

Science Serving Florida's Coast



“Performance Counts”

Annual Progress Report for 2004

April 2005

Technical Paper 145



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TABLE OF CONTENTS

1. Introduction
2. Program Accomplishments and Benefits
3. Program Funding From All Sources
4. Institutions Involved
5. Projects Funded
6. Publications
7. Students
8. Program Awards
9. Outreach Activities
10. Self Evaluation
11. Advisory Process

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. 2004 represents the 34th 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.

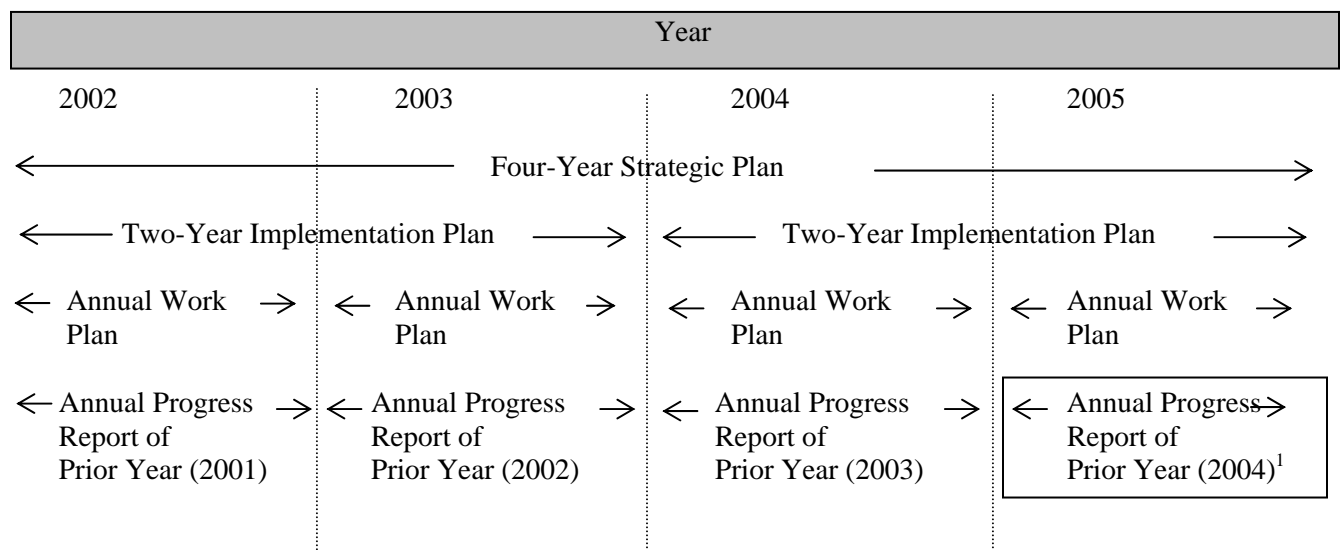
This annual progress report for 2004 is the seventh annual progress report submitted by Florida Sea Grant under the program evaluation procedures adopted during 1998 by the National Sea Grant College Program. This report covers the year 2004, but some historical data are included to provide baseline information for subsequent annual progress reports.

Florida Sea Grant had nine different NOAA grants in effect during 2004. This annual report covers work completed and ongoing under all nine grants.

Florida Sea Grant awards from NOAA activities during calendar year 2003.			
Number	Keyword Identifier	Start Date	Current End Date
NA16RG-2195	Omnibus Research, Extension, Communications, Management	02/01/02	05/31/06
NA16RG-2198	Oyster Decontamination	03/01/02	02/28/05
NOAA OAR-4170027 NA16RG-2558	Coastal Storms Project #8 (E/T-10)	03/01/02	11/30/05
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	01/31/07
	Knauss Fellow E/ST-29	02/01/04	01/31/05
NA03OAR-4170035	Knauss Fellow E/ST-28	02/01/03	01/31/04
NO04nos4730008	E/T-14 Manatee	04/01/04	03/31/06
FC133C04SE0932	E/T-15 Case Studies	07/31/04	04/30/05

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 2004 annual progress report in the context of Florida Sea Grant's four-year cycle strategic plan, implementation plan and annual work plan.



¹ Representation of this document on the timeline.

2.0 ACCOMPLISHMENTS AND BENEFITS

Economic Leadership

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

- 1.1 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. (Kerr/Lopez: R/LR-MB-14)

The most significant accomplishment is the purification and sequencing of the elisabethatriene synthase (ELS). This is the first such purification from any marine organism. This is critical in the cloning aspects of this project and has provided us with important sequence data that is key for the cloning of a number of cyclase genes from marine gorgonians. This is one key step towards the overall goal of developing biotechnological production methods of marine natural products. A start-up company to utilize some of the results was in formation.

- 1.2 R-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 real-time PCR for rapid, quantitative, cost-effective technology for enumeration of *Vibrio* spp. pathogens in oyster. The methods will be developed for practical applications in shellfish monitoring and for evaluation of post-harvest treatments. (Wright/Rodrick/Schneider: R/LR-MB-15)

The R-PCR assay that was developed provides the first description in the literature for *V. vulnificus* R-PCR detection and also the first description of direct assessment by R-PCR for contamination in oyster without the use of enrichment assays. The close collaboration with FDA should facilitate more rapid acceptance of this methodology by regulatory agencies.

- 1.3 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. (Kem/ Soti: R/LR-MB-16)

Hoplonemertine worms belonging to the genus *Amphiporus* were found to be a rich source of pyridyl alkaloids possessing antifouling and crustacean paralyzing activities. 10 different alkaloids were isolated during this project. Structures of some of these compounds have been elucidated. Several bipyridyl analogs were found that inhibit settlement of barnacle larvae to glass surfaces but which are not significantly toxic to barnacle larvae or adult crayfish.

Electrophysiological assays with lobster walking legs demonstrated the existence of pyridyl receptors which respond to hoplonemertine pyridyls, with 2,2'-bipyridyl being less potent than 2,3'-bipyridyl. In contrast to the walking leg preparation, the spiny lobster antennular chemoreceptor preparation was not affected by these bipyridyls. This was disappointing since we had planned to isolate and culture the abundant antennular chemoreceptor neurons to develop a better neurochemical assay for active compounds.

Several pyridyls displayed potent antisettlement activity but significantly less toxicity than the initial lead compounds. These include 4'-methyl-2,3'-bipyridyl, 4-methyl-2,3'-bipyridyl, 1,9-phenanthroline and nemertelline. Antisettlement activity and crustacean toxicity of sponge halitoxin, a mixture of pyridinium polymers of differing molecular sizes, varied with molecular

size: antisetlement activity of smaller polymers was more significant relative to their crustacean toxicity. We have selected as primary candidates for field tests of antifouling activity the two bipyridyls 2,3'-BP and 2,2'-BP, based on their high potencies, economical syntheses, and desirable characteristics as models for future development of related analogs. Initial laboratory tests of their release rates from experimental paints are now in progress.

A patent application, "Materials and Methods for Inhibiting Fouling of Surfaces Exposed to Aquatic Environments", was filed at the US Patent Office on Feb. 19, 2004 (Docket No. UF-360XC1). Presentations of the results of the Sea Grant were presented at the Florida Biotechnology Summit III in Ft Pierce in 2002 and at the Gordon Conference on Marine Natural Products in Ventura CA in 2004. Three publications are in process.

This research increases public and corporate awareness of the potential value of marine natural products from Florida waters as an important new source of anti-fouling agents, drugs and pesticides. Also, this research is providing patentable entities for future commercial development.

- 1.4 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. (Wright/Longley: R/LR-MB-17)

A primary problem has been in providing an adequate supply of lasonolide F for the work. The compound appears to be more unstable than originally anticipated. This required the development of an alternative supply of lasonolide F. The yield from nature is low and variable between specimens compared to lasonolide A and C. Fortunately both Lasonolides A and C can be converted to lasonolide F. The industrial partners are currently evaluating them in a functional genomics/proteomics approach and which is complementary to our own research. They have also profiled them through a kinase panel.

- 1.5 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. (Mari/Fields: R/LR-MB-18)

We have extended our previous findings of novel post-translational modifications involving the hydroxylation of Valine to the hydroxylation of Leucine (vil-1). This finding extends the newly defined conopeptide superfamily of conophans and hydroxyconophans. It also appears to define a novel neurochemical strategy used by *Conus* to capture its prey. This discovery might be a breakthrough in protein biochemistry as these types of hydroxylated amino acids have been predicted to be too reactive to be part of a standard polypeptide chain.

We have the full sequence of six members of this novel conopeptide superfamily: mus-1, mus-1', mus-2, vil-1, vil-2 and vil-0.

We have found a novel μ -conotoxin that is the smallest μ -conotoxin described to date and it lacks the amino acids required for binding to the tetrodotoxin binding site of sodium channels. Therefore, it is likely that its mode of action is unique and it might show very desirable neuropharmacological properties.

As stated in our general hypothesis, our data indicates that all Atlantic and Panamic conopeptide fractions (~210 e have screened by ESI-MS are unique, thus making a rich source for potential neuropharmacological agents.

This project involved a large number of graduate and undergraduate students. Five publications are completed or in process, and a patent application has been filed. Eight scientific presentations were made using work from the project.

- 1.6 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)

The original mission of this committee was concluded, so the committee no longer exists. In its place, a smaller group of faculty was organized as a planning committee for the 2004 Florida Marine Biotechnology Summit IV, which was held with industry members. Meanwhile, a formal Biotechnology Industry Advisory Committee was established to address some arms of the original coordinating committee.

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

- 1.12 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 continue, and the feasibility of an ad hoc faculty advisory panel will be determined. (Seaman)

(See 9.0 Outreach Activities, Page 9.1)

- 1.13 To promote awareness and understanding of marine biotechnology by Extension faculty, an information packet of relevant materials and resources will be assembled and the possibility of establishing in-service training and a major program in this area will be explored. (Seaman)

(See 9.0 Outreach Activities, Page 9.1)

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

- 2.1 Gag grouper is a highly prized fish in the Southeast United States. The fishery 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. (Lindberg/Mason/Murie: R/LR-B-53)

It was determined that gag grouper abundance was lower than in earlier years in the same system, and that the reef treatment effects on gag abundance, relative weight and incremental growth were diminished compared to earlier years, or simply not manifested under the current conditions. This should be expected for treatment effects due to density dependent processes when densities are low. The diets of gag in the current study trended toward more energy rich prey, consistent with what would be expected with reduced gag densities. However, the relative weights of gag were substantially less than in previous years when gag abundance was higher and reef treatment effects were more strongly manifested. This suggests that regional productivity during the current project might also have been lower than in previous years, although we cannot test this with the data at hand. If that was so, it further suggests that the overall abundance of gag and regional productivity co-vary in ways that require longer-term, broader-scale studies to test and to model quantitatively.

Five students worked on the project and are in various stages of completion. Two publications are in process and 14 presentations were made in various scientific venues.

Results from this research program are part of the background information carried into Gulf of Mexico Fisheries Management Council processes by Dr. Murie, as a member of the Stock Assessment Panel, and Dr. Lindberg, as a member of the Reef Fish Scientific and Statistical Committee.

- 2.2 Declining shark populations 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. (Shivji: R/LR-B-54)

This research has provided novel and rapid forensic diagnostic methods and genetic markers for identification of shark body parts. The methods developed here provide a practical means for obtaining this information and therefore directly aid in management and conservation planning efforts. In addition to assisting NOAA's Office of Law Enforcement in their successful case investigations, investigators are discussing applications of this technology with the U.S. Coast Guard and Office Homeland Security (Customs) for fisheries enforcement and fishery products exportation surveillance.

- 2.7 The FY02 National Sea Grant federal appropriation required the enhancement of Sea Grant's fisheries extension program.

