workshop was successful in developing a discussion between researchers and fishermen about the current state of knowledge about lobsters and to identify information needs and in increasing collaboration between researchers and fishermen. This information will be a helpful guide to funding agencies in evaluating lobster research proposals and the increased collaborations should lead to improved research and acceptability to industry. A summary of the scientific presentations are available upon request ([http://monroe.ifas.ufl.edu/lobster\\_conference.htm](http://monroe.ifas.ufl.edu/lobster_conference.htm)). The panel discussion comments will be available shortly.

- 2.9 Participate in the development of a Gulf-wide strategy of dealing with blue crab “ghost traps.” This effort will be lead by the Louisiana Sea Grant program, but Florida Sea Grant will assist in identifying the methods and justification for addressing this issue in the Gulf of Mexico region. (Adams)

This work was not done. The state-level initiative has not progressed to the point that FSG has gotten involved. It is anticipated that this effort will develop further in 2004 if FWC adopts a strategy to deal with this issue.

- 2.10 Complete and submit the final report of the Blue Crab Facilitated Workshops to the Florida Fish and Wildlife Conservation Commission (FWC). The report will detail findings of the 17 workshops held in 2002. The findings will serve as a basis for public hearings to be held by the FWC for blue crab permit holders in an attempt to develop a draft management plan for blue crab in Florida. (Adams)

The Blue Crab Facilitated Workshops Final Report was submitted to FWC in March, 2003. The 140-page document provided a summary of the concerns and opinions of those commercial blue crabbers who took the time to participate in the process. A total of 16 workshops were held. Approximately 200 crabbers attended. The report has served as a basis by which the FWC has conducted public hearings leading up to the development of a Florida Blue Crab Management Plan.

- 2.11 Serve on the Sheepshead Technical Task Force for the Gulf States Marine Fisheries Commission. The Task Force will develop a Fishery Profile and Draft Management Plan for the commercial and recreational harvest of sheepshead in the Gulf of Mexico region. (Adams)

Adams serves as the Chair of the Sheepshead Task Force of the Gulf States Marine Fisheries Commission. Two meetings were attended and a section of the management plan that addresses the economic characteristics of the commercial sheepshead industry in the Gulf of Mexico region was written. Participation on the Task Force will continue until 2005.

- 2.12 Deliver a formal presentation addressing the current situation in the Gulf and South Atlantic shrimp industry at the UF-sponsored Trade Disputes Conference. The paper will be co-authored by Walter Keithly and Sal Versaggi, and will be published in a book derived from the Conference proceedings. (Adams)

A formal presentation concerning the current domestic shrimp market situation with respect to imported shrimp was given at the University of Florida-sponsored Trade Disputes Conference, Gainesville, Florida. Presentation co-authors were Sal Versaggi (Versaggi Shrimp Company) and Walter Keithly (LSU). A manuscript was adapted from the presentation and is currently being published as a chapter in the conference proceedings being published as a book.

- 2.13 Complete an analysis of the fair market value of a vessel currently participating in the commercial shark fishery in the Gulf and North Atlantic region. This project will be funded by the Gulf and South Atlantic Fishery Foundation. The project will be a component of a larger study that will provide guidance for the development of a shark vessel buyout program for the region. (Adams)

The project, which is being funded by the Gulf and South Atlantic Fisheries Foundation, is currently ongoing. The primary project objective is to estimate the fair market value for a commercial shrimp vessel participating in the shark fishery within the Gulf of Mexico or Atlantic Ocean. Progress has been hampered by the delays associated with data requests. The project is scheduled to be completed by November 2004, but an additional request for extension may be submitted.

- 2.14 Travel to Havana, Cuba and renew relationships with contacts at the Ministry of Fisheries. Present seminars addressing topics such as release mortality of reef fish, and sponge biomass assessment. (Adams)

Adams gave a presentation at MarCuba 2003 in Havana, Cuba, on the use of zero-water exchange systems for shrimp culture. The presentation was attended by about 30 individuals. This has led to ongoing dialogue with individuals involved with government sponsored shrimp culture research in Cuba.

- 2.15 Participate in the Second Biennial Meeting of the North American Association of Fisheries Economists, serving as a moderator for at least one technical paper session. Also, will serve on Nominating Committee that selects names for balloting to elect the first officers of the Association. (Adams)

The 2<sup>nd</sup> Biennial Meeting of the North American Association of Fisheries Economist was held in Williamsburg, VA. Adams served as a moderator for a session that addressed recent research on the economic impact of commercial and recreational fishing industries in the U.S. Service was also provided as a member of the Nominating Committee for the Charter Officers of the Association.

- 2.16 Continue to serve on the Scientific and Statistical Committees of the Gulf of Mexico and South Atlantic Regional Management Councils. Attend various meetings and provide economic input in the derivation and selection of management options. (Adams)

Membership on the Scientific and Statistical Committees (SSC) of the South Atlantic and Gulf of Mexico Regional Fisheries Management Councils continued through 2003. Three SSC meetings were attended that covered fisheries management plan amendments for reef fish and coastal pelagics. This activity provides an opportunity to ensure that economic considerations and current research findings are incorporated into the management decisions taken by the Councils.

- 2.17 Develop workshops and individual outreach activities on proposed fishery management actions that can have a major impact on local marine resources or fishermen. (Gregory)

One fisheries management workshop was conducted, at the request of the Governor's office, to help 50 shrimp fishermen evaluate the utility of various financial assistance programs available from the State. In addition, at least 25 different consultations with industry leaders and fishermen were conducted to explain proposed management measures and to explain stock assessment results. Similar information was presented through the mass media on nine occasions. (See 2.26 also.)

- 2.18 Continue to serve on the Scientific and Statistical Committees of the Gulf of Mexico and South Atlantic Fishery Management Councils. Membership will also continue on the Coastal Pelagics Stock Assessment Panel. (Gregory)

The Monroe County Sea Grant Marine Extension Agent was reappointed to the Gulf of Mexico Fishery Management Council Scientific and Statistical Committee, the South Atlantic Fishery Management Council Scientific and Statistical Committee and to the joint Gulf and South Atlantic Coastal Pelagics Stock Assessment Panel. In addition, Gregory was invited by the National Marine Fisheries Service to serve on two stock assessment review committees (SEDAR II – South Atlantic Black Sea Bass and Vermilion Snapper Stock Assessment Review Panel and SEDAR III – Gulf and South Atlantic Yellowtail Snapper and Goliath Grouper Stock Assessment Review Panel. (SEDAR = Southeast Data and Assessment Review).

Two Gulf of Mexico Fishery Management Council Scientific and Statistical Committee meetings were attended to review the 2003 red grouper stock assessment and the essential fish habitat draft amendment. FSG involvement indirectly led to a reassessment of red grouper that concluded the Gulf population was not over fished as had been previously determined. Gregory was also an invited participant to the black sea bass and vermilion stock assessment review panel meetings in Raleigh, NC and Cocoa Beach, FL for the South Atlantic Fishery Management Council and National Marine Fisheries Service and was an invited participant by the Gulf of Mexico Fishery Management Council and the National Marine Fisheries Service to represent the Scientific and Statistical Committee on the Yellowtail Snapper SEDAR Assessment Review Workshop to review and comment on the yellowtail stock assessment conducted by the Florida Fish and Wildlife Conservation Commission. Florida Sea Grant input was directly responsible for establishing the parameters that led to a conclusion that the yellowtail snapper fishery was healthy and not over fished after outside reviewers (from New Zealand, England and New England) had tried to make a case for the fishery to be over fished.

- 2.19 Develop two brochures that explain statewide and local bycatch allowances for lobster and stone crab trap fishermen. (Gregory)

The bycatch brochures were not produced during 2003.

- 2.20 Participate in Gulf of Mexico (GOM) Shrimp Summit that will address current economic, social and political problems affecting the GOM Shrimpers. (Adams, Gregory, Stevely, Sweat, Wasno, Spranger)

All six Sea Grant representatives attended the Gulf of Mexico Shrimp Summit, organized by Texas Sea Grant, in Houston, Texas. This summit meeting was attended by about 100 industry and government agency leaders, including members of the Mexican shrimping industry. The outcome of this meeting was a prioritized listing of industry concerns with possible solutions. Adams served as a note taker for all Sea Grant delegates and participated in a post-summit mail-out survey follow-up. Stevely served as discussion session recorder.

- 2.21 Continue to serve and execute duties as Executive Secretary of the Gulf and Caribbean Fisheries Institute. (Creswell)

The agent served as Executive Secretary to the GCFI, and in that capacity, was responsible for day-to-day activities of the Institute, which include responding to inquiries about fishery issues, provide information about GCFI conferences and publications, and distribution of the 54<sup>th</sup> GCGI Proceedings to members (200), 82 libraries, and three international scientific databases.

- 2.22 Conduct fish survival workshops for recreational fishermen, charter boat operators and fishing tournament organizers that address such topics as fish venting, circle hooks, proper handling and release, and fishery management issues. (Combs, Crane, Creswell, Diller, S. Jackson, McGuire, Novak, Stevely, Sweat, Verlinde, Wasno)

One hundred thirty-five anglers were taught proper fish venting techniques, catch and release practices, and learned the benefits of using circle hooks to minimize gut-hooking fish during fishing events and workshops. Of the 77 anglers who were taught fish venting practices, a mailed survey after three months indicated 66% said they used the tool while fishing.

The Monroe County marine agent conducted a one-hour presentation on catch and release fishing and demonstrated how to vent fish retrieved from deep water at the Breeze-swept Community Civic Association (15 in attendance).

The Manatee County agent and six volunteers staffed Sea Grant Extension exhibit featuring catch and release techniques at Florida Fishing College. A total of 210 venting tools were distributed as well as 195 newcomer fishing kits. Distributed 71 fish venting tools at two fishing tournaments (Fishing the Islands, Pete Turner Classic).

The Central Florida agent conducted fish survival workshops (circle hooks, fish venting) in Homosassa and St. Petersburg. Total attendees approximately 150.

The Santa Rosa agent provided 20 fish venting tools and instruction to local fishermen.

Fish Survival Workshops- The Lee County agent conducted proper fish release workshops at 10 fishing tournaments. Curriculum includes how to protect fish in the live well, how to handle fish, using circle hooks, how to properly vent fish. 2417 participants attended.

Over 100 participants at the 56th Gulf and Caribbean Fisheries Institute became familiar with the need to vent fish that are retrieved from depth and the proper use of the fish venting tool. Fifty fish venting tools were distributed to commercial and recreational grouper fishermen for their use. Fish venting tools were provided only to those fishermen that catch grouper at depth and expressed a willingness to use the tool regularly.

Weigh master (for the sixth consecutive year) of Annual Blue Water Open Deep Sea Fishing Tournament in Brevard County. Spoke at Captain's meeting about Monofilament Recovery program, and Clean Boating program (90 attending). Educated Tournament organizers, during post-tournament review meeting, on importance of FMRI wahoo research in future fishery management of this species, and importance of continuing to support this research during future tournaments (20 attending).

- 2.23 Continue to conduct educational programs and provide materials and technical assistance for the maintenance and development of artificial reefs off Florida's coast. (S. Jackson, Novak, Stevely, Sweat, Wasno)

Sea Grant Extension provided support to fledgling volunteer reef monitoring organizations in Okaloosa County. Sea Grant Extension organized a meeting with representatives from the Scuba-tech Dive Shop, Florida Fish and Wildlife Commission, Okaloosa County, Florida Sea Grant Extension, and Eglin Dive Club met to discuss opportunities for diver stewardship. Eglin dive club members initiated a website devoted to the discussion of Okaloosa County Reef sites, including visual reports from recreational dives. The site has been a successful tool with 139 members making 1281 posts in 16 forums. (<http://ecra.emeraldcoastboating.net>).

Okaloosa County Sea Grant Extension facilitated negotiations between user groups and regulators in December 2002 and January 2003. The results were a new Okaloosa County Ordinance governing private reef deployments. Improvements in private reef deployment procedures streamlined this process and allowed multiple deployments per inspection and permit. Charter boat representatives and regulators are reporting a high point of satisfaction, compliance, and stewardship among private reef builders. Private Reef Deployment Summary: 2002 Okaloosa County Private Reefs – 78 permits issued with 58 deployed – 305 units, 2003 (through November 2003) Okaloosa County Private Reefs - 57 permits issued with 36 deployed - 408 units

The Monroe County agent assisted a local homeowner with an application for dealing with the permitting process with FDEP and USACOE to install a reef ball mini-reef beneath his dock in Tavernier. He prepared supplemental information to FDEP, FKNMS, and the USACOE on the proposed artificial reef project.

Agents Stevely, Novak and Wasno, planned and coordinated the annual workshop for artificial reef coordinators and their staffs in Southwest Florida.

The Lee County agent conducted artificial reef educational presentations to local interest groups. Total participants are 562. Attended West Coast Artificial Reef Coordinators meeting in Sarasota.

- 2.24 Continue to assist team of researchers from Stanford University, Duke University, Monterey Bay Aquarium and the National Marine Fisheries Service on a national blue fin tuna tagging program. (Novak)

This work continued but no report included due to the untimely death of Rich Novak in January 2004.

- 2.25 Continue activities with REDstart, a redfish enhancement project at Tarpon Bay on Sanibel Island. (Novak, Stevely, Wasno)

The Manatee County agent chaired two meetings of the REDstart Scientific Advisory Board. Creation of the Scientific Advisory Board has pulled together technical resources from a variety of sources (Fish & Wildlife Commission, South Florida Water Management District, U.S. Fish and Wildlife, Sanibel-Captiva Conservation Foundation, Mote Marine Labs, Florida Sea Grant) to provide technical guidance for the REDstart Program.

REDstart Fisheries Enhancement Project- Successful release of first cycle of fish. These fish were released into a land-locked lake on USFWS Ding Darling National Wildlife Refuge. All fish were tagged and released with assistance from Florida Fish and Wildlife Conservation Commission, Sanibel Captiva Conservation Foundation, South Florida Water Management District and Mote Marine Lab. Volunteers scored 100% on technical survey on water quality analysis, determining fish feed rates and emergency management. Also presented results at the World Aquaculture Conference in Hawaii. Co-authors on this presentation included Sea Grant Agents LeRoy Creswell, John Stevely and Don Sweat.

- 2.26 Coordinate shrimp gear/TED workshops for local Shrimpers with Gary Graham, Texas Sea Grant, and Lindsey Parker, Georgia Sea Grant Fishing Gear Specialists to demonstrate new turtle excluder designs and discuss new regulatory requirements. (Gregory, Mahan)

At the request of the Governor's office we helped organize and chair a shrimp industry assistance meeting in Marathon. Fifty shrimp fishermen/businessmen attended and learned that existing social service programs were not useful in their current plight of low dockside prices caused by cheap shrimp imports from Southeast Asia. A series of newspaper articles were arranged for in the Miami Herald about the plight of the shrimp industry. A Turtle Excluder Device demonstration workshop was organized for 15 local shrimp fishermen. Invited speakers from Texas and Georgia Sea Grant demonstrated the changes needed to existing nets to comply with new regulatory requirements. Standard Marine Hardware hosted the meeting and is holding two demonstration TEDs for use by local shrimp fishermen. Special net webbing made from Dyneema synthetics was provided to Mr. James Phelps to test for Texas Sea Grant. This new webbing significantly reduces fuel consumption while fishing. Thirteen fishermen were assisted with permit and regulatory issues that required facilitation with a regulatory agency.

The Franklin County Agent worked with Dr. Gray Graham, Fisheries Specialist with the Texas A&M Sea Grant Program to teach a series of nine TED workshops/meetings over a two-day period in Franklin and Gulf Counties. A total of 44 people from Franklin and Gulf Counties participated in the workshop/meetings.

### **Goal 3: Develop the Food and Hobby Segments of Florida's Marine Aquaculture Industry**

- 3.1 Certain marine algal species make up an important part of the natural diet of Atlantic surgeonfish, which have economic importance in Florida, and are traded globally for the aquarium trade. An experimental diet that approximates the natural diet of these fish will be developed and tested. The goal is to develop diets that can be used to improve the health and management of Atlantic surgeonfish and to enhance efforts for captive propagation. (Francis-Floyd/ Philips/ Berzins/ Cardeilhac: R/LR-A-30)

This project encountered problems ranging from manufacturing experimental diets, changes in the availability of lab space suitable for replicated study and subsequent lab modification problems. However, this line of research still is likely to result in significant advancement. There is a great deal of interest in this work by the aquarium community, as tangibly demonstrated by Walt Disney World's willingness to invest in the project. The scientific community has also expressed significant interest. The project has demonstrated that diet affects growth rate of captive surgeonfish, that fatty liver syndrome does not seem to be a problem in fish fed the diets tested, and that HLLES-like lesions developed in fish fed one diet but not another. Success in demonstrating that either vitamin A or ascorbic acid are playing a role in these observations, will be a huge step forward. There have been almost no controlled studies on the effect of nutritional management on captive maintenance of reef fish. It is essential to improve longevity of captive specimens and a prerequisite for successful culture. There is every reason to believe that the scientists are on the threshold of making a major contribution to this new line of research.

Historically, the development of HLLES-like lesions is one of the most common health problems of captive marine fish, and acanthurids are an excellent model for this anomaly because they seem to develop the lesions relatively quickly. There have been numerous hypotheses proposed as the etiology of HLLES-like lesions, including nutrition, nitrate toxicity, stray electrical voltage and virus. Very little work has been done that has used controlled laboratory experiments, yet one of the most compelling papers on HLLES etiology involved a very small scale study evaluating ascorbic acid deficiency. The paper was very weak for a number of reasons including a very small number of animals, poor controls and premature death of the animals due to water quality problems. None-the-less, there was some intriguing data that were developed. The line of research currently in progress should provide a definitive answer as to whether that investigator was on the right track or not. That contribution alone will be a significant advancement to the field.

Two graduate and one undergraduate students worked on the project. Eight publications and four presentations were made with some at the request of major aquaria.

- 3.2 Depletion of bay scallops in the Eastern Gulf of Mexico is largely due to loss of seagrasses that form an essential habitat. Seagrasses are recovering, but bay scallop spawning stocks are at an all-time low abundance in Tampa Bay. The goal is to significantly advance developing hatchery-release technology to replenish bay scallop populations on the Florida West Coast and to test the relative efficiency of cage versus free-planting cultured scallops in the field. (Leber/Halstead/Arnold/Blake: R/LR-A-34 [TAQ-99-104])

Scallops planted in Sarasota Bay during 2000 grew rapidly and effectively doubled in shell height between late July and mid-October. Survival was poor especially between planting and the first sampling date in early September. Those scallops that did survive appeared to develop normally and spawn during fall as is typical for naturally occurring scallops in Florida waters.

A more coherent planting and monitoring effort was initiated during 2001, and the success was considerably improved relative to 2000 restoration activities in Sarasota Bay. Scallops were planted during spring, rather than summer, during the 2001 effort. Although shell growth was not rapid during 2001 relative to 2000, mortality was considerably reduced at two of the three study sites and over 30% of the scallops remained alive at those two sites by late August. Although those mortality rates appear high, they compare favorably with mortality rates reported for other scallop restoration projects.

Results indicate that scallops planted in Sarasota Bay initiated spawning during summer, suggesting that a large proportion of the scallops planted during 2001 had an opportunity to spawn prior to death. It was unfortunate that a severe bloom of *K. brevis* penetrated Sarasota Bay waters during early September and killed all of the scallops in the various treatment plots. Although no evidence of successful recruitment was detected during that time, these results support the feasibility of scallop restoration in Sarasota Bay.

Genetic assessment efforts did not produce positive results, but sample sizes were very small and essentially no recruits were collected. Linking recruits captured during late summer or fall, 2001, with adults planted during May 2001 would have provided the most direct and definitive evidence of a contribution from the planted stock to the wild population.

Future scallop restoration efforts in Sarasota Bay will benefit from a more careful, hydrodynamically based selection of planting sites. That approach will allow for a risk assessment of exposure to *K. brevis* and a hydrodynamic model also can be used to predict spatfall and from those locations chosen for deployment of recruit collectors. A hydrodynamic model of Sarasota Bay is available and should be applied to this task. Additionally, a more intensive recruitment monitoring program, closely linked to a genetic assessment effort, will be needed to better ascertain any contribution from the planted stock to the following year class. Otherwise, scallop restoration efforts should be continued in Sarasota Bay in an effort to determine if and under what conditions a viable bay scallop population can be returned to this urbanized coastal estuary. Results from bay scallop restoration programs throughout the eastern and Gulf of Mexico coasts of the United States indicate that success is a long-term proposition.

3.3 Clam aquaculture is currently focused on a single species. Diversification is needed to allow the industry to grow. This project will help determine the production feasibility of two marine bivalve species. Limited stocks of these species have prevented the development of major fisheries, but aquaculture could provide a source of seed for both species. This project will focus on spawning and larval rearing technologies. (Baldwin: R/LR-A-37-PD)

One hypothesis was that blood ark and ponderous ark clam seed can be obtained from a hatchery and subsequently reared to harvestable size by shellfish growers using culture methods similar to those employed by the hard clam industry. To test this hypothesis, early development events, embryonic and larval development were documented and described since little information exists on the reproductive cycle of these mollusks. The findings indicated that typical spawning techniques used in the hard clam hatcheries and the early embryonic development events of the blood ark, *A. ovalis* and ponderous ark, *N. ponderosa* are congruent with that of *M. mercenaria*. As a result, it is expected that these two native ark species could supplement current hard clam production with minimal operational changes in the early hatchery stages.

The UF Cooperative Extension Service and the Florida Sea Grant Extension Program each provided extension assistance via a network of specialists and publication distribution. Copies of the extension publication will be provided to agents in coastal counties. This report can also become an offering at the Florida Sea Grant web site ([www.flseagrant.org](http://www.flseagrant.org)). The findings of this project will provide information necessary for one to make an informed decision regarding



investing in the commercial culture of these alternative molluscan species. Interested shellfish growers will be able to compare the projected performance of ark clam culture with that of hard clam culture in Florida.

This project's goal is linked to that of USDA Special Grants project (Baker, Sturmer, Nunez and Creswell, 2001) which allows for an experimental shellfish hatchery to be established at the Whitney Lab, as well as preliminary investigation of ark clam to determine hatchery, nursery, and growout production in 2001-02. The USDA project and this Florida Sea Grant proposal do not overlap in terms of their specific objectives, but are complimentary to each other. This coordinated collaboration and partnership among the hard clam farming community, the University of Florida, Institute of Food and Agricultural Sciences, the Whitney Lab, and Florida Atlantic University was developed to focus and leverage available resources to enable the sustainable development of shellfish aquaculture. The results of both studies are expected to be combined into a hatchery manual for ark clams upon the completion of all research projects.

- 3.4 This study utilizes a novel approach to understanding key factors about a major problem in aquaculture. High mortality rates occur during the first-feeding stage of hatchery-reared marine fish larvae. Development of techniques that will increase the survival rate is critical. (Turingan/Coleman/Creswell: R/LR-A-38PD)

This is the first time that digital high-speed videography has been used to investigate the feeding performance of cultured fish or any aquacultured species. This state-of-the-art technology allowed the investigators to directly observe the interaction between the larval-fish predator and its prey. Based on the results of this study, pilot studies at a business will be conducted to explore the feasibility of scaling up the experimental nature of this study for the aquaculture industry. Recommendations for setting up the criteria for choosing the right copepod prey for a particular species and developmental stage of marine fish being raised in hatcheries have been proposed.

- 3.6 The 30<sup>th</sup> Joint Meeting of the U.S.- Japan Natural Resources (UJNR) Aquaculture Panel was held in Fall 2001 in Florida. The proceedings of the symposium on stock enhancement and marine fish aquaculture will be published. (Leber: PD-01-3)

The volume "Ecology of Aquaculture Species and Enhancement of Stocks: Proceedings of the Thirtieth U.S. – Japan Meeting on Aquaculture" was published in 2003 in the UJNR TP-128 series.

- 3.7 The objective of the 14<sup>th</sup> International Scallop (Pectinid) Biology and Aquaculture Workshop is to provide unique opportunities for researchers and managers to exchange new information. About 125 people from 25 countries are expected to attend the Conference to be held in Florida. University of South Florida researchers and Florida Sea Grant Extension faculty are organizing the conference. (Blake/Sweat: PD-01-08)

The workshop was attended by 122 participants from 21 countries. It was held in St. Petersburg April 23-29, 2003. Twenty two of the participants were students and awards were made to the students making the best oral and poster presentations. The book of abstracts of the 53 oral presentations and the 53 poster presentations was provided to each participant. Interest in scallops, which belong to the family Pectinidae, is rapidly expanding especially as the world demand for the meats has increased and natural stocks have dwindled.

- 3.11 A series of workshops will be held to demonstrate record keeping principles and practices to clam growers in Florida. (Sturmer/Adams) Conduct a nation-wide survey of agricultural and aquacultural organizations and associations, targeting the association's directors. The survey will assist the Florida hard clam growers as they intend to start their own association. (Adams, Sturmer)

The agricultural/aquacultural organization survey was completed. The findings have been published as a Final Report, with a version of this report to be published as a Sea Grant report. A summary workshop was held in Ocala, FL during October 2003, which was attended by approximately 50 individuals representing the shellfish culture industry in Florida. The findings of the survey have provided the shellfish culture industry with alternative organizational strategies some of which have been recognized by industry as having potential for a statewide shellfish growers association in Florida.

Taught clam growers how to use the CLAM software program during training sessions and individual consultations. Sessions were conducted on June 23, June 24, and June 25 in Cedar Key (Levy County); on October 2 in Carrabelle (Franklin County), on October 21 in Sebastian (Indian River County), October 22 in Cocoa (Brevard County), December 3 and 9 in Cedar Key (Levy County), and December 11 in Cross City (Dixie County). A free copy of the CLAM software program and a companion User's Guide was provided at these sessions. These efforts resulted in 42 clam growers, or 9% of the growers in that state, to better refine their business and record keeping practices through an understanding and adoption of computerized spreadsheets. In addition, 2 Sea Grant agents in counties (Brevard and Franklin) where clam farming is ongoing were trained in the use of the software program to provide support to growers in their area.

A mechanism was developed and implemented with which to obtain information from successful agricultural and aquacultural organizations in Florida and the nation. A 23-item descriptive survey was utilized to gather essential information from these organizations. A 35% response rate was obtained from 85 organizational representatives. The analyzed survey results were the basis of an extension-style report that provided information on the following categories: respondents, structures, revenue generating strategies, inter-organizational structure, membership, initial consideration for organizing, possible roadblocks, measurement of success, and recommendations from organizations. The report also revealed several options and alternatives the Florida clam aquaculture industry could evaluate in determining how to organize through a unified industry approach. These suggestions provide a starting point for industry leaders to consider, adopt or reject. Further, the report can be used in providing guidance and suggestions for other individuals or industries that are interested in organizing.

- 3.12 Complete the USDA-funded study that is developing a low cost investment strategy for inland shrimp culture in Florida. The study will provide an assessment of the investment and operating costs of a one-acre, dug-pond system. The final report will provide investors with a strategy for trying shrimp culture with a low-cost method. (Adams, Sweat)

This USDA-funded study is on-going, but scheduled to be completed by May 2004. The study has developed a pro-forma financial analysis for a hypothetical inland, earthen pond shrimp culture system. The system provides a low-cost, low-tech strategy for the culture of shrimp in low-salinity water in an inland environment. Given the current market conditions, however, the system is not financially feasible. Completion of USDA-funded study for inland shrimp culture in Florida not yet complete, but lacking only publication which is pending.

- 3.13 Participate in the Aquaculture America 2003 meetings in Louisville, KY. Present a paper on the economic impact of commercial hard clam culture in Florida. The paper will be included in a special edition of the Journal of Applied Aquaculture. (Adams)
- A presentation discussed the economic impact of the hard clam culture industry in Florida. The paper has been adapted into a journal article that is currently in-press with the Journal of Applied Aquaculture.
- 3.14 Participate in the World Aquaculture Association 2003 meetings in Salvador, Brazil, and co-present a paper that describes the Florida Sea Grant-funded study that assessed the market potential for culture sturgeon products. (Adams)
- A presentation was co-authored (given by former student Marco Palma) on the market potential for cultured sturgeon in the southeast U.S. This presentation was adapted into an article that was published in the popular journal Global Aquaculture Advocate.
- 3.15 Develop educational program, technical assistance and materials and provide educational support to local agents on sustainable hard clam aquaculture production throughout the state. (Sturmer)
- Continued to establish a network within those counties where clam farming is ongoing by working with county marine agents and providing technical assistance and educational materials. Efforts during the third program year focused on Charlotte County (Novak) and Lee County (Wasno) in southwest Florida where growers have faced significant crop losses and on Franklin County (Mahan) where new leases have recently been established. Continued to deliver educational workshops, demonstrations and research results, previously delivered only in the Big Bend area, to these other areas of the state. (3.15 and 3.16 are really the same)
- 3.16 Continue to establish an extension network in counties where clam farming is ongoing, or projected. Counties involved will include Levy, Dixie, Charlotte, Lee, Brevard, St. Lucie, Indian River and Apalachicola. (Sturmer, Novak, Wasno, Combs, Creswell, Mahan)
- The Franklin County Agent continued to network with UF-IFAS Clam Aquaculture Agent Leslie Sturmer to provide clam aquaculture education programs and technical assistance to the clam farmers in Franklin County. (see 3.28)
- The St. Lucie County Agent continues to work with clam growers as requested and to facilitate workshops conducted by the state-wide shellfish aquaculture specialist.
- The Brevard County agent worked with Sea Grant Clam Specialist, Leslie Sturmer to assist local clam farmers and hatchery and/or nursery facilities (approximately a dozen).
- 3.17 Continue to provide technical assistance to the 4-year Clam Lease Assessment, Management, and Modeling using Remote Sensing (CLAMMRS) project. This USDA-funded project allows for adoption of remote sensing technology for the clam aquaculture industry. (Sturmer)
- This year continued to work with clam industry members in an effort to make them aware of the CLAMMRS water quality monitoring stations located in 7 counties. Over 25% of the active growers in the Big Bend area reviewed the "real-time" continuous water quality data posted to a web site. With archived water quality data available for 2002-3 developed procedures to graph monthly data of selected parameters for each CLAMMRS station. These "farmer friendly" graphs were used by growers in comparing annual clam production and documenting crop insurance claims. In addition, participated in over 120 office visits, telephone conversations, and e-mail

discussions with clam farmers for the purpose of providing information on how to access the water quality data, providing monthly water quality graphs of archived data, how to interpret the values, and to discuss their implication on clam production. Growers are beginning to identify trends in environmental conditions critical to clam health and production. This information will let the industry begin to refine and improve management practices. The need to become efficient and cost-effective in making management decisions has become imperative as profit margins have become slimmer.

- 3.18 Provide technical assistance on the Expert Assistance and Distance Identification Network (EADIN), a USDA-funded project that establishes protocol and implementation procedures for the rapid distance identification of biological samples, specially focused on phytoplankton. (Sturmer)

With Department of Fisheries and Aquatic Sciences faculty (Phlips, Baker) continued efforts to develop a system and protocol for rapid identification of biological samples, in particular phytoplankton, through the EADIN: Expert Assistance and Distance Identification Network, a USDA-funded project. Microscopes equipped with digital imagery at both the Department in Gainesville and at the Shellfish Extension Office in Cedar Key were field-tested using the proposed protocol and samples were archived for future reference. Further efforts to implement this project have been stymied.

- 3.19 Establish a health monitoring program that will provide baseline information on important shellfish pathogens. (Sturmer)

Participated in a week-long (January 26-30) continuing education program, entitled "Health Management and Introduction to Shellfish Diseases," in which both public and private aquatic health professionals in the state were introduced to shellfish issues. In addition to conducting a workshop in Brevard County, specifically for the clam seed suppliers in the area; provided a tour of clam aquaculture facilities in the county for program participants. During lectures and "hands-on" laboratory sessions conducted at the Department of Fisheries and Aquatic Sciences provided samples of shellfish for program participants to dissect and initiate diagnostic procedures. Also provided a presentation on the current status of clam farming and a tour of commercial clam operations in Cedar Key. Public and private aquatic veterinarians gained expertise on current conditions and diagnostic techniques appropriate for support of the clam industry. Prior to this program, there were few trained shellfish pathologists in the state available to assist the industry. Through these efforts, a better understanding was also gained by the industry of ongoing diagnostic support as well as the development of a preliminary health monitoring program for Florida clams.

Provided aquatic veterinarians at the College of Veterinary Medicine (Francis-Floyd and Riggs) with samples of cultured clams from 3 growing areas in the state during February for a "winter" sample and during August for a "summer" sample. Baseline information on the presence and absence of important shellfish pathogens in Florida is being determined.

- 3.20 Develop and coordinate at least four water quality monitoring workshops for the clam farming industry. (Sturmer)

Although water quality monitoring workshops were not conducted this year, continued to work with clam growers in 7 counties in an effort to make them aware of the CLAMMRS water quality monitoring stations. About 30%, or 49 out of 170, of the active clam growers in east central Florida, southwest Florida and the Florida panhandle were keep informed of the latest information on the water quality monitoring equipment and weather stations deployed at their lease areas. Growers viewing water quality data are able to make immediate decisions on whether to plant

seed or transfer nursery seed based on current salinity and water temperature readings. Further, the weather information recorded at the lease areas allows growers to decide if conditions are favorable to work on their farm site.

Met with growers in Charlotte and Lee Counties and the county marine agent (Novak) to set up a volunteer team to assist in the efforts of the Department of Agriculture and Consumer Services field personnel in maintaining CLAMMRS stations at their lease areas and in collecting water samples for validation of the chlorophyll probes. Engaged four growers from southwest Florida, or about 5% of the industry located in this area, to participate. High fouling of the probes in this area requires timely changing of the sondes in order to obtain valid measurements of dissolved oxygen and other parameters.

- 3.21 Conduct six crop record keeping workshops for clam farmers. (Adams, Sturmer)

Reported as part of 3.11.

- 3.22 Provide technical assistance to the UF Whitney Lab to establish an experimental shellfish laboratory and initiate investigations of alternative molluscan species for possible aquaculture production. (Sturmer, Creswell)

This work has not been done. However, Leslie Sturmer continues to address questions by industry with respect to crop insurance programs in Florida.

Continued to assist Nunez with the Department of Fisheries and Aquatic Sciences and Creswell with Florida Sea Grant in conducting spawning, larval rearing and nursery rearing trials for ark clams at an experimental molluscan shellfish hatchery located at the UF Whitney Laboratory in a USDA-funded project. Further, continued to collect live ponderous and blood ark clams from several wholesalers across the state and hold for use as brood stock. These species, both promising aquaculture candidates, naturally set in clam bags at selected lease areas. Preliminary results were obtained by about 20%, or 5 out of 27, of the clam seed suppliers in the state. In addition, 3 growers are participating in the study by providing a portion of their lease and time in growing out the ark clam seed produced during these trials.

Utilizing skills learned from the St. Lucie County Agent, project staff collected broodstock of blood ark, *Anadara ovalis*, and ponderous ark, *Noetia ponderosa*, from clam leases in St. Augustine and Cedar Key, Florida, and successfully spawned them in the hatchery. The spawning process and larval development were videotaped to be used in the preparation of educational materials. Post-set juvenile arks were cultured in nursery tanks located at the hatchery. In the fall of 2003 seed arks were distributed to clam farmers on the Gulf of Mexico and Atlantic coast of Florida to evaluate growth and survival in hard clam growout areas.

- 3.23 Continue development of workshops and materials to shellfish growers who are participating in the USDA pilot crop insurance program. (Sturmer, Adams)

On 56 occasions met with growers, insurance providers, field supervisors and loss adjusters to review various crop losses and policy provisions. Information provided included water quality data from the CLAMMRS monitoring stations or meteorological data from the NOAA buoy stations. At the request of the USDA Risk Management Agency met with their staff and representatives from reinsured companies who service the clam policy in Florida to 1) discuss problems with the policy in the state, 2) consider how to deal with insurance claims, and 3) review risk factors and risk avoidance factors. Provided input on the identified issues of concern as well as issues identified by growers participating in the pilot program. Provided information at the request of RMA insurance specialists on current pricing information to use in adjusting actuarial

values. Reviewed proposed policy revisions, additions and endorsements drafted by RMA staff. Suggested provisions to RMA staff, for example grower experience and increased reporting requirements, that may assist in redirecting the program back to what it was intended to be. Informed all eligible growers of the significant changes to the pilot clam crop program for crop year 2004 through newsletter articles. Further, requested RMA staff to review policy changes at the 2003 Hard Clam Industry Meeting. Over 55 growers and 5 reinsured company representatives were provided with this information. Through technical support and serving as a liaison for clam growers involved in the pilot crop insurance program was able to assist the USDA RMA in making significant changes to the policy and actuarials. These will be under evaluation during 2004. The continuation of a sound program is necessary to assist clam growers in the event of catastrophic losses and ultimate adoption of a permanent program to benefit U.S. aquaculture.

- 3.24 Develop a shellfish aquaculture research and demonstration center in Cedar Key. This will be the first salt-water running laboratory on Florida's Gulf of Mexico that will allow UF faculty to address the research needs of the clam farmers. (Sturmer)

The construction of a shellfish aquaculture research and demonstration facility in Cedar Key was completed. Installation and fine-tuning the operation of a saltwater delivery system, an effluent discharge system, aeration system, and fiberglass tanks were also completed. The facility became operational this year, providing educational opportunities to tour groups, students, and others. In addition, the facility was used by university faculty and students as a remote field station. Research efforts underway are evaluation of genetic diversity in clam strains and development of alternative molluscan shellfish species for culture.

- 3.25 Conduct workshops and tours on the fundamentals of shrimp farming and specific technical and economic criteria established from data collected at the Ft. Pierce shrimp demonstration farm. Also present and publish results from demonstration project at professional association conference and publication. (Creswell)

Construction of the demonstration shrimp farm met with delays in construction engineering, permitting, and administration during 2003 so that stocking of the ponds has been delayed until spring 2004 (stocking later than July would not have provided a realistic representation of a shrimp production cycle at the site). Despite the delays, the demonstration aquaculture farm has made significant progress, and indeed, is being expanded for potential future use, including a nursery greenhouse and additional pond construction. Construction to date includes: 1) land clearing of approximately 15 acres; 2) construction of 5 acres of ponds; 3) pond interiors lined and berms sodded; 4) electrical systems and backup generator in place; 5) storage facility for equipment and feeds; 6) signage; and 7) 1,000 ft. artesian well. In-kind contributions to the project during 2003 exceed \$100,000. With completion of the nursery greenhouse, stocking of the ponds is scheduled for February 2004. Inquiries about shrimp aquaculture and the project have been sent materials, and a mailing list has been compiled for distribution at workshops scheduled in spring 2004.

- 3.26 Provide technical assistance that includes startup considerations to new and existing aquaculturalists in Florida and South Alabama. (S. Jackson)

Seventeen participants registered for the Growing into the Fish Business Aquaculture program in Crestview. Financial sponsorship for the event was provided by Three Rivers Rural Conservation and Development Inc. and the Yellow River Soil and Water Conservation District. Programming for this event was provided by Sea Grant Extension, Florida Division of Agriculture, and University of West Florida Small Business Support Center. Thirteen participants evaluated the program. All reported knowledge gained and overall satisfaction with the program quality.

- 3.27 Conduct annual Oyster Industry Workshop for oyster dealers, providing them with latest technology, products and regulations. (Otwell, Mahan).

The Franklin County agent helped coordinate and teach this year's FL Oyster Industry Meeting with Dr. Steve Otwell and Victor Garrido at the Hut Restaurant in Apalachicola in July. The focus of the meeting was post harvest treatment options that the industry can use to help reduce the illness rate of *Vibrio vulnificus* in Florida and the upcoming Interstate Shellfish Sanitation Conference. Fourteen oyster dealers from around the state attended the meeting.

- 3.28 Conduct workshops for new clam farmers who are developing their farms on new clam lease sites in the Apalachicola Bay. (Mahan, Sturmer)

The Franklin County Agent worked with Leslie Sturmer (UF/IFAS Shellfish Aquaculture Agent) to plan, organize and teach a series of three educational workshops for the 46 clam farming families in Franklin County and one workshop for the certified shellfish dealers in the county to introduce them to clams. An average of 14 farmers attended each of the workshop sessions. As a result of the dealer's marketing clams workshop, three of the dealers agreed to begin marketing Alligator Harbor clams.

Organized and taught 2 workshops on "The Basics of Handling and Harvesting Clams" in June at the FSU Marine Laboratory. 15 growers were introduced to the "rules of the road" that must be followed in these activities. Information on aquaculture certification requirements, shellfish harvesting classification and management plan for Alligator Harbor, boat and vehicle requirements, and other state and federal rules pertaining to molluscan shellfish was provided. Organized and taught 2 workshops on "The Basics of Processing and Marketing Farm-raised Clams" in August. Thirteen growers and 3 wholesalers were advised about current marketing efforts for cultured clams by staff from the Department of Agriculture and Consumer Services (DACS), Bureau of Seafood and Aquaculture Marketing and the regulations pertaining to harvesting, processing and distribution of clams by staff from the DACS Division of Aquaculture. The county marine agent (Mahan) hosted these workshops. About a third of the clam growers in Franklin County participated in these workshops. In doing so, the industry in this new growing area gained a better understanding of these activities.

- 3.29 Continue to provide local workshops and technical for potential and existing clam farmers. (Sturmer, Mahan, Novak, Combs)

(See 3.28 also.)

A forum held with clam growers, researchers and resource managers in southwest Florida during March opened up a dialogue among these groups to determine what information is available to clam growers, and discuss what clam growers may need to assist them in their business operations. It is anticipated that cooperation between growers and representatives of these institutions, universities and agencies in this area will continue as a result of this meeting in an effort to address the clam aquaculture industry's needs. As a way of follow-up to the March meeting, a written synopsis of each participant's program areas and activities was compiled and provided to 43 clam growers in Charlotte and Lee Counties. The report provides information on 12 universities, institutions, and agencies, specifically pertaining to whom to contact, what activities are being conducted, and how to access additional information via web sites. Further, through this forum created an awareness of research needs to address summer-related mortality problems and development of alternative management practices that can be applied to improve clam production in subtropical conditions.

The Brevard County agent coordinated Clam-industry tour and Clam-disease Workshop with

Leslie Sturmer and Dr. Smolowitz (MIT) (38 participants), participated in clam aquaculture management seminars with Sea Grant Clam Specialist, Leslie Sturmer, in Micco and Cocoa (25 clam farmers). Continue working with local clam farmers, clam hatcheries/nurseries.

- 3.30 Continue to participate in regional and national Interstate Shellfish Sanitation Conference committee meetings to provide technical support to the industry. (Mahan)

The Franklin County Agent attended the Interstate Shellfish Sanitation Conference's Biennial Meeting in Portland, Oregon. During the meeting the agent provided technical information to Gulf of Mexico oyster industry representatives and participated in committee assignments (Biotoxin, Post-Harvest treatment, Education, and *Vibrio vulnificus* Education Subcommittee). A total of 175 people from the ISSC's 28-member states in addition to members representing shellfish producers, regulators and scientists for Canada, Japan, Korea, New Zealand, and Taiwan attended the conference.

- 3.31 Provide educational programs on aquaculture to local k-12 teachers. (Creswell, Mahan, Stevely, Sturmer)

This program was not conducted due to a change in science teachers at Apalachicola High School. The new science teachers at the school were not interested in doing aquaculture education.

The Aquaculture Agent assisted the Fish and Wildlife Conservation Commission staff, the Suwannee River Water Management District staff, and the City of Cedar Key by providing educational materials and displays on clam farming for various school groups touring Cedar Key. Continued to assist the Cedar Key High School Marine Biology class in maintaining small plots within the Levy County management lease agreement in the Gulf of Mexico for farming clams. Participated in Career Fair at the Hilltop Alternative School in Bronson. Provided a 1-page description about the occupation of clam farmer with information on educational requirements, skills level, related jobs, and salary range to 35 high school juniors and seniors. Finally, introduced 20 juniors and seniors from the Alle High School to clam farming by giving a presentation and a tour of several shore-based commercial facilities in Cedar Key.

The St. Lucie County Agent did not complete this objective due to lack of funds for teacher in-service training.