2.7.1 With new UF IFAS Extension planning format, several "fisheries work groups" were identified and formed in the 2004 Fall FSGE annual meeting. These work groups will meet to develop 2005 plans of work in the spring of 2005. These work areas will focus on ethical angling, artificial reefs, fish grow-out facilities such as the RedStart project, and new emphasis on recreational fisheries through the work of new part-time specialists hired through the Fish Extension grant. (Spranger/Adams/Otwell/Jacoby/Agents: E/FE-FSG) The Fisheries Design Team has been replaced by an analogous Focus Group. This team has entered the required information into curriculum builder of FAS2. The FAS2 system was

then put on hold. An in-service training proposal for the fisheries team was submitted in July, but not approved for funding. A possibility exists that other funds may be utilized for in-service training in early 2005.

The University of Florida IFAS Extension has developed a new organizational format for programmatic activities related to fisheries extension. Instead of Extension Design Teams, the program functions have been reorganized to Goal Areas, Focus Teams and Work Groups. The Work Groups are a small, dedicated group of faculty involved in specific topical areas. In the fisheries extension program area, several new Fishery Work Groups have been established, that include the following: Ethical Angling Work Group, Shrimp Technical Assistance Work Group, Artificial Reefs Work Group, Recreational Fisheries Work Group.

- 2.7.2 Chuck Adams, FSGE Marine Economist provided training to extension agents in the USDA TAA program that provided technical assistance and financial support to Gulf of Mexico shrimpers. These trained agents, along with Dr Adams, Dr. Otwell and Victor Garrido provided a number of training sessions for shrimpers throughout the state of Florida. Dr. Adams continues to stay in contact with Sea Grant counterparts in the Gulf of Mexico region who are address the shrimp industry problems. (Spranger/Adams/Otwell/Agents: E/FE-GM)

Primary activity has been associated with Trade Adjustment Assistance training efforts.

As part of a regional Gulf of Mexico effort, Chuck Adams has been involved in meetings to look at options on the economic sustainability of the region's shrimp industry. During 2004, Chuck, Steve Otwell, and FSGE agents conducted workshops for shrimpers that made them eligible to receive funding from a new Federal program called Trade Adjustment Assistance (TAA) for farmers. TAA was passed by Congress in 2002 to mitigate the effects of imports on certain commodities and it is currently being implemented by the Foreign Agricultural Service (FAS)/USDA. FSGE was designated to deliver "technical assistance to impacted shrimpers. (See also 2.9 for more information).

- 2.7.3 Chuck Adams met with his Sea Grant counterparts from North Carolina, South Carolina and Georgia to identify needs for regional activities. Following teleconference calls and face-to-face meetings, a regional meeting of Sea Grant fisheries specialists, and representatives from state and federal fishery agencies and regional fishery councils will be held in the Spring 2005. (Spranger/Adams/: E/FE-SA)

The Fisheries Extension Enhancement group (Adams, Gregory) from Florida met with FEE representatives from Georgia, South Carolina, and North Carolina. The meeting occurred in Atlanta on 8 October 2004. The goal of the funding this year is to arrange a workshop with NOAA/NMFS to see how Sea Grant can better interact regarding fisheries extension activities. In addition, the workshop will provide NOAA/NMFS with insight into the regional commercial and recreational fisheries efforts Sea Grant will be involved with in the near future.

Several telephone conference calls were held in 2004. A coordinating committee composed of a representative of each South Atlantic Sea Grant Program (NC, SC, GA, FL) met to discuss future regional activities in the area of fisheries management. A workshop to bring together Sea Grant fishery extension faculty and agency managers is being planned for 2005.

- 2.8 Interviews were held for a Extension Fisheries Agent for Bay County in the latter part of 2004. After an extensive search, an agent was hired in February 2005. Negotiations are still continuing to

place an agent in Collier County, but lack of county support may necessitate putting this position in another county. Dr. Steve Holland and Dr. Myron Floyd are hired as new part-time recreational fisheries specialists. They will work with newly formed “fisheries work groups” to develop a sustained program in 2005. (2006) (Spranger/Holland/Floyd: SGEP-13-FE)

Two part-time Fishery Extension specialists (Steve Holland, Myron Floyd) were hired to further develop and enhance FSGEP’s recreational fisheries program. Interviews for county faculty positions were held in late 2004. An Extension Fisheries Agent will begin work in Bay County (Panama City) in February 2005. Negotiations are still underway with county government to place an Extension Fisheries Agent in Collier County (Naples).

- 2.9 All commercial shrimpers in Florida will become aware of the USDA Trade Adjustment Assistance (FSA) program and decide whether to file a petition and claim with USDA in an effort to seek relief from the market impacts of imported, aquacultured shrimp. (Adams)

Florida Sea Grant worked very closely with the USDA Farm Service Agency to provide training and education regarding the USDA Trade Adjustment Assistance program. A petition was successfully filed with the FSA program through the Southeast Fisheries Association. A total of 19 meetings and workshops were held, 268 individuals were trained. These individuals included primarily shrimp harvesters, but 11 catfish growers and 13 Alaskan salmon harvesters were also trained. A total of 168 individuals successfully applied for benefits.

- 2.10 The Gulf and South Atlantic Foundation-funded project designed to determine the fair market value for a commercial shark permit and vessel in Florida will be completed. One hundred (100) commercial shark vessel owners will become better informed of the bid development process associated with a buyback program. (Adams)

The Gulf and South Atlantic Fishery Foundation project designed to assess the fair market value for a commercial shark vessel is ongoing. The data needed to complete the initial revenue descriptions of the vessels has been received. An initial analysis of the revenue profiles for participating vessels has been completed. Additional revenue profile analyses need to be completed, industry focus groups conducted, and alternative valuation methods explored. A graduate student is currently completing the latter issue. The project completion date has been extended to Fall 2005.

- 2.11 Conduct a study of the economic impact of the commercial fishing industry on the East Coast of Florida. This study will be funded by the National Marine Fisheries Service. The study will involve cooperation with UF FRED faculty. Twenty-five (25) fishery managers will become more aware of the role of economic impact assessments in the effective management of commercial fisheries in Florida. (Adams)

This study, funded by NMFS, is ongoing. The output of the project will be a methodology to design an economic impact model, utilizing IMPLAN, for the commercial fishing industry on the east coast of Florida. The project will provide NMFS with a strategy for developing better community and industry impact assessments given changes in fishery regulations and policy.

- 2.12 Provide scientific input to the Gulf of Mexico and South Atlantic Regional Fishery Management Councils. Attend various meetings and provide economic input in the derivation and selection of management options. Twenty-five (25) fishery managers will become more aware of the role of economics in the process of sustainable fishery management.

2.12.1 Serve on Scientific and Statistical Committees (Adams).

2.12.2 Review and comment on stock assessment analyses and draft management documents (Gregory).

Adams served as member of the Scientific and Statistical Committee (SSC) of the Gulf of Mexico Regional Fishery Management Council, and attended two meetings of the SSC (New Orleans and Tampa). He resigned from the same SSC position with the South Atlantic Council, after serving continuously since 1986.

Gregory was an invited participant in five Scientific and Statistical Committee meetings, three with the Gulf of Mexico Fishery Management Council and two with the South Atlantic Fishery Management Council.

2.13 Assist regional fisheries agencies with fisheries management plans and assessments.

2.13.1 Chair the Gulf States Marine Fisheries Commission Sheepshead Management Task Force. Write an economics component for the draft management plan (Adams).

2.13.2 Participate in three stock assessment meetings of the National Marine Fisheries Service, Southeast data and assessment review workshops (Gregory).

Adams continues to serve as Chair of the Sheepshead Task Force for the Gulf States Marine Fisheries Commission. Two meetings have occurred during 2004: New Orleans and Long Key, Florida. The Task Force is nearing completion of the draft manuscript and the next meeting will occur in Rockport, TX.

2.14 Give presentations at the following conferences: (Adams)

2.14.1 World Aquaculture Society Annual Conference – Honolulu, Hawaii

Two presentations were given and a session moderated. Presentations were on economics of shrimp culture in Florida and a description of the shrimp culture industry in Florida.

2.14.2 Florida Artificial Reef Summit – Sarasota, Florida

Presentation given on the economics of artificial reefs.

2.14.3 International Institute of Fisheries Economics and Trade – Tokyo, Japan

International Institute of Fisheries Economics and Trade: Tokyo, Japan. Two presentations given and a session moderated. Presentations concerned the economic issues regarding a shark buyback program for the Atlantic region of the US.

2.14.4 Southern Agricultural Economics Association – Tulsa, Oklahoma

Participated in the king mackerel data assessment workshop and king mackerel stock assessment workshop as well as an overall finfish stock assessment panel meeting to discuss and recommend changes to the NMFS proposed overfishing related changes to the Sustainable Fisheries Act implementation of National Standard 1.

A symposium was organized and conducted on the use of buyback programs for capacity utilization in fisheries management.

2.14.5 Southeastern Fisheries Association – Sarasota, FL

Gave presentation on status of the USDA Trade Adjustment Assistance Program for shrimpers in Florida.

2.14.6 Southern Regional Outlook Conference

Gave presentation on the commercial fishing industry in the SE United States region.

2.14.7 NMFS Shrimp Business Options Workshop

Gave presentation on the economic situation that promulgated the development of the NMFS Shrimp Business Options Report.

2.14.8 Florida Aquaculture Association Annual Conference

Gave presentation on the recent Florida Sea Grant funded activities/projects associated with marine aquaculture.

2.15 Increase the sustainability of fisheries resources in Brevard County. (Combs)

2.15.1 Conduct educational programs and provide materials and technical assistance for the Brevard Sport Fishing Association (SFA) and the Brevard County Commission Marine Advisory Council (BCCMAC) for the development, maintenance, and monitoring of artificial reefs off the Brevard County coast.

Attended monthly meetings of the Brevard Co. Commission Marine Advisory Council (BMAC) at which artificial reefs were regularly discussed in conjunction with requests for planning/implementation assistance from representatives of Brevard Sport Fishing Association (SFA). Marine Agent Combs provided BMAC and SFA copies of Sea Grant artificial reef reports, Monitoring Manual (Halusky), and SG reports from other states as reference materials. Agent Combs outlined and listed potential hurdles in establishing new artificial reefs, including need to establish working relationships with NASA (regarding nearby launch zones), US Navy (regarding Trident submarine basin, and classified submarine traffic in area), South Atlantic Fishery Mgmt. Council (SAFMC) (regarding proximity to the Oculina Bank, a Habitat Area of Particular Concern (HAPC), which may expand in dimensions over time), major cruise lines and casino ships operating from Port Canaveral, commercial fishing vessels operating from Port Canaveral, Port Canaveral Port Authority, and others including various sport fishing groups. BMAC created a five-member Artificial Reefs Advisory Subcommittee, including Sea Grant Agent Combs.

Agent Combs attended Artificial Reef Summit in Sarasota, April 27-28, at request of BMAC.

Agent Combs conducted Workshop for Brevard Sport Fishing Assoc., June 22, concerning the Oculina Bank and its possible relation to artificial reef development.

Agent Combs personally contacted all shrimping interests at Port Canaveral to inform them of, and invite them to a public hearing conducted by the SAFMC concerning Amendment 6 to the Shrimp Fishery Mgmt. Plan, to be held Aug. 3 in Cape Canaveral. Agent Combs attended, with a half dozen interested citizens, and SAFMC representatives present addressed all questions from the audience.

Impacts:

Agent met with four other members of Art. Reef Subcommittee on July 26 and two members on Aug. 4, to discuss issues and develop recommendations for BMAC to assist

them in their approach to Co. Commissioners regarding possible funding for this effort. Agent participated in reports to BMAC, including added comments during discussion sessions. BMAC continues to develop funding strategy based on efforts of this Subcommittee, but 2004 hurricane season seriously disrupted progress in this area, as County priorities were rearranged.

Agent Combs was appointed to Coral Advisory Panel of SAFMC, and has agreed to explore Brevard Co. Artificial Reef issues as related to the Oculina Bank HAPC and SAFMC fisheries management strategies.

- 2.15.2 Assist four commercial fishing businesses at Port Canaveral and elsewhere in Brevard County that have been economically impacted by foreign competition in seafood products, such as shrimp and scallops, as they may seek “exit strategies” that will permit them to move from seafood production to some other enterprise, while maintaining profitability. Facilitate two meetings for interested fishermen with public officials, such as County Commissioners, and Port Commissioners, who are interested in resolving these challenges.

Facilitated individual meetings between Ken Windsor, Director Central Florida Farm Service Agency (on visit to Port Canaveral, May 4), and Sea Grant Agent Combs, and impacted shrimpers, so that Mr. Windsor could explain how TAA program works – we met individually, on site, with reps. from three commercial shrimp processing plants.

Attended TAA Shrimper Assistance Workshop (May 6. Ft. Myers) with other Sea Grant personnel, to be trained in assistance strategies and technical details.

Assisted Dr. Chuck Adams in TAA Workshop at Cocoa Ag. Center (June 21) – most of the dozen attendees were from outside Brevard Co. and concluded that they probably did not qualify for TAA program, so they did not apply.

Impacts:

“Educated” Ken Windsor, FFSA, on many shrimping industry issues at local level through personal contact with processors during Port Canaveral visit (May 6) with Agent Combs.

Agent Combs assisted Mike Vona, Pt. Canaveral commercial shrimper, in obtaining TAA assistance, by conducting individual workshop aboard his vessel (Aug, 17) and subsequently by working by phone with his fish house manager.

Agent Combs worked with six other Pt. Canaveral shrimpers in determining eligibility for TAA program, and they concluded that they could not qualify.

Agent Combs assisted several local shrimpers in reviewing requirements for TAA program eligibility, with result that they could not prove eligibility, so they did not apply for assistance.

- 2.15.3 At least 30 recreational fishermen will learn environmentally and economically friendly management practices for recreational fishing. (fish venting, catch n’ release, circle hooks and mercury in fish) by attending an educational exhibit or receiving a brochure. Knowledge gained will be measured by a survey after training session.

An educational display, including information on catch-and-release, was manned at the Grant Sea Food Festival, Feb 28-29, by the Sea Grant Agent who answered questions of passersby concerning all elements of the display.

Impacts:

Total attendance at the Seafood Festival over two days was 80,000 visitors, with an average of about 50 visitors/hour at Sea Grant display (900 total). Knowledge gained was not measured.

Activity and Impacts:

A planned Fishing Tournament, to be held during the Co. Fair (in Nov.), and in which catch-release and circle hooks were to be taught in a training session, was not possible because the 2004 hurricane season diverted principal organizers and sponsors to other responsibilities during the anticipated Tournament preparation period.

Activity:

An educational display concerning circle hooks, including brochures, was included in the larger Sea Grant Extension display prepared by Agent Combs for the Brevard Co. Space Coast Fair, November 4-14.

Impacts: No training was involved, so no survey of knowledge gained was taken, although the Agent did personally discuss with display visitors each element of the display in which they expressed special interest. Daily attendance at the Fair ranged between about 10,000 and 50,000 visitors, but Extension displays are always located indoors, away from the rides and other entertainment, so visitors to displays are occasional and sometimes “accidental.” Last year (2003), Sea Grant display visitors totaled almost 600, and it is estimated that 2004 visitors totaled about the same number.

- 2.16 Increase the awareness of marine fisheries policy through the exchange of information and methodologies to fisheries managers, non-governmental agencies, the fishing community and other user groups through the forum of the Gulf and Caribbean Fisheries Institute. (Creswell)

The agent served as Executive Secretary of the Gulf and Caribbean Fisheries Institute during 2004 – 2005. In that capacity he is the overall chairman for each annual conference, including site selection and program development; he disseminates the proceedings of the annual conferences; he collaborates with the GCFI webmaster to maintain an up-to-date website; and he serves as a liaison between Institute members, the Board of Directors, and funding agencies.

- 2.16.1 Promulgate the 54th Proceedings of the Gulf and Caribbean Fisheries Institute and disseminate it to members, libraries, universities, and computer databases.

The agent reviewed, edited, and published the 55th Proceedings of the Gulf and Caribbean Fisheries Institute (2004), Xel-Ha, Quintana Roo, Mexico. Library of Congress No. 52-033783, 1055 pp. He was also responsible for its dissemination to the GCFI members, universities and library subscribers.

- 2.16.2 Serve as chairman of the Steering and Program Committee for the 57th Gulf and Caribbean Fisheries Institute and publish its Book of Abstracts.

The agent served as Chairman of the Steering and Program Committees for the 57th Gulf and Caribbean Fisheries Institute held in St. Petersburg, Florida. Over 250 scientists,

fisheries managers, NGO representatives, and fishermen from throughout the region convened to share information and develop regional fisheries policy. In particular was the establishment of CaMPAM – the Caribbean Association of Marine Protected Area Managers – established and supported through the Gulf and Caribbean Fisheries Institute. Managers were provided travel to the Institute where special workshops were dedicated to the site criteria, design, and management of Marine Protected Areas.

2.17 Increase the sustainability of fisheries resources in Escambia and Santa Rosa counties. (Diller)

- 2.17.1 Conduct educational programs for the public and provide assistance to the Escambia County Marine Resource Division in the monitoring, maintenance, and development of artificial reefs off our coastline.

Assisted Escambia County Marine Resources document deployment of artificial reef on June 18th. Reef will provide new habitat to a variety of fish species. Served as safety officer on boat during reef monitoring dives.

- 2.17.2 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.

Conducted demonstration workshops on fish venting and catch and release methods to increase fish survival at the following meetings/events: Pensacola Recreational Fishermen’s Association meeting, Pensacola Chapter of the Coastal Conservation Association meeting, Pensacola Recreational Fishermen’s Association bi-weekly television show, and the Captain’s dinner for the first Red Snapper World Championship fishing tournament. Fishing tournament director purchased venting tools for all participants

- 2.17.3 Conduct extension training session for Escambia and Santa Rosa County shrimp fleet applying for the USDA Farm Service Agency’s Trade Adjustment Assistance program.

Offered the required technical training to shrimpers applying for the Trade Adjustment Assistance program. One Escambia County shrimper completed the training while several others contacted the office for additional information.

- 2.17.4 Continue local fish extension activities that may include topics such as derelict fishing traps, mercury in fish, shrimp management, marine protected areas, essential fish habitat and fish management.

Created a display for the 3rd Escambia County Employees Safety and Wellness Fair that included information on seafood safety in relation to mercury in fish.

2.18 Increase the sustainability of fisheries resources in Okaloosa and Walton counties. (S. Jackson)

- 2.18.1 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.

This planned activity was postponed.

- 2.18.2 Conduct educational programs and provide materials and technical assistance for the maintenance and development of artificial reefs off Florida’s coast.

In, 2004, Sea Grant Extension provided artificial educational programs and materials to Kelly Plantation Fishing Club in Destin (May 2004) and to Eglin Dive Club (March 2004). These programs introduced participants to modern reef building science and methodology. Additional information was provided regarding the opportunity for individuals to participate in the Okaloosa County managed reef program. Application, inspection and deployment processes were highlighted. Stewardship of reefs and fish stocks through monitoring activities was also presented. 57 recreational divers and fishers participated in these events. Members of these organizations promised support for future stewardship/public education activities.

Over the past four years, these types of programs fostered interest from a core group of individuals associated with fishing and diving interests. The Emerald Coast Reef Association formed in 2003. In 2004, they worked with Florida Sea Grant Extension to successfully submit and receive a Florida Fish and Wildlife Monitoring Grant for \$11,865. Using side scan sonar, the project will locate public reefs in Okaloosa County that were lost due to coastal storms. Locating these assets will restore the use of these near-shore reefs at the fraction of their original deployment costs.

Sea Grant Extension supplied technical assistance to Okaloosa County and other governments, providing reef spacing and design information from Dr. Bill Lindberg, a researcher with the University of Florida Department of Fisheries and Aquatic Sciences. Through cooperative efforts of Sea Grant and these Government entities, the Okaloosa County area received Florida Fish and Wildlife Reef Construction Grants totaling \$100,000. An additional \$48,000 in funds was committed to cooperative local projects through the Okaloosa County Tourist Development Council and Boater Improvement Funds.

Okaloosa/Walton Sea Grant Extension provided assistance and support to local efforts for the successful procurement of the retired Aircraft Carrier Oriskany. Okaloosa Board of County Commissioners (BOCC) were key in acquiring Oriskany. They provided \$50,000 to Escambia County to support the vessel's deployment. Okaloosa County Commissioner Jackie Burkett traveled several times to vocalize and endorse this regional effort with Escambia County. Sea Grant Extension facilitated this cooperation providing the BOCC with technical information during the procurement process. The nearly 900ft. prized vessel will be deployed within 32 miles of Destin's East Pass. Competitive efforts to secure the vessel came from Georgia, South Carolina, Texas and South Florida. The anticipated economic benefits to area businesses can not be understated. Economic impact will be investigated by Sea Grant research collaborator in at the University of West Florida in subsequent years.

Served as Ex officio Member of the Okaloosa County Artificial Reef Advisory Committee which provide the educational opportunity for the integration of current research results into reef designs, monitoring studies, and grant applications.

The use of radio programs provided opportunity to speak to the general public regarding the process deploying artificial reefs by individuals. Additionally, monitoring and stewardship opportunities were also presented.

2004 Private Funds for Artificial Reefs

Okaloosa County Tourist Development Council \$25,000
Boat Improvement Funds and Local Funds \$55,000
Okaloosa County Solid Waste \$18,000

2.18.3 (added) Continue to conduct educational programs and provide materials and technical assistance for the maintenance and development of artificial reefs off Florida's coast. (Wasno)

- Project Manager for deployment of 1,700 tons of concrete culverts on the Rich Novak Artificial Reef in Charlotte County. (August 2004)
- Assisted new Charlotte County Marine Agent with deployment of steel barge onto Trembley Artificial Reef Site off Charlotte County. (December 2004)
- Presented artificial reef educational presentations to several fishing groups in Lee County. A total of 302 participants attended.
- Planned and coordinated Artificial Reef Summit with Agent John Stevely held at Mote Marine Laboratory. (April 2004)

2.19 Assist shrimp fishermen working from Franklin County. (Mahan)

2.19.1 Continue work on Turtle Excluder Devices (TED's) with local shrimp industry. Work with NMFS to distribute new "leatherback TED's" for local off-shore shrimp fishermen to field-test.

The Franklin County Agent continued to work with area shrimp fishermen and NOAA Fisheries staff on testing the "Leatherback" TEDs (L-TED). To date, the Agent has provided 15 shrimp fishermen with the L-TED for field testing. As a result of the testing all of the shrimp boat captains' report that they have been impressed with the L-TED which has a larger opening than any of the TED's currently required in shrimp nets in the Gulf of Mexico. The captains have reported that they like the L-TED because it allows most of the "junk" encountered on the trashy bottom to pass-through the net without clogging it. In addition they have reported higher catches with the L-TED. Four of the captains also reported that they are looking at the economics of changing their standard TEDs for L-TEDs.

2.19.2 Coordinate and teach at least two "shrimp classes" to the Florida Panhandle shrimp fishermen as required for the fishermen's participation in the USDA Trade Adjustment Assistance Program.

The Franklin County Agent assisted other Sea Grant Specialists and Agents in teaching two USDA Shrimp Tariff Adjustment Assistance program classes for shrimp fishermen in the FL Panhandle (Apalachicola & Panama City). As a result of the two workshops, 52 shrimp fishermen received the training they needed to participate in the USDA TAA Program.

2.20 Enhance artificial reef habitat in Manatee County and statewide. (Stevely)

2.20.1 Organize 2004 Florida Artificial Reef Summit. This conference will provide technical support to improve construction, planning and management of artificial reefs on statewide basis.

The 2004 Florida Artificial Reef Summit was held April 27-28 (Mote Marine Laboratory, Sarasota Florida). A total of 130 registrants participated in the conference. Formal evaluation (see below) documented that conference was successful in providing information necessary to properly plan and manage artificial reef programs.