## **Goal 4: Improve the Product Quality and Safety of Florida's Seafood Products**

- 4.6 Convened an industry Steering Committee to develop handbooks on HACCP and “variances” for retail processing of foods. Participants include representatives from most major retail supermarket chains (Krogers, HEB, Wal-Mart, Publix, Winn Dixie), various national trade associations (Food Marketing Inst., National Restaurant Assoc., Assoc. Food & Drug Official, Conf. Food Protection, and National Food Processors Assoc.), and individual expertise from selected state agencies and academic programs (over 12 universities involved). Six Retail Advisories (Sushi, Smoked Seafood, Reduce Oxygen Packaging, Fresh Juices, Fresh Cut Produce and Specialty Meats) are currently in development through assigned Subcommittees. The anticipated products will be made available in text and on the AFDO website for use by all segments of the nation's retail industry that are processing foods in retail settings, plus for guidance of regulatory programs in every state. (Otwell)

The project was completed with production of 9 Guides for Processing of Foods in Retail Operations. The Guides include advice, illustrations and recording forms to direct commercial retail practices in processing of Sushi, Smoked Seafood, Reduced Oxygen Packaged Seafood, Fresh-cut Produce, Fresh Juices, Cured & Smoked Ham, Cured & Smoked Sausage, Fermented & Dried Sausage, and Beef Jerky. The Guides were compiled, reviewed and indorsed by technical advisory committees including participation by major, national and regional supermarket chains (Krogers, Wal-Mart, HEB), including Winn Dixie and Publix based in Florida; plus the respective regulatory programs with federal and state based authority (FDA, USDA and numerous State Departments of Agriculture), the retail trade associations (Food Marketing Institute, National Restaurant Association, etc) and collaborating academic expertise.

The Guides are being posted on the national website for the Association of Food & Drug Officials (AFDO) for reference by all state agencies and pertinent retail operations.

- 4.7 Trials continue with post harvest treatment (PHT) methods in actual commercial settings in Apalachicola, FL to determine potential utility in Florida. A survey of the entire Florida oyster processing industry has been completed to assess commercial capacity to adopt mandated PHTs. Methods under investigation include freezing, high pressure, cool pasteurization and irradiation. (Otwell)

The oyster PHT program involves significant efforts in advancing the implementation of mandated post harvest treatment methods to reduce potential microbial pathogens in oysters destined for raw consumption. Accomplishments to date include: 1) completion of an industry survey to record the initial capacity for PHT in current operations. The survey will serve as the benchmark to measure industry performance in order to meeting pending regulatory goals dictated through 2008. The initial survey indicates the Florida oyster industry will be able to comply with the first regulatory goal for potential PHT capacity set for December 2005. The project is ahead of regulatory expectations; 2) an assessment of all existing and potential PHT options has been completed relative to the values and character of oyster operations in Florida. The results suggested freezing as the most appropriate approach if it can be employed in a manner to effectively reduce the pathogens at a reasonable cost. The assessment involving site visits the existing PHT operations and performance calculations. The compared results were given to the industry and the commercial advisory board for the project in support of decisions to proceed with freezing trials. 3) validation of freezing methods, both ultra –freezing and blast freezing as appropriate methods to suit the commercial character in Florida have been proceeding monthly since Summer 2003. Results indicate certain cost-effective freezing methods will suit regulatory guidelines. Commercial adaptation is addressing issues involving storage and economics of

marketing from a frozen inventory; 4) technical support is being established with the design and location of a microbial certification lab in Apalachicola. The build space for the lab was provided by the Franklin County Commissioners through cooperation with the County Extension Director & local Sea Grant Agent, Bill Mahan. The lab services are intended to provide evidence for commercial performance in the order of certificates that can accompany commercial invoices. The utility of this lab is beginning necessary verifications with rapid analytical procedures, i.e., real time PCR, in collaboration with FDA and the FL Department of Agriculture; and 5) concurrent sensory assessments for the PHT oysters involve a very extensive Sensory Profile project funded by the Interstate Shellfish Sanitation Program (ISSC). University of Florida is heading the project with collaboration from Louisiana State University, Mississippi State University, and Oregon State University. This collaboration is being maintained by a first-every-attempted 'virtual sensory training' program based on internet connections during the Fall 2004. This form of virtual training could set the stage for future collaborative sensory programs for all seafood across USA.

4.8 Conduct annual international Shrimp School for industry and agencies. (Otwell)

The Annual UF/Sea Grant Shrimp School included attendance by 30 participants representing 20 processing firms from 9 nations with shrimp commerce based in the USA. The school was taught jointly with the FDA. The school is recognized as the leading school for education and training in shrimp quality and safety about the world. The school has been invited to conduct similar sessions about the nation and world. Attendance for 2004 and 2005 already exceeds available space. The UF Shrimp School represents the benchmark for training about the nation and world.

4.9 Conduct annual hard Clam School for industry and agencies. (Otwell)

No clam school conducted in 2003.

4.10 Conduct annual Oyster School for industry and agencies. (Otwell)

Oyster schools are provided quarterly as project progress reports in conjunction with the PHT project and as part of the periodic meetings for the Industry Advisory Board for the Oyster PHT projects funded by the USDA.

4.11 Continue role as National Coordinator role for the Seafood HACCP Alliance that has provided seafood safety training for all federal FDA seafood inspectors in the nation, most state based inspectors and over 90% of all nationally based seafood processing firms, plus over 5,000 international participants from 30 nations. The training now includes the traditional 3-day HACCP courses and 1.5 day sanitation courses taught biannually in Florida, plus a special one-day support course taught for individuals that complete an established Internet course developed by the Seafood HACCP Alliance based at Cornell. (Otwell)

The Seafood HACCP Alliance remains the national training program for mandated HACCP for seafood processing and importing in the United States. Training through 2003 occurred in every state in the nation, every USA territory, and over 20 nations shipping seafood to the USA. The course in both classroom settings and through the internet serves as the benchmark for seafood HACCP training for any seafood commerce and it satisfies mandatory training requirements for inspectors in both the State and Federal regulatory programs. The Alliance HACCP publications, based and distributed from the University of Florida with coordination with the FL Sea Grant Program, remain the most successful and demanded UF/IFAS publications.

- 4.12 Continue to serve on a technical committee developing an innovative, interactive Internet system recently titled, “Fish Port” (based on main frame – ECOPORT). This technology support system is being developed in collaboration with FAO/World Health Organization. The next meeting and developments occur in Iceland in June 2003. (Otwell)

The FAO “FishPort” program remains in the development stages. The FL Sea Grant Seafood Specialist serves on the Technical Board of Program Directors trying to advance the program across international users. Planning meetings were held in Rome during September 2003.

- 4.15 Continue in leadership positions with number of seafood technology organizations. (Otwell)

- 4.15.1 National Seafood HACCP Alliance, 2001-2003, National Coordinator
- 4.15.2 Seafood Sciences & Technology Society of the America’s, Executive Director
- 4.15.3 U.S. Representative to International Assn. of Fish Inspectors
- 4.15.4 National Academy of Science’s Committee on the “Use of Scientific Criteria and Performance Standards for Safe Food.”

All listed assignments (4.15.1 – 4.15.4) required attention through 2003.

- 4.16 Coordinate workshops and seminars at local festivals that provide home seafood consumers with seafood safety information. (Sweat)

Presented seafood consumers with seafood safety information at Homosassa and Cortez seafood festivals and St. Petersburg Boat Show.

## **Goal 5: Increase the Economic Competitiveness and Environmental Sustainability of Coastal Water-Dependent Businesses**

5.3 There is a need among state and local decision makers to achieve effective sustainable development solutions that resolve conflicts between boating and the environment of Florida's urban bays and waterways. This project will develop Geographic Information Systems (GIS) technology to educate decision makers, planners, and the boating industry. (Spranger/Swett: PD-01-4)

The program goal was to provide science-based information, planning models, innovative tools and methods to state and local decision-makers that help balance waterway use with coastal resource conservation. Applied research and outreach, combined with Geographic Information Technologies (GIT) were used to educate state and local decision-makers and planners about the impacts of the boating public, and to provide potential solutions in conflict areas. Several efforts were completed using a multidisciplinary team that included geographers, biologists, planners, and marine extension agents.

I. Develop and disseminate boating guidelines used to implement anchorage and waterway plans that protect critically endangered resources while allowing for sustainable use.

A) A Five-Year (2002-07) Strategic Plan was developed for the West Coast Inland Navigation District (WCIND). The plan presents goals and objectives for priority areas that encompass the broad range of WCIND responsibilities to the Southwest Florida community as mandated in Florida Statutes, Chapter 374 (2000) and Florida Laws 98-526 (1998). The document was developed with the dual purpose of providing 1) agency planning guidance, and 2) the public with an easy to read and understandable document that describes the many community benefits derived from maintaining waterways and beaches.

B) Three Regional Waterway Management System instructional workshops were held for personnel from the Florida Department of Environmental Protection (FDEP), including the Environmental Administrator, Aquatic Preserve managers, Environmental Specialists, and Biologists; the Executive Director of the West Coast Inland Navigation District; and county representatives. The FDEP has adopted the regional waterway management system protocol through a memorandum of understanding. An outcome of the system will be to reduce maintenance dredging permitting delays and expense while minimizing environmental impacts.

C) A Regional Waterway Management System workshop was held to instruct the Lee County Natural Resources Manager and five staff, and the Executive Director of the West Coast Inland Navigation District, on the methods used to collect field data, the information content of the GIS datasets delivered, and the analytical results obtained. The Lee County Division of Natural Resources uses, on a daily basis, the Florida Sea Grant Regional Waterway Management System and the accompanying geographic information data sets to prioritize their management activities, the siting of waterway signs, and planning for maintenance dredging in the most ecologically sensitive and cost-effective manner possible.

D) A Marine Protected Areas needs assessment focus group facilitated by the NOAA Coastal Services Center was attended. The goal of the focus group was to identify current needs of and possible roles for a National Marine Protected Areas Center.

E) Two workshops were conducted to determine existing data needs and applications for boat and boater information: at the Florida Wildlife Conservation Commission Florida Marine Research

Institute in St. Petersburg and at the International Game Fish Association Hall of Fame in Dania, Florida. Attendance totaled 50 individuals representing a wide range of interests that included law enforcement, county government (natural resources, tax collectors,) inland navigation districts, the marine industry association, and private data vendors. The results obtained from the workshops and the coalitions formed will be used to implement changes in the way that boater information is collected at the state and county level.

F) A 'data rescue' project titled "Information Resources (IR)-Coastal Data and Information: A Coastal Data Server System for the Gulf Intracoastal Waterway and Adjoining Bay Waters of Southwest Florida," which is sponsored by the NOAA Coastal Services Center was initiated.

G) ArcView GIS training in coastal resource management applications was provided in Fort Myers to staff members of the Florida Department of Environment South District and to Aquatic Preserve managers. Ten persons were in attendance. The training is part of a process to develop a Noticed General Permit for maintenance of Lee County waterways that is based on three completed applications of the Regional Waterway Management System in Lee County.

II. Prepare detailed evaluations of the current state of Florida's recreational anchorages and waterways; to monitor rural, suburban, and urban locations; and to design management tools, such as water use zones, to reduce negative environmental impacts and conflicts between boaters and shore residents.

A) The fourth phase of the Charlotte Harbor Recreational Boating Characterization, for the Florida Wildlife Conservation Commission Florida Marine Research Institute was completed.

B) A project was initiated to determine the utility of Florida's Vessel Title Registration System (VTRS) to accurately locate vessel and characterize boat populations in Florida (See 5.4).

C) The State of Florida added a new administrative code "Chapter 62-341.490 Noticed General Permits for Dredging by the West Coast Inland Navigation District (WCIND)." The rule applies to fifty Manatee and Sarasota county trafficsheds with high priority maintenance dredging needs as identified in four FSG applications of the Regional Waterway Management System: TP-83, TD-1, TD-2, and TD-2a. To qualify for the general permit, the rule explicitly states that environmental restoration or enhancement projects must comply with the science-based procedures and methods of the FSG Regional Waterway Management System (RWMS) outlined in the four FSG technical documents listed above. The general permit will result in savings in real dollars and staff time.

III. Prepare comprehensive waterway system management plans.

A) Two separate applications of the Regional Waterway Management System (RWMS), which address a principal waterway management issue in Florida—balancing phenomenal growth in the boating population with conservation and management of coastal and marine resources were completed. The third and final phase of the Lee County RWMS was completed, covering the Caloosahatchee River and adjoining canal systems and tributaries; the remaining portion of Manatee County was finished for Bishop Harbor, the tidal Braden River, and the upper Manatee River. Both counties and the WCIND were provided with GIS applications, information, tables, and maps for approximately 343 miles of navigable waterways, 15,524 boats, 31,692 moorings, 15,815 shore facilities, 3,553 boating-related signs, and channel centerline depths. The RWMS provides the counties with a planning tool and decision options to prioritize and evaluate management alternatives on a regional scale.

B) Completed a manual of methods and procedures for the Regional Waterway Management System (RWMS) that details the necessary procedures to complete a RWMS for Florida's coastal canals and waterways. The purpose of the Regional Waterway Management System is to provide the WCIND and coastal counties with a scientific approach that allows for boat channel maintenance while protecting resources.

C) A project sponsored by the NOAA Coastal Services Center to enhance and standardize field collection methods for bathymetric data was completed. This standardization will assist the coastal resource community's management of southwest Florida's waterways. The goals of the project were to 1) enhance and standardize the bathymetric data collection procedures in use by the West Coast Inland Navigation District and Florida Sea Grant during prior implementations of the Regional Waterway Management Project; 2) to provide a reliable and recurring source of bathymetric data for areas not covered by NOAA surveys, while ensuring the data meet NOAA standards for inclusion on NOAA nautical charts; and 3) to evaluate survey equipment and procedures for use by third-party organizations such as the Coast Guard Auxiliary or U.S. Power Supply Squadrons when collecting bathymetric data for the West Coast Inland Navigation District or the Florida Sea Grant.

IV. Develop educational materials, including maps and related products, that foster stewardship and a better understanding of boating geography, and that encourage better resource use practices.

A) 4000 copies of A Historical Geography of Southwest Florida Waterways, Volume 2: Placida Harbor to Marco Island were published. This new book (FSG document SGEB-56), a companion to Volume 1: Anna Maria Sound to Lemon Bay (SGEB-47), published in 1999, extends the first volume's study area seamlessly to the south and up the Caloosahatchee River. The emphasis is on Pine Island Sound, Charlotte Harbor, Estero Bay, Naples, Marco Island, the Caloosahatchee River, and 17 inlets. Content includes historical development of waterways, inlet dynamics (with detailed maps and histories of the presently open passes), altering the Caloosahatchee for land and water development, and how historic maps are used in modern computer systems. Copies were provided to elected and appointed officials and state/county/municipal government staff in the area.

B) A pilot study mapped the historic extent of oyster reefs in Little Sarasota Bay for the Sarasota Bay National Estuary Program (SBNEP).

C) A project concept was developed to improve the navigation/habitat river/waterway management system for the Caloosahatchee River/Okeechobee Waterway. There are some 40 detached, remnant river meanders and oxbows in a state of deterioration due to poor water circulation and upland land use. The system is in a collapse mode due to low water levels in Lake Okeechobee, which have also restricted cross-Florida boat traffic. The Okeechobee is a federal project under the aegis of the U.S. Army Corps of Engineers, but there is no local sponsor. Lee County staff were assisted in developing a resolution that the Board of County Commissioners adopted, calling for Lee County as local sponsor, and requesting the Florida Congressional Delegation to direct the Corps of Engineers to undertake a reconnaissance survey of the waterway. The County has also requested assistance from FSG and the Southwest Florida Regional Planning Council in coordinating management and institutional networking elements. This effort was undertaken with the collaboration of the Caloosahatchee River Citizens Association (River Watch) and the Southwest Florida Marine Industries Association.

5.4 Complete a 17-month collaborative effort with local, regional, and State entities, including the Fish and Wildlife Conservation Commission, Florida Marine Research Institute (FMRI); the Florida Marine Patrol; and the Marine Trade Association of Florida, to enhance the content of and linkage between existing databases, such as the Florida Vessel Title Registration System, for use

in inventory, management, and planning tools. The techniques to be developed have the potential to replace or augment existing field survey methods used for the Regional Waterway Management System. (Swett, Sidman: R/C-P-25PD)

The study area encompassed over 12,000 salt-water accessible parcels in Lee and Manatee Counties. For the study, a total of 5023 vessels were logged during on-the-water boat censuses and 6970 VTRS records were linked to study area parcels based on vessel owner mailing addresses contained in the VTRS and physical address information contained within county parcel and street reference datasets. VTRS records that corresponded to on-water-census (OWC) vessels were determined based on registrant information and OWC vessel characteristics logged in the field, such as bow numbers and vessel make/model. Overall, the congruency proportion for the study area was approximately .438—that is, a perfect match between the VTRS record and an OWC vessel occurred 43.8% of the time. The propensity for VTRS/OWC congruence was statistically similar in both counties. A link to a VTRS record was established for 84% of OWC vessels; in contrast, a corresponding link was established for only 44% of the 6970 VTRS records. The results, in conjunction with the phone survey described below, indicate that the VTRS was more reliable in capturing a greater proportion of the boat population that resided within the study area.

A telephone survey of 490 respondents provided the basis to estimate, for the study area, the proportion of the boat population that (1) the VTRS accurately reflects, (2) the proportion that the VTRS would miss, and (3) the proportion that would result in false positives (e.g., boats improperly assigned to the study area). Population proportions were derived for five separate cases to allow for better assessment of the VTRS. Case one observations included instances when a VTRS record geocoded to the physical address of a study area parcel (or street), but no corresponding OWC was logged; Case two observations included instances when an OWC vessel was logged at a parcel, but no corresponding VTRS record geocoded to the parcel physical address; Case three treats situations where a VTRS record matched the characteristics of an OWC vessel (e.g., vessel registration number), but geocoded to a different location; Case four includes instances when a VTRS vessel record matched a parcel owner's mailing address (as opposed to the parcel physical address), but no corresponding OWC boat was logged at the parcel; and Case five includes 'null' parcels—those parcel where no OWC vessel was logged and to which no VTRS record was linked by either the parcel physical address or the parcel owner's mailing address.

An analysis of the telephone survey results indicates that the VTRS can be relied on to provide the correct geographic location (e.g., parcel where the vessel is moored) for 80-82 percent of the boat population that normally would be kept within the study area. Using the VTRS, an additional quantity of boats (6-7%) would be incorrectly assigned to the study area (false positives).

The results demonstrate that the VTRS is a more than adequate replacement for an on-the-water census (OWC) of boats, as described below. There were 4104 OWC vessels for which a draft value was recorded (DRAFT), thus allowing them to be used in the draft analysis; 3024 matched a VTRS record (DRAFTC) and 1080 did not (DRAFTNC). The distributions of all three populations were determined to be non-normal and they appeared largely uni-modal and positively skewed. There was no statistical difference at the 95 percent confidence level in the means, medians, or distributions when comparing all OWC vessel drafts (DRAFT) to the subset of OWC vessels that matched a VTRS record (DRAFTC). The same result held when comparing vessel drafts within each of 43 trafficsheds (boat source) located in the study area. In all cases (i.e., trafficsheds), there was sufficient statistical evidence to suggest that the means, medians, and distributions of the variables DRAFT and DRAFTNC were not significantly different from one another at the 95 percent confidence level.

Two workshops were held to determine existing VTRS-related data needs and applications for boat and boater information; one in St. Petersburg and the other in Ft. Lauderdale. Attending were 50 individuals representing a wide range of interests that included law enforcement, county government (natural resources, tax collectors,) inland navigation districts, the marine industry association, and private data vendors. Four principal types of information requirements/issues were identified: vessel locations, data standards and consistency, data accessibility, and vessel ownership patterns.

Workshop participants suggested a few strategies to obtain boat- and boater-related information. Most strategies mentioned will not succeed alone, but need to be implemented in concert with other approaches. Accessing vessel registration information through the DHSMV is a cumbersome process. A potential solution is to provide on-line web access to VTRS information. If the DHSMV is unable to institute this solution, a possible remedy is for a third party entity, such as Florida Sea Grant, to establish an agreement with the DHSMV and provide an access point to vessel information. Prior to employing such a strategy a number of topics need to be addressed: including potential legal ramifications and implementation costs. Caution was urged before attempting to request additional information during the vessel registration process. Some participants argued that too much information is currently requested when registering/renewing vessels. A suggested solution is to encode more data (e.g., draft, make/model) within the hull identification number (HIN). This would reduce the amount of information that is requested directly from registrants and, theoretically, would help standardize and increase data reliability.

To provide information not contained within the VTRS, potential linkages (cross-references) to other databases should be explored. Commercial databases (e.g., BUC, ABOS, Boats.com) often have detailed vessel information that may be accessed by linking key fields (e.g., make and model) contained within the VTRS.

Alternative methods to collect information at the county or state level should be examined. Potential efforts, which can be implemented as pilot studies, include supplemental information forms with registration mail-outs or implementation of Web-based registration forms that include voluntary input of information.

There is a diversity of groups whose support will be necessary to implement changes in current data collection techniques. Resistance is to be expected and, thus, a marketing/public relations effort will be necessary to demonstrate the need for and benefits of any proposed changes. An objective of the workshops was to develop a statewide coalition to 'champion' the cause that includes participants from various sectors, such as law enforcement, marine industry, homeland security, resource management, tourism, tax collection, and the insurance industry.

Specific recommendations include the following:

Owner Address: A boat owner who changes address is required to provide the State with the new address and check the Address Correction box on the decal renewal form. If the box is not checked, the new address will not be recorded in the State file. Eliminate the box and always check to see if an address has changed.

Propulsion: Categories are not mutually exclusive. Example—a common class of sailboat is auxiliary-powered. The classification allows for sail (only), inboard, outboard, but no combination (i.e. sail inboard, sail outboard). Allow for combinations.

Manufacturer Name—Limitless variations in the spelling of the manufacturer names exist in the VTRS. This impedes linking the State file with BUC and other national boat indexing systems, and with marine internet databases. Standardize the naming convention.

Location: Include the street address where the boat is located for wet slip boats, or the principal waterway and ramp used by trailered boats.

Type: Characterize boat into meaningful pleasure boat categories (e.g., row, day sail, cruise sail,



race sail, speed, fish, cabin cruise, etc.)

Draft: Make entry of draft mandatory. Include Sail (fixed keel, centerboard (up/down), power (idle, plane)).

Use: Power engine hours (month/year); sail days (month/year).

Address elements: Separate out address elements when entering the data within the VTRS. Conform to standard US Postal service address elements (prefix, house number, etc).

Error checking: Implement error checking routines where possible (e.g. suffixes, street names, etc.)

The project analysis provided a statistically valid assessment of the proportion of the boat population within coastal residential canals and waterways that can be accurately mapped using the Florida Vessel Title Registration System. In particular, the project provides measures that allow the use of the VTRS for planning and management applications that require knowledge of vessel locations and characteristics. The availability of this information is important given the rapid increase in the number of boats in Florida and their environmental impacts and social effects. Comprehensive, up-to-date, accurate, and spatially-referenced boat population data facilitates planning efforts to sustain Florida's economic vitality and natural environment, while allowing for recreational boating uses. Prior efforts to characterize the boating population, boat-use patterns, and boat locations in Florida have relied on expensive, time-consuming survey methods that include aerial surveys, mail and telephone surveys, and on-the-water censuses by GPS-equipped field crews. The study proves that the VTRS can be a reliable and cost-effective source of spatially-based boating information. In particular, the study demonstrates that the VTRS is preferable to an on-the-water census for categorizing coastal boat populations.

- 5.7 A sample survey of recreational boats in prominent Manatee County marinas and waterways will be completed to (1) determine rates of change in the location and types of recreational vessels and (2) categorize the transient boater population. (Swett, Sidman)

A sample of vessels inventoried as part of the Manatee County Regional Waterway Management System were resurveyed, using an analysis of 1990 U.S. Census Data to select a stratified sample of Manatee County boat trafficsheds on the basis of socio-demographic considerations. Over 2500 vessels were re-surveyed within 15 canal systems and at 13 prominent marinas. The survey information is being used to (1) update existing boat locations and characteristics, (2) add the locations and characteristics of 'new' boats or boats not present during the initial census, and (3) determine rates of change in the location and types of vessels. The resurvey is part of a research effort, funded by Florida Sea Grant and the Florida Marine Research Institute, to determine the utility of Florida's Vessel Title Registration System to accurately locate and characterize Florida's boat and boater populations (See 5.4).

- 5.8 Cooperative work with the Florida Marine Research Institute will be completed by conducting a boating characterization study for Tampa and Sarasota Bays. The study will include a survey of 8000 recreational boaters to estimate boat traffic potential for Tampa and Sarasota Bays as a function of trip origins, destinations, and travel routes. (Sidman, Swett)

A Recreational Boating Characterization for Tampa and Sarasota Bays was completed. This project goal was to characterize the preferences, activities, and use-patterns of Tampa Bay and Sarasota Bay boater populations. A map-based questionnaire was mailed to a random sample of 6800 area boaters. The boater population was stratified first by County (Sarasota, Manatee, Hillsborough, Pinellas) and second, by trip origin type (marina wet-slip, dry-storage facility, ramp, private dock). Over 2000 questionnaire recipients marked the start and end point of their last two recreational boating trips, traced their travel routes, identified their favorite boating destinations, and the primary activities that they engaged in while at a particular destination. Data collected from returned surveys was digitized into a GIS. This information is to be used for

resource management and planning applications, and as the basis for developing map-based products intended to improve boating experiences and instill resource stewardship.

- 5.9 A workshop will be held in support of a National Sea Grant initiative to develop a national strategy on dredging shallow draft harbors and waterways. Workshop objectives are to (1) build a constituency and gather information about the dredging needs for shallow draft navigation projects, (2) add information to state-of-the knowledge reports, (3) and gather ideas and input to a proposed national dredging strategy. (Swett)

Rhode Island Sea Grant, project leader for the National Dredge Initiative, opted to conduct a Web-based questionnaire to obtain stakeholder input instead of hosting regional workshops.

- 5.10 Technical and scientific support will be provided to local, regional and state governments, in implementing regional waterway management efforts. Thirty community leaders will be educated through three workshops, one extension bulletin, five meetings with state and local governments, and 15 individual consultations and meetings. (Swett, Antonini)

a) Florida Sea Grant and the Tampa Bay Estuary Program hosted a workshop for regulatory and governmental personnel from the Tampa Bay area (30 present). The purpose was to present and discuss the historical and contemporary waterway analysis methods developed by Sea Grant for southwest Florida and the implementation of General Environmental Resource Permitting for maintenance dredging by the state of Florida. A roundtable discussion was held to consider the application of Sea Grant methods in the Tampa Bay region. As a result of the workshop volume three of the Historical Geography series was to be produced for the Tampa Bay area.

b) ArcView GIS training in coastal resource management applications was provided in Fort Myers to staff members of the Florida Department of Environment South District and to Aquatic Preserve managers. Ten persons were in attendance. The training is part of a process to develop a Noticed General Permit for maintenance of Lee County waterways that is based on three completed applications of the Regional Waterway Management System in Lee County.

c) Extension bulletin: The Boating and Waterway Management Program: Working for Sustainable Boating and Coastal Communities. SGEP 151, Florida Sea Grant.

- 5.11 The Florida Sea Grant model for waterway management and state policy modifications will be presented at a special National Sea Grant session of the Coastal Zone 2003 conference titled Dredging for Recreational Ports and Harbors: Changing the Policy Paradigm. (Swett)

“Florida Regional Waterway Management Model, A New Approach,” invited presentation at Coastal Zone '03, Baltimore, 13-17 July 2003.

- 5.12 Presentations on boating related coastal waterway management will be made at the Biennial Coastal GeoTools '03 Conference in Charleston, South Carolina. (Swett, Sidman)

“Determining the Utility of Florida’s Vessel Title Registration System to Characterize Florida’s Boat and Boating Populations,” presented at GeoTools '03, Charleston, South Carolina, 6-9 January 2003.

- 5.14 A Florida Sea Grant extension bulletin will be developed to show the benefits of undertaking waterway improvements statewide using Notice General Permit and regional waterway management approach. (Swett)

Bulletin was completed in 2004.

- 5.15 A conference sponsored by Florida Sea Grant, the Southwest Florida Marine Industries Association, and the West Coast Inland Navigation District will examine the problems and issues in providing water access and maintaining water dependent uses in Florida's coastal areas. (Spranger)

A two-day conference was held in November 2003 on Captiva Island. More than 100 resource managers, marina operators, coastal property owners, boaters and developers attended this meeting. Attendees come from all parts of Florida, and five states. Discussions are now underway to hold a regional or national conference on the issue in 2005.

"Recreational Boating Characterization for Tampa and Sarasota Bays," presented at the Water Access—Water Dependent Use Conference, Sanibel Island, Florida, 6-7 November 2003.

- 5.16 Continue working with Clean Boating Partnership that will establish 100 clean marina designations and 25 clean boatyard designations in 2003. (Combs, Crane, Creswell, Diller, S. Jackson, McGuire, Novak, Stevely, Sweat, Verlinde, Wasno Spranger, Jackson).

Participated as member of the Clean Boating Partnership State Advisory Committee. Attended quarterly meetings of the partnership and served as member of the education, marketing and promotion committee. In 2003 78 clean marinas and 23 clean boatyards have been designated, with more than 130 in process. (Spranger)

The Dade County agent worked with Miami-Dade County marinas and a total of eight marine facilities have implemented one or more of the program's BMP as measured by phone survey and site visit. After a workshop and several site visits, two marinas are ready to become certified as "Clean Marinas: in Miami-Dade County. They were certified officially in February 2004.

The Escambia County agent was speaker at a Clean Marina/Boatyard Workshop for marinas in the Florida Panhandle. Assistance was provided by Rod and Reel Marina in Pensacola as they worked to achieve designation. Best management practices were taught for boaters and free lifejackets provided to those who signed the Clean Boating Pledge at the Pensacola Boat Show.

Don Jackson attended all quarterly meetings of the Clean Boating Partnership, chaired the Visions Committee, and made presentations on two topics (1. Monofilament Line Recycling Containers – 200 now being constructed and paid for by the CBP, and 2. Presentation on bilge socks - \$35,000 worth now purchased and being distributed through clean marinas statewide).

The Monroe County agent provided Hurricane Hole Marina with Clean Marina materials and assistance with making progress in obtaining a "Clean Marina" designation.

Conducted seven Clean Marina site visits and participated in four Clean Marina reviews. Represented Sea Grant and spoke at six Clean Marina Designations in NE Florida. Made Clean Marina presentations to Florida Association of Environmental Professionals (NE region) and Leadership Nassau. The Clean Marina Program was included as part of another 37 presentations to a variety of audiences.

The Central Florida agent provided information to Magic Manatee Marina to assist them in procurement of Clean Marina designation.

Provided Clean Marina information to Santa Rosa Boat and Yacht Club. The marina was designated a clean marina in 2003.

Clean Boating Partnership- Conducted eight marina reviews with program partners Florida Dept of Environmental Protection and Marine Industries association-Ft Myers. Three marinas were designated Clean Marinas in Lee and Collier Counties. Conducted an open-house style workshop for all marinas not involved in the program. Twenty-seven marinas attended the day-long workshop. All marinas attending signed the marina pledge card towards becoming a Clean Marina.

The St. Lucie County Agent participated in two "recruitment" workshops attended by marina managers and served on four evaluating teams for designation of clean marinas and boatyards. Workshops were conducted to introduce marine and boatyard operators to the "Clean Marina Program", establish certification criteria, and distribute program literature. Follow-up visits were conducted for each facility that entered the 18 month program. A certification inspection was carried out by the agent, Florida DEP staff, and a representative of the Marine Industries Association, followed by a public designation program.

Clean Marina program, Brevard Sea Grant: (1) Patrick Air Force Base, Manatee Cove Marina, was designated a Clean Marina/Clean Boatyard. Assisted Mr. Steve Pepper, Brevard County Asst. County Manager in drafting a Resolution, for the Brevard County Commissioners, resolution recognized the five clean marinas and two clean boatyards in Brevard County. Each facility was presented large, framed Resolutions by Commissioners. Provided on-going assistance to approximately a dozen local marinas as they pursue Clean Marina/Clean Boatyard designation. Obtained commitment from Brevard County Commission Marine Advisory Council (BCCMAC) to include specific identification of Clean Marinas on charts in their Brevard Boating Guide, to be published soon. Working with Clean Boating Partnership and Rockledge High School in grant-funded (\$2500 from Clean Boating Partnership) purchase of materials, and construction by 80 Rockledge High students of up to 100 Monofilament Recovery bins, to be awarded by Clean Boating Partnership to Clean Marinas around the state of Florida. Invited "Presenter" concerning Clean Marina Program (with co-presenters, Jan Delaney and Charles Johnson, FDEP/DLE) at annual Pollution Prevention Conference, Orlando, approximately 100 attendees educated.

- 5.17 Develop and distribute a manual for boaters that will provide information on how to prepare their boat for severe storms or hurricanes. (Crane)

A 17 page Hurricane Manual for Marine Interests for recreational boaters was developed with a grant from the Miami-Dade County Office of Emergency Management. The manual includes information on the nature of hurricanes as well as actions to take prior to, during, and after a hurricane strike. The manual also includes a boat owner's preparation checklist, resource directory for Law Enforcement and Marine Patrol, drawbridge operational procedures, and hurricane storm surge evacuation zones for Miami-Dade County. 14,000 copies have been distributed to marinas, boatyards, boating and fishing clubs, marine supply stores, and at boat shows.

- 5.18 Continue developing educational programs and materials on impacts of feeding large fish to pelicans at marine-related facilities. (Crane)

Pelican posters printed on 5-gallon yellow buckets were given to boaters/anglers at boat ramps and fishing events. Of the 72 anglers who responded to a mailed survey, 43% said they had gained knowledge on not to feed large fish bones to pelicans. About 133 English and 16 Spanish pelican

posters were distributed to marinas, boat ramps, and other marine facilities. Volunteers distributed an additional 200 signs to bird/wildlife hospitals and sanctuaries statewide.

- 5.19 Develop a recreational guide that will educate boaters about local waterway issues, such as manatee zones, shorebird nesting areas, right whales, and exotic species, while also providing them with a navigational aid for boating. (McGuire, Novak)

Prepared text and secured funding for a boater and angler guide for Duval County. Continuing to work with FMRI to develop the complete guide.

- 5.20 Design a boater component to the Florida Yards and Neighborhoods Program. (Stevely, Antonini)

During 2003 Dr. Antonini and Stevely arranged for approximately \$120,000 for production of Volume 3 (Tampa Bay) of the Southwest Florida Watering Historical Geography series. This was to provide an important resource to augment the Florida Yards and Neighborhoods Program. Due to tragic death of Dr. Antonini in early 2004, the future of this program is uncertain. Not completed.

## Coastal Ecosystem Health and Public Safety

### Goal 6: Protect and Enhance Coastal Water Quality and Safety

- 6.3 Pursue resources to support an in-service training program for extension agents on specific aspects of how activities in watersheds affect water quality (Jacoby)

*Watershed water quality: non-point source pollution IST 23036* attracted 25 county faculty who work on agriculture, natural resources and coastal issues. The IST raised the participants knowledge by 30% according to pre and post-tests, and faculty will use this information to create educational programs (38%), address watershed issues in counties (25%), and address regulatory issues (19%). Participants agreed on the need for further in-service trainings, which are being planned.

- 6.4 Explore partnerships with education and outreach personnel from the Water Management Districts, National Estuary Programs and National Estuarine Research Reserves. (Jacoby)

Several meetings were held to discuss potential partnerships. Partnerships were formed to create extension products and activities dealing with coastal issues associated with the Comprehensive Everglades Restoration Plan and invasive species.

- 6.5 Develop an interdisciplinary workshop for extension agents that focus on the rural/urban issues. (Jacoby)

*The urban-wildland interface IST 23009* was held. It attracted 20 county faculty and generated a set of recommendations to be used by developers of the Harmony subdivision.

- 6.7 Work with volunteers and local community leaders to develop water quality monitoring programs. (Diller, S. Jackson, Verlinde)

Stormwater education was presented to Blue Angel Lake homeowners association in Pensacola. The association was assisted in joining the Florida Lakewatch Program as a way to sample and monitor water quality in their lake.

The Okaloosa/Walton County agent is serving as an Ex-officio member advising citizens serving on Coastal Dune Lakes Advisory Board and has provided educational opportunities to interact with citizens where they live, (i.e. presentation to the Eastern Lake Homeowner Association) both for the agent and Choctawhatchee Basin Alliance (CBA) Water Quality Volunteer Coordinator. Support and organization of this board has led to a proposed second site for a FYN landscaping model for the Coastal Dune Lakes at Camp Creek. Currently, all 17 Coastal Dune Lakes in Walton County are consistently being monitored each month by volunteers. Monitoring provides important base-line information as these lakes are subject to the pressures of additional tourism and development. The coordinated LakeWatch/CBA program is in its second year of existence and has received funding for 2003 operation from the Walton County Board of County Commissioners, along with Grant funds from US Fish and Wildlife, and private donations from the Northwest Florida Planning Foundation, Seaside Institute, and private citizens. The volunteer position and volunteer program were the result of collaborative efforts between Sea Grant Extension and CBA in 2001.

The Santa Rosa County agent provided Lakewatch water quality sampling training to homeowners of the Ski Watch subdivision. Continue to coordinate Lakewatch sample and supplies collection and drop offs, in addition to supporting the program through literature distribution, etc.

- 6.8 Continue regional fish extension activities that focus on topics of derelict fishing traps, mercury in fish, shrimp management, marine protected areas, essential fish habitat and fish management. (Adams, Creswell, Diller, Gregory, S. Jackson, Mahan, McGuire, Novak, Spranger, Stevely, Sturmer, Sweat, Verlinde, Wasno)

Mike Spranger served as P.I. for regional fish extension efforts. FSGEP faculty named above continued development of education and outreach activities on identified topics.

A presentation was made on the Pensacola Recreational Fisherman's Association local cable television show. Proper fish venting techniques and other catch and release methods were demonstrated and fish management questions were answered. A shark education program was presented to various community groups.

Sea Grant Extension collaborated with Okaloosa Family and Consumer Science Extension to provide support and assistance to the Governor's Office. Information was provided to commercial shrimping clientele to help them as they confronted hardships related to depressed wholesale prices.

The Northeast Florida agent represented Florida Sea Grant on the US Fish and Wildlife Service's Manatee Entanglement Working Group which made recommendations to the FWCC regarding derelict crab traps and cleanups.

The Central Florida agent met with blue crab producers (fishermen) in area of responsibility to discuss FWC management plans and derelict traps.

The Santa Rosa County agent attended Mercury in fish presentation by Alabama/Mississippi Sea Grant Consortium.

Fish Extension Activities- Coordinated Boca Grande Pass Clean-Up (April 2003). Two-day event that had a total of 57 divers and 28 captained boats remove debris from the bottom of this famous tarpon fishing spot. Over 7,250 pounds of debris was collected and properly disposed of. An educational workshop was held for all participants on proper identification and reporting protocol for the invasive green mussel. I have also been elected President of the Boca Grande Pass Enhancement Fund, Inc. Funding agencies included South Florida Water Management District, Mote Marine Lab, Florida Guides Assoc. Boca Grande Guides Association and private donations.

Three monofilament recycling containers were installed along high-use boating and angling areas, along with appropriate signage in St. Lucie County.

- 6.9 Obtain funding from Florida Fish and Wildlife Conservation Commission's Marine Research Institute to continue longitudinal survey on sponges in the Florida Bay, and provide workshops and presentations at several professional organizations. (Stevely, Sweat)

In addition to the TED and oyster industry meetings/workshops the Franklin County Agent organized and taught a number of fishery management-related workshops this year. These included; NOAA's Blue Crab Trap – Dolphin Interaction Meeting; Blue Crab Processing Residue Disposal Options; Southeastern Shrimp Industry Antidumping Petition; Shrimp Fishermen/Families Assistance Workshop; Shrimp Skimmer Trawl Workshop; Calico Scallop

Management Plan; In addition; the agent wrote six newspaper columns (circulation 6,000) on fisheries-related topics including mercury in fish and shrimp management issues.

The Central Florida agent, with John Stevely, procured funding and contract from FWC to provide them with annual update of commercial sponge abundance in Florida Bay. Presented findings at Florida Bay Conference, Gulf and Caribbean Fisheries Institute and Maricuba 2003 (Havana, Cuba).



## Goal 7: **Protect, Restore, and Enhance Coastal Ecosystem Habitats**

- 7.4 Invasive species represent a serious challenge, with tradeoffs related to accidental and purposeful introductions. Preliminary estimates indicate that problem species cause annual losses of \$179M in sales and expenditures of over \$90M on management. This workshop will summarize all work on invasive species, determine needed public services to deal with them, prioritize approaches to provide the service and develop an overall management strategy. (Jacoby: PD-02-07)

This program was attended by about 70 individuals from key agency and academic programs. A report of the meeting includes a description of priorities to address problems with invasive coastal species.

A workshop, *Invasive species: where we are and where we're going*, was held. It attracted 75 participants from educators, researchers and managers from universities, governmental agencies, non-governmental groups, and private consulting firms. A set of priority projects was developed, with a focus on education and outreach. A report was distributed to participants, and the priorities have guided further work on educational materials.

- 7.8 Florida coastal counties have proceeded mostly independently of one another to build artificial reefs that in aggregate represent about one-half of the national total. The practices of counties for monitoring reef performance and reporting data, including by means of Geographic Information System (GIS) practices will be characterized as the first step in developing procedures to coordinate regional comparison and application of reef evaluation data. (2003). (Seaman)

Of 35 coastal counties, 32 operate artificial reef programs. Of these, 22 actually monitor reefs. Their practices were characterized in this project, and summarized in a manuscript.

- 7.11 Form a working group that deals with invasive species in Florida's saltwater systems. (Jacoby)

A working group was not formed because state level governmental agencies planned to form such a group.

- 7.12 Develop a one-day in-service training workshop on marine invasives for Extension agents. (Jacoby, Spranger)

A training session on invasive species was held for ten FSGEP agents. In turn, these agents used information and materials to develop local programs on invasive species. (see 7.13)

- 7.13 Conduct local workshops for K-12 teachers and interested citizens on marine invasives. (Combs, Crane, Creswell, Diller, S. Jackson, Mahan, McGuire, Novak, Stevely, Sweat, Verlinde, Wasno)

A six-hour teacher workshop for K-12 teachers and environmental educators on invasive species (plants and animals) affecting South Florida ecosystem was held. Knowledge gained was determined by an increase from 60% pre-test score to an 80% post-test score for 16 participants who completed the workshop and each earned 8 Teacher Education Credits and a \$50 stipend.

The Escambia County agent received marine invasives training from Florida Sea Grant and used the training to conduct a marine invasive workshop for secondary teachers in Escambia County on January 6, 2004.

Sea Grant Extension led teaching and restoration efforts at Turkey Creek, a coastal wetland servicing Choctawhatchee Bay. In three events, participants were taught how to identify and control invasive non-native plants. Information on marine invasives was also presented.

Participants included workers from the Cities of Niceville and Valparaiso, Okaloosa County Master Gardeners, USDA Earth Team Volunteers, and Horticulture Students.

The Franklin County agent did not teach an invasives workshop this year. However, a newspaper column on invasive species (6,000 circulation) was written. In addition, the agent was interviewed three times by local mass media on invasive species (The Apalachicola/Carrabelle Times, The Franklin Chronicle and WOYS Radio).

Facilitated three FWCC educator aquatic collecting permit workshops (exotic species are discussed as part of these), conducted a teacher workshop at Florida School for the Deaf and Blind which included activities involving invasive plants and animals.

The Santa Rosa County agent presented an aquatic nuisance species presentation for 21 in-formal educators at a Project WET workshop.

This object was not achieved in 2003. Several workshops are being advertised for spring/summer 2004. (Creswell)

Workshops on marine invasives throughout Brevard County: (1) Ten multi-agency workshops mandated by Florida State Legislature for commercial clambers, held during 2003, 82 clambers educated (2) Educated ten members and three professional staff of Brevard County Commission Marine Advisory Council about marine invasives problems in Brevard County (3) Ongoing project with Citizens for Florida's Waterways (CFW), Florida Inland Navigation District, and Florida DEP in adopting Bird Island in Mosquito Lagoon to address invasive exotics (Brazilian pepper) removal and replacement with native plant species, CFW active membership approximately 75. (4) Two presentations (in Micco and Titusville) on marine invasive exotics as addressed by Clean Marina program (30 citizens educated). (5) Four 4-H marine science field trips (40 participants), (6) Boy Scout field training including invasive exotics (60 participants) (7) National Estuary Day table-top display concerning Marine Invasive Exotics (500 citizens) (8) Riverwalk field trip (55 participants) (9) County fair displays, 585 educated over 10 days (10) 4-H Marine Ecology Contest at Camp Ocala (91 participants from 10 counties).

- 7.14 Work with Dr. Kevin Johnson, Florida Institute of Technology on studies of marine plankton in the Indian River Lagoon (IRL) that may help in early identification of invasive species that could pose a threat to the IRL ecosystem. (Combs)

Worked with Dr. Kevin Johnson, FIT, on IRL marine plankton, no local Sea Grant activity in 2003.