2004 Florida Artificial Reef Summit Evaluation

PROGRAM CONTENT	Superior	Above Average	Average	No Answer
The Workshop met my exportations for learning	18	20	5	
Insights gained were applicable to my situation	17	18	8	
Quality of Workshop materials	19	18	4	2
Quality of session content	22	15	6	
Formats of session presentation	23	17	3	
Opportunities for informal interactions with speakers	27	14	2	
Opportunities for informal interactions with attendees	31	11	1	

Benefits

The economic impacts of artificial reef development in Florida are considerable. A study in south Florida concluded that artificial reef related sales expenditures generated an annual \$148 million in Palm Beach Co., \$961 million in Broward Co., \$419 million in Miami-Dade Co., and \$127 million in Monroe Co. (Broward Co. website). Beyond economic considerations, artificial reef development must be conducted in concert with fishery management objectives to maintain sustainable fisheries resources. Information disseminated at the 2004 Summit increased the ability of local and state artificial reef programs and fisheries managers to develop artificial reefs in a cost-effective, ecologically-sound manner that results in documental economic impacts.

Additional Funding: The following organizations provided a total of \$7,550 (including In-Kind): West Coast Inland Navigation District, Mote Marine Laboratory, Florida Fish and Wildlife Commission, Tampa and Sarasota Bay Estuary Programs, Sarasota Co., Organization for Artificial Reefs, Walter Marine Inc., Reef Balls Inc.

2.20.2 Develop "Adopt-a-buoy" program for Manatee County Artificial Reef Program to insure reef sites are properly marked.

Not accomplished due to hurricane damage.

2.20.3 Locate site for new Manatee County artificial reef.

Postponed due to delays caused by hurricanes and mechanical problems with county reef boat.

2.21 Work will continue during 2004 for the RedStart fisheries (redfish) enhancement project. (Wasno, Stevely)

2.21.1 Initiate second cycle of redfish fingerling growout. Fingerlings grown out to 10" will be turned over to the Sanibel-Captiva Conservation Foundation Marine Lab for scientific research post stocking.

2.21.2 Present posters at Estuaries Enhancement Conference, World Fisheries Conference and World Aquaculture Society meetings.

- 2.21.3 Continue semi-annual meetings of RedStart Advisory Committee.
- 2.21.4 Continue the training and use of volunteers in the project. (Wasno)

Conducted fish survival workshops for recreational fishermen, charter guides and fishing tournament organizers that address topics such as fish venting, circle hooks, proper handling and release, and fishery management issues.

- 1474 participants of 7 local fishing tournaments were presented informational pamphlets and/or hands-on practical application of proper fish handling techniques. Current trends identified over the past tournament seasons include witnessing proper handling techniques on a consistent basis and number of dead or injured fish decreased significantly.
- 372 fish venting tools were distributed at off shore fishing tournaments. Follow-up discussions revealed that 100% of those anglers using them for the first time will continue to use them. Majority of comments conveyed surprise at the ease of usage and quick recovery by the fish. An additional 221 venting tools were distributed through mail.
- In a collaborative research study with the Sanibel-Captiva Conservation Foundation Marine Laboratory and the Florida Sea Grant REDstart Fisheries Enhancement Program, a fish mortality due to hook style study was conducted. A comparison of circle hooks and typical j-hooks were compared to overall mortality on redfish in a captive location. This data will be presented in a peer-reviewed article in 2005.
- Due to new regulations governing catch and release fishing tournaments whereby a fish resuscitation tank is mandatory for issuance of a permit, this Agent conducted 10 training workshops for tournament organizers. Workshop instruction included initial equipment set-up, associated costs, techniques and fish handling procedures. 100 % of attendees will use this equipment when conducting catch and release tournaments (as per Florida regulations)
- Conducted 4 presentations to local professional fishing guides on fish handling techniques. Total attendance was 102 Guides.
- Continue with activities at REDstart Fisheries Enhancement Program on Sanibel Island. An initial practice cycle of redfish fingerlings were provided by the Florida Fish and Wildlife Conservation Commission – Port Manatee Redfish Hatchery. These fish were used to train volunteers on proper fish husbandry techniques. 25 volunteers conducted tasks to include water quality testing, calculating feed rate, disease diagnosis and control, proper sterilization of equipment and facility maintenance (to include a major reconstruction post Hurricane Charley). These fish were raised to an average size of 16 inches. Previous to their release, volunteers were given a hands-on workshop on surgically implanted gut tags and an external dorsal tag. Fish were released into a land-locked lake in the USFWS Ding Darling Refuge. Future plans are to install a handicap access fishing pier at the lake.
- REDstart activities and results of first fish cycle were presented at American Fisheries Conference in Seattle, Washington (Sept 2004) and at the World Aquaculture Conference in Honolulu, Hawaii (March 2004). REDstart sponsored travel funds and conference registration for Sea Grant Agents/ Scientific Advisory Committee members Don Sweat and John Stevely for the Hawaii conference. REDstart poster presentation was displayed at southwest Florida Artificial Reef Coordinators Workshop at Mote Marine Laboratory (April 2004).
- Conducted tours of REDstart Facility to several groups including aquaculture industry personnel, local fishing clubs, ESPN's Captain Jose Webe of the Spanish Fly Fishing Show, Charlotte Harbor National Estuary Program staff, 4-H Fishing Program students and Sanibel-Captiva Conservation Foundation donors.

- Organized and assisted in conducting the Florida Shrimp Trade Assistance Program (TAA). This program was set up to assist the shrimp industry in response to an economic crisis due to imported shrimp products. Over 145 local shrimp industry personnel attended and applied for assistance in Lee County. Agent assisted local USDA Farm Service Agency in processing applications.

2.21.5 Provide technical assistance and training to project staff. (Creswell)

The agent continued to provide technical expertise to the RedStart fisheries enhancement program through site visits, discussions and providing printed materials. In 2004 RedStart successfully reared redfish fingerlings, tagged, and released them; a second cohort of fingerlings have been stocked in the aquaculture system.

2.22 Conduct Florida Keys Sponge Survey to provide information necessary to manage a sustainable commercial sponge fishery and evaluate recovery of hard bottom habitats in Florida Bay. Present findings to FWC, FMRI, the multi-agency task force studying Florida Bay, FSG and the FKNMS. (Stevely, Sweat)

Stevely and Sweat conducted the annual Florida Keys Sponge Survey under contract to Florida Wildlife Commission to provide information necessary to manage a sustainable commercial sponge fishery and evaluate recovery of hard bottom habitats in Florida Bay.

The final report was accepted by the Florida Fish and Wildlife Commission and disseminated to appropriate state and federal agencies. Results of the sponge work were presented at the First National Conference on Ecosystem Restoration (Dec. 6-10. Orlando, FL.): “Long-Term Evaluation of Sponge Populations Following a Widespread Mortality: Will We Ever Know When Restoration Has Occurred? Is Restoration Necessary?” (80 conference participants attended). The results of this work have provided information necessary for managing the Florida commercial sponge fishery and evaluating sponge population recovery over a 1,000 KM² area following a harmful algal bloom.

2.24 Continue scallop restoration program, including hatchery, nursery and stocking. Educate public with recreational scalloping workshop and produce new recreational scalloping publication. Complete report on “Economic Impact of Recreational Scalloping in Citrus County, Florida” and present findings to Citrus County business interests, Board of County Commissioners and other interested agencies. (Sweat)

This work continued in cooperation with USF and FMRI scallop researchers. A new recreational scalloping publication (“Recreational Harvesting of the Florida Bay Scallop”) was completed for use in public educational efforts. The Citrus County Tourist Development Council contributed funding for an additional 15,000 brochures for circulation throughout their commercial membership. With Sea Grant Marine Economic Specialist Chuck Adams, completed report on “Economic Impact of Recreational Scalloping in Citrus County, Florida.” The findings in this report have been made available to Citrus County business interests, the Citrus County Board of County Commissioners and other interested agencies.

2.25 Conduct fish survival workshops for recreational fishermen that address fish venting, circle hooks, proper handling and release, and fishery management issues. (Sweat/Verlinde)

Conducted two fish survival workshops for recreational fishermen (approximately 50 attendees) that addressed proper venting techniques, circle hooks and their use and fishery management issues.

Coordinated Santa Rosa County artificial grant application and reef deployment. As the county observer for the reef deployment, provided post-deployment reports, and GPS coordinates of patch reefs.

Attended the Artificial Reef Summit in Sarasota, Florida. Provided the NW Florida small group report to reef coordinators for the summary report.

- 2.26 Assist Mote Marine Laboratory with a black grouper volunteer angler tag and release effort and a survey of black grouper spawning sites in South Florida in a NMFS cooperative Fishery Research Grant. (Gregory)

The reef fish volunteer angler tagging project was started in July. To date approximately 50 anglers are participating and they have tagged over 400 fish. About 25 fish have been recovered and they have exhibited only short distance movements. The black grouper sampling effort was postponed until 2005.

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

- 3.1 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. (Marcus: R/LR-A-36).

This project was completed but additional work continues by the principal investigator using other funding. Several different copepod species were tried. The project was not successful in producing large numbers of eggs on a consistent basis. Problems were also encountered with the water quality of the seawater at the lab site.

Nauplii that were produced as a result of our efforts during the last year were used for some of our other projects. They were used as food for southern flounder, pompano, and black sea bass larvae. In addition, some of the diapause eggs that were produced were sent to a collaborator in Europe to assess their potential for a new bio-toxicity test kit. The research continues to stimulate considerable interest by people wanting to raise marine fish. We used nauplii generated from our *Acartia* cultures to conduct experiments with larvae of southern flounder (under the auspices of a different grant), and with black sea bass. Dr. Marcus helped organize a workshop on copepod cultivation that was held in Honolulu in May 2003. It is still too early in the project to determine the real benefits, but the goal is to make copepods a feasible organism to use as a feed in aquaculture. Small businesses, public aquariums and researchers continue to be interested in the research. The PI has also entered into discussions with Dr. Guido Persoone, a researcher from Belgium. Dr. Persoone has developed numerous toxkits for bioassay work. He was sent small numbers of diapause eggs that we produced to assess their value for a new toxkit.

- 3.3 The aquaculture of marine ornamental fish is one way to reduce the collection of the fish from coral reef areas. A major problem is diseases contracted by the fish in culture situation or while on display in aquariums. Longer-lived fish mean fewer must be collected or cultured. This Sea Grant Industrial Fellow will examine the causes of head and lateral line erosion syndrome of the popular surgeonfish and attempt to find the solution to the problem. (Francis-Floyd/Tilghman/Stamper: E/INDST-3)

This on-going work has contributed to advancement of knowledge relevant to captive management of surgeonfish. The results of the experiment in which Atlantic surgeonfish were fed diets containing different levels of vitamin A does not support the hypothesis that vitamin A plays a role in development of HLLES-like lesions.

The observation that HLLES-like lesions developed in all treatment groups within two weeks of adding carbon filtration to the system may be an important observation. Dr. Stamper has observed similar changes in finfish following the addition of carbon filtration to aquatic systems. Carbon filtration is the most common method used by the aquarium industry to dechlorinate city water, invariably used as the water sources for public aquariums. This method of filtering water may be removing essential minerals or other unidentified compounds from water that provide fish some protection from the development of HLLES. Dr. Stamper will be pursuing this question.

The work described here does suggest that surgeonfish can be maintained on a pelleted diet which would make captive nutritional management much easier. Many commercial exhibits, collectors and wholesale facilities still feed these herbivorous fish fresh vegetables and algae, both of which are expensive and require significant manual labor to prepare and deliver food items, and then clean up uneaten material. If these fish could be fed a complete pelleted diet, and perform well, it would be a significant step forward for the industry. This possibility would also facilitate efforts to complete the life cycle of these fish in captivity for aquaculture purposes.