- 7.15 Develop coastal restoration programs such as sea grass planting, dune restoration and beach renourishment that will improve coastal ecosystems. (Crane, Creswell, Diller, S. Jackson, McGuire, Verlinde)

Volunteers with the United States Department of Agriculture – Natural Resources Conservation Service “Earth Team” partnered with Sea Grant Extension to restore dunes and beaches at Beasley Park in Fort Walton Beach. In conjunction with Earth Day, volunteers installed native vegetation including panic grass and sea oats. Local ABC Affiliate Television Station WEAR reported the activities. USDA media reporters recorded the event to provide future public service announcements and instructional information.

Walton County 4-H and area Boy Scouts relocated several sea oat plants from a local residence. The resident offered the plants for restoration after they became a nuisance. As an alternative to herbicides and plant destruction the plants were transferred to a local county park, which has

critically eroded beaches. Expert advice and additional plant materials were provided to the youth by Dr. John Hovanesian of Coastal Native Plant Specialists in Milton, FL. The project was successfully completed under the guidance of Florida Sea Grant Extension agent Scott Jackson and Choctawhatchee Soil and Water Conservation Service Agent Tommy Hinote.

With UF/West Florida Research and Education Center researches received \$4000 for 2004 dune restoration project from UF School of Natural Resources. Grant funds were matched with \$3000 from Santa Rosa County. Continue to support Project Greenshores, a habitat restoration project in the Pensacola Bay System. In 2003 the project received one of ten national Coastal America Program Partnership Awards. Coordinated two stream restoration workshops for 48 agency personnel and private consultants.

Through initiation of the mangrove restoration program. Several hundred mangroves were planted in the Indian River Lagoon in 2003 and are currently being monitored. During two summer camps students planted native plants on spoil islands from which invasive plants had been removed.

- 7.16 Provide technical assistance to National Estuary Programs and local governments in the implementation of Comprehensive Conservation and management Plans. (Stevely)

Chaired six meetings of Sarasota Bay National Estuary Program Technical Advisory Committee and attended four Management and Policy Committee meetings. This involvement resulted in the development of the annual work plan and progress in reorganizing the Estuary Program as an independent organization. Presented results of technical work on mapping oyster reefs to provide guidance for oyster reef restoration program to be conducted in 2004.

- 7.17 Continue working with the Florida Institute for Saltwater Heritage (FISH), a Cortez community-based organization to purchase and preserve 95 acres of environmentally sensitive lands, as well as continue to assist in coordination of the 2003 Cortez Commercial Fishing Festival. (Stevely)

Assisted in planning (ten planning meetings) and conducted educational program for the 21<sup>st</sup>. Annual Cortez Commercial Fishing Festival. The Festival is the major source of income for the purchase of FISH Preserve. The 2003 Festival generated approximately \$45,000 in profit. To date, approximately \$190,000, has been raised towards the total purchase price of \$250,000. Additionally, approximately 1,200 citizens participating in educational presentations increased their understanding of local marine resource management issues. As a result of a presentation to the Sarasota Bay National Estuary Program Citizen Advisory Program, the Estuary Program has committed to helping sponsor the 2004 Festival.

## **Goal 8: Prepare and Respond to Coastal Storms**

- 8.6 Assistance will be provided Sea Grant Extension programs in Washington and Oregon in planning outreach efforts for the Pacific Northwest NOAA Coastal Storms Initiative. (Don Jackson)

Traveled to Astoria, Oregon to meet with Sea Grant Extension personnel who will be involved with the Pacific Northwest Coastal Storms Initiative at the mouth of the Columbia River. Also met with these same people in Washington, DC for the same purpose – to pass on information and experiences based on the St. Johns River Watershed study that may be useful in their work in the West.

- 8.7 Florida Sea Grant Extension will continue its second year outreach activity as a component of the Southeast Atlantic Coastal Ocean Observing System (SEA-COOS). The four Sea Grant programs (North Carolina to Georgia) are cooperating in this regional project. The goal is to establish a dialog with non-scientific users, identify their information needs and the preferred formats and moods of information delivery. Florida will train its extension faculty, focus on regional groups (e.g., ports, hazards) and local sectors (e.g., fishers and emerging response offices), host sector workshops and convene three instate meetings with user groups. (On-going). (Spranger/Jackson/various county faculty)

Poster presentation was provided at SEACOOS meeting in Charleston, SC to 350 attendees, to tie the NOAA Coastal Storms Initiative efforts to those of SEACOOS. (Don Jackson)

The Monroe County participated in a Florida Sea Grant statewide meeting in Gainesville to plan educational programming for the Southeast Atlantic Coastal and Oceanic Observing System (SEACOOS) and Florida marine invasive species. The SEACOOS is a federal effort to substantially increase the number of moored ocean observing systems to aid with weather prediction and to monitor other environmental factors relevant to ocean research.

(1) Served as member of planning committee for semi-annual SEACOOS meeting held May 2003 in Jacksonville, FL. (2) Conducted training session on SEACOOS for Extension faculty in August, 2003. (3) Had educational display and informational materials at annual conference of the Florida Association of Extension Professionals in September, 2003. Over 300 Extension Faculty attended the conference. (4) Initiated hiring process for a SEACOOS Educational Coordinator, working with SG Extension Program Leaders from NC, SC and GA. A national search was undertaken. Final candidates were interviewed in early January, 2004. The position was filled in February, 2004. (Spranger)

The Northeast Florida agent represented Florida Sea Grant at SEACOOS planning meeting, serving on SEACOOS education subcommittee.

The Brevard County agent participated in SEA-COOS meetings in Charleston, Jacksonville and Gainesville.

## Education and Human Resources

### Goal 9: Produce a Highly Trained Workforce

9.1 A minimum of two qualified applicants will be submitted annually to the Sea Grant John A. Knauss Marine Policy Fellowship national competition. Over each five-year period, an average of one Knauss Fellow per year (of 30 nationally) will be from Florida. (Cato: E/ST-26; E/ST-27; E/ST-28)

For the 2004 Class of Fellows, five (of 7) applicants were submitted. One was chosen to receive a fellowship.

Chosen: Carl Childs (FSU)  
Submitted: Patrick Gensler (FSU)  
Mark Black (UM)  
Kelly Denit (UM)  
Jocelyn Karazsia (UM)

From 1999-2003, a five-year period, seven Fellows from Florida have been selected, an average of 1.4 per year.

9.2 At least one national Sea Grant Industrial Fellow candidate (of 2-4 per year nationally) will be successful every three years. (Cato)

There was no Industrial Fellows competition during 2003.

9.3 At least 25 percent of the annual Florida Sea Grant federal core program research budget will be used to support graduate students. (Cato)

For 2003, 43% of all research funds supported graduate students (see Section 7).

9.4 A minimum of five graduate students will receive scholarship funding through private funds in cooperation with the Aylesworth Foundation for the Advancement of Marine Science and the Old Salt Fishing Club. (Cato)

A total of three students were on Aylesworth (2) and Old Salt (1) Scholarships during 2003. The total was below the goal due to reduced endowment income resulting from the 2001-02 decline in the stock market.

9.5 One high school student will receive a college scholarship through the Chuck Skoch Florida Sea Grant Scholarship. (Cato)

One high school senior (Eric Thomas) received a one-year scholarship and enrolled at Lake City Community College.

9.6 A minimum of \$400,000 per year in non-national Sea Grant CORE program funding will be received from extramural funding sources to support Sea Grant programs. (Cato)

A total of \$874 thousand in non-core Sea Grant funds were received in 2003.

9.7 Florida Sea Grant will participate in National Strategic Investment, National Outreach and National NOAA/Sea Grant proposal competitions when available. Funding data will be analyzed to measure the success rate of Florida Sea Grant against the other Sea Grant programs. (Cato)

See Section 10.0 (Self Evaluation), 1.B., for the analysis.

9.8 At least 15 different academic disciplines and six different Florida universities and research laboratories will receive Florida Sea Grant funding in each proposal cycle. This can only be achieved through the encouragement of competitive proposals from many participants because peer review determines actual funding. At least six institutions participating in Florida Sea Grant will be visited each year to meet faculty and students to keep a high level of participation in Florida Sea Grant. Six faculty progress reports will be distributed annually to 800 faculty statewide to inform them of Sea Grant activities and opportunities. (Cato/Seaman)

For the 2002-03 core Florida Sea Grant two-year program, seven of the 15 participating institutions were successful in competing for research funds.

Florida Atlantic University	Nova Southeastern University
Florida Institute of Technology	University of Central Florida
Florida State University	University of Florida
Harbor Branch Oceanographic Institution	

A total of 14 different academic departments and about 12 different disciplines are receiving funds.

Agricultural and Biological Engineering (UF)  
Biology (UCF)  
Biomedical (HBOI)  
Chemistry (FAU)  
Chemistry and Biochemistry (FAU)  
Civil and Coastal Engineering (UF)  
Civil Engineering (FIT)  
Environmental Horticulture (UF)  
Fisheries and Aquatic Sciences (UF)  
Food Science and Human Nutrition (UF)  
Mechanical and Aerospace (FIT)  
Oceanography (NSU; FSU)  
Pharmacology and Therapeutics (UF)

Analysis of faculty receiving funding in Florida Sea Grant  
Core program research competition, 2002-2003

	2002 - 2003	
	Number	Percent
Total Number of Investigators Receiving Funding	31	
Investigators <sup>a</sup> Receiving Funding in the Previous Two-Year Core Program	11	35
Investigator <sup>a</sup> Profile		
Male	25	81
Female	6	19
Investigator <sup>a</sup> Academic Rank		
Professor or Above	11	35
Associate Professor	4	13
Assistant Professor	10	32
Post-doc	0	0
Other <sup>b</sup>	6	26

<sup>a</sup> Includes Principal Investigators, Co-Principal and Associate Investigators.

<sup>b</sup> Includes such academic titles as senior scientists (at research labs), lawyers and veterinarians (at professional schools, etc).

A total of nine campuses were visited, with the visits ranging from meeting faculty to discussing funded research or potential research to attending FSG seminars or presenting seminars on FSG opportunities. Campuses visited were Florida International University, University of Miami, Florida Atlantic University, Mote Marine Laboratory, Florida State University, University of Central Florida, University of North Florida, University of South Florida. Four of the nine had not been visited during 2002.

In addition, a statewide meeting of Sea Grant Campus Coordinators was held in 2003. All 16 institutions were represented as well as the National Sea Grant College Program Office (Dr. Jim McVey).

Six bi-monthly faculty progress reports were written and distributed.

- 9.9 An average of four Florida Sea Grant supported seminars will be funded annually as a way to increase the skills of faculty and students in ocean and coastal related academic disciplines. (Seaman/Cato: PD-03-1)

Five seminars were sponsored in 2003:

Harbor Branch Oceanographic Institution  
Florida's Red Tide: A Whiff, A Sniff and a Sneeze  
Daniel G. Baden  
University of North Carolina at Wilmington

University of Florida  
Ecolabeling Seafood Products: A Market Approach to Fisheries Management  
Cathy A. Roheim  
University of Rhode Island

Florida Gulf Coast University

Genomics, Salmonids, and the Promise of Improved Diagnostics and Therapeutics

Christopher J. Bayne

Oregon State University

Pfiesteria of Fungus? Biototoxicity and Pathology in Fish Exposed to *Pfiesteria shumwagae*

Jeffrey Shields

College of William and Mary

Florida Institute of Technology

Simultaneous Hermaphroditism in *Lysmata* Shrimps

Raymond T. Bauer

University of Louisiana

- 9.10 A minimum of two qualified applicants will be submitted to the NOAA Coastal Services Center Competition each time it is held. (Cato)

Only one applicant was received in 2003. Ms. Rebekah Walker (NSU) was submitted and won placement with the South Carolina Office of Ocean and Coastal Resource Management.

- 9.11 Conferences, workshops and travel to conferences and workshops will be supported for Florida Sea Grant researchers and potential researchers and Florida Sea Grant Extension and Communications faculty. The activity will be supported when consistent with priorities in the Florida Sea Grant Strategic Plan: 2002-2005. (Cato/Seaman: PD-03-2)

During 2003, five faculty and others attended conferences or workshops using program development.

- 9.12 There is a need for qualified, affordable help to assist in providing environmental education programs at parks, beaches and elsewhere in Florida. The Florida Master Naturalist Program (FMNP) training develops knowledge, critical training and interpretive teaching skills to assist in environmental education statewide. This project will assist in developing the coastal module of FMNP. A minimum of eight instructors and 120 coastal naturalists will be trained. (Main: PD-02-5)

Four videos were developed for the Florida Master Naturalist Program Coastal Module.

- A. Florida's Coastal Uplands
- B. Florida's Estuaries
- C. Florida's Nearshore Environment
- D. Coastal Systems and Modern Human Society

Twelve instructor-slide presentations on CD-ROM for the Florida Master Naturalist Program Coastal Module were developed.

- A. Ecology of coastal systems
- B. Marine and estuarine habitats
- C. Coastal dune systems
- D. Marine invertebrates I
- E. Marine invertebrates II
- F. Saltwater fish
- G. Coastal birds I



- H. Coastal birds II
- I. Coastal mammals
- J. Coastal amphibians and reptiles
- K. Environmental ethics
- L. Naturalist interpretation

Instructor and student workbooks for the Florida Master Naturalist Program Coastal Module were developed.

- A. FMNP Coastal Systems Instructor Workbook (1 vol., 56 pp.)
- B. FMNP Coastal Systems Student Workbook (2 vol., 1173 pp.)

Instructor certification training programs for instructors of the Florida Master Naturalist Program Coastal Module were held:

- A. During 2002, four 2-day instructor training workshops were conducted. Workshop locations included the Florida Keys, Vero Beach, St. Petersburg, and Cedar Key, Florida.
- B. A total of 74 instructors representing 42 organizations (includes four Sea Grant agents) from 27 coastal counties in Florida were certified to teach the Coastal Systems module.

Teaching of the Florida Master Naturalist Program Coastal Module in January 2003 was initiated via twelve coastal system courses (24 participants) in January and February 2003.

- 9.13 Extension faculty will attend at least 4 days of inservice training workshops or conferences that will support their educational programs. (All Agents)

An in-service workshop was held on Sustainable Marine Fisheries topics at the Keys Marine Lab in Layton, FL. The workshop was attended by 10 FSG Marine Agents. The workshop lasted one full day. A variety of topics were addressed that covered on-going projects and efforts related to marine fisheries management and utilization in Florida.

The Miami-Dade county marine extension agent attended the SEACOOS meeting in Charleston, SC for two days; gave a presentation at the Florida Marine Science Educators Association Conference in Marathon; gave a presentation at the Florida Association of Extension Professionals Conference and attended the FCOSEE workshop in Dania Beach.

The Escambia County agent attended: 1) COSEE and Florida Sea Grant training “Bridging the Gap: The Changing Paradigm in Science and Education”; 2) Florida Sea Grant Southeast Atlantic Coastal Ocean Observing System (SEA-COOS) workshop; 3) Annual Florida Sea Grant planning and in-service training meeting; 4) Florida Association of Extension Professionals (FAEP) conference and presented abstract entitled “Environmental Education Coordination Team: Cooperative efforts in natural resource education and grant writing”.

Don Jackson attended the annual fall Sea Grant Extension agent training program (3 days), and a portion of Florida Association of Extension Professionals workshop and made presentation to a portion of the attendees (2 days).

The Okaloosa/Walton County agent attended Wetlands Instructor Module for the Florida Master Naturalist Program; A Watershed Approach to Water Quality; Florida Sea Grant Extension Program Annual Staff Meeting; Red Cross Open Water Lifeguard, First Aid, and Automated Electronic Defibrillator Certification; SEACOOS and Coastal Storms Initiative training that

introduced the technology of coastal observation systems. Also attended Multi-State Natural Resources Program Implementation Team Professional Improvement Tour and the Florida Association of Extension Professionals annual meeting.

The Franklin County Agent attended and participated in the following in-service trainings or conferences totaling 15.5 days:

Writing Program Objectives In-service, Panama City, 0.5-days

23038 - CED Planning In-service, Gainesville, 2-days

FL Sea Grant Extension Program Staff In-service, Gainesville, 3-days

Coastal Management Workshop - Coastal Water and Sediment Quality: Impacts, Analyses and Trends Apalachicola Bay, 1-day

Coastal Management Workshop, Visitor Use Issues In Marine and Coastal Protected Areas, 1 day

Interstate Shellfish Sanitation Conference, 7-days

Coastal Management Workshop - Effective Buffers Associated With Development for Natural Resource and Wetland Protection, 1-day

The Aquaculture agent participated in the annual Sea Grant Extension Program Staff Meeting during October and attended the National Shellfisheries Association Annual Conference during April as part of in-service training to support my educational programs.

The Northeast Florida agent attended annual Sea Grant Extension in-service training, county trainings for Microsoft Publisher and Microsoft FrontPage. Completed intermediate sign language at SJRCC.

The Central Florida agent attended in-service training: FSG Annual Planning meeting, SMP-317 annual planning.

The Manatee County agent attended and presented at three international professional meetings and three statewide professional meetings.

The Brevard County agent participated in In-Service/annual meetings in Gainesville.

- 9.14 Coordinate annual in-service meeting for Extension faculty that provides status of on-going research and extension activities, and organizes program planning efforts. (Spranger)

The annual FSGE Faculty meeting was held in October, 2003. Administrative updates were provided by the Vice-President for UF IFAS; Dean for Extension and FSGEP Assistant Director. Researchers from National Marine Fisheries Service and Florida Museum of Natural History, provided information on fishery management and shark issues. Sea Grant Extension program leaders from Mississippi and Alabama also provided an overview of the "mercury in fish" issue. Extension long-range planning activities, changes in FAS reporting system were also discussed.

- 9.16. Serve as Extension Administrative Liaison in planning activities for annual Florida Association of Extension Professionals conference. (Spranger)

Served as FAEP Liaison. A successful FAEP Conference was held in September, 2003 in Jacksonville, FL with more than 300 Extension faculty attending.

- 9.17 Continue coursework toward Master's Degree in Environmental Studies at University of West Florida. (Verlinde)

Preparing for Master's Program at University of West Florida. Will begin classes in September, 2004.

9.18 Continue coursework toward Master's Degree in Environmental Studies at Florida Gulf Coast University. (Wasno)

Graduate Program- The Lee County agent was accepted into the Florida Gulf Coast University Environmental Sciences Master Program (Oct 2003). Currently taking my 14th credit.

## Goal 10: Create a Scientifically and Environmentally Informed Citizenry

10.1 A number of educational activities are implemented under the previous goals. The following ones cross many goals and are implemented in general.

10.1.1 Produce high quality publications and productions that effectively communicate results of Florida Sea Grant activities to both general and specialized audiences. Productions include Sea Grant Reports, Sea Grant Extension Fact Sheets and brochures, Sea Grant Technical Papers, books, book chapters, staff papers, conference proceedings, newsletters, posters signage and electronic formats including CD-Roms and videos. (Kearl/Zimmerman)

These accomplishments are reported in Section 6.0 (Publications).

In addition, Florida Sea Grant compares its productivity each year when possible to other Sea Grant programs. In 2003, Florida Sea Grant ranked 7<sup>th</sup> in core program funding (see Table 10.1) among all Sea Grant programs. Data provided by the National Sea Grant Library make it possible to compare FSG's publication productivity with that of the top ten (in funding) Sea Grant programs (Tables 10.1 and 10.2). In every category, FSG ranked higher (from 1 to 4) than its funding level for number of reprints submitted, number of thesis/dissertation abstracts submitted, all other documents and total documents submitted. FSG ranked 1<sup>st</sup> in total documents submitted and number of electronic downloads. In fact, FSG had 40 percent of the electronic downloads from all top ten programs in funding and submitted 23 percent of the reprints submitted by the ten programs.

Table 10.1 Core funding and selected National Sea Grant Library data for top ten Sea Grant programs (in funding).

	2003 Core Funding	Reprints Received	Thesis/ Dissertation Abstracts	All Other Documents	Total Documents		Number of Electronic Documents Submitted	Number of PDF Downloads from NSGL Server	
	\$000				Number Per \$100K in Core Funding			Number Per \$100K in Core Funding	
California	3,859.5	58	12	28	98	2.5	17	9,342	242
Washington	2,595.0	15	3	16	34	1.3	5	2,223	86
New York	2,414.0	11	18	16	45	1.9	2	3,054	127
Oregon	2,282.0	19	4	21	44	1.9	22	8,766	384
Rhode Island	2,060.0	4	0	31	35	1.7	19	4,408	214
MIT	2,048.5	20	0	5	25	1.2	1	2,126	104
Florida	1,990.0	53	18	18	89	4.5	24	38,750	1,947
Wisconsin	1,914.0	24	0	16	40	2.1	0	587	31
Texas	1,886.0	4	0	13	17	0.9	2	21,604	1,146
Hawaii	1,780.0	25	2	6	33	1.9	1	6,121	344
TOTAL	22,829. 0	233	57	170	460	2.0	93	96,981	425
Florida as % of Total	8.7	22.7	31.6	10.6	19.3	125.0	25.8	40.0	358

Source: National Sea Grant Office  
National Sea Grant Library

Table 10.2 Comparison of Florida Sea Grant core funding level rank with documents submitted by top ten (by core funding) Sea Grant programs.

Florida Rank by Category Compared	Rank	Florida as % of Top Ten Total
Core Funding Level	7	9
Reprints Submitted	2	23
Thesis/Dissertation Abstracts	1 (Tie)	32
Electronic Submitted Documents	1	26
All Other Documents Submitted	4	11
Total Documents Submitted		
Number	2	19
Per \$100K Core Funds	1	NA
PDF Downloads From NSGL		
Number	1	40
Per \$100K Core Funds	1	NA

Calculated from Table 10.1.

10.1.2 At least ten print or broadcast news releases will be produced. (Kearl/Zimmerman)

These accomplishments are reported in Section 6.0 (Publications).

10.1.3 The Florida Sea Grant Internet home page and website will be upgraded and maintained. (Zimmerman/Whitehouse/Damron/Wagner)

These accomplishments are reported in Section 9.0 (Outreach), web pages.

10.2 Complete a primer on invasive species for k-12 teachers (Jacoby)

A primer on invasive species for K-12 teachers is in press.

10.3 Complete a publication on marine protected areas in collaboration with other Sea Grant programs in the South Atlantic Region. (Gregory, Jacoby)

The Monroe County agent shared existing Marine Reserve Bibliographic Database with Dr. Jacoby but no other activity occurred.

The information for publications on marine protected areas was gathered through a series of interviews, but publication has been delayed, in part due to political issues surrounding the establishment of marine protected areas.

10.4 Complete a publication on the effects of activities in watersheds on coastal fisheries in collaboration with other Sea Grant programs in the South Atlantic region. (Jacoby)

A publication dealing with watershed effects on coastal fisheries has been delayed due to other priorities.

10.5 Contribute to formulating and implementing a work plan for the South Florida Ecosystem Project. (Jacoby)

The South Florida Ecosystem Education Project has developed and implemented a work plan. In particular, a needs assessment was conducted through three focus group meetings held in the Florida Keys. These ‘summits’ generated a range of issues that could be addressed through education and outreach. In addition, the project initiated an education and outreach partnership that was funded by the South Florida Water Management District. This partnership will create and distribute educational and outreach materials dealing with coastal issues surrounding the Comprehensive Everglades Restoration Plan.

- 10.6 Develop educational programs for teachers, boaters and interested citizens on marine debris and monofilament line recycling. (Combs, Crane, Creswell, Diller, Gregory, S. Jackson, McGuire, Sturmer, Verlinde, Wasno)

The Miami-Dade agent taught 64 boaters the impacts of debris on marine wildlife by providing them a yellow 5-gallon “Don’t Splash Your Trash” bucket to collect trash while on the water. Of 16 who responded to a mailed survey six months later, 77% said they used the bucket to collect trash on their boat.

The Miami-Dade county agent taught 1,034 K-12 students on the impacts of marine debris to marine wildlife. Of 409 students responding to an oral survey, 67% said they increased their knowledge on the impacts of debris to the environment.

Twelve marine stores and/or marinas were taught the impacts of fishing line to the environment and are participating in collecting discarded fishing line for recycling. In addition, over 70 volunteers donated 700 volunteer hours in the installation and maintenance of 27 outdoor fishing line recycling bins at marinas and boat ramps and conducted angler surveys and shoreline clean-ups.

A monofilament recycling program was developed for Santa Rosa and Escambia counties. The program resulted in over 60 recycling bins being placed throughout the two counties by the end of 2003. Early data indicates the potential for removing/recycling hundreds of miles of monofilament line annually.

An educational exhibit displaying the problem of litter and monofilament in the marine environment was provided at the Walton County Fair during October 2003.

Support was provided for Okaloosa and Walton County 4-H teen councils as they promoted monofilament recycling through exhibits at the North Florida Fair and Northwest Florida Fair.

The Monroe County agent was an invited guest to the Keys Association of Dive Operators monthly meeting in Marathon to discuss the proposed regulations for the spiny lobster recreational and commercial fisheries. Their leadership was successfully encouraged to work with the commercial fishing industry to address issues before they became controversial. A Florida Fish and Wildlife Conservation Commission stone crab workshop in Marathon and a spiny lobster workshop in Key West were attended. Testimony was provided on the need for instituting a license program for both commercial divers and the recreational mini-season. A monofilament recycling workshop was held and placement of monofilament recycling stations and pelican informational signage was accomplished at Hurricane Hole Marina on Stock Island. Three days at sea were spent as a special trap removal observer for the Florida Fish Commission to assist two local fishermen in retrieving their lobster traps.

A monofilament recycling and recovery program was initiated in Cedar Key (Levy County) this year. The 5 recycling bins provide a message not only to the community but also to its visitors

that the area is proactive in the stewardship of their valuable coastal waters. Local public awareness was raised through a series of newspaper articles, presentations, brochures and exhibits about the problems of fishing line in the marine environment and the location of recycling bins to properly dispose used line. A volunteer network was established with 14 high school students participating in the program as part of a marine science research project. These local youth have become engaged in providing community service at an early age through this program as well as recognizing the need to protect the area's marine environment.

Gave two monofilament recycling presentations. Promoted monofilament recycling during 37 other presentations and in displays at the Water Education Festival (4,000 attendees), Whitney Lab Open House (500 attendees), Greater Jacksonville Agricultural Fair (482,000 attendees), and Jacksonville Earth Day. Held monofilament recycling poster contest to raise awareness of monofilament recycling. Winning posters were displayed at Greater Jacksonville Agricultural Fair. Designed monofilament recycling calendar for 2004; printed and distributed 90 copies. The calendar features artwork from the poster contest. Installed eight new monofilament recycling containers in three counties. Provided monofilament recycling information and/or materials (including stickers and signs) to people from ten Florida counties, North Carolina, Puerto Rico, Portugal and Bermuda. These included three marinas, extension agents in two counties and the Citrus County Solid Waste Department.

The Santa Rosa County agent through media (radio and newspaper) reports provided monofilament-recycling information to the public. Utilize an eight-foot marine debris display at various educational programs and events.

This agent, in collaboration with the St. Lucie Cooperative Extension Natural Resource Agent, initiated a public awareness campaign for monofilament recycling utilizing mass media outlets, such as newspapers and radio.

The Brevard County agent conducted educational programs on marine debris/monofilament recovery at Blue Water fishing tournament (400), 4-H club members (50), Boy Scout troop (50), Clean Marina programs (30-40 marina operators, Dockmasters, staff).

10.7 Work with volunteers in annual fall coastal clean-up campaigns. (Combs, Crane, Creswell, Diller, S. Jackson, Mahan, McGuire, Novak, Verlinde, Wasno)

The Miami-Dade county agent worked with 200 volunteers for International Coastal Cleanup in the fall. Participants donated over 600 volunteer hours by removing 1,720 pounds of trash within 3 miles of the shoreline filling 151 trash bags.

The Escambia County agent served as an information source for the Annual Coastal Clean-up by posting information on the Escambia County Marine Extension website, answering phone calls and e-mails, and distributing clean-up supplies to volunteers and organizations.

Provide support, coordination and materials for the 19th annual Santa Rosa Rivers clean-up and the annual coastal clean-up at Navarre Beach.

The Brevard County agent participated in annual national trash-pickup day, with Boy Scout 10-mile "country" dirt-road bike hike that included trash-collection along roadside (12 scouts, 6 adults); on-going unscheduled mini-events (50 citizens).

- 10.8 Work with Extension 4H agents in the development of marine environmental programs for local clubs. (Combs, Crane, Creswell, Diller, Gregory, S. Jackson, Mahan, McGuire, Novak, Stevely, Sturmer, Sweat, Verlinde, Wasno)

The Miami-Dade county agent worked with several 4-H agents to develop educational programs on marine debris, sea turtles, sharks, seagrass and coral reefs habitats reaching approximately 950 youth. Factsheets, activities, slides and games have been developed to teach youth about marine debris, sharks and coral reefs.

The Escambia County agent was a speaker at multi-state 4-H Leadership training workshop at Weeks Bay National Estuarine Reserve in Alabama. Marine educational programs and projects were presented that could be utilized by 4-H clubs and programs in Florida and Alabama. The Escambia County 4-H Environmental Summer camp program at Camp Timpooshee was attended to teach marine science and shark programs. The agent partnered with the National Park Service at Gulf Island's National Seashore to offer half-day Junior Ranger Camps for youth.

A program for Home Grown Kids 4-H club regarding artificial reefs was organized. Marine education programming and assistance with administration of 4-H camp for Okaloosa, Walton, and Washington counties was provided as well as marine education programming and assistance with administrative support for two State Marine Camps at 4-H Camp Timpooshee.

The Monroe County agent sent fish scales and ear bones to a New York 4H Extension Agent for use in youth educational programs on fisheries. Scales and ear bones are used to age fish much like foresters use tree rings to age trees. As CED, took over leadership of local 4H program after the 4-H agent resigned.

Submitted a proposal entitled "A Day in a Clam Farmer's Life" to the 2003 4-H Youth Congress. On July 23, offered an interactive learning experience to 22 youth by making a presentation on clam farming, providing "hands-on" activities such as planting and harvesting clams at a "mock" clam farm at a local beach, and touring commercial operations in Cedar Key. In addition, provided brochures and posters describing the clam farming industry, along with product for a taste test, as part of the Levy County Exhibit at the 4-H Southern Regional Leaders Forum held in Rock Eagle, Georgia during October.

Provide 4-H program with marine activities and materials about beach ecology, the adopt-a-shore program, monofilament recycling and the Resource Ranger club. Provide marine activities at county and state 4-H camps.

"4-H Coastal Naturalist Camp" - This Indian River Lagoon Exploration Camp provides environmental education opportunities pertaining to the Indian River Lagoon ecosystem and important indicator species in this biodiverse estuary. the 5-day program included seining, fishing, revegetation of native plants, sea turtle egg counts, canoeing, identification of native plants and animals, and other activities.



The Brevard County agent provided four 4-H marine sciences field trips (30 adults, 10 adults), seining, dip-netting (including species ID), applications and explanations of field instrumentation (refractometer for salinity, wind-gauge, compass, pH meter, DO meter, GPS), visits to Seafood processors, view manatees, dolphins, snook in Canaveral Locks.

- 10.9 Provide technical assistance and support for annual statewide 4H Marine Ecology Contest. (Combs, McGuire)

Assisted with creation and delivery of the Resource Ranger Program, a curriculum based environmental education program for grades 5 through 8. The program includes video/television series (two videos produced in 2003, three more in 2004), classroom visits, web site, and activities for teachers. Information on the program was presented to all secondary science teachers at the Escambia County School's teacher in-service training day for the 2003-2004 school year. Several school field trips were conducted in association with the program.

Helped revise and provide materials for the statewide for the statewide 4-H Marine Ecology Judging Event; held workshops in St. Johns County for interested youth. Provided study materials to 34 youth in Nassau, Duval and St. Johns counties. Provided specimens and helped run competition at Camp Ocala.

The Brevard County agent provided 38 species living plants, dry corals, mollusks to supplement other species brought from other locations in support of 2003 contest.

- 10.10 Develop marine environmental programs for local K-12 teachers. (Combs, Crane, Creswell, Diller, S. Jackson, Mahan, McGuire, Novak, Stevely, Sturmer, Sweat, Verlinde, Wasno)

The Miami-Dade county agent developed marine environmental programs on coral reefs, seagrass, marine debris, and invasive species for approximately thirty K-12 teachers. Teachers received these materials by attending a teacher workshop or through an educational site visit.

Inspired by a local teacher, Dr. Diane Culver, Sea Grant Extension developed the "Dunes in Schools" program to teach environmental responsibility and stewardship of community coastal dune natural resource assets. The "Exploration" Class at Seaside Charter School propagated dune plant materials in their classroom for restoration. Instruction topics focused on dune vegetation, sand erosion, sea turtle biology, and wildlife habitat. Lessons were correlated to Sunshine State Standards. The entire Student Body participated in a dune restoration project on a critically eroded beach "their" plants along with other donated materials. Approximately 3,000 plants were installed to restore 1,000 feet of Gulf front beach.

#### **Service to schools**

--Coastal Dune Stewardship And Careers in Science - Walton High School, DeFuniak Springs, Florida -- Presented an in classroom education program and touch tank display to teach the importance of dunes and associated habitats and ecology. Also lead a discussion with students regarding career opportunities in Science.

--Butler Elementary School - Completed Dunes in Schools Service Learning education program by students planting native dune vegetation and celebrating their successes.

--Freeport Elementary School - Assisted in teaching, organizing and supporting "Give Forest a Hand" with numerous activities and instruction in cooperation with 4th grade teachers, extension agents, and other outside agency support. Students planted trees at the Government and Education Center in South Walton County.

--Walton County School District Area Science Fair- Served as a judge for the junior biological sciences division.

--Seaside Neighborhood School - Dunes in Schools program for students involved in "Classroom Explorations".

--Provided Community Service and Learning opportunities regarding control of invasive non-native plants for students from Okaloosa-Walton Community College and Horticulture Students from local technical program in Fort Walton Beach.

Presented workshops at annual conferences of League of Environmental Educators of Florida and Florida Association of Science Teachers. Conducted teacher workshop at Florida School for the Deaf and Blind. Made presentations at FAEP, National Marine Educators Association. Provided technical assistance to invertebrate group at the Rose Bay Legacy Program (through Mainland High School, Volusia County).

Contributed to writing and production of the Resource Ranger video series on stormwater, watersheds and seagrasses. In addition, provided beach ecology field trips for approximately 300 elementary and middle school students. Presented marine ecology and Resource Ranger club opportunities to 60 Santa Rosa science teachers.

Provided to Marine Environmental program K-12 teachers: Riverwalk County Park field trip (40 elementary students, 15 adults). This included instruction on marine invasive exotics.

10.11 Coordinate statewide 4H poster contest celebrating Oceans Day at the State Capitol. (Combs, Crane, McGuire, Spranger)

The Miami-Dade county agent assisted in the development and distribution of a Statewide Poster Contest for 4-H program for Oceans Day 2003. Theme for the posters was "Conserving Florida's Ocean Resources". Prizes for the winners included trips to Tallahassee for Oceans Day.

A successful statewide 4-H poster contest was conducted. Florida Sea Grant Communications developed an educational exhibit and posters that were displayed during Oceans Day held in April 2003 in Tallahassee. More than 500 youth attended this event. The winning 4-h youth traveled to the state capital, where they met and had their picture taken with their local state legislator.

The Northeast Florida agent developed guidelines and registration materials for Oceans Day poster contest.

The Brevard County agent participated in publicity and solicitation of 4-H poster contest at Oceans Day. One Brevard 4-H club statewide winner, John Fred, Palm Bay.

10.12 Develop online or hard-copy newsletter or newspaper articles on local marine/coastal topics that are distributed to interested citizens. (Combs, Crane, Creswell, Diller, Gregory, S. Jackson, Mahan, McGuire, Novak, Stevely, Sturmer, Sweat, Verlinde, Wasno)

Developed online and hard-copy newsletter titled “At the Waters Edge” on local marine/coastal topics that are distributed to 500 interested citizens bi-monthly.

Continued to develop and update the Escambia County Marine Extension web site as a source of marine resource educational information. Interviewed by local media for articles on sea turtles, Project Greenshores, fish venting, and other topics.

A fact sheet on sea turtles of Walton County and a CD-Rom on information for beginning aquaculturists were produced by the Okaloosa/Walton County agent.

A CDROM on *Information for Beginning Aquaculturists* was developed and distributed in the Florida Panhandle. (Scott Jackson)

Newspaper articles by Monroe County agent included: 1) The need for cautious boating in the shallow-water backcountry areas of the Florida Keys, 2) Hypothermia and the dangers of cold winter waters around the Keys, 3) Seagrass-friendly backcountry boating required skill and caution, 4) Yellowtail snapper is the Keys’ premier fish, 5) The importance of protecting your household papers from loss during a hurricane, 6) The early life history of lobsters, including their planktonic larval life and early benthic stages in the Keys.

The Monroe County agent was interviewed by the Key West Citizen on two occasions for an articles concerning 1) new recreational billfish regulations and 2) the new lobster regulations affecting commercial and recreational divers.

Radio programs by Monroe County agent:

WWUS, “Morning Magazine”, Big Pine Key. Issues: Shrimp disaster assistance; Florida Keys Lobster Workshop; Yellowtail fishery status; Loss of working waterfront; Conflicts between commercial trap and diver fishermen.

WFFG, “On the Water”, Marathon. Issue: Catch and release techniques and a description of a fish venting tool for releasing air trapped in the body cavity of fish caught from deep water.

WKEZ, “Keys Roundtable”, Islamorada. Issues: Florida Keys Lobster Workshop; Educational resources available from Florida Sea Grant (appeared twice, once jointly with Alex Score);

Was interviewed by Florida Public Radio about the status of the goliath grouper population and the feasibility of allowing a limited recreational harvest. Goliath grouper was once over fished and harvest has been prohibited since 1992. Its population is gradually recovering but it is still not at the level where harvest can be allowed.

Web: See <http://monroe.ifas.ufl.edu/mces3.htm> for FSG marine extension information on Seafood Safety and HACCP, the lobster workshop, clean boating, archived newspaper articles, the Sentinel lobster project results, and hurricane preparedness.

Created a new format and title for a quarterly newsletter addressing issues concerning the shellfish aquaculture industry in the state. Three issues (January, May and September) of The Bivalve Bulletin were sent to over 700 producers, nursery operators, equipment suppliers, wholesalers and distributors in 11 counties, as well as to state agency representatives, elected officials and community leaders.

Produced four quarterly newsletters which are sent in hard copy or electronically to over 700 subscribers.

Created the Pensacola Bay Watershed News, newsletter of the Pensacola Bay watershed.

The agent provides information about free publications related to marine issues available through his website as part of the St. Lucie County Cooperative Extension program. In addition, two newspaper articles were written and an aquaculture fact sheet was produced.

Brevard Sea Grant agent quoted in front page newspaper articles, Florida Today, "Challenge, solitude offset obstacles for clammers", Florida battles Brazilian menace", "Tourney may crack secrets of the tarpon", Brazilian pepper article widely distributed in Florida, and was concurrently published in Miami Herald, Jacksonville Times-Union, Orlando Sentinel, and in Naples – circulation greater than 2 million.

- 10.13 Provide Master Naturalist Programs featuring wetlands and coastal systems to interested citizens and establish a volunteer coastal program for marine extension. (Crane, Diller, S. Jackson, Verlinde)

The Miami-Dade county agent has established partners for conducting a Spring 2004 Coastal Module Course for the Florida Master Naturalist Program. Partners will assist in teaching the students and organizing field trips in 2004.

Organized, instructed, graduated, and evaluated the first coastal systems course of the Florida Master Naturalist Program in the Florida Panhandle. Seven students received over 40 hours of instruction and are now available as volunteers to the marine extension program and other natural resource educational efforts.

A 40-hour educational extension program featuring Florida's Coastal Ecosystems was presented to residents of Walton and Bay Counties. Educational activities included classroom instruction, field trips, and practical interpretive experience related to general ecology, habitats, vegetation types, wildlife, and conservation issues of coastal systems in Florida. In addition the program enhanced naturalist interpretation skills and addressed environmental ethics. Students created new educational programs and resources as part of their final projects for the class. These projects were influenced and directed at addressing local issues and needs in natural resource stewardship and education. Examples of project work include: Children's activity book for the Mammals of Topsail Hill State Preserve, a field guide for a beach walk in Camp Helen State Park, introduction of Audubon conservation principles to Camp Creek Golf Course (St. Joe Arvida), and a display depicting the problem of marine debris and litter. All these projects have been utilized to teach others in our community. The newly trained Master Naturalists are also involved in a variety of volunteer and career opportunities which allow them to share their knowledge and skills with others.

The Santa Rosa County agent taught the Florida Master Naturalist wetlands module to 10 students.

- 10.14 Assist local agencies in development of sea turtle awareness programs. (Combs, Diller, S. Jackson, Verlinde)

Work was conducted with the National Park Service at Gulf Islands National Seashore to monitor sea turtle nesting activity in Escambia County. NPS scientists were assisted in attaching a satellite transmitter to a female loggerhead turtle. Continue to update the Escambia County Marine

Extension web site with nesting activity and turtle tracking updates. Received a grant from the Florida Sea Turtle License Plate grant program for “Turtle Friendly Beaches” educational program.

The Santa Rosa County agent, with Andrew Diller, continues to develop Sea Turtle friendly beaches program.

The Brevard County agent had no involvement in sea turtle programming in 2003 – intends to re-establish involvement in 2004 as in years past.

- 10.15 Conduct Central Gulf of Mexico – Center for Ocean Science Education Excellence summer teacher training institute that will involve middle school teachers and scientists in field-based and online training. (Spranger)

A week-long field-based COSEE Teacher Training Institute was held in Cedar Key and Gainesville in June, 2003. The online, internet training was held July-August 2003. Topics covered included harmful algal blooms, coral reefs, hypoxia, sharks, invasive species, marine technology, marine and coastal processes, marine and coastal habitats. 11 teachers and 5 scientists participated.

- 10.16 Conduct Central Gulf of Mexico – Center for Ocean Science Education Excellence fall conference that will involve informal educators, agency representatives, and scientists in discussions on ocean science education in the State of Florida. (Spranger)

An informal educator conference was held in Gainesville in December 2003. More than 80 individuals attended. Topics included invasive species, sharks, marine biotechnology, ocean observation systems and marine ornamentals. A panel discussion was also developed on “Bridging the Gap between science and education”. The panel included representation from the University of Florida, Florida Institute of Technology, Florida Fish and Wildlife Conservation Commission and Duval School District.

- 10.17 Continue to provide technical assistance to the Florida Marine Mammal stranding Network and Florida Feasibility Study. (Wasno)

Conducted a statewide workshop for all state marine mammal stranding network leaders to review proper reporting protocols and necropsy techniques. Workshop was conducted at the Florida Marine Research Institute’s Biopathology Lab in St. Petersburg. 22 participants representing six networks attended. Post workshop knowledge surveys indicated 150% increase in overall stranding network competency.

## Key to Individual Responsibilities

Adams .....	4, 5, 6, 7, 13, 14, 16, 34
Antonini .....	29
Arnold .....	10
Baldwin .....	11
Berzins .....	10
Blake .....	10, 12
Bolker .....	3
Butler .....	3
Cardeilhac .....	10
Cato .....	1, 40, 41, 42, 43
Coleman .....	3, 12
Combs .....	7, 14, 18, 30, 36, 37, 49, 50, 51, 52, 53, 55
Crane .....	7, 30, 31, 36, 37, 49, 50, 51, 52, 53, 55
Creswell .....	7, 12, 14, 16, 17, 19, 30, 34, 36, 37, 49, 50, 51, 52, 53
Damron .....	48
Diller .....	7, 30, 33, 34, 36, 37, 49, 50, 51, 52, 53, 55
Francis-Floyd .....	10
Gregory .....	4, 6, 7, 9, 34, 48, 49, 51, 53
Halstead .....	10
Heinrich .....	3
Jackson .....	30, 39
Jacoby .....	33, 36, 48, 49
Jacoby: .....	36
Kearl .....	47, 48
Koenig .....	3
Leber .....	10, 12
Levitan .....	3
Mahan .....	9, 14, 18, 19, 34, 36, 50, 51, 52, 54
Main .....	43
McGuire .....	7, 30, 32, 34, 36, 37, 49, 50, 51, 52, 53, 54
Novak .....	7, 8, 9, 14, 18, 30, 32, 34, 36, 50, 51, 52, 54
Osenberg .....	3
Otwell .....	18, 20, 21, 22

Phlips .....	10
Pomponi.....	1
S. Jackson .....	7, 8, 17, 30, 33, 34, 36, 37, 49, 50, 51, 52, 53, 55
Seaman.....	1, 2, 36, 41, 42, 43
Sidman .....	26, 28, 29
Spranger .....	7, 23, 30, 34, 36, 39, 45, 53, 56
St. Mary .....	3
Stevely .....	7, 8, 9, 19, 30, 32, 34, 36, 38, 51, 52, 54
Sturmer .....	13, 14, 15, 16, 17, 18, 19, 34, 49, 51, 52, 54
Sweat.....	7, 8, 12, 13, 22, 30, 34, 36, 51, 52, 54
Swett .....	23, 26, 28, 29, 30
Turingan.....	12
Verlinde .....	7, 30, 33, 34, 36, 37, 45, 49, 50, 51, 52, 54, 55
Wagner.....	48
Wasno .....	7, 8, 9, 14, 30, 34, 36, 46, 49, 50, 51, 52, 54, 56
Whitehouse .....	48
Willoughby .....	1
Zimmerman.....	47, 48

### ***3.0 PROGRAM FUNDING FROM ALL SOURCES***

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#### **Funding History**

Level federal funding during the 1980s and early 1990s for the National Sea Grant College Program has clearly impacted Florida Sea Grant core programs. While some increased funding has been received in recent years, the level of effort or “buying power” of core program funds is still woefully short of early 1980 levels. When inflation is taken into account, the peak buying power year was 1980. Significant core program increases began in 1997, but buying power for 2003 was still 34 percent below the peak year. With 2003 core program funds at \$1,990K, and adding funds awarded to Florida due to national competitions of \$874K, the overall 2003 buying power of the program was still 17 percent below the peak year, as noted in Table 1.