This work also suggests that surgeonfish maintained in an indoor recirculating artificial sea water system, and fed a pelleted diet, are capable of gonadal maturation. If this impression is confirmed by future work it would be significant contribution to efforts to culture these fish.

Drs. Francis-Floyd and Stamper learned a great deal about captive husbandry of these species. The Atlantic surgeonfish are more aggressive and territorial than previously appreciated. Mr. Tilghman developed a technique called “spinectomy” in which he removed the sharp spine located on the peduncle with fingernail clippers. This decreased the damage fish were able to do to each other but did not curb territorial behavior. The necessity of habitat in an exhibit for these species also became very obvious. Sections of pvc pipe worked well. Dr. Stamper and his staff developed a design for a series of pipes that provided maximum habitat in a fairly small space. He further determined that if no more than four fish were stocked into a 20 gal tank that most territorial behavior disappeared.

Finally, significant advancement was made in the management of protozoal disease, specifically *Cryptocaryon*. Historically, the aquarium industry has used copper ion as a treatment for *Cryptocaryon* in reef fish, including surgeonfish. Because of the extreme toxicity of copper, and the difficulty in using it safely, it was not an ideal chemical to work with in this experiment. Formalin was substituted but information on frequency of treatment and effective dose was sparse. A treatment protocol of 15 mg/L administered every third day seemed to be safe for the fish and would stop mortality. It would not always eliminate the parasites from the system, however. Dr. Denise Petty suggested dropping the salinity, and there was a great deal of uncertainty as to whether this would be safe for the fish, as well as the actual impact on the parasites. Dropping the salinity to 15-20 ppt during a *Cryptocaryon* outbreak appears to be safe for the fish and has enhanced our ability to control the parasites.

- 3.4 Most marine organisms marketed in the aquarium trade industry are collected from the wild, particularly from coral reef ecosystems. Some destructive harvesting techniques have dramatic impacts on the health and biodiversity of coral reef ecosystems. Developing aquaculture technology for marine ornamental species is urgently needed to guarantee a sustainable supply for the industry while minimizing the negative impacts on the natural environment. The goal is to develop and improve larviculture protocols for marine ornamental crabs and lobsters. (Lin: PD-03-09)

The project cultured both green emerald crab (*Mithraculus sculptus*) (as proposed) and a related species, red clinging crab *M. forceps* (not in the original proposal). Larval survivorship was much higher for the higher-valued *M. forceps*. This is the first time life cycle was completed for *Mithraculus sculptus* and *M. forceps*. This demonstrates that the colorful and popular red clinging crab *M. forceps* is a promising candidate for aquaculture. This and related species are collected in large numbers by marine aquarium trade to control algae.

- 3.5 Florida has approximately 350 active clam growers producing a crop worth \$18.2 million in 2001. Recently, the need for a hardier clam strain has become evident as clam culturists in Florida report below average survivals or total losses during the prolonged hot summers. Triploid clams may be a solution to this problem as they are virtually sterile, thereby spawning does not occur and energy is available during this stressful period for basic metabolism. (2006) (Scarpa/Baker/Sturmer/Adams: R/LR-A-39)

Industry project partners in Charlotte, Lee and Levy Counties initiated land-based nursery and field nursery trials to evaluate the production performance of triploid clams. Unfortunately, the 2004 hurricane season resulted in all clam plants in southwest Florida being destroyed. The remaining clams in Cedar Key area were redistributed in an effort to obtain preliminary data under commercial growout conditions. Additional funding through Florida Sea Grant is being sought in an effort to repeat these evaluations in order to determine if the use of triploidy, a basic breeding technique, will improve clam survival during the summer environmental stressors experienced in subtropical waters.

Work has progressed on the triploid project. Complications from the hurricanes during September have provided substantial setbacks regarding the timely completion of the objectives. The economic work on the project has not yet begun.

3.8 Students enrolled in the St. Lucie County School District will increase their general knowledge of aquaculture through classroom instruction. The general public will be more aware of aquaculture as a potential industry in Florida through seminars, exhibits and mass media presentations. (Creswell)

3.8.1 At least 100 students will learn more about aquaculture through classroom and distant learning programs.

Two – 30 minute – “Distance Learning Aquaculture Programs” were presented through the Distance Learning Center of St. Lucie County School District on Channel 13, station WLX, providing information to secondary education students about the potential for careers in aquaculture. The programs were broadcast to all participating classrooms throughout the St. Lucie County School District.

3.8.2 Compile an informational packet for individuals interested in shrimp aquaculture.

The agent produced a six-page informational brochure “Farming Marine Shrimp in Florida’s Freshwater”, and over 100 copies have been distributed to interested parties. Other materials in the information packet include “XXX”, aquaculture BMP’s (FL Department of Agriculture and Consumer Services), IRREC/IFAS Shrimp Demonstration Report to DACS, and equipment and supplies catalogues.

3.8.3 Develop a series of two-page fact sheets on potential aquaculture species in Florida.

This activity was not completed.

3.8.4 Conduct at least six radio broadcasts (30 minutes each) dedicated to aquaculture topics.

The agent conducted six talk radio presentations on WPSL 1590 AM pertaining to aquaculture. The duration of each program was 25 minutes. WPSL has a listening audience of 150,000 in its Treasure Coast broadcast area. Topics included: “Hardshell Clam Farming”, the “Biology and Culture of Groupers”, “Growing Marine Shrimp in Florida’s Freshwaters” (2 programs), “Potential for Growing Spiny Lobsters”, and “What is Aquaculture?”

3.9 Production will be enhanced, costs minimized, and opportunities improved for aquaculture businesses. (Creswell)

3.9.1 At least four one-half day workshops will be presented at the Shrimp Aquaculture Demonstration Site at the University of Florida Research and Education Center related to shrimp aquaculture.

During 2004 the Shrimp Demonstration Project was impacted by Hurricanes Frances and Jeanne, destroying the nursery greenhouse and outdoor signage. Despite the damage, a successful crop was achieved in the two growout ponds with high survival. Two ½ day workshops were presented in 2004 which included written literature, classroom presentations, and a facility tour. A written survey by the attendees indicated that 100% felt that the workshop was informative and useful, and that they would be interested in attending additional programs dedicated to shrimp farming or other aquaculture topics. A

smaller percentage expressed interest in proceeding further in the development of a shrimp farm. In addition, an open house was conducted (about 200 people attending) and they were provided a tour and a “product quality” survey at two harvesting sessions, at which time the shrimp were sold to the general public at pond side.

- 3.9.2 Continue to instruct fish farmers in Puerto Rico to aspects of collection, handling and growout of spiny lobster and provide information regarding development of formulated feeds for spiny lobsters.

The agent continued to provide technical expertise to fish farmers in Puerto Rico to support their efforts to collect and grow spiny lobsters. As a result of these efforts, the farmers successfully collected several hundred postlarval lobsters and began the process of growout to marketable size. In addition, with the assistance of the agent the company received funding from the Small Business Innovative Research Program (USDA) for development of a formulated feed for spiny lobsters.

- 3.11 Enhance the clam farming industry in Franklin County. (Mahan)

- 3.11.1 Continue to provide one-on-one consultations and technical support to individuals interested in marine aquaculture.

The Franklin County Agent provided one-on-one consultations to 75 individuals on a variety of marine aquaculture topics including: clams, scallops, oysters, shrimp, mahi mahi, mullet, and lobster.

- 3.11.2 Continue membership and work on FL DACS Statewide farm-raised Clam Marketing Advisory Committee.

The Franklin County Agent continued his work with the FL Department of Ag and Consumer Services Statewide Clam Marketing Advisory Committee and the state’s clam industry representatives on the committee to market and promote FL clams both in and outside of FL.

- 3.12 In a collaborative project with Florida Gulf Coast University, a series of workshops will be set-up to work towards making local clam farmers more efficient with current stocks and to implement a plan to create an oyster growing facility to supplement income. (Wasno)

A plan is being developed to construct a Community Clam Farmers Grow-Out Facility to assist Pine Island clam farmers that were impacted by Hurricane Charley. Assistance was provided by Marine Agent Leslie Sturmer and Florida Gulf Coast University’s Dr. Aswani Volety. 2004 activities included identifying potential facility sites and acquiring support funding through the West Coast Inland Navigation District and the USDA Rural Development Program.

- 3.13 Educate aquaculturally interested public with aquaculture information and consultation. Provide water quality workshops to existing aquaculture ventures. Serve as aquaculture consultant to public schools in Citrus County. (Sweat)

Answered over 40 aquaculture inquiries from interested public with publications and consultations. No water quality workshops were held as planned, due to lack of need or request. Continued assisting Citrus County school system with aquaculture consultation.

- 3.14 Complete the assessment of the economic feasibility of small-scale freshwater, penaeid shrimp culture in Florida. This study will provide guidelines for prospective culturists regarding investing in inland shrimp culture in Florida. (Adams/Sweat)

The analysis of the financial characteristics of small-scale, shrimp culture utilizing inland, freshwater ponds in Florida is essentially complete. The major finding suggests that such an investment in Florida is not economically feasible, given current market prices for 18-25 g. shrimp. The final report on this project is not due until May, 2005 due to an additional extension being granted.

Work remains in progress with Sea Grant Specialist Adams on assessment of the economic feasibility of small-scale freshwater, penaeid shrimp culture in Florida. This study will conclude with a publication which will include the latest information from the IFAS experimental shrimp farm project in Ft. Pierce which has just concluded the 2004 growout season.

- 3.15 Increase the scientific, industry and agency knowledge about Florida aquaculture through participation at regional and national conferences.
- 3.15.1 Participate in the World Aquaculture Society 2004 conference in Hawaii. Invited to present a paper on structures and strategies for successful agricultural and aquacultural organizations at the East Meets West session for shellfish aquaculture industry members. This paper is the result of a study completed in the previous year with funding from the USDA Risk Management Agency. (Sturmer/Adams)
- Participated in the World Aquaculture Society 2004 conference in Hawaii during March 1-4. Presented an invited paper on structures and strategies for successful agricultural and aquacultural organizations at the East Meets West session for shellfish aquaculture industry members. This paper is the result of a study completed in the previous year with funding from the USDA Risk Management Agency.
- 3.15.2 Participate in the Gulf and South Atlantic States Shellfish Conference in Georgia, and provide an overview of the Florida hard clam aquaculture industry highlighting certain projects, such as the CLAMMRS water quality monitoring program, genetics research projects, and the ark clam diversification study. (Sturmer)
- Participated in the Gulf and South Atlantic States Shellfish Conference in Georgia during April 19-21, and was provided an overview of the Florida hard clam aquaculture industry highlighting certain projects, such as the CLAMMRS water quality monitoring program, genetics research projects, and the ark clam diversification study.
- 3.15.3 Invited to give a presentation on extension activities in support of the Florida clam aquaculture industry at the National Agriculture County Agents Association's Annual Conference to be held in Orlando. (Sturmer)
- Participated and gave a presentation on extension activities in support of the Florida clam aquaculture industry at the National Agriculture County Agents Association's Annual Conference held in Orlando on July 13.
- 3.15.4 (added) Gave a keynote address at the Shellfish Aquaculture Development Conference on December 3 at the request of the State of Alaska in which the Florida model of shellfish aquaculture development was shared with agency representatives and industry members.
- 3.16 Establish, coordinate and provide training in counties where clam farming is ongoing. Counties involved include Levy, Dixie, Charlotte, Lee, Brevard, St. Lucie, Indian River and Franklin. (Sturmer)

- 3.16.1 Continue to conduct workshops in support of the new clam farmers who are developing their farms on lease sites in Franklin County. Topics to be addressed include marketing, clam physiology, land-based nursery technology and systems, and rules and regulations. In addition, will also educate local chefs and restaurants owners in the area on the new farm-raised, seafood product available to them. (Mahan/Sturmer)

Continued to conduct workshops in support of the new clam farmers who are developing their farms on lease sites in Franklin County. Topics addressed in a workshop on August 19 in Carrabelle included updates on marketing efforts, annual water quality data, rules and regulations, and crop assistance programs. Over 25% of the new growers increased their knowledge of clam farming so they will make informed decisions in their businesses. In addition, citizens, local chefs and restaurants owners in the area were educated on the new farm-raised, seafood product available to them by participating in several events – a clam farming exhibit held in conjunction with Florida State University’s open house on April 23 and a reception co-hosted by the FL Department of Agriculture and Consumer Services’ Bureau of Seafood and Aquaculture Marketing in Apalachicola on December 1.

The Franklin County Agent assisted Leslie Sturmer (Shellfish Aquaculture Agent) with planning and conducting one clam education program for the general public (FSU Marine Lab Open House), one workshop for clam farmers and one educational program/sampler for local businesses and restaurateurs featuring Alligator Harbor clams. As a result of these programs, hundreds of people increased their knowledge on clam farming in Franklin County and the state, 10 clam farmers increased their knowledge on lease requirements and obligations, FL clam production and water quality monitoring of Alligator Harbor and 97 people sampled and learned about farmed clams from Alligator Harbor.

- 3.16.2 Continue cooperative programming with Sea Grant Clam Aquaculture Specialist, Leslie Sturmer, in two workshops assisting clam aquaculture enterprises, in efforts to improve their economic efficiencies. (Combs/Sturmer)

Continued to provide technical assistance for existing clam farmers in southwest Florida through informational requests, individual consultations and farm visits. In addition, Sturmer co-coordinated and participated in a workshop in Ft. Myers (Lee County) on September 24 to provide information to over 20 clam growers on federal and state disaster assistance programs. This was in response to catastrophic crop losses in Charlotte Harbor and Pine Island Sound associated with the hurricane season and in an effort to facilitate recovery efforts.

- 3.16.3 Continue to provide local workshops and technical assistance for potential and existing clam farmers. (Sturmer/Wasno)

Continued to provide technical assistance for existing clam farmers in southwest Florida through informational requests, individual consultations and farm visits. In addition, Sturmer co-coordinated and participated in a workshop in Ft. Myers (Lee County) on September 24 to provide information to over 20 clam growers on federal and state disaster assistance programs. This was in response to catastrophic crop losses in Charlotte Harbor and Pine Island Sound associated with the hurricane season and in an effort to facilitate recovery efforts.

- 3.16.4 Continue to provide individual consultations to clam growers on how to use a computerized spreadsheet program to enhance their record keeping and inventory management activities for a commercial clam culture operation. (Sturmer)

Continued to provide individual consultations to clam growers on how to use a computerized spreadsheet program to enhance their record keeping and inventory management activities for a commercial clam culture operation. These efforts resulted in an additional ten growers better refining their business and record keeping practices through an understanding and adoption of computerized spreadsheets.

- 3.16.5 Develop educational program and materials, update financial feasibility analysis for a small-scale clam culture operation, and provide technical assistance and educational support where clam farming operations are being considered in the state, in particular Collier County. (Sturmer/Adams)

Two technical workshops were given in Collier County regarding the financial feasibility of hard clam culture in SW Florida. Basic finding was that the market is not able to absorb any additional supplies of cultured clams. Prices to growers are low and likely to continue to be depressed, which is a common observance all along the eastern US seaboard. The information presented assisted local, prospective growers and agency representatives (FDACS) in making decisions regarding the appropriateness of providing additional high-density lease sites in the Collier County region.

Developed educational program and materials, as well as updated a financial feasibility analysis for a small-scale clam culture operation with assumptions specific to southwest Florida, for dissemination at introduction workshops for those interested in clam farming in Collier County. Over 65 people participated in three workshops in Goodland and Everglades City on January 7 and May 26 and in doing so gained a better understanding of the technical and financial considerations of entering this business. As a result, 15 interested citizens applied for new shellfish aquaculture leases in that county.

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

Provided updates to over 150 shellfish growers who are participating in a USDA pilot crop insurance program by conducting two workshops on October 6-7 with the USDA Risk Management Agency to discuss policy provision changes. Further, continued to educate growers on this new risk management program by including articles in a quarterly extension publication, *The Bivalve Bulletin*. This year the program provided over \$800K in indemnity payments to 55 growers who incurred crop losses as a result of the 2004 hurricane season. Further, growers were provided with information to better understand and implement the requirements of this program.

- 3.17 Continue a coordinated effort to enhance hard clam farming in Florida through a series of USDA funded projects. (Sturmer)

- 3.17.1 Initiate field trials to compare the performance of multiple Florida strains of hard clams under aquaculture conditions and to assist researchers in collecting field data to correlate this performance with genetic diversity.

Initiated field trials in Cedar Key to compare the performance of multiple Florida strains of hard clams under aquaculture conditions and to assist researchers in collecting field data to correlate this performance with genetic diversity. Seven commercial hatchery operators participated in this study by providing seed. Results will be used to address both industry and scientific concerns regarding genetic health of this commercial cultured species.

- 3.17.2 Continue to provide technical assistance to the 5-year Clam Lease Assessment, Management, and Modeling using Remote Sensing (CLAMMRS) project. Provide “farmer friendly” graphs of monthly archived water quality data, as well as post to a web site, and compare two years of continuous water quality data at 10 aquaculture lease sites in the state with clam production. This project allows for adoption of remote sensing technology for the clam aquaculture industry.

Continued to provide technical assistance to the 5-year Clam Lease Assessment, Management, and Modeling using Remote Sensing (CLAMMRS) project. Provided “farmer friendly” graphs of monthly archived water quality data for eight station locations in four counties, as well as posted a new web site. In addition, provided annual graphs for 2002-3 of continuous water quality data at five aquaculture lease sites in four counties so that farmers may begin comparing annual production with environmental conditions. This integrated project allows for adoption of remote sensing technology to the clam aquaculture industry.

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

Continued to provide technical assistance on the Expert Assistance and Distance Identification Network (EADIN), a project that establishes protocol and implementation of procedures for the rapid distance identification of biological samples, specially focused this year on macro-invertebrates.

- 3.17.4 Assist in completing a study that is providing baseline information on the presence and absence of shellfish pathogens in aquaculture lease areas. The final report of this study, which established a health monitoring program for the hard clam culture industry, will allow growers to increase their awareness of potential health problems for their stocks.

Assisted completing a study that is providing baseline information on the presence and absence of shellfish pathogens in aquaculture lease areas. Worked with ten aquatic health professionals and in doing so they gained expertise in molluscan shellfish health issues. The final report of this study, which established a health monitoring program for the hard clam culture industry, will allow growers to increase their awareness of potential health problems for their stocks.

- 3.17.5 Continue to provide technical assistance to the UF Whitney Lab in developing reliable spawning and larval rearing techniques, and monitoring the production performance of the blood ark and ponderous ark during nursery and growout phases. The project is evaluating alternative molluscan shellfish species for possible aquaculture production. (with Creswell)

Continued to provide technical assistance to the UF Whitney Lab in developing reliable spawning and larval rearing techniques, and monitoring the production performance of the blood ark and ponderous ark during nursery and growout phases. The blood ark reached a commercial size in a 9-month field trial conducted on a shellfish aquaculture lease in St. John’s County. The project is evaluating alternative molluscan shellfish species for possible aquaculture production.

- 3.17.6 Disseminate results of a project addressing the issue of stock diversity in cultured clam stocks to commercial hatchery operators.

Disseminated results of a project addressing the issue of stock diversity in cultured clam stocks to commercial hatchery operators by providing research results in an extension publication, *The Bivalve Bulletin*, at national and regional aquaculture conferences, and by posting results at the UF Shellfish Aquaculture Research and Education Facility in Cedar Key. In doing so, the majority of clam seed suppliers began to have a better understanding of genetic diversity and how loss can occur in captive maintenance and affect the health of stocks.

3.18 Evaluate the production and processing for alternative techniques and alternative species of clams for Florida clam growers.

3.18.1 Serve as a liaison between industry partners and researchers in evaluating production of triploid and diploid clams under commercial growout conditions in open-water aquaculture leases. This Florida Sea Grant-funded project will evaluate the use of triploidy, a basic breeding technique, for the improvement of hard clam culture, specifically to improve survival during the summer environmental stressors experienced in subtropical waters. (Sturmer)

Served as a liaison between industry partners and researchers in evaluating production of triploid and diploid clams under commercial growout conditions in open-water aquaculture leases. This Florida Sea Grant-funded project is evaluating the use of triploidy, a basic breeding technique, for the improvement of hard clam culture, specifically to improve survival during the summer environmental stressors experienced in subtropical waters. (See 3.15)

3.18.2 Serve as a liaison between industry partners and researchers in evaluating production of triploid and diploid clams under commercial nursery conditions in upland systems through the funding efforts of USDA Agricultural Research Service. (Sturmer)

Served as a liaison between industry partners and researchers in evaluating production of triploid and diploid clams under commercial nursery conditions in upland systems and in the field through the funding efforts of USDA Agricultural Research Service. (See 3.15)

3.18.3 Work with project staff to determine proper culture techniques for blood ark and ponderous ark clams. (Creswell)

The agent continued to teach project staff techniques for hatchery production and nursery culture of ark clams at the UF Whitney laboratory. Growth and survival of clams were documented and land-based nursery systems were established in Cedar Key, while field-based nurseries were planted in conjunction with local growers in the St. Augustine area. Unfortunately, both facilities suffered complete crop loss due to hurricanes in the fall of 2004, prior to final growout of clams to harvest and, subsequently, workshops and seminars for clam farmers. Continuing the program with further production during the next spawning season (spring 2005) is under discussion.

3.18.4 Complete the determination of shelf life in refrigerated storage and nutritional analysis for the blood ark and ponderous ark clam. Assist the Agriculture Market Research Center in compiling a report on the magnitude of the potential domestic market and product attributes desired by the seafood trade for both ark clams. These findings will be used to educate shellfish wholesale dealers as to the market attributes of these alternative molluscan shellfish species. (Sturmer)

Completed the evaluation of shelf life in refrigerated storage and nutritional analysis for the blood ark and ponderous ark clam. Assisted the Agriculture Market Research Center

in compiling a report on the magnitude of the potential domestic market and product attributes desired by the seafood trade for both ark clams. These findings will be used to educate shellfish wholesale dealers as to the market attributes of these alternative molluscan shellfish species.

3.19 Provide state wide service to clam grower associations and state agencies.

3.19.1 Continue providing organizational support and technical assistance to local clam growers associations, and in working with the boards in developing an umbrella statewide organization. (Sturmer, Adams)

Project to assess the organizational alternatives for the hard clam growers in Florida was completed in 2003, but the final report for project was adapted into a Florida Sea Grant Technical Report for publication in 2005.

Continued providing organizational support and technical assistance to local clam growers associations, and in working with the boards in developing an umbrella statewide organization.

3.19.2 Continue to serve on the education and conference committee of the Florida Aquaculture Association. This year will serve as co-chair of the association's annual conference to be held at Hillsborough Community College in Ybor City. (Sturmer)

Continued to serve on the education and conference committee of the Florida Aquaculture Association. This year served as co-chair of the association's annual conference held at Hillsborough Community College in Ybor City on November 5-6. Further, hosted a special session in which over 80 aquaculturists received information on federal and state disaster and financial assistance programs in response to the 2004 hurricane season.

3.19.3 Represent Florida Sea Grant on the state's Aquaculture Interagency Coordinating Committee and assist in preparing the annual report to AICC. (Adams)

Assisted in preparing the 2003-4 annual report to the AICC reporting on shellfish aquaculture activities conducted in that time period.

3.20 Provide easy access to up-to-date information on shellfish aquaculture in Florida. (Sturmer)

3.20.1 Develop and launch a web site for the shellfish aquaculture extension program where services provided can be directly accessible by the clam farming industry. The site will provide updates on research and extension projects, current suppliers lists, links to state and national publications addressing shellfish aquaculture and a calendar of events.