The number of full time equivalents (FTEs) budgeted for the core program from 1986 through 1988 ranged from 55 to 58. This is a level much lower than that of the late 1970’s and early 1980’s. The pattern of decrease has been repeated in faculty and graduate student research and in the extension program. Education programs (other than graduate student support and those conducted within Extension) were virtually eliminated in 1985 with attempts made to obtain funding for that component from other sources. For the last decade, FTEs supported with core program funds are about 45 as shown in Table 2.

While FTEs have declined, the cost of operating research, education and Extension programs per FTE has increased. In terms of current dollars, the cost per FTE has increased from a low of \$13,000 in 1976 to a high of \$49,000 in 2000. Clearly, level or slowly growing budgets and a higher cost per FTE have driven downward the number of FTEs the program is able to purchase. On a real dollar basis (accounting for inflation), the cost per FTE has risen from a low of \$27,000 in 1984 to \$45,950 in 2003 as shown in Figure 1.

Florida Sea Grant historically matched federal funds on an approximate 1:1 basis. During 1989 and 1990 this ratio was reduced and since 1991, our core program proposal has been matched on a 2:1 basis as required by federal law. University policy now mandates that matching funds may only be included at the rate prescribed by the granting agency.

Florida Sea Grant’s recent funding history indicates an increased reliance on funding other than federal Sea Grant dollars. A comparative analysis of all Sea Grant funding sources for 2001-2002 to 2003-2004 indicates that the federal NOAA Sea Grant core program funds represented from 35 to 44 percent of total Florida Sea Grant program effort as shown in Table 3. Florida Sea Grant’s use of federal Sea Grant program funds has consistently met national guidelines that at least 50 percent be used to fund research as shown in Table 4. A listing of all funding sources for the Florida Sea Grant College Program funds for the last three years is shown in Table 5, 6 and 7.

Sea Grant federal funds plus all extramural grants generated 9.7 times the amount of state appropriations received through the Education and General budget of the University of Florida for 2003-04. Including faculty salaries dedicated to the program by UF/IFAS, 4.2 grant dollars were generated per state dollar of 2003 appropriations as shown in Table 8.



Table 1. Federal Sea Grant funding (\$1,000's) for Florida Sea Grant College Program, 1972-2004<sup>e</sup>

Current				Real <sup>a</sup>		Percent Below Peak Year	
Year	Core Funding	National Competitions	Total	Core	Total	Core	Total
1972	378			1188		58	
1973	600			1786		37	
1974	740			2022		29	
1975	900			2248		21	
1976	975			2305		19	
1977	1125			2499		12	
1978	1260			2612		8	
1979	1450			2775		3	
1980	1627			2852		0	
1981	1575			2525		11	
1982	1575			2377		17	
1983	1428			2073		27	
1984	1458			2041		28	
1985	1458			1973		31	
1986	1506 <sup>b</sup>			2000		30	
1987	1506			1941		32	
1988	1386 <sup>c</sup>			1728		39	
1989	1489			1788		37	
1990	1530			1769		38	
1991	1652			1843		35	
1992	1652			1799		37	
1993	1500	86	1586	1595	1686	44	41
1994	1500	127	1827	1562	1903	45	33
1995	1620	626	2246	1653	2292	42	20
1996	1620	455	2075	1620	2075	43	27
1997	1880	194	2074	1844	2034	35	29
1998	1780	322	2102	1724	2036	40	29
1999	1846	444	2290	1762	2186	38	23
2000	1907	1125	3032	1784	2836	37	1
2001	1965	463	2428	1796	2219	36	22
2002	1990	535	2525	1798	2282	37	20
2003	1990	504	2494	1884	2360	34	17
2004 <sup>e</sup>	1990	874	2864				

<sup>a</sup> Deflated using Gross Domestic Product Price deflator, 1996=100.

<sup>b</sup> Includes MAREP add-on and GRH reduction.

<sup>c</sup> After NOAA overall budget cut of seven percent from base of \$1,489K.

<sup>d</sup> Beginning in 1993, total Sea Grant federal funding includes various initiatives and other funds provided through special national competitions.

<sup>e</sup> As of March 2004.

Table 2. Individuals and full-time equivalents (FTEs) supported by federal Sea Grant core program funding 1972-2004.

Year	Research Number				Education		Advisory		Total	
	Faculty	Students	Total	FTE	Number	FTE	Number	FTE	Number	FTE
1972	14	25	47	13	0	0	6	1	59	15
1973	29	39	93	32	0	0	10	8	103	40
1974	32	34	17	36	0	0	29	10	136	46
1975	44	55	151	49	8	<sup>b</sup>	4	13	204	62
1976	38	50	109	40	17	12	26	22	152	74
1977	32	54	108	40	24	14	74	27	206	81
1978	28	37	115	42	23	4	59	26	197	77
1979	34	41	99	49	31	2	115	32	245	83
1980	46	38	128	48	7	1	111	28	246	77
1981	53	39	153	46	4	1	120	31	277	78
1982	39	35	91	44	12	3	108	34	211	81
1983	29	30	75	33	1	1	102	32	178	65
1984	48	44	108	39	5	2	102	29	216	70
1985	48	48	118	37	2	<sup>b</sup>	89	26	209	64
1986	39	35	83	30	0	0	90	26	173	55
1987	44	23	86	30	4	4	79	27	181	58
1988	53	30	96	31	0	0	79	27	181	57
1989	48	24	87	28	9	2	37	15	133	44
1990	45	23	81	28	7	1	36	15	133	44
1991	44	26	85	26	0	0	29	22	114	48
1992	43	25	80	25	0	0	29	22	109	47
1993	29	20	61	19	0	0	29	22	90	41
1994	25	14	48	18	0	0	32	22	80	40
1995	38	16	54	19	4	6	22	22	96	45
1996	39	14	53	19	0	0	22	22	97	45
1997	54	24	101	24	0	0	23	19	124	43
1998	46	21	70	20	0	0	34	24	104	44
1999	44	21	68	21	0	0	33	23	101	44
2000	55	24	82	20	0	0	29	19	111	39
2001	65	31	99	26	0	0	28	19	127	45
2002	39	30	71	20	0	0	34	25	105	45
2003	36	27	64	20	0	0	34	25	98	44
2004	37	21	58	15	0	0	35	26	93	41

Table 3. Florida Sea Grant funding effort by source for fiscal years (1 July - 30 June)  
2001-2002 to 2003-2004

Source	2001-02		2002-03		2003-04	
	\$000	%	\$000	%	\$000	%
Federal NOAA Sea Grant Core Program	1,990	44.3	2,000	42.6	1,990	34.2
Federal NOAA Sea Grant National Competitions	500	11.1	504	10.8	874	15.0
Faculty Match (Core + National) <sup>a</sup>	755	16.8	794	16.9	1,114	19.2
Other Federal Grants <sup>c</sup>	155	3.5	277	5.9	327	5.6
Non-federal Grants <sup>d</sup>	133	3.0	97	2.1	400	6.9
State Appropriations <sup>b</sup>	754	16.8	810	17.3	849	14.6
Florida Counties	205	4.6	208	4.4	220	3.8
Foundations/Endowments	NR	NR	NR	NR	42	0.7
Total Program Effort	4,492	100.0	4,690	100.0	5,816	100.0

<sup>a</sup> This includes all match except state university system appropriations used as match.

<sup>b</sup> This includes state appropriations to Florida Sea Grant via the Education and General budget of the University of Florida and via the UF/Institute of Food and Agricultural Sciences used as match in extension, communications and management.

<sup>c</sup> Does not include a \$418K USDA special award in 2003 coordinated by S. Otwell. Does not include a \$25K award from NMFS in 2003 coordinated by C. Adams.

<sup>d</sup> Does not include a \$75K Interstate Shellfish Coordinating Committee award in 2003 coordinated by S. Otwell. Does not include a \$30K GSAFDF award in 2003 coordinated by C. Adams.

NR - Not reported prior to 2003-04. Became more significant in 2003-04.

Source calculated from data in Tables 5, 6 and 7.

Table 4. Percentage of Florida Sea Grant core and total sea grant federal funds used for research, extension, communications and management, 2001-02 to 2003-04.

Program Function	2001-02	2002-03	2003-04
	Core (%)		
Research	51.1	51.3	51.1
Extension	31.1	31.0	31.1
Communications	8.3	8.3	8.3
Management	9.5	9.5	9.5
TOTAL	100.0	100.0	100.0
Total %			
Research	55.8	51.6	59.2
Extension	30.0	35.7	28.4
Communications	6.6	5.9	5.8
Management	7.6	6.8	6.6
TOTAL	100.0	100.0	100.0

Source: Calculated from data in Tables 5, 6 and 7.

Table 5. Florida Sea Grant College Program funding from all sources, July 1, 2001 to June 30, 2002.

Federal Sea Grant Core:	Federal	Match
Research	\$1,016,000	\$518,690
Extension	620,000	310,000
Communications	165,000	85,000
Management	189,000	94,500
<b>TOTAL SEA GRANT CORE</b>	<b>\$1,990,000</b>	<b>\$1,008,190</b>
Federal Sea Grant National Competitions:		
E/NS-2 ANS Education	\$27,000	\$13,500
E/ST-27 Knauss Fellowship -Sbeih	38,000	0
R/C-E-46 Swamp Eel Biology	91,006	50,235
R/LR-Q-23 Gulf Oyster Products	200,000	100,000
R/LR-Q-21 Oyster Decontamination	144,300	72,150
<b>TOTAL FEDERAL SEA GRANT NATIONAL COMPETITIONS</b>	<b>\$500,306</b>	<b>\$235,885</b>
Other Federal Grants		
PD-02-04 Florida Bay	\$25,000	\$0
PD-01-03 US/Japan Natural Resources	10,000	0
PD-01-04 Marine Ornamental '02	10,000	0
TBD Coastal Storms Initiative	109,729	0
<b>TOTAL OTHER FEDERAL GRANTS</b>	<b>\$154,729</b>	<b>\$0</b>
<b>TOTAL FEDERAL GRANTS</b>	<b>\$2,645,035</b>	<b>\$1,244,075</b>
<b>MATCH COVERED BY STATE APPROPRIATIONS</b>		<b>(\$489,500)</b>
<b>NET MATCH</b>		<b>\$754,575</b>
Non-Federal Grants		
Florida Keys Sponge Populations	\$5,000	\$0
Manatee County Waterway Management	39,500	0
WCIND (Five-Year Comprehensive)	40,000	0
FMRI 2002 Blueways Charlotte Harbor	23,340	0
FMRI Vessel Registration Study	25,000	0
<b>TOTAL NON-FEDERAL GRANTS</b>	<b>\$138,840</b>	<b>\$0</b>
<b>TOTAL GRANT FUNDING</b>	<b>\$2,777,875</b>	<b>\$754,575</b>
Counties	\$205,160	0
State Appropriations		
E&G	\$319,440	\$0
IFAS (Dedicated to SG)	435,000	0
<b>TOTAL SEA GRANT FUNDING</b>	<b>\$3,737,475</b>	<b>\$754,575</b>

Table 6. Florida Sea Grant College Program from all sources, July 1, 2002 to June 30, 2003.

Federal Sea Grant Core:	Federal	Match
Research	\$1,026,000	\$504,089
Extension	620,000	310,000
Communications	165,000	87,500
Management	189,000	98,500
<b>TOTAL SEA GRANT CORE</b>	<b>\$2,000,000</b>	<b>\$1,000,089</b>
Federal Sea Grant National Competitions:		
E/INDST-2 Industry Fellow	30,000	30,000
E/ST-28 Knauss Fellowship - Childs	38,000	0
E/T-8 Sharks in Perspective	67,426	33,713
R/LR-Q-23 Oyster Market Research	200,000	100,000
R/C-E-46 Swamp Eel Introduction	88,196	42,735
E/FishExt-SA So. Atlantic Fish Extension	37,608	18,804
E/FishExt-GM Gulf Fish Extension	27,300	13,650
E/Fish-Ext-FSG Sea Grant Extension	15,000	7,500
<b>TOTAL FEDERAL SEA GRANT NATIONAL COMPETITION</b>	<b>\$ 503,530</b>	<b>\$ 246,402</b>
Other Federal Grants:		
CDI-Fann Coastal Data Service	50,900	0
E/T-9 So. FL Marine Ecosystem	80,000	0
PD-02-08 Urban Bays & Waterways Mgmt	41,280	0
COSEE Gulf of Mexico	48,556	0
SEA-COOS U. of North Carolina	29,500	0
COSEE Dauphin Island Lab	27,000	13,500
<b>TOTAL OTHER FEDERAL GRANTS</b>	<b>\$ 277,236</b>	<b>\$ 43,500</b>
<b>TOTAL FEDERAL GRANTS</b>	<b>\$2,780,766</b>	<b>\$1,289,991</b>
<b>MATCH COVERED BY STATE APPROPRIATIONS</b>		<b>\$(496,000)</b>
<b>NET MATCH</b>		<b>\$ 793,991</b>
Non-Federal Grants:		
Florida Keys Sponge Population	5,000	0
Oyster Habitats in Southwest Florida	4,830	0
Recreational Boating	69,450	0
FMRI Vessel Registration Study	18,000	0
<b>TOTAL NON-FEDERAL GRANTS</b>	<b>\$ 97,280</b>	<b>0</b>
<b>TOTAL GRANT FUNDING</b>	<b>\$2,870,046</b>	<b>\$ 793,991</b>
Counties	\$ 208,315	0
State Appropriations		
E&G	363,180	0
IFAS	446,964	0
<b>TOTAL SEA GRANT FUNDING</b>	<b>\$3,888,505</b>	<b>\$ 793,991</b>

Table 7. Sea Grant funding July 1, 2003 to June 30, 2004.

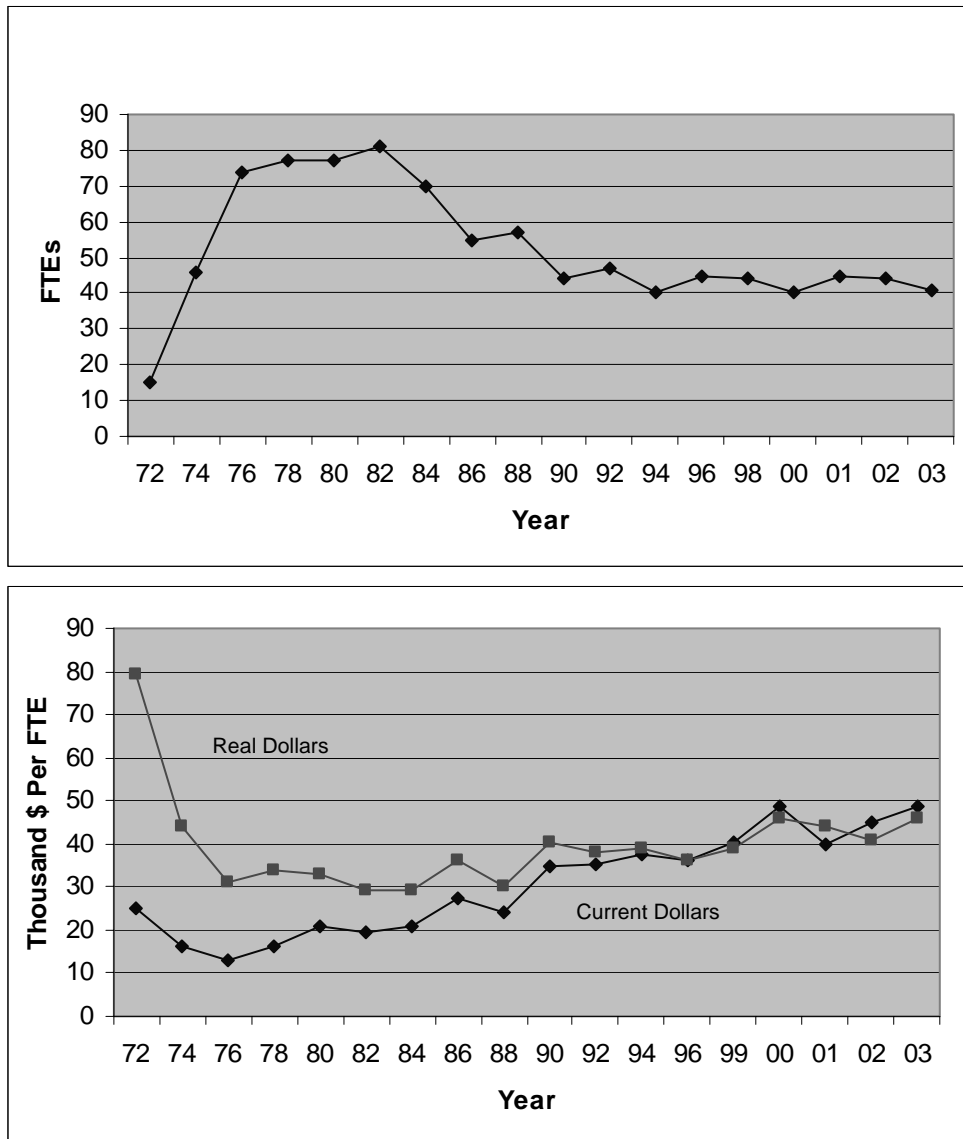
Federal Sea Grant Core:	Federal	Match
Research	\$1,016,000	\$ 480,846
Extension	620,000	310,000
Communications	165,000	85,000
Management	189,000	123,500
Other	0	0
<b>TOTAL SEA GRANT CORE</b>	<b>\$1,990,000</b>	<b>\$ 999,346</b>
Federal Sea Grant National Competitions:		
E/INDST-2      Industry Fellow	30,000	30,000
E/ST-29      Knauss Fellowship - Childs	38,000	0
E/T-11	146,792	79,777
R/C-E-47	80,003	40,000
R/C-E-48	146,922	73,461
R/MI-12	100,000	135,158
E/TP-3	45,000	22,846
R/LR-Q-25	100,000	139,358
R/LR-Q-26	157,700	93,586
R/C-E-49	29,158	19,289
<b>TOTAL FEDERAL SEA GRANT NATIONAL COMPETITIONS</b>	<b>\$ 873,575</b>	<b>\$ 633,475</b>
Other Sea Grants:		
Manatee Protection NA04NOS4730008	98,274	0
COSEE      Gulf of Mexico	48,556	0
SEA-COOS      University of North Carolina	175,000	0
EPA	5,000	0
<b>TOTAL OTHER FEDERAL GRANTS</b>	<b>\$ 326,830</b>	<b>0</b>
<b>TOTAL FEDERAL GRANTS</b>	<b>\$3,190,405</b>	<b>\$1,632,821</b>
<b>MATCH COVERED BY STATE APPROPRIATIONS</b>		<b>\$(518,500)</b>
<b>NET MATCH</b>		<b>\$1,114,321</b>
Non-Federal Grants:		
South Florida Waterways Management District	400,000	0
<b>TOTAL NON-FEDERAL GRANTS</b>	<b>\$ 400,000</b>	<b>0</b>
<b>TOTAL GRANT FUNDING</b>	<b>\$3,590,405</b>	<b>\$1,114,321</b>
Foundations/Endowment Revenues	\$ 42,174	0
Counties	\$ 220,425	0
State Appropriations:		
E&G 07/01/03 - 06/30/04	371,721	0
IFAS 07/01/03 - 06/30/04	476,928	0
<b>TOTAL SEA GRANT FUNDING</b>	<b>\$4,701,653</b>	<b>\$1,114,321</b>

Table 8. Florida Sea Grant total grants generated per dollar of state appropriations, 2002-2003 program year.

	UF Appropriations Through Education and General Budget (\$371,721)	UF/IFAS Faculty Dedicated to Sea Grant (\$476,928)	Total (\$848,649)
Sea Grant Federal Funds (\$2,863,575)	7.7	6.0	3.4
All Other Extramural Grants (\$726,830)	2.0	1.5	.8
TOTAL (\$3,590,405)	9.7	7.5	4.2

Source: Calculated from Table 6.

Figure 1. A comparison of Florida Sea Grant core program FTEs and current and real funding per FTE, 1972-2003.



## 4.0 INSTITUTIONS INVOLVED

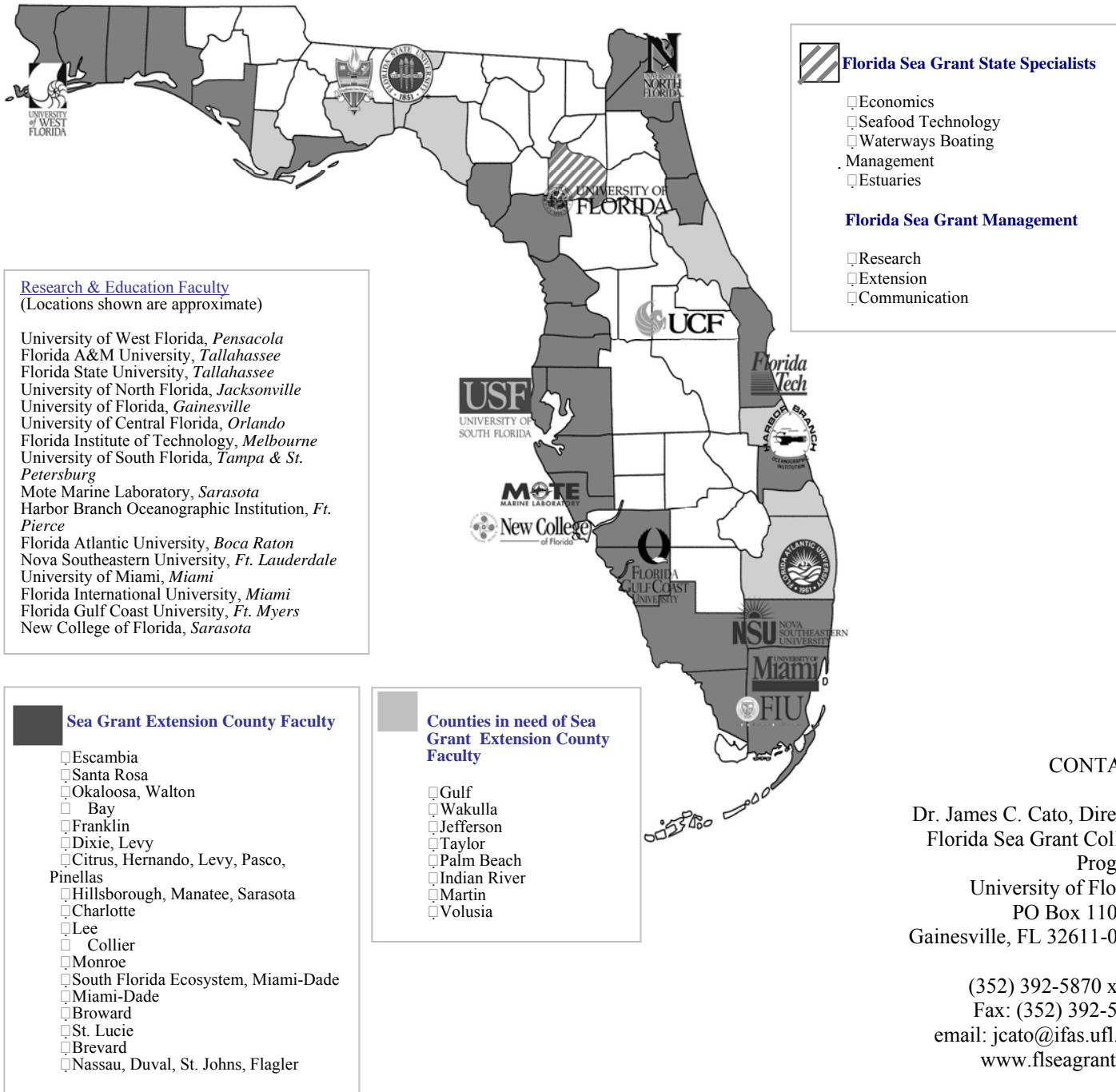
Florida has a unique network of public and private marine academic institutions (see Figure 1). Florida's academic institutions are rapidly coming of age. They are finding their niche and are being challenged and are responding to that challenge of providing national leadership. Florida scientists are coming to the forefront in pulling the land, sea, and air sciences together and integrating science and politics to find out what science means to the people. For 2003 ten (of 16) institutions (both public and private) participated through the receipt of Sea Grant funding for annual projects. In addition, ten cooperating institutions and laboratories, four NOAA offices, two state agencies, two regional management districts, five foundations and non-governmental organizations, seven companies and 37 counties participated. A complete listing is in Table 1.

Table 1. List of Florida Sea Grant program participants in NOAA funded core, national competition and pass-through projects, 2003.

<p style="text-align: center;">ACADEMIC/RESEARCH</p> <p><u>Florida Institutions</u>          Florida Atlantic University          Florida Institute of Technology          Florida International University          Florida State University          Harbor Branch Oceanographic Institution          Mote Marine Laboratory          Nova Southeastern University          University of Florida          University of Miami          University of South Florida          University of Central Florida</p> <p><u>Cooperating Institutions</u>          Albion College          Clemson University          Dauphin Island Sea Laboratory          Naval Postgraduate School          University of Groningen Netherlands          University of Illinois          University of North Carolina          University of South Alabama          University of Southern Mississippi          Virginia Institute of Marine Science</p> <p style="text-align: center;">GOVERNMENT</p> <p><u>Districts</u>          South Florida Water Management District          West Coast Inland Navigation District</p> <p><u>State</u>          Florida Fish &amp; Wildlife Conservation Commission, Florida Marine Research Institute          Florida Department of Agriculture &amp; Consumer Services</p> <p><u>Federal</u>          NOAA, National Ocean Service          NOAA, National Marine Fisheries Service          NOAA, Coastal Services Center</p>	<p>NOAA, Strategic Environmental Assessments Division, Office of Ocean Resources Conservation and Assessment</p> <p><u>Foundations and Non-governmental Organizations</u>          Curtis &amp; Edith Munson Foundation          Gulf and South Atlantic Fisheries Development Foundation          Harbor Branch Oceanographic          National Audubon Society          National Fisheries Institute          National Geographic Society</p> <p style="text-align: center;">INDUSTRY</p> <p>ABC Research Co.          Applied Biosystems          Arch Co.          Disney Animal Kingdom          Florida Aquarium          Lipo Chemicals          Maritech Inc.</p> <p style="text-align: center;">COUNTY*</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Bay</td> <td style="width: 33%;">Gulf</td> <td style="width: 33%;">Pasco</td> </tr> <tr> <td>Brevard</td> <td>Hernando</td> <td>Pinellas</td> </tr> <tr> <td>Broward</td> <td>Hillsborough</td> <td>Putnam</td> </tr> <tr> <td>Charlotte</td> <td>Indian River</td> <td>St. Johns</td> </tr> <tr> <td>Citrus</td> <td>Jefferson</td> <td>St. Lucie</td> </tr> <tr> <td>Clay</td> <td>Lee</td> <td>Santa Rosa</td> </tr> <tr> <td>Collier</td> <td>Leon</td> <td>Sarasota</td> </tr> <tr> <td>Dade</td> <td>Levy</td> <td>Taylor</td> </tr> <tr> <td>Dixie</td> <td>Manatee</td> <td>Volusia</td> </tr> <tr> <td>Duval</td> <td>Monroe</td> <td>Walton</td> </tr> <tr> <td>Escambia</td> <td>Nassau</td> <td>Wakulla</td> </tr> <tr> <td>Flagler</td> <td>Okaloosa</td> <td></td> </tr> <tr> <td>Franklin</td> <td>Palm Beach</td> <td></td> </tr> </table> <p>*All coastal counties participate via the Florida Cooperative Extension Service. However, eight lack specific Sea Grant agent coverage.</p>	Bay	Gulf	Pasco	Brevard	Hernando	Pinellas	Broward	Hillsborough	Putnam	Charlotte	Indian River	St. Johns	Citrus	Jefferson	St. Lucie	Clay	Lee	Santa Rosa	Collier	Leon	Sarasota	Dade	Levy	Taylor	Dixie	Manatee	Volusia	Duval	Monroe	Walton	Escambia	Nassau	Wakulla	Flagler	Okaloosa		Franklin	Palm Beach	
Bay	Gulf	Pasco																																						
Brevard	Hernando	Pinellas																																						
Broward	Hillsborough	Putnam																																						
Charlotte	Indian River	St. Johns																																						
Citrus	Jefferson	St. Lucie																																						
Clay	Lee	Santa Rosa																																						
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Escambia	Nassau	Wakulla																																						
Flagler	Okaloosa																																							
Franklin	Palm Beach																																							



Figure 1. Florida Sea Grant's Academic Community of Marine Research, Education and Extension



## 5.0 PROJECTS FUNDED

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### List of Florida Sea Grant Projects That Were Active During 2003 and Funded by Sea Grant/NOAA and Extramural Sources, in Three Major Categories

#### I. CORE PROGRAM PROJECTS

(This list includes projects that were completing or in process in 2003)

##### I.A. Research

**R/LR-B-53, Bioenergetic Response of Gag Grouper to Reef Habitat Configuration** - - Gag grouper is a highly prized fish in the Southeast United States. The fishing is under intense management, scrutiny and pressure. This project will link the importance of essential fish habitat to gag grouper population dynamics. This will allow management agencies to make science-based decisions related to essential fish habitat.

**R/LR-B-54, High-throughput Molecular Genetic Identification of Shark Body Parts for Forensic Applications in Conservation, Fisheries Management and Trade Monitoring** - - Declining shark population worldwide have prompted concern about the sustainable health of the resource. Management on a species-specific basis is under consideration. This is currently not possible due to considerable difficulties in identifying shark carcasses and fins. The development of false identification methods is needed before valid data can be obtained and management measures developed.

**R/LR-B-55PD, The Effectiveness of Bycatch Reduction Devices on Crab Pots at Reducing Capture and Mortality of Diamondback Terrapins and Enhancing Capture of Blue Crabs** - - Diamondback terrapins range along the eastern and Gulf coasts of the U.S. and prefer the same habitat as blue crabs. Large numbers of terrapins enter crab pots and drown as bycatch. Much of the mortality is avoidable with the use of bycatch reduction devices that limit the entrance size of trap funnels. This project is designed to test bycatch devices which can reduce turtle mortality.

**R/LR-A-36, Solving a Bottleneck: Identification and Production of Copepods Suitable for Rearing the Early Life History Stages of Marine Ornamental Fish and Invertebrates** - - Suitable food for early life stages of cultured fish is a bottleneck for raising them for the ornamental fish hobby-based market. The goal of this project is to scale-up production of copepod species as food for rearing tropical ornamentals.

**R/LR-A-37, Diversification for the Hard Clam Aquaculture Industry Through Investigation of Blood Ark and Ponderous Ark Reduction and Development** - - Clam aquaculture is currently focused on a single species. Diversification is needed to allow the industry to grow. This project will help determine the production feasibility of two marine bivalve species. Limited stocks of these species have prevented the development of major fisheries, but aquaculture could provide a source of seed for both species. This project will focus on spawning and larval rearing technologies.

**R/LR-A-38PD, Development of Feeding Kinematics and Performance in Marine Fish Larvae: A Novel Approach to Understanding Food Requirements of Marine Ornamental and Food Fish** - - This study uses a novel laboratory and photographic approach to understanding key factors about a major problem in aquaculture. High mortality rates occur during the first feeding stage of hatchery-reared marine fish larvae. Development of techniques that will increase the survival rate is critical.

**R/LR-MB-14, Development of a Biotechnological Production Method of Elisabethadione -- A Potent Marine Anti-inflammatory Agent** - - A number of natural compounds from marine sources are now being used as anti-inflammatory agents in medicines and other products. Elisabethadione is a biosynthetic intermediate that

leads to natural agents. The goal of this project is to develop a biotechnical production method of elisabethadione, which in nature comes from the sea whip.

**R/LR-MB-15, Quantitative Real-time PCR Probes for Pathogenic *Vibrio* Species** - - PCR is a quantitative molecular methodology that offers higher throughput potential from current types of analysis, providing results within hours, not days. The goal of the project is to develop a real-time PCR for rapid, quantitative, cost-effective technology for enumeration of *Vibrio* spp. in oyster. The methods will be developed for practical applications in shellfish monitoring and for evaluation of post-harvest treatments.

**R/LR-MB-16, Nemertine and Sponge Pyridyl Marine Natural Products as Anti-Fouling Agents** - - Protection of marine surfaces against fouling organisms is a big business, but a difficult process to make environmentally friendly. These natural products will be characterized and tested for barnacle larvae settling inhibition, lethality, and crustacean chemoreceptor activities. These anti-fouling compounds will be tested in both laboratory and field settings.

**R/LR-MB-17, Investigation of the Molecular Target of the Lasonolides, Potent Anti-tumor Agents Isolated from the Marine Sponge *Forcepia* Sp.** - - Cancer is the second leading cause of death in the United States. Lasonolides appear to have a novel, but undefined mode of action to kill tumor cells. This project will help define the utility of the compounds by identifying the primary protein target for the compounds.

**R/LR-MB-18, Isolation and Characterization of Novel Pharmacological Agents from Atlantic and Panamic Cone Snails** - - Conopeptides are powerful neuropharmacological agents that can be used for a wide variety of applications. More than 100,000 conopeptides exist; however, few have been sequenced to date. The goal is to obtain a novel set of Conopeptides and evaluate their potential as a therapeutic agent.

**R/LR-MB-19PD, Molecular Basis of Marine Natural Product Function and Production for Improved Utilization of Bioactive Compounds** - - This project provides leadership in a new direction to expand and enhance natural products research. It focuses the latest advances in biotechnology to identify and determine the mechanism of action of marine-derived compounds with pharmaceutical potential. It demonstrates the power of cross-species array technology for the development of unconventional model systems, such as marine invertebrates, to address questions in marine, cell and molecular biology.

**R/C-E-44, Assessment of Sewage Impacts via Groundwater Discharge into Two Coastal Bays** - - The potential for nitrogen and other inputs reaching coastal water via groundwater contaminated with sewage discharge is high. State of the art techniques will be used to assess the potential for sewage contamination of an urban bay (Sarasota) and a less populated bay (Apalachicola). The results will be useful to help manage the use of septic tanks in Florida's coastal zone.

**R/C-E-45, Impact of Boat Wakes on the Eastern Oyster in the Southeastern U.S.: Maximizing Sustainability and Restoration** - - Large human populations along Florida's coast have created conflicts between human uses of the waterways and natural resources, such as oysters. This project will determine the impact of boat wakes on intertidal oyster reefs and will provide coastal managers with data on which science-based management decisions can be based.

**R/C-S-41, Enhanced Commercial Selection and Micropropagation of Sea Oats for Dune Stabilization** - - Commercial sea oats micropropagation for dune restoration is limited by absence of a protocol for efficient production of multiple genotypes. Removing this limitation is critical for this technology to be used for commercial application of the technology for dune stabilization and restoration. The goal for this project is to develop an efficient protocol.

**R/C-S-42, Conditions for the Occurrence and Stability of Rip Current** - - About 36,000 beachgoers are rescued from rip currents annually. About 30 rip current-related deaths were reported in Florida in a recent year. The goal of this project is to develop rip current threshold criteria for rip current channels, identify conditions under which significant rip channels develop, and determine ways the beachgoing public can be warned of danger.

**R/C-S-43, Hurricane Wind Gusts Structures: Movement, Characterization and Coastal Damage Mitigation** - - Florida coasts are impacted by hurricane winds which create structural damage and public hazards. Affordable solutions to mitigate damage can only follow from an accurate quantification of the wind forces causing the destruction. This project will develop new instrumentation for ground-level wind fields, create tools to analyze the data and develop models to predict the effect of winds over a building.

**R/C-P-24, Coastal Communities Waterways Management Program** - - Intensive boating by over one million boaters in Florida waterways places tremendous environmental pressure on them. This project will use technical and science-based education methods to educate Florida boaters. The goal is to have boaters become self-regulatory in order to maintain boating as an economically valuable enterprise while at the same time eliminate boating-related environmental damage.

**R/C-P-25PD, A Method to Determine the Utility of the Vessel Title Registration System to Characterize Florida's Boating Population** - - The rapid increase in the number of boats in Florida has created environmental issues, while at the same time, boats create huge economic impacts for the state. Currently, expensive on-the-water surveys are needed to compile data sufficient for boat traffic management use. This project will determine the feasibility of modifying the Florida vessel registration system to make it more usable for research purposes.

**R/LR-Q-22, Verification of Science-Based Controls for the Safe Use of Vacuum and Modified Atmosphere Packaging of Seafood** - - The use of reduced-oxygen packaging continues to expand for seafood despite warnings of potential food toxicity problems. This project will develop "smart-labels" for time-temperature integration and packaging film permeability. Unbiased, scientifically based controls can then avert regulatory interaction or product safety issues.

#### I.B. Extension

**SGEP-13, Florida Sea Grant Extension Program** - - This work will continue to provide effective and responsible extension education programming that promotes the wise use of coastal and marine resources in Florida, with impacts that extend to the Southeast and the nation. Currently, Extension has 17 agents and 4 specialists that serve the 80% of Florida's population that live in the 36 coastal counties of the state. In cooperation with industry Florida Sea Grant has made a significant impact on improving seafood quality and seafood safety, for example through state, regional and national leadership in development of the Hazard Analysis and Critical Control Point seafood inspection program. This effort has been recognized by the "Hammer Award" of the Vice President of the U.S. for achievement by partnerships. Other efforts include guidance to local government in developing artificial reefs, development of shellfish mariculture, assisting fishers and their families deal with the impacts of the net ban in Florida, and use of rural tourism as an economic development tool.

**COMM-5, Florida Sea Grant Communications Program** - - Although traditional publication efforts were continued and enhanced, popular communications products were also produced with funding received from other agencies. Recent accomplishments include: the production of more than 50,000 publications; the establishment of an automated radio station in the Keys featuring current research information for Florida Bay; four stories featured by CNN for use in the evening news and Science Desk segments; articles featured in the Washington Post, USA Today, Miami Herald and the Chronicle of Higher Education highlighting Sea Grant research and personnel; and the creation of listserves and homepages in support of regional and national Sea Grant projects.

## I.C. Program Management and Development

**M/PM-13, Florida Sea Grant Management** - - To meet the programmatic goal of Florida Sea Grant, i.e., the use and conservation of the marine resources of Florida and the nation in a way that leads to a sustainable economy and environment, this project works to coordinate and administer the State University System of Florida Sea Grant College Program. Management activities have been judged against quantitative and qualitative performance goals as mandated by the University of Florida and the National Sea Grant College Program Office.

**M/PM-11, Coastal Science and Technology Innovation with Limited Funds: The Florida Sea Grant Program Development Portfolio** - - This project continues to give Florida's universities and academic laboratories, through Sea Grant, the unique capability to respond even in the middle of a fiscal year to timely marine issues and demonstrations essential to coastal user groups. Projects are low budget with limited objectives. All proposals are peer reviewed to insure technical merit and relevance. Projects are conducted if they demonstrate a likelihood of rapid success and meet at least one of six criteria: (1) offer solution to clearly defined timely problem; (2) address problem in opportunistic research area; (3) pilot study to see if longer project justified; (4) provide information to attract support elsewhere; (5) Extension demonstration project; (6) timely exchange of scientific information. Projects that were completing from earlier years and new projects started in 2003 are:

- 01-3 National Sea Grant Support for the 30<sup>th</sup> Meeting of the Aquaculture Panel of UJNR
- 01-4 Urban Bays and Waterways Management Program
- 01-8 14<sup>th</sup> International Scallop Aquaculture and Biology Workshop
- 01-10 Development of a Report "Legacy of Florida's Beaches"
- 02-7 Invasive Species in Florida's Saltwater Systems: Where We Are and Where We're Going?
- 03-1 Florida Sea Grant Elise B. Newell Seminar Series
- 03-2 Timely Marine Issues
- 03-3 Marine Biotechnology Outreach and Communication Foundation Using Florida Sea Grant Research
- 03-4 Spiny Lobster Technology Workshop for the Florida Lobster Industry
- 03-5 Toxic Sulfide Concentrations in the Sediments and Water Column of the Suwannee River Estuary and its Influence on Hard Clam Survival
- 03-6 Support for Marine Ornamentals '04
- 03-7 Validation of Fatty Acid Signatures in Diet Analysis of Elasmobranch Fishes
- 03-8 Sub-cellular Localization of Enzymes Involved in Pseudopterosin Biosynthesis
- 03-9 Lariculture of Ornamental Emerald Crab and Caribbean and Reef Lobster
- 03-10 Strengthening the Collaborative Partnership of the Florida Sea Grant Boating and Waterway Management Program
- 03-11 Assessment of the Potential for an Invasive Macroalga (*Caulerpa brachypus*) to Establish Populations in the Indian River Lagoon, Florida Based on Salinity Tolerances

## II. ADDITIONAL PROJECTS FROM SPECIAL INITIATIVES AND NATIONAL OPPORTUNITIES (Either in process or started in 2003)

### II. A. Research

**R/LR-B-51, Fisheries Habitat: Evaluating Gag Spawning Aggregations and Benthic Habitat in the West Florida Shelf** - - West Florida shelf-edge reefs are of major importance to reef fish fishery production of the Gulf of Mexico. Almost all the important reef fisheries are overfished and some are threatened. This project will

monitor changes in gag grouper spawning aggregations, determine movement patterns, reef fish populations and describe habitat characteristics. These results will allow management to occur using science-based information.

**R/LR-B-52, Field Assessment of the Effects of Artificial Reefs and Their Role in Fisheries Management - -** Artificial reefs are a potentially powerful management tool that can be used to enhance fish production and divert deleterious impacts away from natural habitat. To date, their use is limited by some interests due to a scientific controversy over attraction-production. Solutions to this problem must quantify the negative effects of attracting fish away from natural reefs, the positive effects of providing new habitat, and the compensatory responses mediated by reducing density-dependence on natural reefs. Impact assessment, experimental design and a statistical framework will be developed for long-term studies of fish dynamics, using important ornamental reef fish species in the Florida Keys. These small reef fishes comprise an emerging fishery, and provide a tractable model system in which to explore the efficacy of artificial reefs.

**R/LR-A-34, Sea Grant Technology Program: Development of Bay Scallop Stock Enhancement Technology** -- Depletion of bay scallops in the Eastern Gulf of Mexico is largely due to loss of seagrasses that form an essential habitat. Seagrasses are recovering, but bay scallop spawning stocks are at an all-time low abundance in Tampa Bay. The goal is to significantly advance developing hatchery-release technology to replenish bay scallop populations on the Florida West Coast and to test the relative efficiency of cage versus free-planting cultured scallops in the field.

**R/LR-Q-23 [FL-GOIP-5], Integrated Oyster Market Research, Product Development and Evaluation, Promotion and Consumer Education for the Gulf of Mexico's Oyster Industry - -** Millions of U.S. consumers eat oysters. However, for a small segment of the population, eating raw or undercooked oysters can cause serious illness or death from *Vibrio vulnificus*. The goal of this project is to educate consumers, conduct new oyster product research and processing techniques and educate medical groups so that human safety risks can be minimized or eliminated while maintaining an industry.

**R/LR-Q-24 [FL-GOIP-3], Strategies for the Decontamination of Oysters Infected with *Vibrio vulnificus* - -** Bacteriophage have been proven to be effective in the prevention and treatment of diseases in humans and animals. Previous Sea Grant research has shown that phage specific for *V. vulnificus* can prevent lethal disease in mice caused by this organism. This project extends that work to test scale-up systems for phage treatment to eliminate *V. vulnificus* from oysters.