Developed and launched a web site for the shellfish aquaculture extension program where services provided can be directly accessible by the clam farming industry. The site will provide updates on research and extension projects, current suppliers lists, links to state and national publications addressing shellfish aquaculture and a calendar of events. To date, over 400 hits have been recorded at this new web site.

3.20.2 Continue to provide information on new issues, concerns and trends at the local, state and national level related to shellfish aquaculture through publishing a quarterly newsletter, *The Bivalve Bulletin*.

Continued to provide information on new issues, concerns and trends at the local, state and national level related to shellfish aquaculture through publishing a quarterly newsletter, *The Bivalve Bulletin*, Volume VIII, Numbers 1, 2, 3.

- 3.21 Maintain a shellfish aquaculture research and education facility in Cedar Key. This is the first salt-water running laboratory on Florida's Gulf of Mexico coast, which allows UF faculty to address the research needs of the clam farmers. An open house and dedication is planned this year to recognize those stakeholders who assisted in making this facility happen. (Sturmer)

Maintained a shellfish aquaculture research and education facility in Cedar Key. This is the first salt-water running laboratory on Florida's Gulf of Mexico coast, which allows UF faculty to address the research needs of the clam farmers. An open house and dedication was conducted on June 4 in conjunction with a renaming ceremony for the Fish and Wildlife Conservation Commission's Senator George G. Kirkpatrick Marine Lab located adjacent to the facility. Over 120 citizens attended the event during which stakeholders were recognized who assisted in making this facility a reality.

- 3.22 (Added) As a way to assess physiological condition of shellfish, this project proposed a critical evaluation of two approaches to biomonitoring: functional assays and stress protein biomarkers in *Mercenaria mercenaria* (hard clam).

This pilot project validated the use of 14 antibodies from EnVirtue Biotechnology for application on *M. mercenaria*, and showed that most of these antibodies can be used on tissues from these commercially valuable clams for high-throughput stress protein biomarker assays. The previously recognized hypoxia tolerance of *M. mercenaria* is reflected in a relatively low change in stress protein expression when the animals are exposed to mild or moderate hypoxia. The simple functional assay of burial rate was found to be surprisingly sensitive as a correlate of hypoxia exposure, suggesting that this assay may be valuable for future laboratory and field studies of stress in *M. mercenaria*, and perhaps other bivalves.

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

- 4.1 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. (Balaban/Otwell/Welt/Kristinsson: R/LR-Q-22)

Time temperature integrators (TTI's) available through Cox Technologies (VITSABS) and Avery-Dennison (TT Sensor) have been proven to be reliable and practical ‘smart labels’ through laboratory and commercial trials with fresh and frozen/thawed seafood in various packaging schemes and processing operations. Data from this work have been shared with the national regulatory authorities and, FDA to secure their recognition of this technology. Additional ‘smart labels’ have been identified and described for future investigation.

Laboratory trials including variables for package film surface area, oxygen transmission rates and product-to-package volume ratios tested in reference to growth of *Clostridium sporogenes* growth as a surrogate for the more problematic *Clostridium botulinum*. Use of a surrogate was necessary to mimic potential consequences for *C. botulinum*. Results suggested the current regulatory guidelines for Oxygen permeable film should be adjusted. Commercial trials assessed sensory consequences for product shelf-life as influenced by concurrent packaging with permeable and barrier films. Under proper refrigeration the barrier bags still exceed the shelf-life consequences from permeable film. This situation means more reliance on TTI's that are recognized by FDA in allowances for use of barrier films. The commercial settings involved Wal-Mart Stores, Winn Dixie Supermarkets, Publix Supermarkets, Beaver Street Fisheries (Jax, FL), Save On Seafood Processing (St. Petersburg, FL), Darden Restaurants, and numerous firms shipping fresh seafood into Florida. Requirements for additional analytical equipment to monitor oxygen concentrates in packaging and within actual products were resolved with additional grants that complemented the project. Commercial competition forced costs and performance comparisons that favored the development of additional TTI's, i.e., the Avery-Dennison TT Sensors that were not available at the onset of the project, but the project work was amended and extended to account for this innovation.

The work of Teresa Mendoza compared the various TTI's currently available and serves as the most comprehensive study on ‘smart labels’ involving color change to evidence thermal consequences in seafood packaging and storage. This work was used to secure FDA recognition of TTI's for reduced oxygen packaging of seafood. Thesis work was also completed by Jayaashree Gnanaraj to demonstrate the consequence of film permeability on potential growth of *C. botulinum*.

The project validation for ‘smart labels’ and film permeability as controls for V/MA packaging of seafood coincided with the anticipated release of international and national regulatory alerts for reduced oxygen packaging (ROP) of seafood (FDA – Sept. 25, 2002 – Import Alert #16-125). The timely project validations provided the necessary scientific information for both commercial and regulatory recognition and utilization of mandated controls. Without these controls the seafood industry was faced with regulatory consequences and potential loss of packaging techniques used for nearly one third of all fresh (non-frozen) seafood commerce in the United States.

Actual product trials involved work with Wal-Mart Stores, Winn Dixie Supermarkets, Publix Supermarkets, Beaver Street Fisheries (Jax, FL), Save On Seafood Processing (St. Petersburg, FL), Darden Restaurants, and numerous firms shipping fresh seafood into Florida. This project provided scientific evidence and extension services to address current and immediate seafood safety problems due to commercial expansion of a packaging concept (reduced oxygen packaging) that is considered by state and federal authorities to be increasing the risk of potential health hazards in food service, retail and public consumption. It is estimated that at least 25-30% of all seafood commerce in the USA is subject to this controversy. The project results have prevented regulatory

actions that could have resulted in stop-sells and market rejections exceeding \$1.0 million/year in domestic commerce alone.

- 4.2 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 technologies and education medical groups so that human safety risks can be minimized or eliminated while maintaining an industry. (Jamison/Jamir: R/LR-Q-23 [FL-G01-5])

The Gulf Oyster Project was a combination of three projects integrated together to form an abbreviated and inexpensive version of new product/technology research and development process commonly practiced by private corporations. Following a real-life “theory-to-practice” approach, the Gulf Oyster Project integrated laboratory research with industry prototype documentation, field validation, and development of technology transfer materials and strategies designed to sell a product(s). Since the project needed to address industry problems and issues involving food, it was important to gather and incorporate consumer information in all phases of the program. Hence, the Gulf Oyster Project’s main focus involved: (1) market and new product development and testing, (2) technology documentation and feasibility analysis, and (3) consumer education and outreach.

The Mississippi Division of Marine Resources Seafood Technology Bureau completed oyster projects to evaluate sensory differences, consumer acceptability and marketing consideration of post harvest processed (PHT) and value added oysters, compiled all former research on the subject and developed new recipes for PHT oysters. These materials were used in educational and promotional events and public conferences. The Louisiana Seafood Promotion and Marketing Board participated in industry promotion events, trade shows, media promotions, press releases, billboard advertising and website development. The Florida Bureau of Seafood and Aquaculture Marketing provided samples and national and international food shows.

- 4.7 Conduct annual training schools to ensure safety and quality of seafood products. (Otwell)

- 4.7.1 Conduct the first annual Spiny Lobster School for industry and agencies, similar to the successful Shrimp School. Expectation is that the lobster school will be held in November 2004 in conjunction with the annual seafood science and Technology conference planned for Nassau, Bahamas.

All plans for the First Annual Spiny Lobster School were confirmed and announced for November 2004 in Nassau with academic, agency and commercial participation from the USA, Bahamas, Cuba, Brazil, South Africa and surrounding Caribbean nations. Expected attendance exceeded 150 persons with presentations by the Prime Minister of the Bahamas. Unfortunately, excessive hurricane activity and damage in Florida and the Bahamas forced a cancellation until 2005.

- 4.7.2 Continue to explore development of an annual Smoked Fish School for industry and agencies, similar to the successful Shrimp School. Expectation is that the school will be offered in 2005.

The rescheduling for the Spiny Lobster School will force rescheduling of the Smoked Fish School into 2006.

- 4.7.3 Conduct annual international Shrimp School for industry and agencies during May 18-20 at the Aquatic Food Products Program, University of Florida.

The Annual Shrimp School was once again a major success with participation by 25 commercial firms from over 6 nations and major production and retail operations across

the USA. All activities, presentations and attendees are captured in the popular Shrimp School website, <http://shrimpschool.ifas.ufl.edu>. This school remains one of the leading and most popular shrimp training programs for commercial interests in the world. The May 2005 school is already over booked.

Hosted the annual National FDA Inspector Training Program for sensory assessment for seafood decomposition at the University of Florida's Aquatic Food Product Labs in June 2004

In response to specific requests from Ecuador, held a Latin American Shrimp School taught in 'Spanish' by Victor and Laura Garrido in the Aquatic Food Product Labs at UF/FL Sea Grant. Attendance exceeded 16 firms with commercial interests in FL and USA.

Conducted a 3 day shrimp quality and safety training program for the international Aquaculture Certification Council which conducts processing and shrimp farm certification programs in every nation producing aquacultured shrimp. Attendance included 12 ACC inspectors from various regions of the world.

Initiated annual 'Certified Shrimp Cooking School' in cooperation with Laitram Machinery based in New Orleans. This school will be recognized by FDA and other national and international authorities as an official source of training for proper cooking of shrimp to assure product safety and quality. The first training session will begin May 2005 in Gainesville UF/FL Sea Grant.

4.8 Enhance the scientific knowledge of seafood safety for industry, government and the research community through participation in national conferences. (Otwell)

4.8.1 Present compilation of 10 years work in advancing tempering as a technique to assure survival and extended marketability for Florida hard clams during 5th Annual Shellfish Safety Conference in Brunswick, GA.

Presented compilation of 10 years work in advancing tempering as a technique to assure survival and extended marketability for Florida hard clams during 5th Annual Shellfish Safety Conference in Brunswick, GA.

4.8.2 Organize and conduct international conference on Utilization of Carbon Monoxide and Reduced Oxygen Packaging for Seafood in Orlando, Feb. 2005.

Organized and conducted the international conference on Utilization of Carbon Monoxide and Reduced Oxygen Packaging for Seafood in Orlando, Feb. 2005. The proceedings have been compiled for publication as a book titled "Modified Atmospheric Processing and Packaging of Fish: Filtered Smokes, Carbon Monoxide & Reduced Oxygen Packaging, due for publication in 2005.

4.8.3 Organize and monitor special scientific forum on "Zero Tolerances for Seafood" during the annual Institute of Food Science (IFT) meeting in Las Vegas, July 2004. Program will address controls for bacterial pathogens, antibiotics and other food safety hazards in seafood.

Organized and monitored a special scientific forum on "Zero Tolerances for Seafood" during the annual Institute of Food Science (IFT) meeting in Las Vegas, July 2004. The program addressed controls for bacterial pathogens, antibiotics and other food safety hazards in seafood. Attendance exceeded 200 persons from across the USA and at least 30 nations. Presentations have been submitted for publication in the J. Aquatic Food

Product Technology in 2005.

- 4.9 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)

Continued 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.

The Alliance has been convened to compile their experience through the past 6 years of training into lists of recommendations for additions and changes in the next edition of the FDA Fishery Products and Control Guide due for release in early 2006. The production of the new regulatory editions will foster necessary changes in the Alliance training materials and Internet site. The Alliance Steering Committee has made assignments to anticipate these changes and new publications will continue production and dissemination through the FL Sea Grant Program.

Conducted two formal Alliance HACCP and Sanitation training courses in Gainesville and Miami in response to commercial and agencies needs in FL. Participation also incorporated internet students seeking final day training for official recognition by the AFDO/Alliance program.

Continued offering technical advice and regulatory liaison for various Florida and neighboring state based commercial operations that encounter FDA 'warning letters' for improper HACCP practices which threaten closure of operations. Work involved over 20 firms through 2004. All firms remain in operation with proper compliance.

- 4.10 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. (Otwell)

Continued 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.

Also in company with United Nations programs, FDA asked Dr. Otwell to serve on the USA delegation for Fish and Fishery Products for the Codex Alimentarius to address international standards for seafood products in preparation for the annual Codex Committee meetings in Cape Town, South Africa in February 2005.