**R/LR-Q-25, Testing the Feasibility of Red Tide Remote Sensing** -- Current on-site sample collection and laboratory-based analysis is costly and time consuming in regards to approving coastal waters for shellfish growing for human consumption. Red tide is often a problem which requires constant sampling. This project will test the accuracy and effectiveness of satisfying red tide monitoring methods using remote sensing equipment rather than labor-intensive on-site sampling.

**R/LR-Q-26, Improved Methods for Molecular Detection of *Vibrio vulnificus*** -- *Vibrio vulnificus* remains the leading cause of seafood-associated deaths. Current detection assays are consuming (2-7 days), labor intensive, expensive and not always reliable. FDA has increasingly turned to molecular detection, but problems have been reported with available assays. The objective of this project is to evaluate and improve molecular detection and typing methods for *V. vulnificus* in order to standardize evaluation of oyster and seawater samples.

**R/C-E-46 [ANS-20], Genetic, Distributional and Ecological Characteristics of Recent Swamp Eel Introduction in Florida - -** In the last seven years swamp eels have been discovered in aquatic habitats in Georgia and Florida. These are large amphibious predators capable of dispersal over land with the potential to disrupt ecosystems. The goal of this project is to discover how eels are introduced and how this can be prevented and describe their ecology and life history, etc., and suggest methods to control them.

**R/C-E-47, A Multidisciplinary Investigation for Determining MPA Baselines at Bimini Bahamas and Essential Fish Habitat for the Lemon Shark *Negaprion brevirostris* (Poey 1868) at the Three Nursery Sites** - Habitat loss and degradation pose serious threats to the long-term sustainability of coastal marine fish and shellfish resources. NOAA's Strategic Environmental Assessments Division has recently embarked on a program to map and analyze fish and invertebrate habitats and distribution using a geographic information system in conjunction with habitat suitability index models. At present, these models generally lack mathematical and statistical rigor. This project will develop a practical, biologically-sound, and statistically robust methodology for quantitative assessment of what constitutes 'essential habitat' for economically and ecologically important coastal species.

**R/C-E-48, Multiple Habitat Utilization by a Coastal Fish: Diel, Seasonal and Ontogenetic Movement of Gray Snapper (*Lutjanus griseus*)** -- Many reef fishes are thought to make diel, seasonal, or ontogenetic migrations among multi-habitats. But most evidence of such movements is indirectly inferred from density and size-structure differences among the habitats. This project will provide quantitative results (time and spatial range) which will have direct utility for resource managers charged with designing and implementing management plans for tropical and subtropical coastal habitats and fisheries.

**R/C-E-49, Killer Algae: Preventing Florida from Becoming the Next Invasion Location of *Caulerpa taxifolia* - Mediterranean** -- Since 1984, aquarium releases of *Caulerpa taxifolia* - Mediterranean strain have led to this "killer algae" becoming established in coastal waters in Europe, California and Australia. In all cases, the ecological and economic costs have been substantial. The goal of this project is to significantly reduce the likelihood that *Caulerpa taxifolia* will become established in Central Florida.

**R/MI-12** Development of an Advanced Underwater Video Telemetry and Data Collection Instrument for Remote Observation of Aquatic Organisms and Underwater

**E/ST-28 Knauss Fellowships** - - One student is currently spending one year in Washington, D.C. working in NOAA offices.

**E/INDST-2, (Industrial Fellowship) - ABC (Aquaculture, Biology and Conservation) of Marine Ornamental Shrimp** - - The great increase in the popularity of saltwater aquaria has dramatically stimulated the worldwide fishery for small, colorful coral reef fishes and invertebrates. People involved in this fishery utilize a variety of techniques, ranging from hand-operated nets to extremely damaging application of toxins and explosives to stun fishes so survivors can be easily caught. All of these techniques can have deleterious effects on the reef ecosystems. The goal of this project is to develop the technologies for culturing more ornamental species in order to minimize wild collection while, sustaining the aquarium industry and creating new commercial opportunities.

**E/INDST-3, (Industrial Fellowship) - Captive Nutritional Management of Atlantic Surgeonfish: Effect of Ascorbic Acid Deficiency on Development of HLLES-related Pathology** - - The production of freshwater ornamental tropical fish was a \$57M industry in Florida in 1997. This figure includes limited farm production of tropical marine fish for the ornamental trade, but does not include collection of free-ranging animals that were sold through Florida's industry into the pet trade. Wild marine fish are harvested throughout the year from the Florida Keys and coastal waters of the southern part of the state and sold as aquarium specimens to public and private aquariums. Head and lateral line erosion syndrome (HLLES) may be the most prevalent disease of captive marine fish. The goal of this project is to determine whether there is indeed a correlation between dietary ascorbic acid and HLLES in acanthurids.

## II. B. Extension

**E/NS-2, Southeast Regional Aquatic Nuisance Species Education and Outreach Network** - - Science education in the U.S. is undergoing fundamental change and reform directed at the kindergarten through high school (K-12) levels or precollege system. This project will focus on nonindigenous species by addressing content and attitudinal needs of classroom teachers and informal education and outreach personnel, who would in turn, incorporate the latest scientific content knowledge in these areas in their classrooms or outreach efforts. Teachers will learn about nonindigenous species, their regional and national impact, and management attempts.

**E/T-9, NOAA South Florida Marine Ecosystem Outreach Project** - - Restoration and long-term sustained water quality of the South Florida Ecosystem is a priority among federal, state and local agencies, with billions of dollars being expended on a variety of projects over the next 25 years. The ultimate success of these projects will depend on the awareness, knowledge and decisions of citizens, business owners, and community leaders that are based on sound science. This project will serve as the link between science-based information developed by NOAA agencies and Sea Grant-supported research and the citizenry of South Florida.

**E/T-10, Coastal Storms Initiative Outreach Project** - - More than half of the population of the U.S. lives in the coastal area. Storms in coastal areas are more severe and are less predictable than in the interior of the country. Coastal storm losses have an economic as well as an environmental impact, with damages estimated at between \$10 billion and \$50 billion dollars each year. The Florida pilot is the first regional pilot program in what is planned to be a series of national pilot programs. Because of recent storm events, the coastal communities in Florida are highly motivated to see improvements in prediction and tracking of storm paths.

**E-T-11, Online Outreach Designed to Demystify Marine Biotechnology: *marnebiotech.org*** -- There is a general lack of understanding of marine biotechnology by non-scientists. The goal of the project is to draw upon Sea Grant's vast national network of research, education and outreach resources to build an effective marine biotechnology website. It will be an effective tool for increasing awareness of this field among government officials, policymakers, students, educators, scientists, journalists, the general public, and industry professionals.

**E-TP-3, Educational Workshops for the Florida Medical Community on the Risks Associated with the Consumption of Shellfish That May Contain Naturally-Occurring *Vibrio* Bacteria** -- One of the primary strategies to reduce the number of illnesses in the high risk population for *Vibrio vulnificus* is to educate and inform the medical community. The result will be that appropriate information will be transmitted directly to the high-risk patient at the time of treatment and/or counseling for the high-risk condition. This project will conduct 30 regional workshops at local chapters of the Florida Dietitians Association and Florida Nurses Association to provide educational materials developed by trained health educators.

## III. MAJOR EXTRAMURAL (NON-SEA GRANT-FUNDED) PROJECTS

A number of other projects indicate the reliance of other organizations upon Florida Sea Grant, and are in addition to the partnerships reflected in the projects listed above. Certain projects supplement salary requirements for Extension. These are projects that are funded from the agency to Florida Sea Grant, but are not funded through NOAA. A brief listing of those projects active during 2003 by funding sources is presented below.

**E/T-12, Southeast Atlantic Coastal Ocean Observing System** -- Florida Sea Grant Extension will continue its second year outreach activity as a component of the Southeast Atlantic Coastal Ocean Observing System (SEA-COOS). The four Sea Grant programs (North Carolina to Georgia) are cooperating in this regional project. The goal is to establish a dialog with non-scientific users, identify their information needs and the preferred formats and methods of information delivery. Florida will train its extension faculty, focus on regional groups (e.g., ports,



hazards) and local sectors (e.g., fishers and emerging response offices), host sector workshops and convene three instate meetings with user groups.

**E/T-13, Southeast Regional Aquatic Nuisance Species Education and Outreach Network --** The need for enhanced ocean education is clearly recognized by scientists in the oceanographic community, including both classroom and informal educators. One specific need is public education on aquatic nuisance species. As part of a four-state southeast regional effort, Florida will conduct a number of public school workshops and publish a report with lesson plans. This effort will present science-based information on aquatic nuisance species to community leaders, resource managers, students and the public through outreach, information and technology transfer programs conducted by Sea Grant extension agents; federal, state and local public information officers; K-12 classroom teachers, and other outreach educators.

**COSEE-GOM, Florida Portion. Regional Center for Ocean Education Excellence (COSEE) – Gulf of Mexico --** This program is designed to strengthen ocean sciences education through interpretation of research results. The audience is the general public, pre-college teachers and students, informal educators and university and community college faculty and students.

**SFWMD-CERP-1, Florida Keys CERP and Water Conservation Outreach Partnership --** The goal of this project is to deliver an outreach program for the overall Comprehensive Everglades Research and Outreach Partnership.

## 6.0 PUBLICATIONS

Florida Sea Grant issues *Publication and Communication Support Guidelines* to all Sea Grant project collaborators, and has an organized process for printing and tracking publications. Documents published “in-house” include Sea Grant Reports, Sea Grant Extension Publications, Sea Grant Technical Papers, thesis or dissertation abstracts, staff papers and other items such as Extension newsletters. Each is numbered and tracked in an appropriate series. Books and journal articles are published elsewhere, but tracked for completion and credit by Communications staff. All publications are distributed to the Pell Library at the University of Rhode Island. A total of 58 different publication items (with thousands of copies) were completed in 2003, and 122 are in various stages of completion. A listing of Communication publications and products from 1999 through 2003 is shown in Table 1.

Table 1. Summary of Florida Sea Grant Publications and Other Educational Products, 1999 to 2003.					
	Published				
	2003	2002	2001	2000	1999
Sea Grant Reports	0	1	3	2	1
Sea Grant Extension Publications	4	9	8	17	30
Sea Grant Technical Papers	5	7	12	9	6
Books	2	2	1	2	0
In Press	0	0			
Book Chapters	7	2	6	4	3
Scientific Journal Articles	16 <sup>a</sup>	20	28	17	21
In Press	9				
Submitted	54				
Graduate Thesis or Dissertation	6	19	9	21	11
In Process	45				
Staff Papers/Conference Proceedings	10 <sup>a</sup>	66	24	9	10
In Press/Submitted	14				
Extension Newsletters	7	7	5	5	6
CD-Rom	0	5	0	0	0
WWW Pages Maintained	10	1 <sup>c</sup>	1 <sup>c</sup>	1 <sup>c</sup>	5

<sup>a</sup> Number reflects totals prior to processing all 2003 project final reports.

<sup>c</sup> Does not include website maintained by county faculty. Most have a “local” website that links with the Florida Sea Grant main website.

Publications of the Florida Sea Grant College Program, 1999 – 2003

CALENDAR YEAR 2003

(January - December)

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### IX. CD-ROM Releases

None

### X. Home Page

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## CALENDAR YEAR 1999

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**IX. CD-ROM Releases**

None

**X. Home Page**

Maintain University of Puerto Rico Sea Grant Home Page.

Maintain Southern Regional Home Page (Texas, Louisiana, Mississippi, Alabama, Florida, Georgia, South Carolina) not released.

Maintain the Southwest Florida Non-Regulatory Anchorage Management Program Home Page.

Maintain the National Sea Grant Display Calendar.

Florida Sea Grant Home Page.

Florida Bay Home Page.

## **7.0 STUDENTS**

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### **An Investment in Florida's Future Through Sea Grant Sponsored Graduate Education**

#### **Introduction**

Florida Sea Grant has been serving the people of Florida for 32 years. Its mission is to enhance the practical use and conservation of coastal and marine resources in Florida to create a sustainable economy and environment. Florida Sea Grant operates through a statewide university-based research, education and extension partnership of state and federal agencies, businesses and citizens. This partnership involving university faculty and the public was created nationally in 1966 with the passage of federal legislation that created the National Sea Grant College Program. The U.S. Secretary of Commerce designated the State University System of Florida as a Sea Grant College in 1976, and the program is hosted by the University of Florida. Today, 31 Sea Grant programs, based within the academic structures of their states, together form the national program.

The Florida Sea Grant College Program focuses on marine and coastal issues across research, education and extension activities. Florida Sea Grant programs are also multi-disciplinary in nature. Research is funded on a statewide, competitive basis. Education programs focus on funding graduate students using public and private funds and in educating citizens. An organized extension outreach program, using both on-campus and off-campus faculty, combines faculty and student research results into formats the public can use, and it provides stakeholder needs in research to the faculty and students. No other academic department or single university has this breadth and depth of focus on multi-disciplinary marine and coastal issues statewide.

At the heart of Florida Sea Grant's program are the scientific investigations that it supports. On an annual basis, at least 50 percent of Florida Sea Grant's core federal funding is used to support research. An annual goal is that at least 25 percent of research funds are used to support graduate student assistantships and other direct student involvement in research activity.

#### **Education and Human Resources**

Investment in the future of Florida's coastal resources requires both capital and labor. It is critical that the labor force be highly trained and skilled. As a university- and issue-based research and education program, Florida Sea Grant draws upon its partnership of people, universities, governments and businesses to ensure that Florida has a technically trained work force and scientifically and environmentally informed citizens.

Through support to graduate education, Florida Sea Grant produces highly trained scientists, social scientists, engineers and other professionals that increase Florida's economic competitiveness both nationally and internationally, and who devise and lead creative management concepts to keep Florida's coastal environment sustainable for future generations.

The opening of new viewpoints and perspectives is one of the most important challenges to higher education. In addition to gaining scientific knowledge and research skills, students need to engage interdisciplinary and multidisciplinary perspectives, use multiple contexts in solving problems, and communicate complex ideas well in work group settings.

Fostering these important skills requires a diversification of learning opportunities at the college or university level. Florida Sea Grant participates in various fellowship and scholarship programs and traditional research assistantships that serve to broaden the experiences of graduate students, and in some cases, undergraduates. Florida Sea Grant has provided substantial support to educating Florida's future marine scientists and environmental professionals by giving selected graduate students the opportunity to develop their research and analytical skills by assisting scientists with Sea Grant projects. These graduate students are then prepared to assume prominent positions where they can impact directly on the continued wise use, sustainable development, and

conservation of marine and coastal resources. Florida Sea Grant will also continue to invest in its faculty and staff so they have the necessary skills and training to meet the long-term needs of the organization.

Florida Sea Grant funded graduate students apply their skills and training from over 30 disciplines in research on:

- Aquaculture
- Marine Biotechnology
- Fisheries
- Seafood Safety and Quality
- Water Dependent Businesses
- Coastal Water Quality
- Coastal Habitats
- Coastal Storms and Hazards

### Florida Sea Grant Student Programs

Florida Sea Grant does not “teach” or “graduate” students in the tradition of an academic department. However, funding and support for graduate students in many academic departments statewide is provided through Florida Sea Grant research projects and with other student fellowship and scholarship programs. Students receive Florida Sea Grant support through both public and private sources of funds.

Florida Sea Grant Student Programs	
Public Funds	Private Funds
<ul style="list-style-type: none"> <li>• Research Assistantships</li> <li>• Dean John A. Knauss Marine Policy Fellowships</li> <li>• Sea Grant Industrial Fellowships</li> <li>• National Marine Fisheries Service/Sea Grant Fellows in Marine Economics and Populations Dynamics</li> <li>• NOAA Coastal Service Center Coastal Management Fellowship</li> </ul>	<ul style="list-style-type: none"> <li>• Aylesworth Foundation for the Advancement of Marine Sciences</li> <li>• Old Salt Fishing Club Scholarship</li> <li>• Charles Skoch Sea Grant Scholarship</li> </ul>

Beginning in the early-1980s, a decline occurred in the number of students supported by federal Florida Sea Grant funds. This decline began and continued during the “tough” federal budget years for Sea Grant when overall federal Sea Grant appropriations were cut (1981) with recovery not really beginning until the mid-1980s. University funding in Florida also suffered during that time and faculty writing Sea Grant (and other granting agency) proposals included summer salaries to protect employment, at the expense of funding that was formerly used for graduate students. Because of the high priority within Florida Sea Grant for student support, corrective action was taken to reverse the decline in student support.

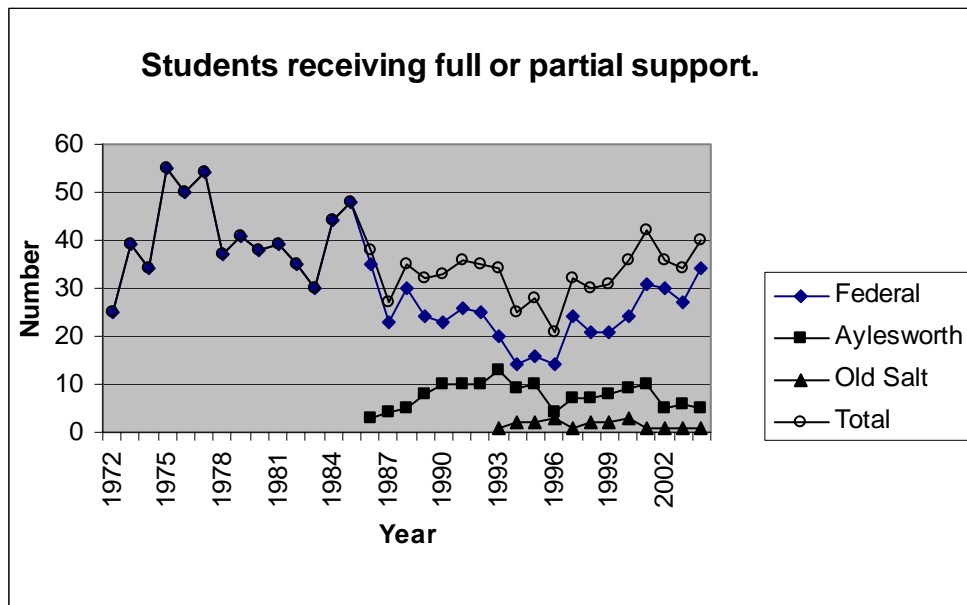
Beginning in 1993, Florida Sea Grant adopted the policy that, at minimum, 25 percent of the Florida Sea Grant federal research budget would be used to support graduate students. Beginning in 1998, Florida Sea Grant research project funding guidelines indicated that the inclusion of graduate students in proposals would give the proposal a competitive edge, assuming all other review criteria were satisfactory. This policy has been followed since, and funding has been short of the goal only one time, in 1996 (see Table 1). In fact, student funding reached 1993 percentage levels in 2002 and was the highest ever in 2003 at 43 percent.

**Table 1. Florida Sea Grant core federal funds used for graduate student support, 1993-2004.**

Graduate Student Funding	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
As Percent of Research Funds	40	31	31	24	27	36	30	30	27	40	43	38
As Percent of All Funds	19	13	13	12	13	17	15	14	14	21	22	20

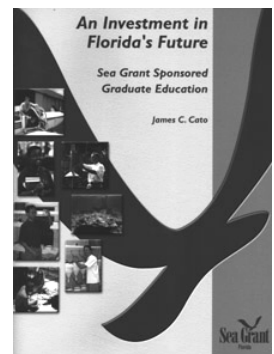
Beginning in 1986, Florida Sea Grant also initiated private support for Sea Grant sponsored students. The Aylesworth Foundation for the Advancement of Marine Sciences was formed with a major portion of its funding devoted to Florida Sea Grant scholarships. The Old Salt Fishing Club also created a scholarship program for students with both scholarship programs conducted in partnership with the Florida Sea Grant Program. By early 2004, a total of \$457,324 had been spent since 1986 from those private sources for Sea Grant student scholarships.

The overall impact of these efforts has been to cause an increasing trend in the total number of graduate students supported since 1996 (the lowest year ever). For 2003, a total of 34 graduate students are receiving some support (see Figure 1), with 35 having federal support in 2004.



### Student Program Analysis

An exhaustive student tracking and analysis of Florida Sea Grant student programs was begun in early 2001, completed during 2002 and the results published in November 2002. Preliminary results were included in the 2001 Performance Counts! In summary, since 1986, a total of 169 students have completed a degree or other academic program with financial assistance from Florida Sea Grant, involving students from 13 Florida universities and four out-of-state universities. Sixty-one percent have been M.S. degrees, 26 percent Ph.D. degrees and 13 percent undergraduate, non-thesis or post-doctoral fellowship work. Each of them worked on the solution to a current Florida coastal resource issue or opportunity. Fifty-five percent are now employed in Florida, and another 43 percent are employed in 23 different states in the U.S. The rest are employed in 7 other countries. Twenty-four percent are now involved in university teaching or research (e.g.,



assistant professor); 23 percent are working for industry or non-governmental organizations (e.g., coastal engineer in a civil engineering firm); 15 percent are in federal or state agencies (e.g., scientist at the Florida Marine Research Institute); 10 percent are pursuing an additional degree (e.g., a Ph.D. after the completion of a M.S.); 24 percent were in the process of completing their degree and 4 percent were unable to be tracked. Since early 2002 when our most recent tracking study was completed, an additional 88 students have been added to our database due to Florida Sea Grant support of various types. Our tracking data will be updated in 2004.

Sea Grant's multidisciplinary approach also gives students scientific knowledge with interdisciplinary perspective; they use multiple contexts to solve problems; and they learn to communicate complex ideas. This is apparent in that students have graduated from over 20 different academic degree tracks. These include biology, engineering, marine science, food science and human nutrition, fisheries/aquatic sciences and oceanography, among others.

Also of particular note, 26 graduated students are now working in various government agencies. Thirteen are working in NOAA: at a National Estuarine Research Reserve (7); National Weather Service (1); National Marine Fisheries Service (4); Office of Global Programs (1). Six are at other federal agencies including the U.S. Geological Service, Army Corps of Engineers, U.S. Navy, Food and Drug Administration and the National Cancer Institute. The other 13 are working in state or county governments, various regional management districts or in foreign government agencies.

Thirteen of Florida Sea Grant's Knauss Fellows are now working in NOAA. Four are in the National Ocean Service: Special Projects Office (1); Coastal Ocean Program (1); National Marine Sanctuary Program (1); International Programs Office (1). Three are working in the National Marine Fisheries Service: Office of Protected Resources (1); Office of Global Programs (2).

These data have been continually updated and the first revision of the November 2002 analysis will be published in fall 2004.

## 8.0 PROGRAM AWARDS

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The following awards represent a sample of the awards presented to various Florida Sea Grant Extension faculty and statewide, regional and national awards during 2003.

### Local Awards

- Chuck Adams      Received Departmental Extension Excellence Award 2003 for having developed and maintained an effective and visible extension program within the Food and Resource Economics Department.
- Dianne Behringer      Received National Association of County Information Officers (NACIO) Superior Ranking and Best in Class. The National Association of Counties (NACO), holds the Awards of Excellence Competition each year to recognize the best public education and outreach efforts of counties nationwide. The Waters Matters media kit won a superior ranking and top honor, “Best in Class”, for the category of promotional/persuasive writing.
- Marella Crane      Received Association of Natural Resource Extension Professionals (ANREP) Promotional Material Silver Award for program on reducing marine debris. Program reached over 1,000 boaters to help enhance their awareness of the environment and to collect trash they encounter on the water.
- Received Association of Natural Resource Extension Professionals (ANREP) Series of Articles Gold Award for series of articles titled: “Biscayne Bubbles.” This publication was in partnership with Outreach Coordinator from NOAA’s Atlantic Oceanographic and Meteorological Laboratory.
- Received four Miami-Dade County Consumer Services Department Star Service Awards for recognition of conducting educational programs on coral reefs project with 4-H and developing video for Miami-Dade TV on water pollution.
- Andrew Diller and Chris Verlinde      Received Coastal America Partnership Award as part of the Project Greenshores team that was awarded a plaque and letter from the President of the United States.
- Andrew Diller      Received Golden Image Award for documentary video “The Lost Island: Perdido Key.” The documentary highlights the conflicts between human use and development of coastal dune habitats with protecting these habitats for native species. Andrew Diller is featured as a sea turtle biologist in the film.
- Scott Jackson      Received Florida Association of Extension 4-H Agents – Search for Excellence Team Award for the “Give Forest a Hand” project conducted at Freeport Elementary School.
- Received third place award for Florida State Fair Exhibit “Walton County (A Feast for the Senses).”
- Maia McGuire      Received both state and regional level awards for best individual newsletter from Florida Association of County Agricultural Agents and National Association of County Agricultural Agents.



Received state and regional level awards for best slide set (2003) from Florida Association of County Agricultural Agents and National Association of County Agricultural Agents for the slide set, “There’s and Estuary Living Next Door.”

Received the Florida Association of Natural Resource Extension Professionals Communications Award for Best Mixed Media for PowerPoint presentation, “Water and Watershed” and the accompanying “Water Jeopardy” game.

John Stevely Received Award of Recognition from Dr. Norman Blake, University of South Florida, for work in the mid-1970’s transplanting adult scallops to the Tampa Bay area. This work was the first effort to enhance scallop populations in the region.

Donald Sweat Received Award of Recognition from the St. Petersburg Aquarium Board of Directors as Chairman of the Citrus County Tourist Development Council for designing and carry out the scallop season economic impact survey.

#### Statewide Awards

- Sustainable Florida Award – Presented by the Council for a Sustainable Florida, for overall excellence in statewide university-based coastal research, problem-solving, education, extension/outreach and communications program. Recognized by the Governor and Cabinet in Tallahassee and at a formal recognition program in Boca Raton.
- Jim App IFAS Outstanding Design Team Award – Presented by University of Florida IFAS Extension Administration at the annual conference of Florida Association of Extension Professionals. This award goes to the best UF/IFAS Extension Design Team in the state. The Sustainable Fisheries (Sea Grant) Design Team received this award. Members included Chuck Adams (Leader), Doug Gregory, Don Sweat, John Stevely, Rich Novak, Bob Wasno, Marella Crane, LeRoy Creswell and Chris Combs

#### Regional Awards

- EPA Gulf Guardian Award - Florida’s Clean Boating Partnership (CBP) won first place in the Partnership Category. The CBP is a collaborative effort of FSG, Marine Industries Association of Florida, International Marina Institute, U.S. Coast Guard, and Florida Department of Environmental Protection. All county faculty participate in the CBP activities.

#### National Awards

- National Sea Grant Extension Award – The Urban Boating and Waterways Extension Program was named the top Extension program among all 30 Sea Grant Programs in a national competition conducted by the Sea Grant Association.
- FSG’s “An Investment in Florida’s Future: Sea Grant Sponsored Graduate Education,” was given the Blue Ribbon Award in its category at the annual Sea Grant Association meeting.
- Association of Food and Drug Officials (AFDO) - - Dr. Steve Otwell received the President’s Special Award, “Acknowledging Service to AFDO through the past three years in Advisory Programs for Food Safety and Quality Through Training and Education.

## 9.0 OUTREACH ACTIVITIES

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This section contains a brief description of outreach activities organized into five areas: (1) major program activities, (2) major program plans of work, (3) workshops, conferences, displays and signage, (4) web pages and (5) quarterly and bi-monthly monthly summaries. The reader should note that this section reports activities, not impacts. Impacts are reported in section 2.0 of this document as accomplishments and benefits, and are reported under specific goals and tasks. This section contains only summary information to highlight major areas of outreach activity.

### Major Program Activities

Many of the most successful outreach activities represent “programs” of work. That is, they are much more than one major workshop or conference. The “program” may utilize research faculty or research findings, may involve several methods of outreach technology or may represent a series of workshops. All these elements are reflected during major activities ongoing during 2002. Several examples follow.

#### *Marine Biotechnology*

In contrast to many other subjects addressed by university outreach and extension efforts, in which the audiences and client groups are large, widespread, and established, marine biotechnology is relatively small and young. But its promise to contribute socially and economically significant health and industry-related products and processes from living ocean resources is great. Thus, Florida Sea Grant has found itself in a unique role of educating decision-makers with focused needs, including business executives, legislators and their staffs, and scientists -- in contrast to broad and general public audiences. In 2003, FSG (1) was included in a State Center of Excellence project for outreach to teachers and business executives; (2) completed a review of all 24 of its recent research projects in marine biotechnology, as the foundation for outreach via print and website information; (3) participated on the national Sea Grant network “theme team” for marine biotechnology to develop greater coordination and resources among leading Sea Grant programs in the U.S.; and (4) participated on the board of directors of BIOFlorida, the statewide trade association for this field. In each case, “elites” received science-based information to use in deciding on investments and levels of effort. The sum of these decisions is building a foundation for Florida biotechnology to achieve national leadership for the ocean sector.

#### *Florida Ocean Alliance*

The Florida Ocean Alliance is now into its fifth year. This is a non-partisan organization dedicated to bringing together government, academia and private sectors in Florida to protect and embrace Florida’s ocean and coastal resources for continued social and economic benefits. It is an indirect outgrowth of Governor Chiles’ Commission on Ocean Policy for Florida. The FOA is an outgrowth of one of the recommendations. Members of the Florida Ocean Alliance in 2003 were:

Florida Ports Council  
Florida Sea Grant  
Harris Corporation  
Hubbs-Sea World Research Institute  
Arvida Corporation  
Mote Marine Laboratory  
IGFA, Fishing Hall of Fame  
and Museum

FAU/Cantanese Center for Urban and Environmental  
Problems  
Florida Institute of Oceanography  
University of Miami/RSMAS  
Carnival Cruise Line  
Royal Caribbean International Cruises  
The Nature Conservancy

The Alliance conducts an annual conference, assists with the annual Ocean Day in Tallahassee, and provides other educational services.

### *Marinas and Boatyards*

Florida Sea Grant is a full partner in the Florida Clean Boating Partnership, the original clean marina program in the nation. Contributions have included writing the curriculum for workshops on clean marinas and clean boatyards, participating in presentation of these workshops, and chairing committees on the partnership. The results to date of this collaboration between the Florida Department of Environmental Protection (funding) and the marine industry led partnership is 79 clean marinas and 12 clean boatyards, with about 130 more “in the pipeline.” Ten other states are now involved in clean marina programs and six more are contemplating startup. Most of these programs have used elements of the Florida Clean Marina model. The Partnership estimates they were responsible for preventing a significant level of pollution from entering Florida’s water over the past year. Clean Marinas and Clean Boatyards estimated that over 600,000 pounds of glass, 1.5 million pounds of paper, 3.7 million pounds of aluminum, 5.6 million gallons of oil and over 1 million gallons of antifreeze were either recycled or properly handled keeping this material from entering the waters of the state. Additionally, the Partnership has an active bilge sock distribution project underway that provides socks to individual boaters that pledge to do their part as a Clean Boater. Each sock absorbs 2.5 quarts of oil and grease resulting in over 13,500 gallons of material from entering the waterway when all the socks are distributed and deployed.

Florida Sea Grant jointly sponsored and coordinated a “Public Access Workshop” with the Southwest Florida Marine Industries Association. This two-day meeting focused on the issue of loss of public access ramps and facilities. Currently water-dependent uses such as boat repair and fueling facilities, marinas and boating access ramps are being replaced by non water-dependent businesses, such as restaurants, and residential condominiums. In light of the fact that Florida has over 900,000 in-state registered boats, and over 400,000 out-of-state registered boats, this loss of access to Florida’s waterways is becoming a very big concern to the boating industry and public. Experts from across Florida and the United States provided information on the issue, and steps being taken to resolve these issues. Over 100 individuals attended from all parts of Florida.

### *Sustainable Marine Fisheries*

FSG believes that effective fisheries extension requires use of research, extension and communication faculty and staff in the preparation and delivery of information. Sometimes this involves research in presenting results to a management agency. Other times it is solely an extension activity, for example, meeting with a group of fishers to explain a proposed management regulation or a new business practice. Often it is packaging technical information in a communications context that can be understood by a lay audience. Some examples make these points clear.

During 2000-03, a total of ten faculty receiving Sea Grant research [Murie (UF), Milon (UCF), Coleman (FSU), Koenig (FSU), Ehrhardt (UM), Lindberg (UF), Burgess (UF), Butler (ODU)] or extension [Adams, Gregory (UF)] funding served on the scientific and statistical committee or an advisory panel of either (and both for some individuals) the Gulf of Mexico Fishery Management Council (GMFMC) or the South Atlantic Fishery Management Council (SAFMC). This ensures that the latest research results or requested information feeds directly and without delay into the NOAA fishery management process.

**Commercial Fishing and Recreational Fishing --** The results of all recently completed spiny lobster research projects were presented to spiny lobster fishers, and their input sought on future priorities, during a spring 2003 workshop in the Florida Keys.

During 2001, Florida Sea Grant organized a regional artificial reef workshop for 35 participants, including 18 artificial reef coordinators from 10 coastal counties, and in 2002 the state’s artificial reef coordinators to track

progress. The latest scientific findings were presented along with training in the latest technology on evaluation, design, planning, permitting, management and monitoring. The use of circle hooks to reduce the catch of undersized fish is being promoted and a venting tool has been developed with over 5,000 distributed. A commercial vendor is now interested in the latter. Over 90% of participants in some workshops say they will use the tools. The tools have been distributed in over 12 states and five countries.

FSG is an active participant in regional fisheries extension activities as mandated by the FY02 and FY03 federal appropriation for Sea Grant. These projects include the South Atlantic Regional Fish Extension Project to design, develop and evaluate educational materials on marine protected areas (MPAs) and essential fish habitat. The Gulf of Mexico Regional Fish Extension Project is on derelict fishing gear, alternative shrimp gear technology, methyl-mercury and ciguatera in fish and the sustainability of the Gulf of Mexico shrimp industry.

SGEP has a long history of interacting with NOAA/NMFS and state and federal fishery managers. The NOAA/NMFS/SEFC in Miami and the Southeast Regional Office (SERO) in St. Petersburg have been long-time partners in many projects (e.g., SEFC/AOML/FSG current South Florida Ecosystem Project and recent Florida Bay Outreach Project). Involvement with the SAFMC and GMFMC is at a high level as shown above. Several faculty have close working relationships with the Florida Fish and Wildlife Conservation Commission (FWC). These interactions have been cultivated by the more senior SGEP agents. Having several agents dedicated to fishery management issues strengthens the diversity of SGEP with interactions and collaborative efforts with fishery managers at local, state and federal levels, and they also provide leadership to SGEP in becoming more involved in fishery issues.

Florida Sea Grant management conducted a thorough fisheries needs assessment between 21 November 2002 and 15 January 2003. About 75 management and research agency staff and industry personnel were contacted. These meetings were organized and attended principally by Jim Cato (FSG Director) and Chuck Adams (FSG Fisheries Economics Specialist and Design Team Leader), with assistance from Steve Kearn (FSG Communications), Mike Spranger (FSG Assistant Director for Extension) and Bill Seaman (FSG Associate Director)<sup>1</sup>. In addition, the National Sea Grant Theme Team Fisheries document and the proceedings of RecFish 2000 were reviewed. The similarity among needs pointed out by these groups and during these meetings was profound in at least four ways. First, there is a critical need for additional fishery extension assistance that can be provided by Florida Sea Grant. Second, the demands on many newer Florida Sea Grant agents are so diverse, due to the diverse stakeholder groups they serve, that many are not as trained in fisheries issues as they need to be. Third, the needs were strikingly similar in the types of extension programs needed. Fourth, these groups stand ready to partner with FSG to accomplish our common goals. It is difficult to cover in detail the needs in the limited space in this proposal, but the following brief summary makes that attempt, and provides the critical needs assessment on which Florida Sea Grant submitted its 2003 Fish Extension Enhancement Proposal.

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<sup>1</sup> Gulf of Mexico Fishery Management Council, 21 November 2003. Tampa, Florida. GMFMC: Swingle, Leard, Goode, Lamberte, Hood; FSG: Cato, Adams. South Atlantic Management Council, 7 January 2003. Charleston, SC. SAFMC: Cupka, Mahood, Waugh, Iverson, Pugliese, Kitner, Murphy, O'Malley; FSG: Cato. Florida Fish and Wildlife Conservation Commission, 26 November 2002. Gainesville, FL. FWC: Roy Crabtree (Division of Marine Resources Director and future NMFS, SERO, Director); FSG: Cato, Adams, Seaman, Spranger, Kearn. NMFS Southeast Regional Office, 17 December 2002. St. Petersburg, FL. SERO: Patrae, Dalton, Weaver, Grimes, Holiman, Freselli, Ingles, Eldridge, Godcharles, Moore; FSG: Cato, Adams. NMFS Panama City Laboratory, 15 January 2003. PCL: Sheridan, Cortes, Fable, Fitzhugh, Kumpf, Allman, Collins, David, Carlson, Lombardi-Carlson, DeVries, Baremore, Palmer, Brusher; FSG: Cato, Adams. NMFS Southeast Fisheries Science Center and Atlantic and Oceanographic Laboratory Scientists, Miami, FL, 3 December 2002. SEFSC/AOML: About 30 attendees; FSG: Cato seminar with discussion on cooperative fishery research and extension opportunities. Southeastern Fisheries Association, Board of Directors bi-annual meeting, 12 December 2002. Tampa, FL. SFA: About 35 industry members; FSG: Cato, Adams, Otwell presentations.

Table 9.1.--Summary of critical extension education needs and organizations that expressed the need determined during November 2002 to January 2003 comprehensive needs assessment.

Critical Extension Needs	GMFMC	SAFMC	FWC	NMFS/ SERO	NMFS/ SEFC	NMFS/ PCL	SFA/ Industry
Better Communication (a)	X	X	X	X	X	X	X
Conservation Education (b)	X	X	X	X	X	X	X
Conflict Resolution (c)	X	X	X	X	X	X	X
Spanish Language (d)	X	X	X	X			
Research Feedback (e)				X		X	X
Management Techniques (f)	X	X					

- (a) There is a critical need for enhanced communication with fishers at the county or port level.
- (b) There is a critical need for fisheries conservation measures information, in particular for recreational use of artificial reefs and trap removal in commercial sector.
- (c) There is a critical need to reduce conflicts among user groups and better information and education would help.
- (d) There is a critical need for Spanish language educational materials in South Florida, particularly for the commercial sector.
- (e) Fishers need direct feedback on research results.
- (f) Educational programs on specific management techniques such as ITQs, MPAs and ecosystem management are needed.

These needs became the driving force for the Florida Sea Grant proposal in the national Sea Grant Fisheries Extension competition during 2003. Florida Sea Grant proposed three modules: (1) two new county faculty, (2) half-time recreational fishing specialist, (3) Spanish speaking communications expert and program. The first two modules were funded and the third was held for funding if adequate funds are appropriated in FY05. FSG had 2 of 18 modules funded nationwide (of 56 submitted) and obtained 12.2% of funds distributed nationally.

*Gulf of Mexico Center for Ocean Science Education Excellence (GOM-COSEE)*

Florida Sea Grant is part of a unique, thematic collaboration among the five coastal states (Texas, Louisiana, Mississippi, Alabama, Florida) that border the Gulf of Mexico. The primary goal of GOM-COSEE is to strengthen ocean sciences education through the interpretation of research results for interested public, pre-college teachers and their students, informal educators, and university and community college faculty and their students concerning the relevance of the oceans to our everyday lives. This project links educators, researchers, and interested public both regionally and thematically, focusing on the Gulf of Mexico as the vehicle to teach ocean sciences education. FSG collaborators include the University of Florida’s Natural History Museum; Seahorse Marine Lab; and Florida Fish and Wildlife Conservation Commission.

A one-week, field-based education program for 11 middle-school teachers and 5 scientists was held in summer of 2003. The Content focused on coastal habitats, coastal processes and marine technologies. These activities were supplemented with a two-month online program for the entire Gulf of Mexico region. Topics covered by the online program included harmful algal blooms, sharks, Hypoxia, coral reefs, environmental stewardship and ocean technology. In December 2003, a two-day workshop for 65 non-formal (Sea Grant and 4-H extension agents, aquarium educators, nature center educators, youth volunteers) educators was held in Gainesville, Florida. Topics presented by scientists included shark management and biology, invasive species, ocean observation systems and technology, marine biotechnology, and marine ornamentals. A concluding panel provided a discussion on the “bridging the gap: role of scientists and educators delivery of education/research programs.”

### *NOAA Coastal Storms Initiative*

Florida Sea Grant is conducting the outreach and extension component of the NOAA Coastal Storms Initiative, a study of the St. Johns River Watershed. This first pilot project involves several other agencies within NOAA for research and data cataloging. The result will be a smaller footprint of prediction for storms, amelioration of effects of storms, and better planning efforts based on knowledge of potential for storm surges, flooding, and vulnerability to contaminant release during storms.

### *SEA-COOS*

Florida Sea Grant is in the start-up stage as a partner in the Southeast Coastal Ocean Observing System (SEA-COOS) project in identifying stakeholders, providing information on the various projects and presenting results of the studies that will take place over the next months and years. This integrated effort, in cooperation with Sea Grant programs in North Carolina, South Carolina, Georgia and Florida, and a host of universities and agencies, is the Southeast U.S. contribution to create a national coastal ocean observing system. In late 2003, a national search was conducted to hire a regional SEACOOS Outreach Educator, to be employed by Florida Sea Grant. In February, 2004 an educator was hired, and will be based at the University of South Florida in St. Petersburg.

### *Urban Boating and Waterway Development*

Florida Sea Grant continues to develop the urban boating and small craft navigation program into a nationally recognized program. In 2003, it was recognized as the top Extension Program in the county, receiving the outstanding program award from the assembly of Sea Grant Extension Program Leaders. This program uses research and extension to teach boaters, marina operators, and citizens how to regulate themselves using science-based maps and Geographic Information System technology. The goal is to avoid costly regulations and maintain economically viable industries. Currently, two positions are fully grant funded. The Florida legislature in 2002 authorized a pilot program in two Florida counties that allows general waterway/canal dredging permits if they follow Florida Sea Grant scientific guidelines. The end result is environmentally friendly permitting at lower cost in less time.

Florida Sea Grant and the West Coast Inland Navigation District have published two volumes on the Historical Geography of Southwest Florida Waterways. The area of coverage is from Anna Maria to Lemon Bay (Volume I) and Charlotte Harbor to Cape Romano (Volume II). The documents provide a historical perspective on Florida's coastal waterway environment and development history. Volume II was completed during 2002. In 2003, both volumes were converted to the popular Adobe Acrobat pdf format and packaged in a dual CD set. An effort to place both volumes permanently online began in 2003 with the University of South Florida's Water Atlas Program. During 2002, a \$1.5 million payment from Carnival Cruise Lines was made to the University of Florida as the result of a federal court case involving environmental monitoring of ocean pollution laws. A Florida Sea Grant endowment has been established with the revenue from the endowment to be used in supporting the boating and waterway management program. In January 2004, a new Sea Grant permanent position was established to direct this program with funding coming from FSG endowment revenue and state appropriations.

### *Marine Ornamentals*

Florida Sea Grant was the lead sponsor and organizer of the second international conference on marine ornamental species, Marine Ornamentals 2001: Collection, Culture & Conservation. Building on the first conference organized by Hawaii Sea Grant, 19 sponsors including nine Sea Grant programs, joined to create a program that attracted 336 participants from 23 countries attended the November 2002 conference. Program evaluations showed that 67% of the attendees would attend a subsequent conference and 91% indicated that the conference should be continued as is or expanded. A book containing 26 chapters developed from papers given at the conference will be published in May 2003, by Iowa State Press, a Blackwell Publishing Company. Florida Sea

Grant has continued to emphasize this area, and the Florida Sea Grant Director served during 2003 on the organizing committee for MO '04, to be held in Hawaii in March 2004, in conjunction with the World Aquaculture Society. FSG was also a major sponsor of the MO '04. In addition, Florida Sea Grant initiated two Sea Grant Industrial Fellowships in 2002 focused on marine ornamentals. One partners with the Living Seas at Walt Disney World, Orlando, Florida, and the second partners with Maritech, Inc., Vero Beach, Florida.

### *International Activities*

Florida Sea Grant is a strong believer in international programs, even though our funding source is domestic and the federal enabling legislation does not include a specific international mandate to conduct international programs. International involvement is at the discretion of the Sea Grant Director. We encourage our faculty to become involved internationally when the activity will (1) be helpful to Florida residents and students (have an impact at home), (2) provide future opportunities to Florida residents, and (3) when there is sufficient (sometimes new extramural) funding to support the activity. Florida is such an international state we must be involved. The 2000 report listed the types of international projects in which Florida Sea Grant has been engaged (e.g., seafood safety) and the countries of involvement (e.g., Nicaragua) for the last three years. The 2001 report provided program-wide data, based on a Spring 2001 survey by UF/IFAS, where the FSG management office, Extension program and Communications program is located. The 2002 report listed some examples of international activities for that year as does this report for 2003.

Sea Grant associated faculty members are principally involved in technical assistance programs in other countries, hosting international visitors for meetings or conferences, and to a lesser extent, conducting research and advising international graduate students. The activity reported here is based on a Sea Grant research project or Sea Grant Extension program activity.

For 2003, a few key international activities are highlighted:

- a. LeRoy Creswell (St. Lucie County) serves as executive secretary of the Gulf and Caribbean Fisheries Institute. John Stevely (Manatee County), Don Sweat (Citrus County), Rich Novak, deceased (Charlotte County) presented posters at the 2003 meeting. Mike Spranger gave a keynote address on science and education and presented an award on behalf of the four Gulf of Mexico Sea Grant programs at the meeting held in Tortola, British Virgin Islands.
- b. Chuck Adams (FRE), John Stevely and Don Sweat presented papers at the 6<sup>th</sup> Congress on Marine Sciences in Havana, Cuba. The goal continues to be long-term scientific exchanges and programs with the University of Havana.
- c. John Stevely is a representative on the USDA project to “internationalize extension” working in collaboration with the University of Virgin Islands.
- d. Don Sweat co-chaired/hosted (with Norm Blake, USF) the 15<sup>th</sup> International Pectinid Conference in April 2003. This was held within the confines of the U.S. for the first time in many years (St. Petersburg), and attracted international scallop researchers from 26 countries.
- e. Dianne Behringer (Broward County) is a member of the Southeast Florida Action Strategy Team (SEFAST) of the United States Coral reef Task Force. SEFAST works with similar teams in Puerto Rico and the U.S. V.I. to share resources and partner for funding. Dianne participated in the “Regional Workshop on the Recreational Use of U.S. and Caribbean Coral Reefs” in the U.S.V.I. and presented the SEFAST Awareness and Appreciation draft.

- f. FSG funded faculty made presentations at the following international events based on work in the Florida Sea Grant project.
- International Copepods Workshop, Hawaii (Turingen)
  - World Aquaculture Society Conference, Brazil (Adams, Palmo)
  - 13<sup>th</sup> International Symposium on the Biology of Actinomycetes, Australia (Duckwork, Gulig)
  - International Association of Food Protection, Louisiana (Otwell)
  - Seafood Science and Technology Conference of the Americas, Mississippi (Otwell)

### **Major Program Plans of Work**

Long range planning for the Florida Sea Grant Extension Program is carried out under the University of Florida Extension Service's four-year plan of work. Every four years, this planning process defines the future needs of the Extension Service (ES). This four-year plan is then updated annually through the annual plan of work. In the fourth year, a new Four Year Plan of Work is developed.

FSGEP proposals are developed as a part of the overall Florida Sea Grant College omnibus proposal. Two, three or four-year proposals are developed as appropriate. Much of the material for the proposal is taken from the Extension Service Planning effort. FSGEP faculty plans are also integrated into the overall Florida Sea Grant College Program's long range planning process, which helps link research and extension program priorities and programs.

Florida Sea Grant Extension relies heavily on local, county and regional advisory committees for identifying program needs, strategic planning and priority setting. Each off-campus faculty has one or more advisory committees to guide the development of their Annual County Plan of Work (CPOW). These CPOWs are then compiled into a State Major Program, which is coordinated by each program design team. The design team is usually chaired by an on-campus Sea Grant specialist with expertise in this subject area. The process is:

- Sea Grant County or Regional Advisory Committees provide needs evaluation.
- Sea Grant County Plans of Work are developed.
- Sea Grant County Plans of Work are integrated into Sea Grant State Major Programs.
- State Major Programs are coordinated/implemented by Sea Grant Program Design Teams.
- County faculty and specialists report quarterly reports of accomplishment.
- Annual Narrative Reports of Accomplishment are submitted for each faculty member.
- State Major Program Reports are developed for CE and Sea Grant.
- Sea Grant County or Regional Advisory Committees give feedback on accomplishments.

Six State Major Programs (SMPs) are in effect for 2002-03. The Marine Education Program has been integrated into the University of Florida 4H Program's Environmental Education Program. This will give the program effort additional resources and a broader base from which to develop programs. The six SMPs in effect during 2003 are below.

- Seafood and Aquaculture Product Quality and Safety
- Coastal Environmental and Water Quality
- Coastal/Marine Recreation/Tourism & Waterway Management
- Sustainable Marine Fisheries
- Marine Aquaculture
- Marine and Coastal Environmental Education

These major program areas have statewide coverage and represent about 65 percent of the educational effort of faculty. The goals and tasks relating to outreach in Section 2.0 result from the planning efforts described above.



The remaining 35 percent of faculty time is used for emerging issues, responding to stakeholder questions and dealing with important marine issues that arise outside the six major program planned areas. SMPs are evaluated, updated and annual objectives are planned at the annual staff meeting in October each year.

During 2003, UF IFAS Extension embarked on a new four year program planning effort. This involved holding “listening sessions” in each of Florida’s 67 counties as well as a number of “listening sessions” within UF IFAS Academic departments.

As a result of intensive stakeholder feed back, and several external reviews of the Extension infrastructure, a new planning and reporting structure will be instituted in 2004. In place of State Major Programs, UF IFAS Extension will now concentrate its educational program under seven major goal areas for 2004-2007 as follows:

1. To Enhance and Maintain Agricultural and Food Systems
2. To Maintain and Enhance Florida’s Environment
3. To Develop Responsible and Productive Youth Through 4-H and Other Youth Programs
4. To Create and Maintain Florida Friendly Landscapes: The Smart Way to Grow
5. To Assist Individuals and Families Achieve Economic Well-Being and Life Quality
6. To Achieve Economic Prosperity and Community Vitality in Florida’s Urban and Rural Communities
7. To Promote Professional Development Activities Designed to Enhance Organizational Efficiency and Effectiveness

### **Workshops, Conferences, Displays and Signage**

#### *Workshops and Conferences*

A list of workshops and conferences is presented in this section, along with the major outreach activities summarized here and in the Accomplishments and Benefits (Section 2.0). The summary in Table 9.2 includes specific workshops and conferences that included presentations made by Sea Grant faculty, researchers and program managers during 2002 and 2003. In most cases the workshop or conference was held to accomplish one of the tasks in Section 2.0. In all cases the data includes only those with programmatic content deliveries made by faculty or management, and does not include administrative presentations. The listing also includes research faculty that were funded by Florida Sea Grant, tabulated from their annual research project reports. The complete list is presented in Table 9.3 at the end of this section.

Over the two year period of 2002 and 2003, a total of 841 educational events were conducted. These range across the following examples of activities.

- scientific presentations by funded research faculty at scientific conference
- workshops organized by Sea Grant Extension faculty
- marine 4-H camps
- K-12 teacher education events
- international conferences organized
- etc.

The number of examples is quite varied, but the activity has been organized by Florida Sea Grant goal area as shown in Figure 9.1. The two leading areas are fisheries (22.1%) and coastal habitat (20.7%). Audience type has also been documented as shown in Figure 9.2. Industry education is the leading audience type (28.3%). Finally, Figure 9.3 shows that 82% of all activity has occurred within Florida.

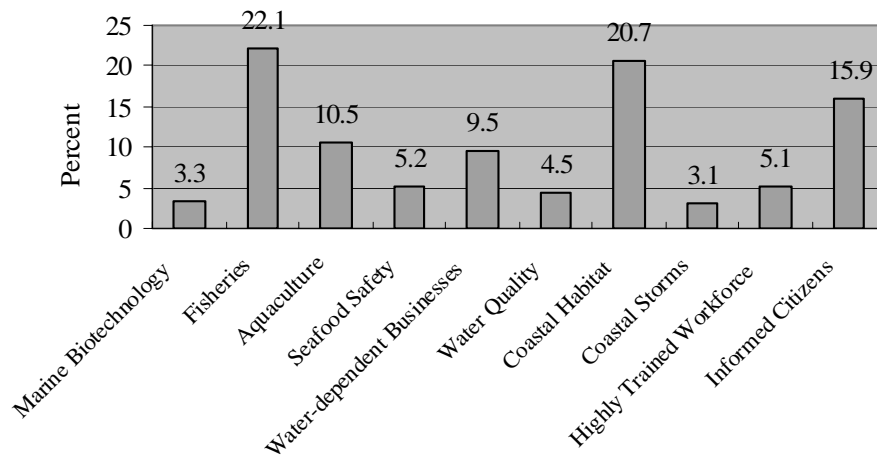


Figure 9.1 -- Percent of educational events by Florida Sea Grant goal area for 2002 and 2003.

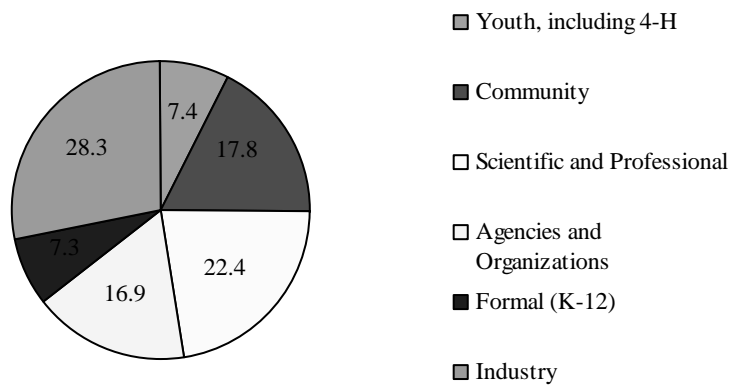


Figure 9.2 -- Percent of educational events by Florida Sea Grant audience type, 2002 and 2003.

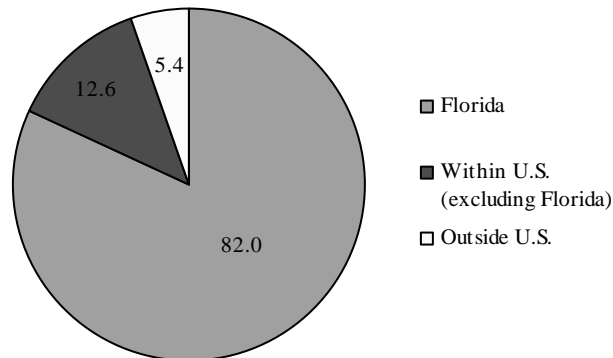


Figure 9.3 -- Percent of educational events by Florida Sea Grant geographic area of delivery.



Total attendance was recorded for 416 of the 841 events at 105,523 people. Extrapolating to the total events indicates that 213,350 people were present at a Florida Sea Grant educational event during 2002 and 2003. Assuming one event per day, the 941 events occurred over 730 days (365 days/year) means that 1.15 events were occurring per day over the two year period.

### *Displays and Signage*

More than 20 posters and displays were produced during 2003 in support of Florida Sea Grant faculty in their leadership and participation with programs including international conferences, state and regional workshops, and Florida coastal education events at the community level. These ranged in complexity from the technical summary of research results for invited poster presentations to programmatic support involving multiple presentations across the state to the production and statewide distribution of posters for a community volunteer audience. A sample of display production for 2003 is indicated below.

Theme	Event	Location
Best Management Practices	Sea Grant Bi-annual Meeting	Galveston, TX
Ocean resource conservation	Oceans Day in the Capitol	Tallahassee, FL
Boating & Waterway Management	Florida Association of Extension Professionals	Jacksonville, FL
Florida Clean Boating Partnership	Miami Boat Show	Miami, FL
Coastal Safety, Rip current warning	Okaloosa and Walton Counties	Florida Panhandle
Support to graduate education	Florida Sea Grant Scholarships and Fellowships	statewide
Recreational fisheries, Catch-and-release	Florida Outdoor Writers Association	DeLand, FL

Signage production for the year included weatherproof outdoor signs to support a rip current awareness initiative in two Florida Panhandle counties, invasive species Green Mussel alert cards for statewide distribution, and boater awareness placards to protect shellfish aquaculture lease areas in the vicinity of Alligator Harbor.

### **Web-based Technologies**

At [www.FLSeaGrant.org](http://www.FLSeaGrant.org) Florida Sea Grant completed an expanded design that totally reorganized this website, incorporated new material, increased interactivity with web visitors, and enhanced accessibility for users with disabilities.

The expansion of the site presents information organized according to programmatic areas, in addition to basic information related to administration of the Sea Grant program in Florida. Site content now parallels the ten areas of emphasis outlined in Florida Sea Grant's strategic plan -- marine biotechnology, aquaculture, fisheries, seafood safety, graduate education, marine education, boating and waterways, water quality, coastal habitat, and

coastal storms. Work required a re-organization of existing information and the creation of pages under the new topical areas, as well as the creation of content to augment that available under the programmatic areas.

In addition, web staff constructed a web-based RFP submission page to streamline Florida Sea Grant's biennial Request for Proposal and Review process. The program and process was pre-tested and became fully operational for the research proposal cycle that began in February, 2003 (2004-2005 funding cycle). This electronic proposal format has made the process faster and easier for researchers, reviewers, and Sea Grant administrative staff alike. Researchers are able to submit their statements of interest online to a centralized database. Reviewers are able to not only review the full text of pre-proposals online, but submit their comments and project scores online as well. Sea Grant administrative staff can now monitor the submission and review process from a series of user-friendly, web-based report screens. With this technology operational, Florida Sea Grant is one of only a few Sea Grant programs that offers its proposal submission process online.

Staff were also involved in a series of training programs to ensure that all electronic information on its site is accessible to people with disabilities, in adherence with federal accessibility standards. Staff attended live demonstrations of software that facilitates this upgrade, and followed up with training through a national online initiative to become familiar with specific details of compliance. Florida Sea Grant is now fully compliant, and the companion, text-based website that has been created is fully operational. Staff are now working to automate the system, exploring software and programs that will automate entries and maintenance.

Additional publications were made available to the Sea Grant website, either by uploading web-optimized versions of publications, or by linking to html documents that reside on other servers. Publications were reorganized by programmatic theme areas to dovetail with the conversion of the site to its new design. To facilitate the availability of all new information through its website or the national Sea Grant depository website, communications staff have adopted the policy of obtaining from printers and service bureaus the web-optimized version of publications at the time publications come off the press. The National Sea Grant Library's *Program Activity Summary Reports* for 2003 indicated that Florida Sea Grant publications showed 38,750 PDF downloads (a 41% increase from 2002) far more than any other Sea Grant program in the country.

For several years communications staff subscribed to a newspaper clipping service to track news releases and news in print that related to Florida Sea Grant. These were summarized in several ways, copied and distributed to Florida Sea Grant faculty, and reported on annually. During 2003 a transition was made away from hard-copy news clips to a web-based subscriber service that performs a similar service electronically. Staff are currently exploring ways in which this service might be integrated with the Florida Sea Grant web site to make the service most useful to faculty and collaborators. Presently web-based articles are e-mail forwarded; eventually this system might be automated or it may become a resident feature on the Florida Sea Grant home page.

### **Quarterly and Bi-Monthly Summaries**

All outreach activities are too extensive to report in this document. In fact, it is a real accomplishment to maintain communication among our far-flung off-campus outreach faculty, who are separated by almost 1,000 miles at the extreme of the range (Pensacola – Key West). As an internal communication tool, each Sea Grant Extension faculty member provides highlights of their past activities as well as future planned activities. This is done on a quarterly basis. These reports are then compiled and placed on the Florida Sea Grant web page. Past quarterly reports can be found at this website: [www.flseagrant.org](http://www.flseagrant.org).

A bi-monthly Faculty Progress Report is also completed and emailed via campus coordinators to about 800 faculty members located statewide. This document announced funding opportunities for faculty and students and provides other information of interest. It can also be found at the Florida Sea Grant website.

Table 9.2.--Total number of Florida Sea Grant educational events by audience type, geographic location and strategic goal area																																Grand Total	Percent						
Audience Type/Year	1.0 Marine Biotechnology			2.0 Fisheries			3.0 Aquaculture			4.0 Seafood Safety			5.0 Water-Dependent Businesses			6.0 Water Quality			7.0 Coastal Habitat			8.0 Coastal Storms			9.0 Highly Trained Workforce			10.0 Informed Citizens			Total			Total					
	2002	2003	Total	2002	2003	Total	2002	2003	Total	2002	2003	Total	2002	2003	Total	2002	2003	Total	2002	2003	Total	2002	2003	Total	2002	2003	Total	2002	2003	Total	2002			2003	Total	2002	2003	Total	
Community Education	0	0	0	20	6	26	6	3	9	0	7	7	6	0	6	14	5	19	38	4	42	3	0	3	0	2	2	14	22	36	101	49	150						
Industry Education	11	0	11	33	40	73	21	23	44	12	16	28	30	15	45	2	8	10	11	2	13	3	2	5	0	1	1	5	3	8	128	110	238						
Scientific and Professional Education	0	8	8	32	16	48	9	12	21	4	5	9	2	8	10	1	4	5	25	30	55	7	1	8	7	4	11	3	10	13	90	98	188						
Agencies or Organizations	9	0	9	34	3	37	4	8	12	0	0	0	0	17	17	1	2	3	13	11	24	4	6	10	0	20	20	5	5	10	70	72	142						
Formal (K-12 Education)	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	25	6	31	0	0	0	0	9	9	3	16	19	28	33	61						
Youth Education, Including 4-H	0	0	0	2	0	2	1	0	1	0	0	0	1	0	1	1	0	1	9	0	9	0	0	0	0	0	0	22	26	48	36	26	62						
<b>Total</b>	<b>20</b>	<b>8</b>	<b>28</b>	<b>121</b>	<b>65</b>	<b>186</b>	<b>41</b>	<b>47</b>	<b>88</b>	<b>16</b>	<b>28</b>	<b>44</b>	<b>39</b>	<b>41</b>	<b>80</b>	<b>19</b>	<b>19</b>	<b>38</b>	<b>121</b>	<b>53</b>	<b>174</b>	<b>17</b>	<b>9</b>	<b>26</b>	<b>7</b>	<b>36</b>	<b>43</b>	<b>52</b>	<b>82</b>	<b>134</b>	<b>453</b>	<b>388</b>	<b>841</b>						
<b>Percent</b>			<b>3.3</b>			<b>22.1</b>			<b>10.5</b>			<b>5.2</b>			<b>9.5</b>			<b>4.5</b>			<b>20.7</b>			<b>3.1</b>			<b>5.1</b>			<b>15.9</b>			<b>53.9</b>			<b>46.1</b>	<b>100.0</b>		
Within Florida	14	1	15	92	56	148	34	36	70	9	12	21	38	34	59	19	17	36	109	44	153	6	6	12	6	30	36	47	80	127	374	316	690						
Within the United States (excluding Florida)	3	4	7	14	4	18	4	9	13	4	15	19	1	7	20	0	2	2	10	8	18	8	2	10	1	5	6	3	2	5	48	58	106						
Outside the United States	3	3	6	15	5	20	3	2	5	3	1	4	0	0	4	0	0	0	2	1	3	3	1	4	0	1	1	2	0	2	31	14	45						
<b>Total</b>	<b>20</b>	<b>8</b>	<b>28</b>	<b>121</b>	<b>65</b>	<b>186</b>	<b>41</b>	<b>47</b>	<b>88</b>	<b>16</b>	<b>28</b>	<b>44</b>	<b>39</b>	<b>41</b>	<b>83</b>	<b>19</b>	<b>19</b>	<b>38</b>	<b>121</b>	<b>53</b>	<b>174</b>	<b>17</b>	<b>9</b>	<b>26</b>	<b>7</b>	<b>36</b>	<b>43</b>	<b>52</b>	<b>82</b>	<b>134</b>	<b>453</b>	<b>388</b>	<b>841</b>						

Table 9.3. Florida Sea Grant workshop/event and conference activities for 10 goal areas, 2003.

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
<b>Goal 1: Create Products and Processes from Florida's Coastal Resources Using Marine Biotechnology</b>							
	Kerr, Russell			Biosynthesis of Marine-Derived Anti-inflammatory Agents	2003		Lexington, Kentucky
	Matei, Elena; Pflueger, Fred; Franco, Aldo; Cano, Herminul; Mora, David; Mari, Frank		Keystone Symposia, Frontiers of NMR in Molecular Biology VIII	Structural analysis of nanomolar quantities of marine neuropeptides using 2D-NMR methods	February 2003		Taos, New Mexico
	Abbasi, Husam; Mari, Frank		FAME 2003, Marine Natural Products Symposia	Comparative Study of Conopeptides Isolated from Mollusk-hunting <i>Conus</i> Species	May 2003		Orlando, Florida
	Mora, D.; Pflueger, F.; Fields, G.; Mari, F.		18th American Peptide Symposia	A Novel Posttranslational Modification: A Conopeptide from <i>Conus gladiator</i> Prodes the First Example of $\gamma$ -Hydroxyvaline (Hyv) within a Polypeptide Chain	July 2003		Boston, Massachusetts
	Matei, Elena; Pflueger, Fred; Franco, Aldo; Cano, Mora, David; Mari, Frank		18th American Peptide Symposia	Structural analysis of nanomolar quantities of marine neuropeptides using 2D-NMR methods	July 2003		Boston, Massachusetts
	Matei, Elena; Pflueger, F; Herminul, C.; Franco, A.; Mari, F.		7th International Conference on frontiers of Polymers and Advanced Materials	Structural analysis of nanomolar quantities of marine neuropeptides using 2D-NMR methods	June 2003		Bucharest, Romania
	Pisarewicz, Katarzyna; Mora, David; Mari, Frank		International Symposia on Chemistry and Biology of Marine Organisms	Characterization of Hyperhydroxylated Marine Peptides from the Genus <i>Conus</i>	September 2003		Kolympari, Crete, Greece
	Mora, D.; Pflueger, F.; Pisarewicz, K.; Fields, G.; Mari, F.		5th Australian Peptide Conference	A Novel Posttranslational Modification: Conopeptides from <i>Conus gladiator</i> and <i>Conus mus</i> Provide the First Example of $\gamma$ -Hydroxyvaline (Hyv) within Polypeptide Chains	October 2003		Daydream Island, Great Barrier Reef, Australia
<b>Goal 2: Determine Production and Management Techniques Which Make Florida's Fisheries Sustainable and Competitive</b>							
	Ehrhardt, Nelson	Florida Keys Lobster Workshop		Regional Status of Spiny Lobster Fisheries and Potential Stock Linkages to Lobster Production Trends	2003	100	Marathon, Florida
	Butler, Mark; Herrmkind, William; Hunt, John H.	Florida Keys Lobster Workshop		Studies on the Importance of Postlarval Supply and Environmental Change for Florida Spiny Lobster Recruitment in the Florida Keys	2003	100	Marathon, Florida
	Herrmkind, William F.; Butler, Mark J.; Hunt, John H.	Florida Keys Lobster Workshop		How the Florida Keys Nursery Habitat Replenishes the Lobster Supply	2003	100	Marathon, Florida
Gregory, Douglas R.		Florida Keys Lobster Workshop		Does the Western Sambos Marine Reserve in the Florida Keys National Marine Sancuary Protect Spiny Lobsters	2003	100	Marathon, Florida
Gregory, Douglas R.		Keys Association of Dive Operators		Proposed regulations for the spiny lobster recreational and commercial fisheries	2003		Key West, Florida

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
	Coleman, Felecia			Fisheries Habitat: Evaluating Gag Grouper Spawning and Habitat in the Gulf of Mexico (variations)	2003		
Adams, Charles; Larkin, Sherry; DeBodisco, Chris			Southern Agricultural Economics Association	Poster presentation: The perceptions of industry with regard to management of the blue crab fishery in Florida	2003		Mobile, Alabama
Adams, Charles		Shrimp Summit		Session Reporter			Houston, Texas
Adams, Charles; Versaggi, Sal			IFAS Conference on International Agricultural Trade Disputes: Case Studies in North America	U.S. shrimp import controversy			Gainesville, Florida
Adams, Charles; Sweat, Donald			Session Moderator: 14th International Pectinid Conference	The economics/marketing aspects of the pectinid (scallop) fisheries worldwide	April 2003	150	St. Petersburg, Florida
Adams, Charles			Session Moderator: 2003 North American Association of Fisheries Economists	Measuring the economic impact of the commercial fishing industry in the US	May 2003		Williamsburg, Virginia
Combs, Christopher		Annual Blue Water Open Deep Sea Fishing Tournament		Gave presentation at Captain's meeting - Monofilament Recovery Program and the Clean Boating Program	2003	20	Brevard County
Crane, Marella		Miami Billfish Conservation Night		Fish Venting, Tackle Box guides, Circle Hooks	November 2003	75	Miami, Florida
Crane, Marella		Fish Survival Workshop - South Dade Anglers Club		Fish Venting, Circle Hooks, Catch and Release, Mercury in Fish	2003	25	Miami, Florida
Crane, Marella		Florida Sportsmen Fishing Show		Fish Venting, Circle Hooks, Catch and Release	2003	75	Miami, Florida
Crane, Marella		Marine Flea Market Workshop		Fish Venting, Circle Hooks, Catch and Release	2003	25	Miami, Florida
Crane, Marella		Fish Survival Workshop - Miami South Florida Fishing Club		Fish Venting, Circle Hooks, Catch and Release	2003	20	Miami, Florida
Creswell, LeRoy; Novak, Richard; Stevely, John		56th Gulf and Caribbean Fisheries Institute		Organized and Program Chair. Venting: Releasing Fish with Ruptured Swim Bladders	November 2003	150	Tortola, British Virgin Islands
Creswell, LeRoy; Novak, Richard; Stevely, John		Southeast Workshop on Sustainable Marine Fisheries		The Gulf and Caribbean Fisheries Institute: A Regional Forum for Fisheries Management	2003		Melbourne, Florida
Creswell, LeRoy; Novak, Richard; Stevely, John		Southeast Workshop on Sustainable Marine Fisheries		Sea Grant Estuarine Programs	2003		Melbourne, Florida
Diller, Andrew		Pensacola Recreational Fishing Television Show		Fish venting, catch and release, and fisheries management	May 2003		Pensacola, Florida
Gregory, Douglas R.		Lobster Workshop		Marine Reserve Influences on lobster dynamics	June 2003	100	Key West, Florida
Gregory, Douglas R.		Turtle Excluder Device Workshop		Demonstration of changes needed to existing nets to comply with new regulatory requirements	May 2003	15	Key West, Florida
Gregory, Douglas R.		Gulf of Mexico Fishery Management Council		Review and comment on the yellowtail stock assessment conducted by FFWCC	July 2003		Key West, Florida
Gregory, Douglas R.		Gulf of Mexico South Atlantic Fishery Management		Review and comment on the king mackerel stock assessment conducted by FFWCC	December 2003		Key West, Florida



Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Gregory, Douglas R.		Shrimp Industry Assistance Meeting		Evaluation of the utility of various financial assistance programs available from the State	March 2003	50	Marathon, Florida
Gregory, Douglas R.		Breezeswept Community Civic Association Meeting with Scuba-tech Dive Shop, Florida Fish and Wildlife Commission, Okaloosa County, Florida Sea Grant Extension and Eglin Dive Club		Catch and Release demonstration - How to vent fish retrieved from deep water	April 2003	15	Marathon, Florida
Jackson, L. Scott				Opportunities for Diver Stewardship	2003	139	Okaloosa County
Mahan, William T., Jr.		Apalachicola Bay & Oyster Issues Workshop		Coordinated and moderated a special Board of County Commissioners' fact-finding Workshop	2003	24	Apalachicola, Florida
Mahan, Williams T., Jr.		Shrimp Fishermen/Families Assistance Workshop		Invited by the Governor's Office to participate in state sponsored multi-agency area workshop for shrimp fishermen and their families in the Bay, Gulf, Franklin, Wakulla County area to determine what types of assistance the shrimp industry needed to deal with the current economic hardships.	January 2003	53	Apalachicola, Florida
Mahan, William T., Jr.; Graham, Gary (Texas SG)		Nine Federal TED Regulation Workshops		Workshops/meetings were completed over a two-day period in Franklin and Gulf counties.	July 2003	52	Apalachicola, Florida
Mahan, William T., Jr.; Otwell, Steven		Emergency Oyster Dealer's Association Meeting		Assisted oyster dealers in developing a plan to provide continued state funding for FL DACS Division of Aquaculture.	February 2003	13	Apalachicola, Florida
Mahan, William T., Jr.		NOAA/Congressman Boyd's Staff Meeting		Met with NOAA Fisheries Outreach Coordinator and members of the Congressman's staff to discuss dolphin - blue crab trap - interactions. Developed a plan to provide information to blue crab fishermen on gear modifications and strategies they could use to minimize dolphin interactions with their fishing gear in Bay, Franklin and Gulf counties.	March 2003	5	Carrabelle, Florida
Mahan, William T., Jr.		Skimmer Trawl Workshop		Organized, advertised and moderated a special Board of County Commissioners Workshop to collect information from local shrimp fishermen on the use of skimmer trawls in Apalachicola Bay.	2003	35	Apalachicola, Florida
Stevley, John		Shrimp Summit		Session Reporter	April 2003	150	Houston, Texas
Stevley, John; Novak, Rich; Adams, C; Sweat, Don; Crane, Marella			Florida Association of County Extension Professionals	Increasing Survival of Caught and Released Fish	September 2003	250	Jacksonville, Florida

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Novak, Rich; Creswell, LeRoy; Stevely, John; Sweat, D.			Gulf and Caribbean Fisheries Institute	Venting: Releasing Fish with Ruptured Swim Bladders	November 2003	150	Tortola, British Virgin Islands
Novak, Rich; Creswell, LeRoy; Stevely, John; Sweat, D.			Gulf and Caribbean Fisheries Institute	Abertura: Soltar los Pescados con las Vejigas Rotas	November 2003	150	Tortola, British Virgin Islands
Stevely, John; Sweat, Donald		Florida West Coast Artificial Reef Program Coordinators Workshop		Workshop Convenor	May 2003	50	Sarasota, Florida
Sturmer, Leslie		Health Management and Introduction to Shellfish Diseases		Lectures and hands-on laboratory sessions	January, 2003		State-wide (various locations)
Sweat, Donald; Blake, Norman			14th International Scallop (Pectinid) Biology and Aquaculture Conference	Workshop Convenor	April, 2003	150	St. Petersburg, Florida
Sweat, Donald; Stevely, John			Gulf and Caribbean Fisheries Institute	Sponge Biomass Estimates in the Florida Keys, USA	November 2003	150	Tortola, British Virgin Islands
Stevely, John; Sweat, Donald		MarCuba		Long Term Recovery of Sponge Populations in the Florida Keys, Panelist, Higher Tropic Level Discussion Session	December 2003	250	Havana, Cuba
Wasno, Robert		West Coast Artificial Reef Coordinators Meeting		Artificial Reef Educational Presentations	2003	562	Lee County
Wasno, Robert		REDStart Fisheries Enhancement Project		Community oriented project to enhance economically important fish	2003	23	Ft. Myers, Florida
Wasno, Robert		Lee County Library Brown Bag		Local fish habitat needs and conservation strategies	2003	13	Ft. Myers, Florida
Wasno, Robert		Caloosahatchee River Basin Festivals Discover the River Days		Distributed information on the REDStart program	2003	5,000	Ft. Myers, Florida
Wasno, Robert		Fish Survival Workshops		10 workshops conducted at various fishing tournaments	2003	2,417	Lee County
<b>Goal 3: Develop the Food and Hobby Segments of Florida's Marine Aquaculture Industry</b>							
	Turingen, Ralph	International Copepod Workshop		Development of Feeding Mechanics in Marine Fish Larvae: Does Prey Size Matter in the Larviculture of Marine Fishes	2003		Honolulu, Hawaii
	Nissmen, L.			Diversification for the Hard Clam Aquaculture Industry Through Investigation of the Blood Ark, <i>Anadara ovalis</i> , and Ponderous Ark, <i>Noetia ponderosa</i> , Reproduction and Development	2003		Davie, Florida
	Francis-Floyd, Ruth	Sea World of Florida		Nutritional Management of Captive Herbivorous Reef Fish	2003		Orlando, Florida
	Francis-Floyd, Ruth	Regional Aquarists Workshop		Nutritional Management of Captive Herbivorous Reef Fish	2003		South Carolina
Adams, Charles		Florida Senate Agricultural Subcommittee		The economic importance of the cultured hard clam industry to the state economy.	2003		Tallahassee, Florida
Adams, Charles			Aquaculture America Annual Meeting	The economic impact of cultured hard clam industry in Florida.	2003		Louisville, Kentucky
Palmo, Marco; Adams, Charles			World Aquaculture Society Conference	Market Preferences Toward Farm-Raised Sturgeon in the Southern United States: A Conjoint Analysis	2003		Salvador, Brazil

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Adams, Charles; Sturmer, Leslie		Training sessions to introduce clam growers to a user-friendly (Computer Logbook And Management [CLAM]) software program based on Microsoft Excel for IBM-compatible PC systems. The software was developed as a business tool to enhance recordkeeping and inventory management of a commercial clam culture operation.			June 23, 24, 25; October 2, 21, 22; December 3, 9, 11, 2003		Cedar Key, Carrabelle, Sebastian, Cocoa, Cross City, Florida
Adams, Charles			Aquaculture Interagency Coordinating Council	Aquacultural-related accomplishments of Sea Grant and FRED	2003		Tallahassee, Florida
Adams, Charles			Session Moderator: Annual Hard Clam Culture Industry Meeting	Organizational structures and strategies for the Florida hard clam culture industry	2003		
Adams, Charles			MarCuba 2003	Paper on the economic viability of zero-water exchange shrimp culture in Nicaragua, with potential application to Cuba	2003		Havana, Cuba
Combs, Christopher; Sturmer, Leslie		Clam Industry Tour and Clam Disease Workshop			2003	25	
Combs, Christopher; Sturmer, Leslie		Clam Industry Tour and Clam Disease Workshop			2003	38	Micco, Florida
Jackson, L. Scott		Growing into the Fish Business Aquaculture			2003	17	Crestview, Florida
Jackson, L. Scott				Fish Pond Management and Aquaculture Enterprises	2003		Andalusia, Alabama
Sturmer, Leslie			2003 National Aquaculture Extension Conference		April 2003		Tucson, Arizona
Sturmer, Leslie			95th Annual Meeting of the National Shellfisheries Association		April 2003		New Orleans, Louisiana
Sturmer, Leslie			U.S. Chapter of the World Aquaculture Society Annual Conference	Shellfish Aquaculture in Florida	February 2003		Louisville, Kentucky
Sturmer, Leslie			National Aquaculture Extension Conference	Shellfish Aquaculture in Florida	April 2003		Tucson, Arizona
Sturmer, Leslie		USDA Cooperative Workshop for Aquaculture		Shellfish Aquaculture in Florida	November 2003		Washington, DC
Sturmer, Leslie		Levy County Board of County Commission		Shellfish Aquaculture in Florida	January 2003		Bronson, Florida
Sturmer, Leslie		Interview with TV20 Channel News		Update on Clam Farming in Cedar Key, Florida	February 2003		Gainesville, Florida
Sturmer, Leslie		Undergraduate class in Global and Regional Perspectives in Fisheries		An Alternative Open-water Fisheries: Clam Aquaculture	March 2003		University of Florida, Gainesville, Florida
Sturmer, Leslie		Cedar Key City Commission		Monofilament recycling and recovery program in Cedar Key	June 2003		Cedar Key, Florida
Sturmer, Leslie		Gainesville Rotary Club		An Introduction to Clam Farming in the Nature Coast	June 2003	40	Gainesville, Florida
Sturmer, Leslie			Gulf and South Atlantic States Shellfish Conference	An update on clam farming in Florida	June 2003		Key West, Florida

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Sturmer, Leslie		Center for Ocean Science Education Excellence Summer Institute		The Environmental and Economic Impacts of Clam Farming	June 2003	24	Cedar Key, Florida
Sturmer, Leslie		Florida Department of Agriculture and Consumer Services' Agricultural Legislative Tour		Update on Clam Farming in Florida	August 2003		Cedar Key, Florida
Sturmer, Leslie		Bureau of Seafood		Update on Clam Farming in Florida	September 2003		Cedar Key, Florida
Sturmer, Leslie		Levy County Planning Commission		The Environmental and Economic Impacts of Clam Farming	November 2003		Bronson, Florida
Sturmer, Leslie		Extension Administration		Florida Hard Clam Aquaculture: Long Range Extension Planning Priorities	May 2003		State-wide (various locations)
Sturmer, Leslie; Wasno, Robert; Novak, Richard		A forum with clam growers, researchers and resource managers			March 2003		Southwest Florida
Sturmer, Leslie		34th Annual Seafood Festival		Educational booth, including a "mock" clam farm. Distributed brochures	October, 2003	40,000	Cedar Key, Florida
Sturmer, Leslie		CLAM Software Training			October 2003	20	Cocoa Beach, Florida
Sturmer, Leslie		CLAM Software Training			October 2003	9	Carrabelle, Florida
Sturmer, Leslie		Clam Growers Workshop		Dr. Smolowitz, Woods Hole Oceanographic Inst. Provided an introduction to shellfish diseases.	January 2003	30	Cocoa Beach, Florida
Sturmer, Leslie		Clam Growers Workshop		The Basics of Handling and Harvesting Clams	June 2003	15	Carrabelle, Florida
Sturmer, Leslie		Clam Growers Workshop		The Basics of Processing and Marketing Farm-raised Clams	August 2003	15	Carrabelle, Florida
Sturmer, Leslie		Clam Growers Workshop		The Basics of Processing and Marketing Farm-raised Clams	August 2003	15	Apalachicola, Florida
Sturmer, Leslie		Hidden Coast Shellfish Producers Association Annual Meeting		Provided update on the Clam Growers Forum	January 2003	35	Cross City, Florida
Sturmer, Leslie; Mahan William, T. Jr.		Franklin County Clam Aquaculture Worskshops (Three Workshops)		"The Basics of Handling and Harvesting Clams," "The Basics of Processing and Marketing Clams," and "Training in C.L.A.M. Software."	June - October 2003	42	FSU Marine Lab - Turkey Point, Florida
<b>Goal 4: Improve the Product Quality and Safety of Florida's Seafood Products</b>							
	Duckworth, Donna H.; Gulig, Paul		13th International Symposium on the Biology of Actinomycetes	The Use of Bactenophage as Antibiotics: History and Current Status	2003		Melbourne, Australia
	Gulf and South Atlantic Fisheries Development Foundation	Oyster Education Public Conference			2003		New Orleans, Louisiana
	Florida Bureau of Seafood and Aquaculture Marketing	Conducted Focus Group Research on 15 American Culinary Federation (ACF) seafood chefs at the International Hotel/Motel and Restaurant Show			2003		Philadelphia, Pennsylvania

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
	Mississippi Department of Marine Resources	Consumer Education and Sensory Evaluation Studies booths were established in the Jackson County Fair, Biloxi Seafood Festival, Celebrate the Gulf Festival, Cajun Crawfish Festival, Mississippi Business Expo Week, and the Mississippi State University Extension Service Open house			2003		Mississippi
	Louisiana Seafood Promotion Board	Sponsored the "Mardi Gras Alive-DC," an oyster promotion event held in Washington, D.C.; Sponsored the "Shrimp and Oyster Education Day;" Booth participation in the International Boston Seafood Show 2003 where Gulf oysters and promotional materials were presented			2003		Washington, D.C.; Boston, Massachusetts
	Florida Bureau of Seafood and Aquaculture Marketing	Booth participation in the annual international Boston Seafood Show where PHP oysters promotional materials and fact sheet were distributed; Booth participation, focus group research and taste test featuring raw vs. various PHP oyster samples were conducted among American Culinary Federation Chefs at the annual international Hotel/Motel and Restaurant Show held in Philadelphia; Efforts to reach V.v. at-risk individuals through standard ISSC brochures got a breakthrough and needed boost with the active, voluntary participation in the V.v. At-Risk consumer education program by 300 Winn-Dixie Pharmacies throughout Florida			2003		Boston, Massachusetts; Philadelphia, Pennsylvania; Florida
Combs, Christopher		HACCP Workshop		Conducted HACCP training for seafood processors	June 2003		Port Canaveral, Florida
Mahan, William T., Jr.; Otwell, Steven		Post-Harvest Treatment Advisory Committee			August 2003	8	Apalachicola, Florida
Mahan, William T., Jr.; Otwell, Steven		Oyster PHT Advisory Committee Meeting			December 2003	11	Apalachicola, Florida
Mahan, William T., Jr.; Otwell, Steven		Oyster PHT Industry Meeting			December 2003	7	Apalachicola, Florida
Mahan, William T., Jr.			ISSC Biennial Conference	Provided technical support and information to the Gulf oyster industry on <i>Vibrio vulnificus</i> and marine biotoxins. Participated in appointed committee assignments - <i>Vibrio vulnificus</i> Education; Biotoxins; Post-Harvest Treatment; and Education.	September 2003	175	Portland, Oregon
Otwell, Steven			Seafood Science and Technology Conference of the Americas	Advisory for retail processing for seafood safety quality	November 2003		Biloxi, Mississippi
Otwell, Steven			International Association of Food Protection	Advisories for retail processing of safe food	August 2003		New Orleans, Louisiana

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Otwell, Steven			Southeastern Fisheries Association	Special seafood safety issues in 2003	May 2003	60	Cocoa Beach, Florida
Otwell, Steven		Workshop for Food Safety Officials of Winn-Dixie		Potential use of radiation for safe oyster products	September 2003		Jacksonville, Florida
Otwell, Steven		Shrimp School			April 22-24, 2003	30	Gainesville, Florida
Otwell, Steven		HACCP Training Session			April 8-10, 2003	18	Miami, Florida
Otwell, Steven		HACCP Training Session			September 9-11, 2003	23	Gainesville, Florida
Sturmer, Leslie		HACCP Workshop		Provided information on HACCP regulations, the steps in developing a HACCP plan and sanitation procedures	March 2003	15	Cedar Key, Florida
<b>Goal 5: Increase the Economic Competitiveness and Environmental Sustainability of Coastal Water-Dependent Businesses</b>							
Combs, Christopher			7th Annual Pollution Prevention Conference	Clean Marina Program	July 2003	32	Orlando, Florida
Combs, Christopher		Clean Marina Program		Marine Debris/Monofilament Recovery	2003	40	Brevard County
Crane, Marella			Public Access Water Conference	Biscayne Bay's Strategic Access Plan for Water-Access	November 2003	100	Sanibel, Florida
Jackson, Donald		Four Quarterly Meetings of the Clean Boating Partnership		Monofilament Line Recycling Containers and Bilge Socks	2003		Orlando, Florida
Jackson, Donald		Clean Boating Partnership		Committee Chair	January 2003	31	Orlando, Florida
Jackson, Donald		Clean Boating Partnership		Committee Chair	March 2003	30	Tallahassee, Florida
Jackson, Donald		Clean Boating Partnership		Committee Chair	July 2003	32	Orlando, Florida
Jackson, Donald		Clean Boating Partnership		Committee Chair	October 2003	45	Miami, Florida
Jackson, Donald			Miami Boat Show	Exhibit on Clean Marinas, Coastal Storms Initiative and Sea Grant	February 2003	800	Miami, Florida
Jackson, Donald			IBEX	Orientation for mentors in the Florida Clean Marina Program	February 2003	32	Ft. Lauderdale, Florida
Jackson, Donald			Clean Marinas for Mississippi and Alabama	Successes and Failures in starting a Clean Marina Program in Florida	April 2003	78	Moss Point, MS
Jackson, Donald		Clean Marinas for California, Oregon and Washington		Successes and Failures in starting a Clean Marina Program in Florida	May 2003	55	Lacey, WA
Jackson, Donald		Marine Industries of South Florida		Values of a Clean Marina	June 2003	100	Dania Beach, Florida
McGuire, Maia		Nassau Leadership Now		Clean Marina Program	April 2003	24	Fernandina Beach, Florida
McGuire, Maia		Florida Association of Environmental Professionals (NE Region)		Clean Marina Program	March 2003	21	Jacksonville, Florida
Score, Alex		Clean Marina Designation		What is Sea Grant and the Role of Partnerships	May 2003	25	Key Largo, Florida
Score, Alex		Clean Marina Designation		What is Sea Grant and the Role of Partnerships	October 2003	21	Tavernier, Florida
Spranger, Michael		Quarterly Meetings of the Clean Boating Partnership		Clean Marina/Boatyard Programs	June 2003	25	Orlando, Florida
Spranger, Michael		Quarterly Meetings of the Clean Boating Partnership		What is Sea Grant and the Role of Partnerships	September 2003	20	Miami, Florida
Swett, Robert; Sidman, Charles			GeoTools 2003	Determining the Utility of Florida's Vessel Title Registration System to Characterize Florida's Boat and Boating Populations	January 6-9, 2003		Charleston, South Carolina

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Swett, Robert; Sidman, Charles			GeoTools 2003	Determining the Utility of Florida's Vessel Title Registration System to Characterize Florida's Boat and Boating Populations	January 6-9, 2003	30	Charleston, South Carolina
Sidman, Charles; Fik, T.			GeoTools 2003	A Regression-Based Approach to Estimate Preferred Recreational Boating Destinations and Use-Intensity	January 6-9, 2003	30	Charleston, South Carolina
Swett, Robert				Geographic Information Technologies in K-12 Education	June 2003	15	Gainesville, Florida
Swett, Robert			Coastal Zone 2003	Florida Regional Waterway Management Model: A New Approach	July 2003	25	Baltimore, Maryland
Swett, Robert; Antonini, Gustavo				Historical and Contemporary Waterway Analysis Methods	July 2003	35	St. Petersburg, Florida
Swett, Robert				The Florida Sea Grant Boating and Waterway Management Program	September 2003		Jacksonville, Florida
Swett, Robert; Sidman, Charles				Anchorage Management	September 2003	15	St. Augustine Port Waterway and Beach District
Swett, Robert				Regional Waterway Management in Southwest Florida	September 2003	30	Gainesville, Florida
Swett, Robert; Sidman, Charles				Recreational Boating Characterization Study	September 2003	20	St. Petersburg, Florida
Swett, Robert				ArcView GIS in Resource Management	October 2003	10	Ft. Myers, Florida
Swett, Robert				A Noticed General Permit for Lee County, Florida	Oct-03	25	Ft. Myers, Florida
Diller, Andrew		Northwest Florida Clean Marina Workshop		Introduction to Florida Sea Grant Extension in relation to the Clean Marina Program	October 2003	28	Pensacola, Florida
Verlinde, Chris				Beach, Boat and Hurricane preparedness	May 2003	250	Gulf Breeze, Florida
<b>Goal 6: Protect and Enhance Coastal Water Quality and Safety</b>							
	Chanton, J.P.; Burnett, W.; Dulaiova, H.; Corbett, D.; Taniguchi, M.	2003 ASLO Aquatic Sciences		Seepage rate variability in Florida Bay driven by Atlantic tidal height	February 8-14, 2003		Salt Lake City, Utah
	Burnett, W.C.; Bokuniewica, H.; Huettel, M.; Moore, W.; Taniguchi, M.	2003 ASLO Aquatic Sciences		Groundwater-seawater interactions in the coastal zone	February 8-14, 2003		Salt Lake City, Utah
Behringer, Dianne K.		Clean Marina and Boatyard Program Workshop		What is Sea Grant and the Role of Partnerships	October 2003	10	Davie, Florida
Behringer, Dianne K.		Clean Marina Designation		What is Sea Grant and the Role of Partnerships	November 2003	50	Lighthouse Point, Florida
Crane, Marella		Clean Marina Workshop		Clean Marina Program Overview for City of Miami Marinas	June 2003	14	Miami, Florida
Crane, Marella		Clean Marina Designation		Role of Florida Sea Grant Extension	April 2003	40	Fort Lauderdale, Florida
Diller, Andrew		Pensacola Boat Show		Clean Boating education to protect coastal water quality. Distributed handbooks and lifejackets to attendees taking the "Clean Boating Pledge".	April 2003	200	Pensacola, Florida

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Diller, Andrew		Homeowners Association		Waterfront living and stormwater pollution control.	March 2003	15	Pensacola, Florida
Diller, Andrew		Build Green and Profit Course		Taught "Outdoor Water Considerations" portion course for building officials, contractors, and architects. Water efficiency techniques included stormwater pollution, xeriscaping, and irrigation.	July 2003	21	Pensacola, Florida
Jackson, Donald			IBEX	Facilitator: Marine Environmental Education for marina operators	October 2003	55	Miami, Florida
Jacoby, Charles A.		Activities for FL316			October 2003	25	Gainesville, Florida
Jacoby, Charles A.		Water Summit		Description of Extension activities related to water in FL316	November 2003	52	Kissimmee, Florida
Jacoby, Charles A.				Water quality: Bay County	July 2003	22	Panama City, Florida
Jacoby, Charles A.				Water quality: Okaloosa, Walton, Escambia, Santa Rosa, Franklin and Gulf counties	July 2003	22	Destin, Florida
Jacoby, Charles A.				Water quality: Monroe county	December 2003	8	Marathon, Florida
McGuire, Maia		Rainbarrel Workshop		How to make and use a rainbarrel	August 2003	31	St. Augustine, Florida
McGuire, Maia		Landscape Architecture		Water and Watersheds	September 2003	11	St. Augustine, Florida
McGuire, Maia		Master Gardener Training		Water and Watersheds	September - October, 2003	160	Putnam, Flagler, and Clay counties
McGuire, Maia		Exploring our Environment		Water and Watersheds	September 2003	22	Marineland, Florida
<b>Goal 7: Protect, Restore, and Enhance Coastal Ecosystem Habitats</b>							
	Valero-Aracama, C.; Kane, M.E.; Wilson, S.B.; Philman, N.L.		Congress on In Vitro Biology	Effect of Stage II duration on rooting and survival of sea oats ( <i>Uniola paniculata</i> L.) genotypes	June 2, 2003		Portland, Oregon
	Walters, Linda		Estuarine Research	Intertidal oyster reefs in Florida:	September		Seattle, Washington
	Robinson, N.		Estuarine Research Federation	Asexual reproduction via vegetative fragmentation in the bryozoan <i>Zoobotryon verticillatum</i>	September 2003		Seattle, Washington
	Liss, J.		Estuarine Research Federation	Physiological ecology of drift algae in the Indian River Lagoon	September 2003		Seattle, Washington
	Walters, Linda		National Shellfisheries Association Annual Meeting	Direct and indirect impacts of boat wakes on intertidal oyster reefs	April 2003		New Orleans, Louisiana
	Robinson, N.		Florida Academy of Sciences Annual Meeting	Asexual reproduction via vegetative fragmentation in the bryozoan <i>Zoobotryon verticillatum</i>	March 2003		Orlando, Florida
	Wall, L.		Florida Academy of Sciences Annual Meeting	Recruitment of the oyster <i>Crassostrea virginica</i> on intertidal reefs in areas with intense boating activity in Mosquito Lagoon	March 2003		Orlando, Florida
	Walters, Linda		Florida Academy of Sciences Annual Meeting	Declining intertidal oyster reefs in Florida: direct and indirect impacts of boat wakes	March 2003		Orlando, Florida



Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
	LeJuene, D.		Florida Academy of Sciences Annual Meeting	Distribution and abundance of the mole crab <i>Emerita talpoida</i> and the coquina clam <i>Donax variabilis</i> on driving beaches in St. Johns County, Florida	March 2003		Orlando, Florida
	Liss, J.		Florida Academy of Sciences Annual Meeting	Seasonal ecology of drift algae in the Indian River Lagoon	March 2003		Orlando, Florida
	Robinson, N.		Society of Integrative and Comparative Biology	Asexual reproduction via vegetative fragmentation in the bryozoan <i>Zoobotryon verticillatum</i>	January 2003		Toronto, Canada
	Collins; Osentoski; Nico		Joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem	Molecular Forensics of introduced swamp eels (Synbranchidae)	April 2003		Palm Harbor, Florida
	Schofield; Nico		Joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem	Salinity tolerance of introduced swamp eels: Implications for range expansion in South Florida	April 2003		Palm Harbor, Florida
	Osentoski; Nico; Collins		American Society of Ichthyologists and Herpetologists 83rd Annual Meeting	Phylogenetic assessment of invasive Asian swamp eels in the Southeastern United States	June 26- July 1, 2003		Palm Harbor, Florida
	Schofield; Nico; Brown		American Society of Ichthyologists and Herpetologists 83rd Annual Meeting	Salinity tolerance of non-native swamp eels (Synbranchidae) in Florida: contrast among populations with different origins (poster)	June 26- July 1, 2003		Palm Harbor, Florida
	Schofield; Nico; Brown		Estuarine Research Foundation	Non-native Asian swamp eels (Synbranchidae) established in the canal systems of South Florida: Potential for range expansion into estuarine habitats	September 2003		Seattle, Washington
	Nico	Florida Panther and Ten Thousand Islands National Wildlife Refuges 8th Annual Exotic Species Workshop for Southwest Florida		History and status of introduced fishes: Asian swamp eels and South American catfishes	December 4, 2003		Naples, Florida
Behringer, Dianne K.		Fort Lauderdale Chamber of Commerce		SEFCRI Outreach Partnership	August 2003	35	Fort Lauderdale, Florida
Behringer, Dianne K.		Southeast Florida Coral Reef Initiative Public Workshop		SEFCRI: Awareness and Appreciation Focus Area	September 2003	100	West Palm Beach, Florida
Behringer, Dianne K.		Southeast Florida Coral Reef Initiative Public Workshop		SEFCRI: Awareness and Appreciation Focus Area	December 2003	100	Dania, Florida
Diller, Andrew		Master Gardener Training		Project Greenshores: coastal marsh ecosystem restoration and volunteer opportunities	January 2003	43	Pensacola, Florida
Diller, Andrew		Pineglades Garden Club Meeting		Protecting coastal ecosystems and wildlife	January 2003	17	Pensacola, Florida
Diller, Andrew		Florida Master Naturalist Training		Master Naturalist Program: Over 40 hours of instruction for coastal ecosystems course.	April - May 2003 (13 sessions)	7	Pensacola, Florida
Jackson, Donald		SEACOOS		Outreach methods that work	November 2003	150	Savannah, Georgia

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Jackson, L. Scott		Hurlbert and Eglin Dive Club		Use of Artificial Reefs in Okaloosa County	2003		Okaloosa County
Jackson, L. Scott		Volunteer Reef Monitoring			2003	139	Okaloosa County
Jacoby, Charles A.				Saltwater invasive species	November 2003	71	Gainesville, Florida
Jacoby, Charles A.				Nonpoint source pollution and estuaries	August 2003	10	Sarasota, Florida
Jacoby, Charles A.				Saltwater invasives: What are they and what can I do?	April 2003	15	Apopka, Florida
Jacoby, Charles A.				Saltwater invasive species: What are they and why should I care?	May 2003	80	Tampa, Florida
Jacoby, Charles A.				Saltwater invasive species	August 2003	20	Gainesville, Florida
Jacoby, Charles A.; Spranger, Michael S.				Saltwater invasive species: partnerships and programs. Explanation of partnerships and extension programs designed to improve awareness and understanding of invasive species and promote behavior that will limit the spread of such species	September 2003		Jacksonville, Florida
Jacoby, Charles A.				South Florida Ecosystem Education Project	April 2003	60	Davie, Florida
Jacoby, Charles A.				South Florida Ecosystem Education Project: a potential contributor to the Everglades Education Consortium	June 2003	45	West Palm Beach, Florida
Jacoby, Charles A.				University of Florida: potential contributions to an Ecosystem Restoration Center	June 2003	40	Gainesville, Florida
Jacoby, Charles A.				Florida Keys CERP Outreach Partnership	October 2003	50	Tavernier, Florida
McGuire, Maia			National Marine Educators Association	Fishing Line Recycling	July 2003	16	Wilmington, NC
McGuire, Maia		Teacher Workshop (FSDB)		Invasive Species	November 2003	8	St. Augustine, Florida
Score, Alex				South Florida Ecosystem Education Project	April 2003		Davie, Florida
Score, Alex				South Florida Ecosystem Education Project: A Partnership Project	October 2003		Tavernier, Florida
Score, Alex			Florida Marine Educators Association	Ecosystem Education Project: What are the Educators Needs	May 2003	36	Marathon, Florida
Score, Alex			National Marine Educators Association	South Florida Ecosystem Restoration	July 2003	30	Wilmington, NC
Score, Alex		Keys Ecosystem Restoration Summit		Three summits on the needs of the Florida Keys in terms of ecosystem restoration education and outreach	October 2003	43	Marathon, Key West; Islamorada, Florida
Score, Alex		A Seminar for Teachers: South Florida Ecosystem Restoration: The Florida Keys Connection		South Florida Ecosystem Restoration	November 2003	22	Key Largo, Florida
Score, Alex		Coral Shores High School Environmental Studies		South Florida Ecosystem Restoration: What it means to you?	November 2003	65	Tavernier, Florida

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Score, Alex		A Seminar for Teachers: South Florida Ecosystem Restoration: The Florida Keys Connection		South Florida Ecosystem Restoration	November 2003	22	Key Largo, Florida
Stevely, John; Sweat, Donald			Greater Everglades and Florida Bay Ecosystem Conference	Long Term Recovery of Sponge Populations in the Florida Keys, Panelist, Higher Tropic Level Discussion Session	April 2003	400	Palm Harbor, Florida
Stevely, John		Submerged Aquatic Habitat Restoration in Estuaries: Issues, Options and Priorities		Determining Changes in the Distribution of Oyster Habitats in Southwest Florida Using Archived Maps and Charts of Federal Agencies	March 2003	250	
Stevely, John, Antonini Gustavo		Tampa Bay Area Scientific Information Symposium (BASIS)		A Historical Perspective for Determining Changes in Oyster Reef Habitats in Southwest Florida Using Archived Maps and Charts of Federal Agencies	November 2003	200	Tampa, Florida
Stevely, John				Coastal Plant Ecology and Identification	September 2003	50	Sarasota, Florida
Verlinde, Chris		Project Wet Workshop		Aquatic Nuisance Species	December 2003	22	Milton, FL
<b>Goal 8: Prepare and Respond to Coastal Storms</b>							
	Dean, Robert		Florida Shore & Beach Preservation Association 47th Annual Meeting	Some Reflections on Florida's Beach Management Program	September 2003		Amelia Island, Florida
Crane, Marella		Skywarn Training for Boaters		Organized seminar on Hazardous Weather Training for boaters with National Weather Service	August 2003	20	Miami, Florida
Crane, Marella		Hurricane Preparedness Workshop		Lessons learned from Hurricane Andrew	June 2003	50	Miami, Florida
Jackson, Donald		St. Johns River Summit		Coastal Storms Initiative: A Pilot Study of the St. Johns River Watershed	January 2003	35	Jacksonville, Florida
Jackson, Donald			Florida Association of Extension Professionals	Exhibitor - Coastal Storms Initiative and the Florida Clean Marina Program	September 2003	350	Jacksonville, Florida
Jackson, Donald		Coastal Storms Initiative for the Columbia River		Successes and Failures in outreach on the St. John River CSI	October 2003	55	Astoria, OR
Jackson, Donald		SEACOOS Meeting		Poster presentation to tie NOAA	2003	350	Charleston, SC
McGuire, Maia		SEACOOS		Education/Outreach Workgroup	November 2003	15	Savannah, Georgia
Spranger, Michael		SEACOOS Spring Meeting		Outreach Concurrent Session: Where Are We Headed	May, 2003	30	Jacksonville, Florida
<b>Goal 9: Produce a Highly Trained Workforce</b>							
Gregory, Douglas		Florida Sea Grant Long Range Planning		Three listening sessions	2003	42	Monroe County
Mahan, William T., Jr.		Apalachicola High School Science Fair		Judged 27 science fair exhibits	January 2003	12	Apalachicola, Florida
Mahan, William T., Jr.		Sea Oat Garden Club Program		Taught a program on the development of Florida's clam farming industry	March 2003	14	Carrabelle, Florida
Mahan, William T., Jr.		Introduction to Florida Yards and Neighborhoods Program		Assisted teaching a program on basic yard practices which homeowners could adopt to reduce run-off and minimize environmental impacts	May 2003	15	Apalachicola, Florida

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Mahan, William T., Jr.		GulfWorld Charter School Field Trip			November 2003	90	Panama City, Florida
Mahan, William T., Jr.		Apalachicola Invasives Work Group			November 2003	35	Bristol, Florida
Mahan, William T., Jr.		Twelve Updates to the Franklin County Board of County Commissioners		Provided updates and/or reports on coastal, bay, and Gulf environmental and fisheries management issues affecting Franklin County.	2003	758	Apalachicola, Florida
Spranger, Michael		Sea Grant Week	Concurrent Sessoin	A Climate Extension Program for the Sea Grant Network	April 2003	20	Galveston, Texas
Spranger, Michael			Florida Marine Science Educators Association Annual Conference	What is COSEE?	May 2003	12	Marathon, Florida
Spranger, Michael			Sea Grant Assembly for Extension Program Leaders, Sea Grant Week	A National Sea Grant Academy for Sea Grant Extension	April, 2003	40	Galveston, Texas
Spranger, Michael			Florida Marine Science Educators Association Annual Conference	Marine Invasives: Threat to Florida?"	May, 2003	20	Marathon, FL
Spranger, Michael		Mississippi-Alabama Sea Grant Program PAT Review		Southeast Regional Aquatic Nuisance Species Education Network	May, 2003	15	Biloxi, MS
Spranger, Michael			National Marine Science Educator Association Annual Conference	Marine Education in Korea	July, 2003	25	Wilmington, NC
Spranger, Michael			Florida Assn of Extension	Marine Invasives in Florida	September,	30	Jacksonville, FL
Spranger, Michael		Gulf of Mexico - Center for Ocean Science Education Excellence Summer Teacher Institute		Watersheds and A Sense of Place	July, 2003	15	Cedar Key, FL
Spranger, Michael; Stead Ken			Water Dependent Uses and Public Acces Conference	Conference Organizers	November, 2003	110	Captiva Island, FL
Spranger, Michael			Gulf and Caribbean Fisheries Institute Annual Conference	Bridging the Gap Between Ocean Scientists and Educators	November, 2003	65	Tortola, British Virgin Islands
Spranger, Michael		External UF/IFAS Extension Review		Florida's Marine and Natural Resource Extension Progrmas	February, 2003	15	Gainesville, Florida
Spranger, Michael		Graduate Seminar		Florida Sea Grant Program: Dealing with Coastal Resource Issues	February, 2003	15	Gainesville, Florida
Spranger, Michael		National Science Teacher's Association Annual Meeting - Florida Sea Grant Extension		The Water Bracelet: A hands-on teaching activity on watersheds	March, 2003	200	Philadelphia, PA
Spranger, Michael				FSG Administrative Issues and Updates	October, 2003	25	Gainesville, Florida
Spranger, Michael			Gulf of Mexico - Center for Ocean Science Education Excellence	Summer Teacher Institute (Coordinator)	June, 2003	15	Cedar Key, Florida
Spranger, Michael			Gulf of Mexico - Center for Ocean Science Education Excellence	Non-Formal Educators Conference (Coordinator)	December, 2003	80	Gainesville, Florida
<b>Goal 10: Create a Scientifically and Environmentally Informed Citizenry</b>							
Behringer, Dianne K.		4-H Water Wise Guys Camp		Manatee Mania	August 2003	25	Pompano Beach, Florida

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Behringer, Dianne K.				Coral Reefs on Broward County	August 2003	20	Lauderhill, Florida
Behringer, Dianne K.		Leadership Broward: History, Urban and Environmental Issues		Local coral reef conservation and management issues	October 2003	50	Fort Lauderdale, Florida
Behringer, Dianne K.			Student Ocean Conference: "Here Today, Here Tomorrow: Keeping Our Fisheries Healthy"	Importance of education and outreach in maintaining healthy fisheries	November 2003	120	Dania Beach, Florida
Behringer, Dianne K.		Leadership Fort Lauderdale: Community Development and Environmental Issues		Shoreline development and local coral reef conservation issues	December 2003	30	Fort Lauderdale, Florida
Behringer, Dianne K.		FCOSEE Workshop		Sea Grant and the GOMCOSEE	December	75	Dania Beach, Florida
Behringer, Dianne K.		Broward County Community College Environmental Seminar		Sea Grant and our role in Broward County	December 2003	50	Davie, Florida
Combs, Christopher		Blue Water Fishing Tournament		Marine Debris/Monofilament Recovery	2003	400	Brevard County
Combs, Christopher		4-H Club		Marine Debris/Monofilament Recovery	May 2003	50	Valkaria, Florida
Combs, Christopher		Boy Scouts of America		Marine Debris/Monofilament Recovery	2003	50	Brevard County
Combs, Christopher		4-H Marine Science Field Trips		Various educational hands-on activities	June 2003	40	Brevard County
Combs, Christopher		Citizens Summit		Major Issues Facing the City of Palm Bay	February 2003		Palm Bay, Florida
Combs, Christopher		National Estuary Day		Display on Invasive Exotic Species	September 2003		Palm Bay, Florida
Combs, Christopher		Space Coast State Fair		Display on Invasive Exotic Species	November 2003		Melbourne, Florida
Combs, Christopher		Brevard Community College Child Development Center		Beach and Sea Life	June 2003	36	Melbourne, Florida
Combs, Christopher		4-H State Marine Ecology Contest		Hands on marine activities	June 2003	71	Ocala, Florida
Combs, Christopher		Brevard Intracoastal Regional Science and Engineering Fair		Judge of Marine Events	February 2003	75	Cocoa, Florida
Combs, Christopher		Boy Scouts of America		Canal Cleanup in Stick Marsh Wildlife Reserve	September 2003	18	Cocoa, Florida
Combs, Christopher		Brevard Marine Industries Association Meeting		Invited Speaker	2003	30	Cocoa, Florida
Crane, Marella		Various School Groups		Marine Debris, Coral Reefs, and Shark Lectures	2003	1,600	Miami, Florida
Crane, Marella		Annual Coastal Cleanup		Site Coordinator and Instructor	September 2003	150	Key Biscayne, Florida
Crane, Marella		Invasive Species Teacher Workshop		Invasive Species of South Florida environmental and ecological impacts	April 2003	20	Miami, Florida
Crane, Marella			Florida Association of Extension Professionals	Coral Reef Survival Game	September 2003	20	Jacksonville, Florida
Crane, Marella			Florida marine Science Educators Association	Marine Debris Workshop "Don't Splash Your Trash"	April 2003	35	Marathon, Florida
Crane, Marella		Monofilament Fishing Line Recycling		Volunteer in a Fishing Line Recycling Program	April 2003	20	Miami, Florida
Creswell, LeRoy		Florida Marine Naturalist Program		Seagrasses of the Indian River Lagoon	April 2003		Ft. Pierce, Florida
Creswell, LeRoy		Teacher In-Service Training at the St. Lucie County Marine Center		Monitoring water quality in the Indian River Lagoon	2003		Ft. Pierce, Florida
Diller, Andrew		Resource Rangers Youth		Water quality, stormwater, and water quality measuring techniques	February 2003	121	Pensacola, Florida

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Diller, Andrew		Resource Rangers Youth		Water quality, stormwater, and water quality measuring techniques	August 2003	41	Gulf Breeze, Florida
Diller, Andrew		Resource Rangers Youth		Water quality, stormwater, and water quality measuring techniques	September 2003	72	Pensacola, Florida
Diller, Andrew		4-H Leaders and Youth		Marine Education programs and projects	March 2003	18	Fairhope, Alabama
Diller, Andrew		In-Service Training for Middle School Teachers		Training to qualify for Florida's marine educator's marine collection permit, and training on invasive species.	December 2003	12	Pensacola, Florida
Diller, Andrew		In-Service Training for High School Teachers		Training to qualify for Florida's marine educator's marine collection permit, and training on invasive species.	December 2003	18	Pensacola, Florida
Jackson, Donald		Eco-Think Tank		A Manager's Perspective on Wildlife Poaching	March 2003	27	Gainesville, Florida
Jackson, Donald		4-H Statewide Congress		Judge of Marine Events	July 2003	20	Gainesville, Florida
Jackson, Donald		Eco-Think Tank		Science and the Public Process: Antagonistic or Complementary?	October 2003	35	Gainesville, Florida
Jackson, Donald			Florida Water Congress	Clean Marinas: A Voluntary Program that Works	December 2003	300	High Springs, Florida
Jackson, L. Scott		Walton High School		Coastal Dune Stewardship and Careers in Science	2003		DeFuniak Springs, Florida
Jackson, L. Scott		Butler Elementary School		Dunes in Schools Service Learning Education Program	2003		DeFuniak Springs, Florida
Jackson, L. Scott		Freeport Elementary School		Give Forest a Hand	2003		South Walton County
Jackson, L. Scott		Walton and Bay County Residents		40 hour educational extension program featuring Florida's Coastal Ecosystems	2003		Walton and Bay counties
Jackson, L. Scott		Marine Camps		Various educational hands-on activities	2003	230	Camp Timpooshee, Florida
Jackson, L. Scott		Destin Green Thumb Garden Club		Shaping Florida	2003		Destin, Florida
Jackson, L. Scott		Freeport Middle School		Shaping Florida	2003		Destin, Florida
Jackson, L. Scott		Christian International		Shaping Florida	2003		Destin, Florida
Jackson, L. Scott		Eden Garden State Park Guests at Bayou Americana Music Festival		Shaping Florida	2003		Destin, Florida
Jackson, L. Scott		Local Citizens and City Workers		Controlling Invasive Non-Native Plants in the Wetland Areas	2003		Niceville, Florida
Jackson, L. Scott		Various School Groups		Dunes in Schools Service Learning Education Program	2003		Walton and Bay counties
Jacoby, Charles A.				Deep sea research submersibles: weird and wonderful	June 2003	10	Cedar Key, Florida
Jacoby, Charles A.				Coastal processes: physical	June 2003	10	Cedar Key, Florida
Jacoby, Charles A.				Florida Sea Grant: Can we help with Madison-Swanson and Steamboat Lumps	May 2003	20	Cedar Key, Florida
Jacoby, Charles A.				Extension activities in South Florida	2003		Gainesville, Florida
McGuire, Maia		Teacher Workshop		Marine Education topics were discussed with teachers at the Florida School for the Deaf.	November 2003		Gainesville, Florida
McGuire, Maia		4-H Marine Discovery Camp		4 days: Beach ecology, coral reefs, deep sea biology, marine careers	June 2003	19	Jacksonville, Florida

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
McGuire, Maia		4-H Marine Discovery Camp		4 days: Beach ecology, coral reefs, deep sea biology, marine careers	July 2003	13	St. Augustine, Florida
McGuire, Maia		4-H Environmental Camp		Coastal habitats, water and watersheds	June 2003	11	St. Johns County, Florida
McGuire, Maia		4-H Environmental Camp		Coastal habitats, water and watersheds	February 2003	11	St. Johns County, Florida
McGuire, Maia		Coastal Master Naturalist Program		Estuaries, coastal ecology	March - June 2003	50	Duval, St. Johns, Volusia Counties
McGuire, Maia		Make A Splash		Estuaries	September 2003	183	St. Augustine, Florida
McGuire, Maia			Florida Association of Science Teachers	Let's get out of the classroom	October 2003	14	Jacksonville, Florida
McGuire, Maia		4-H Safety Camp		Safety on, in and near the water	July 2003	11	Callahan, Florida
McGuire, Maia		Visit by 2nd grade students to the St. Johns County Agriculture Center		Estuaries	May 2003	92	St. Augustine, Florida
McGuire, Maia			League of Environmental Educators of Florida	Let's get out of the classroom	March 2003	30	Gotha, Florida
		Sanctuary Advisory Council		South Florida Ecosystem Outreach needs and the Florida Keys Outreach Partnership	October 2003		Key West, Florida
Score, Alex		4-H Youth Congress		A Day in a Clam Farmer's Life	July 2003		Ocala, Florida
Sturmer, Leslie		4-H Southern Regionals		Levy County Exhibit	October 2003		Rock Eagle, Georgia
Sturmer, Leslie				15th Annual Kid's Fishing Tournament	May 2003	405	St. Petersburg, Florida
Sweat, Donald				Marine Debris/Sea Turtles demonstrations and talks	January 2003	405	St. Petersburg, Florida
Verlinde, Chris; Jackson, Scott				Florida Master Naturalist Wetlands Module	February - March 2003	120	Mary Esther, Florida
Verlinde, Chris				Panhandle 4-H Marine Activities	March 2003	10	Milton, Florida
Verlinde, Chris; Andrew Diller				Groundwater model instructional workshop	March 2003	32	Magnolia Springs, Alabama
Verlinde, Chris		Statewide Workshop		State marine mammal stranding network leaders to review proper reporting protocols and necropsy techniques	2003	8	Milton, Florida
Wasno, Robert		Alva Middle School Science Fair		123 Displays on environmental issues	2003		Ft. Myers, Florida
Wasno, Robert		Enviro-Thon 2003 Caloosahatchee Regional Park		Coastal Cleanup	2003	85	Ft. Myers, Florida
Wasno, Robert		Boca Grande Pass		Coastal Cleanup	2003	71	Ft. Myers, Florida
Wasno, Robert		Keep Lee County Beautiful		Coastal Cleanup	2003	203	Ft. Myers, Florida
Wasno, Robert		Florida Marine Mammal Stranding Network Regional Necropsy Workshop		Training for new volunteers and established standard reporting protocols	November 2003	21	St. Petersburg, Florida
Wasno, Robert		Lee County Parks and Recreation Summer Camp		5 day summer camp	2003	35	Ft. Myers, Florida
Wasno, Robert		Lee County Professional Guides Association		8 monthly presentations to discuss timely topics of concern	2003	80	Ft. Myers, Florida
Wasno, Robert		Big Brother/Big Sister Youth Program		Basic Fishing Techniques with hands on fishing trip	2003	106	Ft. Myers, Florida

Agent/Specialist	Researcher	Workshop/Event	Conference	Presentation	Date	Attendance	Location
Wasno, Robert		Various Fishing Tournaments		Overview of manatee protection; boat speed zones; boat safety; protection of habitat; and proper fish handling techniques	2003	1,326	Lee County
Wasno, Robert		Kiwanis Club		RedStart Presentation	2003	37	Ft. Myers, Florida
Wasno, Robert							



## ***10.0 SELF EVALUATION***

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One of the requirements of the new National Sea Grant College Program “Performance Benchmarks for Evaluation” is that Sea Grant College programs conduct an ongoing program assessment or “self evaluation” on an annual basis. Florida Sea Grant has conducted an on-going and annual self-evaluation for many years.

Since the late 1980s, the then Provost and Vice President for Academic Affairs (to whom Sea Grant reports) required an annual self-evaluation of each academic unit at the University of Florida. Each year, both programmatic and administrative goals were established and agreed upon by the Provost and Sea Grant Director. At the end of each year, progress toward meeting each goal was measured and reviewed by the Provost. Copies of this document were always sent to the National Sea Grant Office (NSGO).

In 1996 a new UF Provost was appointed and the evaluation procedure was revised. Another new Provost was appointed in 1999, and the process was partially revised again. Now, each year the Provost meets with the management staff of each program or academic unit under the direction of the Provost (e.g., Sea Grant). Prior to the meeting, the Provost requests a ten-page summary (due one week prior to the meeting) with a focus on topics as requested by the Provost (e.g., student programs, international activities, goals for the next year). The topics and any issues are discussed during the meeting. About ten people are involved. Florida Sea Grant is represented by the director, associate director, assistant director for extension, director of communications, fiscal officer and administrative assistant. The Office of the Provost is represented by the provost, associate provost, associate provost for distance education, budget director and others, depending on the topics to be discussed.

During 1997, the NSGO published its “Performance Benchmarks for Evaluation,” requiring an annual report. Many of the former measures of performance used for the Provost and the new reporting process are now incorporated into the annual report to NSGO. Others remain and are still used internally by Florida Sea Grant to self-evaluate certain functions. These are included as one part of the self-evaluation section of this document. The entire annual NSGO progress report is also now given to the Provost and other university administrators to assist in the annual evaluation of Florida Sea Grant.

Other opportunities are also used to evaluate Florida Sea Grant. This includes participating in University of Florida exercises that “connect” to Sea Grant and using a University of Florida evaluation process to evaluate administrators.

The following sections include self-evaluation criteria for 2003 that are not included in other sections of this “Performance Counts” report.

1. Programmatic Measures of Performance
2. Administrative Measures of Performance

### ***Programmatic Measures of Performance***

#### **1. Earn a larger percentage increase in our biennial federal Sea Grant budget than the average increase for all 30 Sea Grant Programs.**

- A. The National Sea Grant Office changed the way budgets were allocated among the Sea Grant Programs in 1997. 1997-2000 budgets were “frozen” at 1996 prorated levels. Future funding allocations were to be based on “competitive” program evaluations instead of the summation of “individually competitive” research project and extension proposal competitions. The process is now implemented and the first competitive program allocation for Florida Sea Grant occurred in 2002, at the beginning of our February 2001, two year Omnibus Grant, based on a spring 2000 Program Assessment Team visit. The overall evaluation of the National Sea Grant Office was to place Florida Sea Grant in Category I, the highest

ranking possible. This allowed Florida Sea Grant to maintain its original merit allocation of \$100K, plus receive an additional merit increase of \$25K for 2002-2005.

Summary of merit allocations to Sea Grant Programs based on four-year evaluation cycle.

Merit Allocations	Number of Sea Grant Programs
Merit (\$125K)	15
Merit (\$82.5K)	12
Merit (\$40K)	<u>3</u>
	30

In addition, after the first four-year cycle of program assessment team reviews, all 30 Sea Grant programs in place at the beginning of the cycle had been reviewed for producing significant results, connecting with users, organizing and managing for success and effective long-range planning. Florida Sea Grant was one of only five programs of the 29 that received the top score of excellent in each of the four categories.

- B. National Sea Grant Initiatives – Florida Sea Grant also measures its success in national competitions. These normally alternate with some occurring every other year, and others annually. Success rates are presented below to compare success rates against the national average for competitions completing in 2002, for those beginning in 2003 and completing in 2003 and for those beginning in 2003 and completing in 2004. An analysis is also presented across the years 1999-2004, where possible.

Number of proposals submitted and funded in National Strategic Investment (NSI) Competitions for environmental biotechnology, technology and fisheries habitat in 2002 and oyster disease, Gulf of Mexico oysters and aquatic nuisance species in 2003.

Competition	National Level					Florida Level				
	Received	Invited	%	Funded	%	Received	Invited	%	Funded	%
--- 2001 Competition --- 2002 Funding ---										
Environmental Technology	131	31	23.7	12	38.7	18	4	22.2	1	25.0
Technology	75	21	28.0	10	47.6	9	2	22.2	1	50.0
Fisheries Habitat	107	22	20.6	7	31.8	14	6	42.9	2	33.3
<b>TOTAL</b>	<b>313</b>	<b>74</b>	<b>23.6</b>	<b>29</b>	<b>39.2</b>	<b>41</b>	<b>12</b>	<b>29.3</b>	<b>4</b>	<b>33.3</b>
--- 2002 Competition --- 2003 Funding ---										
Oyster Disease	48	33	68	15	45.5	1	1	100.0	0	0.0
GOM Oysters	29	25	86.0	10	40.0	7	7	100.0	3	42.9
Aquatic Nuisance Species	154	73	47.4	30	41.1	6	3	50.0	1	33.3
<b>TOTAL</b>	<b>231</b>	<b>131</b>	<b>56.7</b>	<b>55</b>	<b>42.0</b>	<b>14</b>	<b>11</b>	<b>78.6</b>	<b>4</b>	<b>36.4</b>
--- 2003 Competition --- 2004 Funding ---										
Aquaculture	134	15	11.2	6	40.0	12	1	8.3	1	100.0
GOM Oysters	22	18	81.8	6	33.3	1	1 (withdrawn)	100.0	0	0.0
Fish Extension (Modules) <sup>a</sup>	56	18	32.0	18	100.0	3	2	66.7	2	100.0
<b>Total</b>	<b>212</b>	<b>51</b>	<b>24.1</b>	<b>30</b>	<b>58.8</b>	<b>16</b>	<b>4</b>	<b>25.0</b>	<b>3</b>	<b>75.0</b>

<sup>a</sup> Preproposals not used for fish extension competition.

Summary of recent Florida faculty submissions and project funding in NSG national competitions,  
1999-2004.

Round of Competition	Level and Number of Items							
	National, All Sources			Florida				
	Pre-	Full	Funded	Pre-	Invited	Full	Funded as # and % National	Total <sup>a</sup>
1999	401	186	98	41	21	17	10	(10.2%)
1999	319	90	?	23	7	7	3	(?)
2001	542	225	98	58	23	21	7	(7.1%)
2002	313	74	29	41	--	12	4	(13.8%)
2003	231	131	55	14	11	11	4	(7.2%)
2004 <sup>b</sup>	156	33	NA	13	2	1	NA	NA

<sup>a</sup>This column indicates that Florida is securing roughly 10% of "National Strategic Investment" funding, significantly above its rate of "Core Program" biennial support (about 4.3% average 2000-2002).

<sup>b</sup> Does not include Fish Extension proposals since pre-proposals were not solicited for this competition. Of 56 modules (from 31 programs) submitted, 18 were chosen from 16 programs. Florida submitted 3 modules (5.4% of total) and was one of only two of 16 programs receiving funding for two (11.1% of total) modules. The total amount of national funds allocated was \$1,600,000. Florida Sea Grant received \$195,300 (12.2% of total).

NA - Not available at time of printing.

Success of Florida proposals relative to national level of proposals submitted and funded in NSG competitions.

Year	Florida Submissions as Number and % of National Total		Number and % of Preproposals Ultimately Funded		Funding of Projects as Number and % of Full Proposals	
	Unsolicited Preproposals	Invited Full Proposals	National	Florida	National	Florida
1999	41/401 9.8%	21/186 11.3%	98/401 24.4%	10/41 24.4%	98/186 52.7%	10/17 58.8%
1999	23/319 7.2%	7/90 7.8%	?/319 ?	3/23 13.0%	?/90 ?	3/7 42.9%
2001	58/542 10.7%	23/225 10.2%	98/542 18.1%	7/58 12.1%	98/225 43.6%	7/21 33.3%
2002	41/313 13.1%	12/74 16.2%	29/313 9.3%	4/41 9.8%	29/74 39.2%	4/12 25.0%
2003	14/231 6.1%	11/131 8.4%	55/231 23.8%	4/14 28.6%	55/131 42.0%	4/11 36.4%
2004	16/212 7.6%	4/51 7.8%	30/212 14.2%	3/16 18.8%	30/51 58.8%	3/4 75.0%
Notes	These two columns indicate that Florida scientists are submitting very roughly about 10% of all preproposals nationally, and that they are invited to submit proposals at about or slightly over that same rate.		These two columns indicate that funding of preproposals nationally and those submitted by Florida scientists ranges from about 10 to 29%.		These two columns indicate that funding of full proposals is about 40-50% nationally, with Florida's rate at about 25-60%.	

**2. Ensure that all Florida Sea Grant competitions are open and transparent and that maximum participation is achieved by all eligible institutions.**

During 2003 national competitions, six of Florida Sea Grant's 16 participating institutions submitted a proposal. In addition, a number of other institutions or organizations not listed as "participants" submitted proposals.

Florida Sea Grant institutional participation rates for National Strategic Investment (NSI) Competitions for Gulf of Mexico oysters and aquaculture, 2003-04.

	Preproposals Submitted	Invited	Full Proposals Received	Funded
FSU	.66			
FIT	1.0			
MML	.5			
HBOI	.33			
UM	.33	1	1	1
UF	4.09			
Other	6.09	1		
<b>Total</b>	<b>13</b>	<b>2</b>	<b>1</b>	

Fractions indicate joint proposals from two or more institutions.

Recent success rates for national Fellows competitions.

Year (Class of Service)	National Level		From Florida	
	Submitted	Funded	Submitted	Funded
<i>Sea Grant Industry Fellows</i>				
1999	NA	NA	0	0
2000	NA	NA		
2001	6	4	0	0
2002	NA	NA	2	2 <sup>a</sup>
2003	NC	NC	0	0
2004	8	TBD	0	0
<i>NMFS/Sea Grant Fellows</i>				
2000	16	4	0	0
2001	11	6	0	0
2002	7	4	0	0
2003	11	4	1	0
2004	10	4	1	0
<i>Knauss Fellows<sup>b</sup></i>				
1999	55	30	4	1
2000	50	(37) 31	2	1
2001	42	(32) 30	4	3
2002	76	(41) 37	3	1
2003	69	(38) 33	(7) 5	1
2004	60	(39) 33	2	1
<i>NOAA Coastal Services Center Fellows<sup>c</sup></i>				
2000	20	(14) 5	2	0
2001	20	(14) 6	2	0
2002	14	(10) 5	0	0
2003	29	(14) 5	1	1
2004	37	(14) 6	(6) 3	0

<sup>a</sup> One Fellow funded from FSG program development funds due to "cash" contribution by matching funds partner.

NA - Not available.

NC - No competition this year.

TBD - To be determined.

<sup>b</sup> Number in parenthesis indicate those semi-finalists invited for interview.

<sup>c</sup> Numbers in parenthesis indicate those invited for interview but withdrew during or after interview week.

Florida Sea Grant core program research competition  
Proposal submission data, 2004-05

	Preproposals Sent	Preproposals Accepted	Full Proposals Submitted	Projects Funded
FAMU	.5	0	0	0
FAU	4	1	2	1
FGCU	0	0	0	0
FIT	5.16	2.83	2.83	1
FIU	2	.5	.5	.5
FSU	2.5	1	1	1
HBOI	7.34	3.17	3.17	.58
MML	7.58	1.5	1.5	0
NSU	1	1	1	1
UCF	2	.75	.75	0
UF	21.91	10.66	11.66	5.42
UM	5.33	2.33	2.33	2.75
UNF	3	1	1	0
USF	4.33	1.83	1.83	0
UWF	2.5	0	0	0
Other	15.85	6.43	6.43	.75
<b>TOTAL</b>	<b>85.0</b>	<b>34.0</b>	<b>36.0</b>	<b>14.0</b>

Fractions indicate joint proposals from two or more institutions.

**3. Develop Florida's position of leadership in ocean and coastal subject areas to promote the flow of information for marine resource development and management and expand the funding base to build a responsive marine academic resource capability.**

Florida Sea Grant continued during 2003 to build academic capability and to create statewide expertise in marine biotechnology, and also initiated broader working relations with industry and allied interests. Efforts included:

- Re-election to membership on the board of directors for BIOFlorida (the statewide trade association), as the invited representative of the UF Institute of Food and Agricultural Sciences. Contact with a national life sciences trade group, BIO (the Biotechnology Industry Organization) led to an invitation to organize a session on marine biotechnology at the BIO World Congress on Industrial Biotechnology and Bioprocessing in 2004. Both BIOFlorida and BIO were involved in efforts of the Florida Governor to bring Scripps Research Institute to Florida.
- Continuation of the Florida Marine Biotechnologies ListServe Internet network to facilitate communication among 77 listees.
- Invited co-investigatorship in the Florida Atlantic University Center of Excellence for Biomedical and Marine Biotechnology project on outreach to teachers and executives.

During 2003, a gift of stocks was made to the University of Florida in the form of deferred gift annuity. A portion of the gift (with the portion valued at \$22,676) was designated for the Florida Sea Grant Endowment in the University of Florida Foundation.

**4. Fully engage in regional and national projects.**

A. During 2003, Florida Sea Grant was an active participant in at least seven different research or extension projects or activities in which each participant was investing funds. These are presented below in summary form.

Regional Sea Grant projects or activities in which Florida Sea Grant research, extension and communications faculty are involved during 2003.

	Project	Sea Grant Partner/Agency Partner/Industry Partner
1	SEA-COOS: Southeast Atlantic Coastal Ocean Observing System	University of North Carolina (UNC), University of South Carolina (USC), University of South Florida (USF), University of Miami (UM), Skidaway Institute of Oceanography (SIO), Sea Grant (Florida, Georgia, South Carolina, North Carolina), South Carolina Department of Natural Resources
2	Fish Extension Programs for the Gulf of Mexico	Texas, Mississippi/Alabama, Louisiana and Florida Sea Grant
3	Fish Extension Program for the South Atlantic	Florida, Georgia, South Carolina, North Carolina Sea Grant
4	Regional Center for Ocean Science Education Excellence (COSEE) - Gulf of Mexico	University of Southern Mississippi, Dauphin Island Marine Laboratory, University of Texas Marine Science Institute, Louisiana Marine Science Consortium, Mississippi State University, University of Florida (SG)
5	Coastal Storms Initiative Outreach Project (Florida Pilot)	NOAA Coastal Services Center (a national project)
6	Marine Ornamentals '04	Hawaii (HSG); Hawaii Aquaculture Development Program; Florida (FSG) Center for Tropical and Subtropical Aquaculture; North Carolina (NCSG); Oregon (OSG); Virginia (VSG); New York (NYSG); Texas (TSG)
7.	Seafood HACCP Alliance (Florida leadership)	Association of Food and Drug Officials; U.S. Food and Drug Administration Office of Seafood; National Marine Fisheries Service; National Fisheries Institute; National Food Processors Association; Interstate Shellfish Sanitation Conference; USDA Cooperative Research; Education and Extension Service; Sea Grant Programs in Alaska, California, Florida, Louisiana, North Carolina, Oregon and Virginia

## *Measures of Accountability: Administrative*

Certain administrative objectives will be met which will ensure that the overall administrative goal can be achieved. They are:

- 1. Long range planning documents in both research and extension will be maintained/updated as appropriate, to enable the development of highly competitive proposals and insure that Sea Grant programs do not duplicate other academic programs.**
  - A. The Florida Sea Grant Strategic Plan: 2002 - 2005, guided two-year Florida Sea Grant research proposal competitions for 2002-03 and 2004-05 projects. It also guided four-year proposals for Extension, Communications and Management. This plan was developed during 2000, and published in early 2001. A new strategic planning process will be initiated in 2004 for the 2005-08 Plan.
  - B. Florida Sea Grant also continued its noted annual work plan for 2003. This is the sixth year of this process. The program accomplishments and benefits section of this 2003 Annual Progress Report is based on the 2003 work plan. Specific objectives scheduled for completion in 2003 are contained in section 2.0, and accomplishments and benefits under each goal are reported.
- 2. Enhance the visibility of Sea Grant, the University of Florida, and the State University System and provide service statewide, regionally and nationally by participation on boards of both academic and non-academic interests.**

### **Selected Examples (of Director, Associate Director, Assistant Director for Extension and statewide Extension Faculty)**

#### A. International

1. Member, organizing committee for the 3<sup>rd</sup> International Conference for the Marine Ornamental Community 2004, scheduled for Honolulu, Hawaii, March 2004. (Cato)
2. Executive Board and U.S. Representative, International Association of Fish Inspectors. (Otwell)
3. Team Member, Project FISHPORT, World Health Organization/UN Food and Agriculture Organization. (Otwell)
4. Executive Director, Seafood Science and Technology Society of the Americas. (Otwell)
5. Reviewer, Australian Research Council. (Jacoby)
6. Member, Macarthur Foundation Project Team, Effects of Renewed Trade with Cuba on the Florida Agricultural and Natural Resource Based Industries. (Adams)

#### B. National

1. Member, External Relations Committee, Sea Grant Association. (Cato)
2. Member, Sea Grant National Theme Team: Biotechnology (Seaman)
3. Member, Sea Grant National Theme Team: Coastal Communities and Economies (Spranger)
4. Member, Sea Grant National Theme Team: Education and Human Resources (Spranger)
5. Member, Sea Grant National Theme Team, Ensuring Competitiveness of the U.S. Seafood Industry, National Sea Grant Office. (Otwell)
6. Member, Sea Grant National Theme Team, Fisheries, National Sea Grant Office. (Adams)
7. Member, Sea Grant National Theme Team, Coastal Communities and Economics, National Sea Grant Office. (Sweat)
8. Member, Sea Grant National Theme Team, Ecosystems and Habitats, National Sea Grant Office. (Jacoby)
9. Member, Organizing Committee, Annual Conference, National Marine Educator Association, scheduled for July 2004, St. Petersburg, Florida (Spranger)

10. Fellow, American Institute of Fishery Research Biologists. (Seaman)
11. Member, National Science Foundation Biotechnology Review Panel, Small Business Innovation Research. (Seaman)
12. Member, Seafood Education Committee, Association of Food and Drug Officials. (Otwell)
13. Member, Technical Advisory Committee, National Fisheries Institute. (Otwell)
14. Member, Technical Advisory Committee, National Shrimp Processors Association. (Otwell)
15. Member, Committee to Assess Current Performance Standards for Food Safety in the U.S., National Science Foundation. (Otwell)
16. Coordinator, Seafood HACCP Alliance. (Otwell)
17. Member, Committee to Compile Report on Safety of Imported Seafoods, Government Accounting Office. (Otwell)
18. Editorial Board, Muscle Foods Journal. (Otwell)
19. Member, USDOC/NOAA National Harmful Algal Bloom Plan Revision Advisory Committee. (Adams)

#### C. Regional

1. Member, Scientific and Statistical Committee, Gulf of Mexico Regional Fishery Management Council. (Adams)
2. Member, Scientific and Statistical Committee, South Atlantic Fishery Management Council. (Adams)
3. Member, Sheepshead Task Force, Gulf States Marine Fish Commission. (Adams)

#### D. State

1. Member, Board of Directors, Florida Institute of Oceanography, USF. (Cato)
2. Member, Board of Directors and Treasurer, Florida Ocean Alliance. (Cato)
3. Member, Board of Directors, Aylesworth Foundation for the Advancement of Marine Sciences. (Cato)
4. Member, Board of Directors, BIOFlorida. (Seaman)
5. Member, Florida Clean Marina Partnership Board. (Spranger)
6. Member, Education Advisory Committee, The Florida Aquarium (Spranger)
7. Technical Advisor, Apalachicola Oyster Dealers Association. (Otwell)

### **3. Provide faculty and cooperators with an efficient, understandable and streamlined administrative structure in order to expedite research, education, and extension programs.**

- A. A Faculty Progress Report is written bi-monthly and distributed via our campus coordinators at 16 locations to about 800 faculty members. The report is also available on our web page ([www.flseagrant.org](http://www.flseagrant.org)) and covers faculty and student funding opportunities and other items of information for faculty and students. For several years, all national and Florida Sea Grant funding opportunities have been advertised via our web page and all proposal guidelines and forms are available there for faculty use and downloading. For the last three funding cycles, Florida Sea Grant has accepted pre-proposals and interim and final reports via email. For 2004-05 preproposals (Statements of Interest), proposal submission and review was conducted through a web-based electronic submission process.
- B. A quarterly Sea Grant Extension report is also published and distributed statewide. This document provides accomplishments during the preceding quarter and plans for the next quarter, for each of the Sea Grant Extension major program areas, e.g., marine aquaculture. The report also highlights major activity in communications, marine education, legislative and government interactions and staff development. Finally, new faculty (to Extension) are highlighted and upcoming workshops and conferences are announced. This document is distributed electronically and via the website at [www.flseagrant.org](http://www.flseagrant.org).



4. **Work closely with the National Sea Grant Office, NOAA, to insure that Florida's program is competitive and responsive to national priorities.**
- A. Florida Sea Grant continues to evaluate NSGO drafts of program evaluation guidelines and other documents. Constructive comments are always provided. During proposal preparation, Florida Sea Grant develops a detailed "proposal notebook" for our NSGO program monitor and reviews that information with the monitor on an ongoing basis, both by telephone and through personal visits to Washington, D.C.
5. **Maintain personal professional skills and reputation by publishing, making presentations or organizing academic activities. At least two each will be performed by the Director, Associate Director and Assistant Director for Extension.**

Cato

Cato, James C. and Christopher L. Brown, editors. 2003. *Marine Ornamentals: Collection, Culture and Conservation*. Ames, Iowa: Iowa State Press. 395 pp.

Corbin, John, James C. Cato and Christopher L. Brown. 2003. Marine Ornamentals Industry 2001: Priority Recommendations for a Sustainable Future. In *Marine Ornamentals: Collection, Culture and Conservation*. Ames, Iowa: Iowa State Press. Pp. 3-9.

Cato, J.C., W. Steven Otwell and Agnés Saborío Coze. 2003. Nicaragua's Shrimp Subsector: Developing a Production Capacity and Export Market During Rapidly Changing Worldwide Safety and Quality Regulations. Final Report for the World Bank. Washington, D.C. 60 pp.

Cato, J.C. and S. Subasinge. 2003. "Case Study: The Shrimp Export Industry in Bangladesh," in International Food Policy Research Institute. Brief 9 of 17.

Seaman

Seaman, W., B. Smiley. T. Pitcher and L. Wood, editors. 2003. Research and monitoring of marine reefs using volunteer divers -- *Proceedings of the North American Practitioners Workshop*. University of British Columbia, Fisheries Centre Research Reports, Volume 11, Number 2, 107 pp.

Seaman, W. 2003. International reef technology and research trends. Pp. 38-43 in: *Proceedings of Florida Artificial Reef Summit '01*, Florida Fish and Wildlife Conservation Commission, Tallahassee.

Seaman, W. Accepted. *Florida coastal county artificial reef program habitat assessment practices*. Florida Sea Grant Extension Bulletin SGEb-58.

Seaman, W. "Habitat Evaluation and Geographic Information System Practices in Florida Coastal County Artificial Reef Programs." Florida Chapter of the American Fisheries Society, annual meeting. Brooksville, Florida. 25-27 February 2003. (Poster)

Seaman, W. World Fisheries Congress. Invited session organizer and keynote speaker. *Achieving the Reconciliation of Fisheries with Conservation through Habitat Improvement in Marine Ecosystems*. Vancouver, Canada. 2-6 May 2004. Developed program in 2003.

Seaman, W. "Enhancement of Coastal Human-made Reef Scientific Assessment and Information Management Using Geographic Information Systems in Florida, U.S.A." CoastalGIS 2003 Symposium, Genoa, Italy. 16-18 October 2003. (**Accepted, but withdrawn** by author. Poster.)

Seaman, W. "Artificial Reefs: Concepts and World Status." Brazilian Artificial Reefs Plan Workshop. Rio de Janeiro, Brazil. 13-15 November 2003. (**Invitation declined** due to schedule conflict.)

Spranger

Walters, H., John Dindo, Mike Spranger and Sharon Walker. 2002. Leveraging Partnerships as a Resource for Environmental Education: The Southeast Regional Aquatic Nuisance Network. *Current: The Journal of Marine Education*, Volume 18, Number 2, Ocean Spring, MS.: National Marine Educator Association. pp. 25-30.

Spranger, M. 2002. "Public Issues and Conflict Management Workshop." Coordinator. February, 2002, Naples, FL.

Spranger, M. 2002. "Florida's Coastal Challenges and Opportunities." Testimony. U.S. Commission on Ocean Policy, February 22, 2002. St. Petersburg, FL.

Spranger, M. 2002. "Nurturing Environmental Stewardship in Extension Programs" at Environmental Education Institute for Extension Professionals. March 13, 2002, Camp Timpoochee, FL.

Spranger, M. 2002. "Effective Grant-Writing and Administration." Assembly of Sea Grant Extension Program Leaders, Annual Meeting, March 16, 2002. Baton Rouge, LA.

Spranger, M. 2002. "Florida's Marine and Aquatic Invasive Species." Florida Marine Science Educators Association. Annual Meeting. April 26, 2002. Ft. Pierce, FL.

Spranger, M. 2002. "Volunteerism and Environmental Stewardship: Putting it Together." Keynote Speaker. Florida Master Wildlife Conservationists Graduation and Commissioning. June 8, 2002. Sopchoppy, FL.

Spranger, M. and George Burgess. 2002. "Sharks In Perspective: From Fear to Fascination." National Conference Coordinator. June 12-14, 2002, Tampa, FL.

Spranger, M. 2002. "Implementing a Marine Ethic: From Awareness to Action." Keynote Speaker, Korean Association of Marine Environmental Educators. July 22, 2002. Seoul, Korea.

Spranger, M. 2002. "The Florida Sea Grant Program." Presentation for the Korean Sea Grant Program . July 24, 2002. Seoul, Korea.

Spranger, M. 2002. "The Economic Impact and University of Florida/IFAS Extension's Response to 9/11 Terrorist Events." National Extension Tourism National Conference, September 18, 2002. Traverse City, MI.

Spranger, M. 2002. Florida Sea Grant Extension Annual Meeting. Coordinator. October 21-23, 2002. Cedar Key, FL.

Spranger, M. 2002. "Climate Extension: An Opportunity for NOAA and Sea Grant Collaboration and Partnership." NOAA Climate Prediction Workshop, October 22-30, 2002. Alexandria, VA.

Spranger, M. 2002 and Debbie Berger. "Marine and Aquatic Invasive Species Teacher Workshop." November 22-24, 2002. The Florida Aquarium, Tampa, FL

Spranger, M. 2002. "Climate Change Education and Outreach." Invited Panelist. U. S. Climate Change Science Program National Stake-holders Meeting, December 3, 2002. Washington. DC.

**6. Develop an Investigator Profile to ensure that Florida Sea Grant funded faculty represent diversity and all academic ranks and that at least one-half of the research faculty in each biennial core program proposal did not receive funds during the preceding two years.**

For 2004-05, 63% of the funded faculty did not receive funds in the previous cycle.

Florida Sea Grant Investigator Profile for Core Program Projects for the Three Most recent Two-Year Funding Cycles.

	<u>2000 - 2001</u>		<u>2002-2003</u>		<u>2004-2005</u>	
	Number	Percent	Number	Percent	Number	Percent
Total Number of Investigators Receiving Funding	44	NA	31	NA	37	NA
Investigators <sup>a</sup> Not Receiving Funding in the Previous Two-Year Core Program	32	73	20	65	26	63
Investigator <sup>a</sup> Profile						
Male	35	80	25	81	33	89
Female	9	20	6	19	4	11
Investigator <sup>a</sup> Academic Rank						
Professor or Above	12	27	11	35	7	19
Associate Professor	13	30	4	13	11	30
Assistant Professor	7	16	10	32	6	16
Post-doc	2	5	0	0	1	3
Other <sup>b</sup>	10	23	6	26	12	32

<sup>a</sup> Includes Principal Investigators, Co-Principal and Associate Investigators.

<sup>b</sup> Includes such academic titles as senior scientists (at research labs), lawyers and veterinarians (at professional schools), etc.

Florida Sea Grant core proposal competitions also remain highly competitive. During 2003, for projects beginning in February 2004, a total of 85 proposals reviewed resulted in 14 funded projects as shown below.

Number of proposals submitted and funded, core proposal competition,  
previous four cycles.

Regular (core) proposal competition	1998-1999	2000-2001	2002-2003	2004-2005
Preproposals received	65	88	83	85
Full proposals requested	32	39	46	35
Full proposals received	28	36	44	35
Proposals funded	15 (23%)	17 (19%)	14 (17%)	14 (16%)

**7. Conduct an ongoing evaluation process to determine the effectiveness of Sea Grant management.**

Florida Sea Grant participates in a formal University of Florida process that evaluates administrators using input from both inside and outside the university. Every three years an evaluation form is sent to 30-50 individuals who rank the administrator. The responses are then summarized and reviewed by the administrator and their supervisor. Positive evaluations are reinforced and suggested areas for improvement are discussed and plans made for improvement in these areas. The forms focus on leadership skills, communication skills, management of personnel and resources and overall performance in fulfilling the mission and goals of the organization, i.e., Florida Sea Grant.

## ***11.0 ADVISORY PROCESS***

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The Florida Sea Grant College Program uses a multi-layered advisory process involving a number of advisory committees. These committees, both permanent and ad-hoc, provide valuable advice on both programmatic direction and administrative function and processes. Each committee will be described along with a list of the members of each committee. In addition, Figure 1 provides a schematic representation of how these committees provide input into the research, Extension and communications functions of Florida Sea Grant. Figure 2 provides detail on their advisory input according to the administrative level of Florida Sea Grant.

### **Programmatic (State Level)**

#### Overall Strategic Planning/Priority Setting

Every four to six years, Florida Sea Grant engages in an in-depth strategic planning process. This provides overall programmatic guidance to Florida Sea Grant research, communications and extension priorities and ultimately results in the Florida Sea Grant strategic plan. The strategic plan is then adjusted each two years based on the input of leaders of the overall strategic planning process, until it is time to repeat the in-depth process once again.

Florida Sea Grant's Strategic Plan addresses issues that are important both nationally and in Florida, and reflects the input of hundreds of Floridians representing academia, government, industry and citizens. This plan defines Florida Sea Grant's strategic issues within the context of a number of strategic planning activities. First, it builds on seven Florida Sea Grant statewide workshops in 1996, involving hundreds of faculty, agency, industry and citizen participants. This process created the 1998-2001 strategic plan. The priorities developed for 1998-2001 were updated for the 2002-2005 strategic plan. They are presented within the context of the National Sea Grant Network Plan: Coastal and Marine Resources for a Sustainable Economy and Environment 1995-2005, which in turn defines overall Sea Grant issues at the national level within the context of NOAA's Strategic Plan: A Vision for 2005. The plan also considers Florida Sea Grant's role in Florida through participation in the development of Florida's Ocean Strategies, a 1999 planning process completed by the Florida Governor's Ocean Committee. Finally, the plan also considers Florida Sea Grant's role in research, education and extension through participation in the Florida FIRST strategic planning process of the Institute of Food and Agricultural Sciences (IFAS) at the University of Florida. This latter involvement allows Florida Sea Grant priorities to consider land-based actions that affect the coast, activities along the shoreline, bays and estuaries, and ocean priorities in planning its research, education and extension goals. This 2003 annual performance report represents the second report under the 2002-2005 strategic plan. A new strategic planning process will occur during the last half of 2004 to create the 2006-2009 Strategic Plan.

#### Advisory Board/Campus Coordinators

The Florida Sea Grant College Program is established as a statewide Center of the Florida Board of Education. Statewide Centers are created when at least two of the 11 public universities under the Board of Education are involved in an academic program with statewide coverage. Each Center is managed by a host campus on behalf of the participating universities in the Center. The Director of each Center reports to the Vice President for Academic Affairs of the host campus. Each Center has an advisory board with a member from each university appointed to the board by the President of each institution. For Sea Grant, several private universities and non-profit laboratories participate in the program. Thus, at the invitation of Florida Sea Grant, each private university also nominates a member to the advisory board.

Florida Sea Grant calls this group its "Campus Coordinators". They meet depending on the need and advice of the group. The Campus Coordinators provide programmatic direction as well as administrative direction regarding the way the Sea Grant program is operated. Florida Sea Grant Management requests their input on such major

issues as whether to do annual or biennial proposals, how the review process is organized, and on operational issues including how best to communicate with 700-800 faculty statewide interested in Sea Grant. All maintain on-campus e-mail or hard mail mailing lists for communicating with faculty regarding calls for proposals and distributing Florida Sea Grant's bi-monthly Faculty Progress Report. The membership at the end of 2003 is given below. New College of Florida (Florida's 11<sup>th</sup> public university) was added in 2002.

Florida A&M University - Larry Robinson  
Florida Gulf Coast University - Greg Tolley  
Florida Atlantic University - Russell Kerr  
Florida Institute of Technology - Junda Lin  
Florida International University - James Fourqurean  
Florida State University – Richard Iverson  
Harbor Branch Oceanographic Inst. - Dennis Hanisak  
Mote Marine Laboratory - Ken Leber  
New College of Florida - Sandra Gilchrist  
Nova Southeastern University – Andrew Rogerson  
University of Central Florida - Linda Walters  
University of Florida - William Seaman  
University of Miami - Nelson Ehrhardt  
University of North Florida - Kelly Smith  
University of South Florida - Norman Blake  
University of West Florida - William Huth

A Campus Coordinators Meeting was held in February 2003 in Orlando. All 16 members attended. Topics discussed included: (1) National Sea Grant Overview, (2) Florida Sea Grant Overview, (3) Research Competitions, (4) Students and Funding Opportunities, (5) Extension and Communications and (6) Enhancing Campus Coordinators Activities. Dr. Jim McVey, FSG national monitor also attended. Several changes in FSG policies and procedures resulted from recommendations made during the meeting.

### Marine Biotechnology

Based on the 1996-1997 strategic planning process, marine biotechnology became a priority for Florida Sea Grant. Not only did the research faculty express a high level of interest, they advised Florida Sea Grant to engage in more marine biotechnology outreach and extension. They also identified the need for a Florida-wide assessment of needs and limiting factors for overall research and education capabilities in marine biotechnology. In April 1997, Florida Sea Grant organized a half-day roundtable discussion of invited academic and agency representations. The consensus was that Florida Sea Grant initiate efforts to build capabilities statewide.

The first priority for follow-up to the roundtable was formation of the six-member Committee to Advance Florida Marine Biotechnology Research and Education. This group was convened by FSG and drafted a prospectus for building financial sponsorship of academic programs, thereby establishing a pool of independent funds for the most meritorious research (including matching Sea Grant budgets) and training. This was the first such effort in Florida, in order to raise the state's international capabilities, profile and credibility. As appropriate, we seek to emulate the few states where funding is dedicated to academic marine biotechnology programs, from legislative or industry sources. This committee included Peter Anderson, University of Florida; James Fiore, Life Science Group; Russell Kerr, Florida Atlantic University; Shirley Pomponi, Harbor Branch Oceanographic Institution; William Seaman, Florida Sea Grant College Program/University of Florida. In September 1998 the committee concluded its work with the report "Promoting Commerce and Job Growth in Florida through Collaborative Research and Training in Marine Biotechnology: A Statewide University -Industry Initiative." This report was presented to the fairly new statewide trade association, BIOFlorida, was used to build awareness of opportunities statewide, and contributed to development of legislation proposed in the Florida Senate and House of Representatives.

A larger group to continue momentum in this field was convened in June 2000 as the Florida Marine Biotechnology Research and Development Committee. Its membership reflects wider campus participation and has addressed issues of long-term funding in this field. Members include:

Peter Anderson, University of Florida  
Richard Dodge, Nova Southeastern University  
Kenneth Haddad, Florida Marine Research Institute  
Wade Jeffrey, University of West Florida  
Russell Kerr, Florida Atlantic University  
Kenneth Leber, More Marine Laboratory  
Nancy Marcus, Florida State University  
John Paul, University of South Florida  
Shirley Pomponi, Harbor Branch Oceanographic Institution  
Patrick Walsh, University of Miami  
James C. Cato, University of Florida/Florida Sea Grant  
William Seaman, University of Florida/Florida Sea Grant

### Marine Ornamental Fish

During 1998 the Sea Grant Programs nationwide endorsed aquaculture as a high priority area. Within that, marine ornamental aquaculture is receiving extra attention. Because of the potential for this industry in Florida, and due to the fact that Florida is the nation's leading freshwater tropical fish state, marine ornamentals are a high priority. Florida Sea Grant was a co-sponsor of the November 1999, Marine Ornamentals '99 Conference in Hawaii, sponsor and organizer of Marine Ornamentals '01 in Florida, and co-sponsor of Marine Ornamentals '04, again in Hawaii. Accordingly, and following the success achieved with a focused advisory group in marine biotechnology, during late 1998 discussions began with interested individuals from the tropical fish industry in establishing an industry advisory committee. The committee was established and first met twice in 1999 and again during 2000 and 2001. This advisory committee provides the roots for Florida Sea Grant to aid in the development of the marine ornamental culture industry while at the same time ensuring the environmental compatibility of the wild captive segment of this industry. The members are:

Ilze Berzins, Curator of Animal Health & Research, Florida Aquarium, Tampa, FL  
Ray Davis, Curator, Sea World, Orlando, FL (resigned in 2003 due to job out-of-state)  
Roy Herndon, President, Sea Critters, Dover, FL  
Martin Moe, Green Turtle Publications, Islamorada, FL  
Ken Nedimyer, Sea Life, Inc., Tavernier, FL  
Denise Petty, Veterinarian, Florida Division of Aquaculture, Tallahassee, FL  
Marty Tanner, President, Aquatica Tropicals, Inc., Plant City, FL  
Jeff Turner, President, Oceans, Reefs and Aquariums, Inc., Ft. Pierce, FL

### Sea Grant Extension Advisory Committees Programmatic (County Level)

Each Sea Grant Extension off-campus faculty member at the county level has an advisory committee. These committees usually meet at least twice each year. They provide direct input into the faculty members annual work plan and program direction. They also provide guidance in assisting the faculty members in evaluating the success or impact of the educational effort for the previous year. Each faculty member's plan of work then provides input for the on-campus Sea Grant specialists who coordinate statewide extension programs. These state major programs then become the priority educational themes of the Sea Grant Extension Proposal as part of the overall Florida Sea Grant College Program. While a major proposal for Sea Grant Extension is developed every four years, the plan within Florida is revised every year to take advantage of the advisory committee input.

The off-campus faculty and their advisory committees are listed below.

Dianne Behringer (Broward County)

Hired during 2003. An advisory committee will be formed during 2004.

Chris Combs (Brevard County)

Mr. David Bates - President, Fleet Marine, Inc., Port Canaveral, FL  
Ms. Sue Carlson – Brevard County Commissioner, Viera, FL  
Mr. Robert Day – Senior Project Scientist, Johns River Water Management District, Palm Bay, FL  
Mr. Clarry Edwards - Chairman, Brevard Marine Advisory Committee, West Melbourne, FL  
Mr. Bud Crisafulli, President, Brevard County Farm Bureau, Merritt Island, FL  
Ms. Evelyn Guyton, Banana River Marine Services, Marina and Boatyard, Merritt Island, FL  
Mr. Doug Jaren - President, Banana River Marine Services & Marina,  
Merritt Island, FL  
Ms. Andrea Leibzeit – Harris Engineering, Palm Baye, FL  
Ms. Kristin Poole, US National Park Ranger, Canaveral National Seashore, Titusville, FL  
Mr. Patrick Smith, Historical Florida Novelist, Merritt Island, FL  
Ms. Lauralee Thompson - Manager, Dixie Crossroads Seafood Restaurant, Titusville, FL  
Paul Williams - Wilbro U-Pic Farms, Palm Bay, FL  
Ms. Phyllis Woodford, President, Woodford Shellfish Farms, Merritt Island, FL

Marella Crane (Dade County)

Mike Brescher, Pelican Harbor Marina, Miami, FL  
Eva Berman, E & R International Seafood, Miami Beach, FL  
Ronald Dalton, Dalton Marine, Homestead, FL  
Phil Everingham, Merrill-Stevens Boatyard, Miami, FL  
Sallye Jude, Miami River Inn, Miami, FL  
Theo Long, Biscayne Nature Center, Miami, FL  
Capt. Gerald C. McGinley, Jr., Admiral Oil, Coral Gables, FL  
Don Pybas, County Extension Directory, Homestead, FL  
Joan Vernon, Greater Miami Billfish Tournament, Key Biscayne, FL

LeRoy Creswell (St. Lucie County)

Dr. Sabine Alshuth, Indian River Community College, Ft. Pierce, FL  
Jerry Corsaut, Sportdive, Collector, Ft. Pierce, FL  
Jan Fogt, Sports Writer, Sports Fishing Magazine, Stuart, FL  
Pat Gostel, South Florida Water Management, Stuart, FL  
Dean Kebutchik, Ft. Pierce City Marina, Ft. Pierce, FL  
Dr. John Scarpa, Harbor Branch Oceanographic Institution, Ft. Pierce, FL  
Mary Tamblyn, Florida Inland Navigational District, Stuart, FL  
Dr. Bjorn Tunberg, Smithsonian Institution, Ft. Pierce, FL  
Dr. Ferdinand Wirth, UF/IRREC, Ft. Pierce, FL

Andrew Diller (Escambia County)

Neil Richards – The Window Factory, Pensacola, FL  
Richie Ann Marple – Pensacola, FL  
Les Westerman, Marina Industry Association – Pensacola, FL

Eleanor Godwin, West Florida Regional Planning Coordinator, Pensacola, FL  
Amanda Carrigan Grissom, Gulf Islands National Seashore – Pensacola, FL  
Deborah Magyarosi, Covenant Hospice – Pensacola, FL  
Lynn Fisher – Pensacola Beach, FL

Doug Gregory (Monroe County)

John Clarke – Mote Marine Laboratory, Ramrod Key, FL  
Jeff Cramer, Organized Fishermen of Florida, Conch Key, FL  
Humberto Garrido, Jr. – Key West, FL  
Debra Harrison - World Wildlife Fund, Marathon, FL  
Richard Hanson - Islamorada, FL  
Bob Holston – CeCe Roycraft, Key West Pro Dive Shop, Key West, FL  
Nancy Klingener – Ocean Conservancy, Key West, FL  
Karl Lessard - Gulf of Mexico Fishery Management Council, Marathon, FL  
John Magursky - Islamorada Charter Boat Association, Key Largo, FL  
Martin Moe – Islamorada, FL  
Ken and Denise Nedimyer – Tavernier, FL  
George Niles - Summerland Key, FL  
Bruce Popham – Marathon Boatyard, Marathon, FL  
Capt. Jim Sharpe - Summerland Key, FL  
Simon Stafford - Lower Keys OFF Chapter, Key West, FL  
Bill Wickers - Key West Charter Boat Association, Key West, FL

L. Scott Jackson (Okaloosa/Walton counties)

Ross Hamilton, Niceville, FL  
Mark Christy, Destin, FL  
Lockey Goodwin, Santa Rosa Beach, FL  
Edwin Goodwin, Santa Rosa Beach, FL  
Beverly Kraska, Santa Rosa Beach, FL  
Sharon Maxwell, Niceville, FL  
Jim Moyers, Seagrove Beach, FL  
Jim Robertson, Ft. Walton Beach, FL  
Scott Robson, Destin, FL  
Laura Sparks, Once De Leon, FL  
Brittany Stark, Ponce De Leon, FL  
Bob Walker, Niceville, FL

William T. “Bill” Mahan (Franklin County)

Polly Edmiston, Port St. Joe High School Science Department  
Anita Grove, Executive Director, Apalachicola Bay Chamber of Commerce  
Van Johnson, Director, Franklin County Solid Waste Department  
Seth Blicht, Director, Apalachicola National Estuarine Research Reserve  
Marie Marshall, Executive Director, Bay, Franklin, and Gulf Healthy Start Coalition



### Maia McGuire

Dick Balduzzi, St. Johns County WAV Coordinators, St. Augustine  
Chris Benjamin, St. Augustine  
Jan Brewer, Environmental Planner, St. Johns County, St. Augustine  
Mike Hollingsworth, Jacksonville  
Pete Johnson, Regulatory Scientist, SJRWMD, Jacksonville  
Jerry Full, Palm Coast  
Rick Gleeson, GTM NERR, St. Augustine  
Carl Hampp, Marineland, St. Augustine  
Kevin Lussier, Amelia Island Yacht Basin, Amelia Island  
Richard and Carole McCleery, Palm Coast  
Cheryl McCrory, St. Johns County WAV Coordinator, St. Augustine  
Kevin Micieli, Flagler County Public Works, Bunnell  
Steve Nichols, Waterways Coordinator and Dockmaster, Metropolitan Park & Marina, Jacksonville  
Christina Nelson, Amelia Island Plantation, Amelia Island  
Renee Paolini, Washington Oaks State Gardens, Palm Coast  
Bonnie Simms, Palm Coast  
Howard Sklar, Flagler Bridge Boatworks and Marina, Flagler Beach  
Kelly Smith, UNF Dept. of Natural Sciences, Jacksonville  
Lex Waters, Jacksonville

### Rich Novak (Charlotte County)

Bruce Laishley – Partner in SWD which donated aquaculture equipment, Partner in Palm Yamaha, Owns Laishley’s Marine World, Active in the artificial reef programs  
Chuck Listowski – Executive Director of the West Coast Inland Navigational District  
Michael Heller – Editor, Water Life (Monthly fishing/boating magazine)  
Frank Hommemma – Owns Fishin’ Franks Bait and Tackle Shop, Has a weekly fishing show on cable television – “Wishin I Was Fishin’ with Fishin’ Frank  
Jim Joseph – Owns Fantasea Scuba, Teaches 1<sup>st</sup> Aid, CPR and O2 Provider classes  
Stan Swast – Owner of Shoal Marine-boat part sales and repair, Commercial Fisherman-Blue and stone crab, shrimp, and lobster guide, Clam farmer, Member of OFF  
Pete McLewin – President of Punta Gorda Fishing Club, Active as a volunteer in the artificial reef program

### Alessandra (Alex) Score (Dade and Monroe Counties)

As South Florida Ecosystem and Outreach Coordinator, coordinates with staff at the Atlantic Oceanographic and Meteorological Lab and the Florida Keys National Marine Sanctuary on program planning.

### John Stevely (Manatee, Sarasota & Collier Counties)

Buddy Watts - City of Bradenton Beach  
Bill Ireland - Coastal Conservation Association  
Pat Wilcox - Trailer Estates  
Charlie Hunsicker - Ecosystems Manager  
Jonathan Davis - Fishing Guide  
Larry Borden - Scuba Diver  
Clayton Robertson - Conservation Consultants, Inc.  
Gary Raulerson - SBNEP  
Jim Cutway - Scuba Quest

Greg Fagan - Manatee County Parks and Recreation  
Gail Cole - Mayor, Bradenton Beach  
Kevin Lausman - Coastal Conservation Association  
Joe Burnhard - Manatee County Sheriff's Department  
Jack Gorseman - Manatee County Environmental Management Department  
James Zacharis - Fishing Guide  
Karen Bell - Bell Fish Company  
Rick Meyers - Manasota Fish & Game Association  
Todd Barber - Reef Balls, Inc.  
Sheila Mora - Sigma Inc.  
Bob Fluke - Manatee County Environmental Management Department  
Wayne Hamblen - Trailer Estates  
Jack Wieler - Boaters World

Leslie Sturmer (Multi-County Aquaculture)

Sue Colson, Clam Farmer Equipment and Manufacture, Cedar Key County Commissioner  
Ricky Cooke, Cooke's Oysters and Seafood, Cedar Key, Clam Farmer, Project OCEAN Graduate, Nursery Operator, Wholesaler, Retailer  
Bill Delaino, Cedar Key, Clam Farmer, Nursery Operator  
Mike Hodges, Clam Farmer, Nursery Operator, Wholesaler, Cedar Key  
Paul Ridaught, Old Town, Clam Farmer, Member of USDA/FSA Advisory Committee  
Dan Solano, Cedar Key Aquaculture Farms, Inc., Cedar Key – Clam Farmer, Hatchery & Nursery Operator, Seed Supplier, Wholesaler  
Shawn Stephenson, Yankeetown, Clam Farmer  
Rick Viele, Rick's Seafood, Inc., Cross City, Shellfish Dealer & Wholesaler

Don Sweat (Citrus, Hernando, Pasco and Pinellas Counties)

Citrus/Hernando

Jeff Carter – Marina Owner, Homosassa  
Brian Thompson - Scallop Aquaculture Participant  
Bob/Cathy Gill - Owners, Shrimp Landing Fish House  
Gary Maidof - Citrus County Planning Department  
Andy Rose - Sumter County Cooperative Extension Service  
Sam Lyons - Charter Dive Shop Owner  
Walter Wynn - Retired  
Kelly Tyler - County School System  
Kevin Cunningham - Local Businessman  
Bobby Witt - Scallop Aquaculture Participant

Pasco/Pinellas

Blake Longacre - Businessman, Sport Fisherman/Boater  
Dr. Norm Blake - Dept. Of Marine Science, USF, St. Petersburg, FL  
Jarvis Everett - Suncoast Tarpon Roundup Committee, St. Petersburg, FL  
Dave Zalewski - Charter Boat Service Owner/Captain, Largo, FL  
Terry Newkirk - Boat/Yacht Broker, St. Petersburg, FL  
Phil Steele – National Marine Fisheries Service, St. Petersburg, FL

Chris Verlinde (Santa Rosa County)

Dr. Eleanor Williams, Go Native Plant Nursery, Milton, FL  
Marty and Brenda Stokes, Navarre Beach Marine Sanctuary, Navarre, FL  
Dave Barker, Blue Dolphin Kayak Tours, Navarre, FL  
Carolyn Kolb, Navarre, FL  
Junior and Gloria, Gloria's Seafood, Milton, FL  
Catherine Goss, Navarre, FL  
Rick Harris, Navarre, FL  
Jimmie Jarrett, Milton, FL  
Jack Marion, Marion's Bait and Tackle, Navarre, FL  
Jim Robey, Air Products, Milton, FL  
J.D. Brown, Bream Fishermen Association, Pensacola, FL  
Harold Kelker, Aquaculture, Milton, FL  
Deborah Holland, NW FL Aquatic Preserve Office, Milton, FL  
Martha Szmoniak and Bill Hay, West Florida Canoe Club, Milton, FL  
Capt. Robert Turpin, Gulf Breeze, FL  
Tina Murphy, Pace, FL  
Elaine Sessions, Milton, FL  
Ernie Rivers, Pensacola, FL  
Gary Worb, Navarre, FL

Bob Wasno (Lee County)

Chuck Listowski, WCIND, Venice, FL  
Rudy Busch, Director, Keep Lee County Beautiful, Inc., Ft. Myers, FL  
Dennis Henderson, Owner, Trico Shrimp Co., Ft. Myers Beach, FL  
George Gala, Owner, Trico Shrimp Co., Ft. Myers Beach, FL  
Dr. Tom Fraser, Dex Bender and Assoc. Environmental Consultants, Ft. Myers, FL  
Dr. Rob Loflin, City of Sanibel, Natural Resources, Sanibel, FL  
Capt. Denis Grealish, Florida Fish & Wildlife Conservation Commission SW Region, Ft. Myers, FL  
Commissioner Ray Judah, Lee County Board of Commissioners, Ft. Myers, FL  
Jack Waldo, Ohio Sea Grant (Retired), Ft. Myers, FL  
Ken Stead, SW Florida Marine Trades Association, N. Ft. Myers, FL  
Heather Stafford, FDEP-Estero Bay Aquatic Preserve Office, Ft. Myers Beach, FL  
Dr. Greg Tolley, Florida Gulf Coast University, Ft. Myers, FL  
Dave Ceilley, Environmental Biologist, Conservancy of SW Florida, Naples, FL  
Dr. Steve Bortone, Director, Sanibel-Captiva Conservation Foundation Marine Laboratory, Sanibel  
Tomma Barnes, Environmental Scientist, South Florida Water Management District, Ft. Myers, FL  
Betsy Clayton, News Press, Ft. Myers, FL

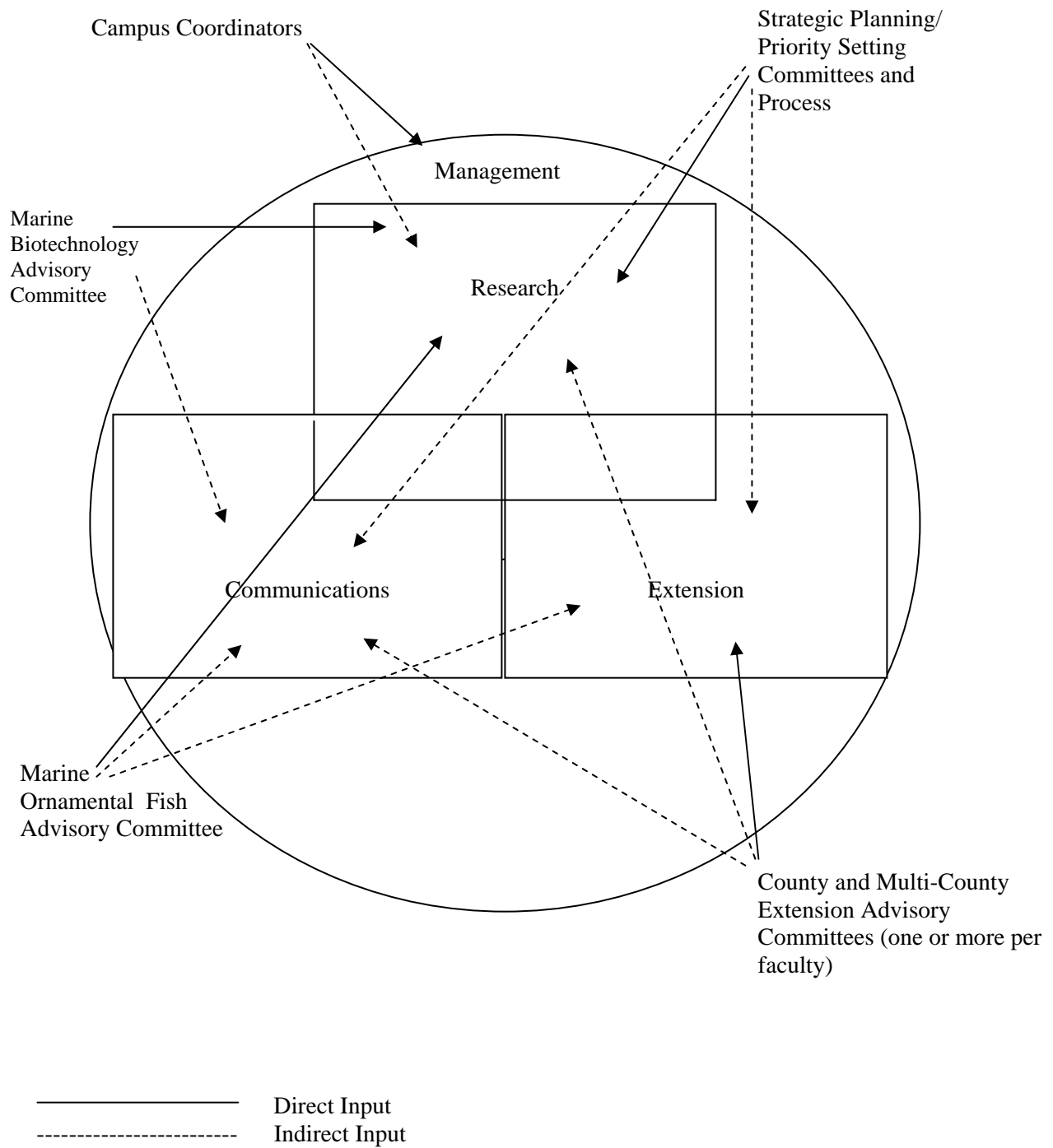


Figure 1. The input of advisory committees into research, extension and communications functions of Florida Sea Grant.

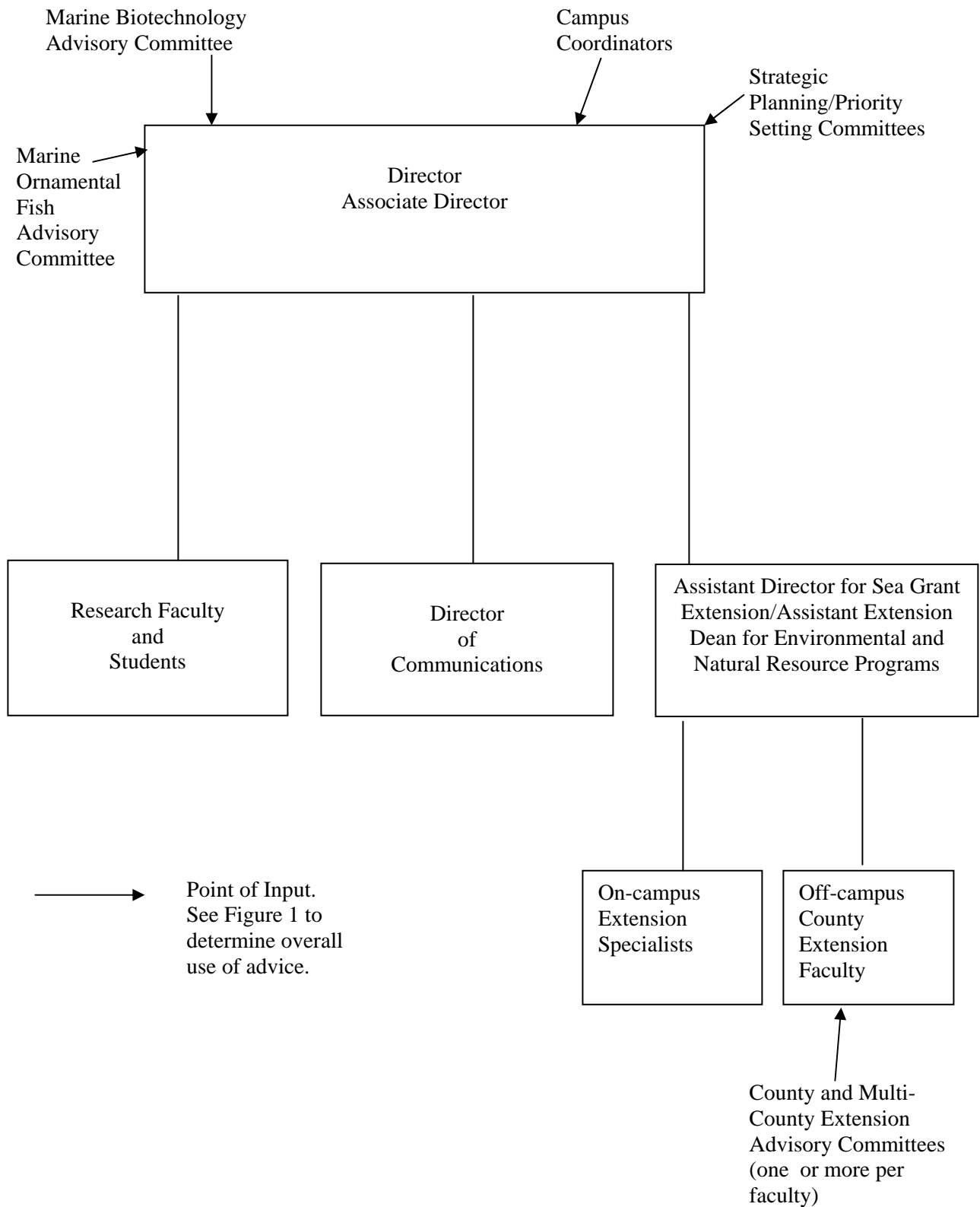


Figure 2. The point of first contact or direct input of advisory committees into the administrative structure of Florida Sea Grant.