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

4.11.1 National Seafood HACCP Alliance, National Coordinator

4.11.2 Seafood Sciences & Technology Society (SST) of the America's, Executive Director

- 4.11.3 U.S. Representative on their Board of Directors for the International Association of Fish Inspectors (IAFI).
 - 4.11.4 Selected to serve for three years on the Technical Review Panel for the major (>\$28Million annual) research consortium across the European Union known as *SeafoodPlus*. First technical site visit and review completed in Hague in October 2004.
 - 4.11.5 Selected to serve on the National Academy of Sciences – Institute of Medicine, Food & Nutrition Board’s Committee for “Nutrient Relationships in Seafood: Selections to Balance Benefits and Risks” from 2004 through 2006. Study report due in mid-2006.
- 4.12 Enhance seafood safety at local levels using education and local training events.

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

Held seafood workshops throughout area of responsibility which emphasized seafood safety, seafood handling and smoking seafood product.

- 4.12.2 Provide ongoing logistical support for six Brevard County commercial seafood producers, including commercial clamming and clam aquaculture, and seafood processing safety and sanitation procedures as implemented through the FDA-mandated program, Hazard Analysis and Critical Control Points (HACCP). (Combs)

Commercial fishing in Brevard Co. during 2004 continued suffering impacts associated with imported seafood products, aquaculture, and growing regulations. HACCP training has no more customers, and seafood processors are selling out. Fleet Marine sold out; Puck O’Neals sold out; Bluepoints International is in process of closing processing operations. Seafood Atlantic is anticipating a possible sell-out.

Agent Combs has worked personally with all seafood processing entities in 2004 in trying to increase their level of political activity by attending public hearings that impact their businesses.

Agent Combs has circulated within the commercial fishing industry solicitations from the SAFMC inviting applications for service on various Advisory Panels. Personal telephone follow-ups are conducted in an effort to recruit new Advisory Panel members. Unfortunately, there persists within the commercial fishing industries a widely held erroneous view that citizen input is ignored by government agencies, so as businessmen, the response is almost always, “I can’t afford to waste my time,” or simply, “No.” The Agent will continue these efforts, as his message to fishermen is that if they refuse to participate in solving regulatory problems by active involvement in the rule-making process, then they are contributing towards ever more restrictive regulations in the future.

Agent Combs continues cooperative participation in the semi-annual Commercial Clammer Environmental Education series, with Combs offering information on marine invasive exotic species and their impact on fisheries.

Impacts:

Approximately 50 commercial clammers attended one of the educational seminars, offered May 14, 15, June 12, August 4, October 6, or Dec.1, and learned about regulatory updates, clam research, invasive exotic species posing a threat to native shellfish, water quality in the Indian River Lagoon, marketing, and were certified by DACS as having

attended a session, qualifying them for renewal of their Brevard Co. Clammer (KL) license.

- 4.12.3 Current FDEP regulations provide that all filleted fish carcasses be disposed in a dumpster at the Punta Rassa Boat Ramp in Lee County. The local Florida health Department director has deemed this as a human health hazard. Permits are being secured to move a fish cleaning station back on the docks until a revamped fish cleaning station is built that will inject spent carcasses directly into a sewer. Permitting is in final stages. (Wasno)

Applied and received the permit from Florida Department of Environmental Protection to place a fish cleaning station at Lee County's most popular boat ramp at Punta Rassa. Previous fish cleaning station was at an upland site and carcasses were to be throw into a 5-yard dumpster. This situation presented a human health threat as identified by Lee County's Department of Human Health Director. A fish cleaning station was installed at the end of the dock with a tube into the waterway for fish carcasses to be deposited. The Punta Rassa Boat Ramp will be revamped with the future causeway bridge. Plans are being made to install an uplands fish cleaning station that will grind carcasses and sent into sewer system.

- 4.12.4 Assist Monroe County seafood processors with HACCP and seafood safety issues. (Gregory)

During 2004, assisted three processors with HACCP information.

- 4.13 Develop food safety documents for retail and regulatory authorities on food processing in retail settings. Post guides for retail processing of Sushi, Smoked Fish and Reduced Oxygen Packaged Seafood on the Association of Food and Drug Officials (AFDO) website for national audiences. (Otwell)

Developed a series of food safety documents for retail and regulatory authorities on food processing in retail settings. The guides have been posted on the Association of Food and Drug Officials (AFDO) website (www.afdo.org) for national audiences in retail processing of Sushi, Smoked Fish and Reduced Oxygen Packaged Seafood.

- 4.14 Conduct continuing analysis of time and temperature controls for modified atmosphere packaging of processed fish. Introduce new innovative time-temperature integrators for packaged seafood. (Otwell)

Conducted continuing analysis of time and temperature controls for modified atmosphere packaging of processed fish. Introduce new innovative time-temperature integrators (TTI's) for packaged seafood. Published the validation studies in the J. Food Science for official recognition of TTI's based on prior FL Sea Grant funded research.

- 4.15 Determine ways to advance the use of post-harvest treatment for oyster processing in Florida.

- 4.15.1 Coordinators for current USDA Special Research Projects extending into 2007. Current work includes assessing use of special freezing techniques and development of regional lab facilities in Apalachicola, Florida to assist commercial adaptation. (Otwell/Mahan)

Current work included assessing use of special freezing techniques and development of regional lab facilities in Apalachicola, Florida to assist commercial adaptation.

- 4.15.2 Develop sensory profiles for raw oysters under post-harvest treatment. Work in conjunction with LSU, Miss. State University and Oregon State Univ. with plans to introduce first national ‘virtual’ sensory training program. (Otwell)

Developed sensory profiles for raw oysters under post-harvest treatment. Worked in conjunction with LSU, Miss. State University and Oregon State Univ. to conduct the first national ‘virtual’ sensory training program. Likewise, compiled a joint national sensory proposal in support of PHT oyster processing for safer products via funds from the Gulf Oyster Industry Council as administered through the FL and National Sea Grant College Programs.

- 4.16 Enhance the safety and quality of oyster products. (Mahan)

- 4.16.1 Continue work as a member of the Oyster Post Harvest Treatment (PHT) Advisory Committee to develop short and long-term goals for oyster PHT research being conducted under a USDA grant.

The Franklin County Agent continued his work on the Franklin County Oyster Post Harvest Processing Advisory Committee to develop both short and long-term goals for oyster PHP. This year the PHP Advisory Committee met seven times to discuss and plan oyster PHP work. As a result of these meeting the Franklin County - Alan Boyd Oyster Industry Lab was set up and PHP protocol validation on *Vibrio vulnificus* reduction began.

- 4.16.2 Continue work as an appointed member on the Interstate Shellfish Sanitation Conference’s *Vibrio vulnificus* Education Subcommittee, Biotoxin, Post Harvest Treatment, and Education Committees.

The Franklin County Agent was reappointed by the Chairman of the Interstate Shellfish Sanitation Board of Directors to the *Vibrio vulnificus* Education Subcommittee, and the Biotoxin, Post Harvest Treatment and Education Committees. During the past year the Agent attended the Vv Education Committee meeting in Orlando, FL on March 9-11. As a result of the meeting a number of Vv related issues were discussed. Thirty-five people attended the meetings.

- 4.16.3 Organize and coordinate the Annual Statewide Oyster Industry Workshop.

During 2004, the Annual Statewide Oyster Industry Workshop was replaced by five Post-harvest Processing meetings with oyster industry representatives and the ground breaking of the Franklin County/Alan Boyd Oyster Industry Lab on May 28th.

- 4.16.4 Attend and participate in Interstate Shellfish Sanitation Conference Committee meetings as needed during the year to work on the committee’s national goals and objectives.

The Franklin County Agent was reappointed by the Chairman of the Interstate Shellfish Sanitation Board of Directors to the *Vibrio vulnificus* Education Subcommittee, and the Biotoxin, Post Harvest Treatment and Education Committees. During the past year the Agent attended the Vv Education Committee meeting in Orlando, FL on March 9-11. As a result of the meeting a number of Vv related issues were discussed. Thirty-five people attended the meetings.

- 4.17 Participate in the development of a “Mark of Quality” program for the U.S. domestic shrimp industry. Introduce Shrimp Harvester Awards Program to recognize excellence in performance by domestic vessels in Florida.(Otwell)

Participated in the development of a “Mark of Quality” program for the U.S. domestic shrimp industry. Introduced Shrimp Harvester Awards Program to recognize excellence in performance by domestic vessels in Florida. Advised development of respective domestic shrimp training programs in TX, LA, GA and SC. Helped organize and conduct presentation in a special Tuna-Histamine Workshop held in conjunction with NMFS in Honolulu in November 2004.

Conducted a series of eight technical advisor workshop/presentations across various locations in the state necessary for Florida shrimp producers to qualify for National Trade Adjustment Assistance Program

- 4.18 Assist FDA in international study to determine proper handling methods to control and prevent development of histamine in for large tuna. Work locations for actual harvest include Grenada, Panama, and Hawaii. (Otwell)

Assisted FDA in international study to determine proper handling methods to control and prevent development of histamine in for large tuna. Arranged and participated in work locations for actual harvest with commercial interests in Grenada and Hawaii.

- 4.19 Assist in completing a final report on the research and validation of a tempering process developed to assist shellfish wholesalers in improving the shelf life of hard clams in refrigerated storage. (Otwell, Wright, Sturmer)

Assisted in completing a final report on the research and validation of a tempering process developed to assist shellfish wholesalers in improving the shelf life of hard clams in refrigerated storage. These results can then be used by industry.

Assisted in completing a final report on the research and validation of a tempering process developed to assist shellfish wholesalers in improving the shelf life of hard clams in refrigerated storage. Results and final recommendations were presented to the regional state authorities during the annual meeting of the Gulf & South Atlantic Shellfish Association in Brunswick, GA

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

- 5.1 The NOAA Coastal Services Center (CSC) has approved full funding for a new project, "A Coastal Data Information Server System for the Gulf Intracoastal Waterway and Adjoining Bay Waters of Southwest Florida." The scope includes collating bathymetric and land use/land cover data generated in prior FSG projects, as well as scanning and georeferencing imagery and maps collected over years (e.g., 600+ Historic aerial photographs, hydrographic and topographic maps, etc.). The data and metadata will be provided to UF's Florida Geographic Data Library (FGDL), which will soon become a Federal Geographic Data Committee (FGDC) node, so that it can be made available on the World Wide Web. (Fann: CDI-Fann)

A decade of projects completed by the Florida Sea Grant (FSG) Boating and Waterway Management Program in southwest Florida coastal waters resulted in the creation and acquisition of a substantial amount of spatial data. These data were archived upon completion of each project and include historical and modern aerial photography; scanned historic hydrographic and topographic maps and bathymetry interpreted from them; and sea grass extent, depths, and bottom characteristics in 16 popular recreational vessel anchorages. Data are paper-based (e.g., the aerial photographs), digital (GIS files or imagery), or both. This project made coastal data, products, and information available on-line, using standard documentation formats and search technologies. The NOAA CSC initiative coincides with FSG's recognition of the need to preserve our data and to make it readily available to other agencies for additional uses.

This project had four tasks: 1) collate, inventory, and catalog data and acquire additional T- and H-sheets, 2) scan, enhance, georeference, and rectify aerial photographs, 3) prepare metadata, 4) prepare (format/package) data for FGDL. All four tasks are complete. The maps, images, and metadata are in the UF Library collection and can be accessed via a map server at: http://web.uflib.ufl.edu/digital/collections/FLAP/Special_FloridaCoastalWaters.htm. The server allows users to locate and identify maps and images of interest. To acquire the files, users should follow the directions available via the link "Instructions for Obtaining Images" at <http://web.uflib.ufl.edu/digital/collections/FLAP/>.

The remaining items are in the digitization queue of the Digital Library Center, University of Florida. Nineteen of the reports are available in full text as part of the Florida Environments Online collection, searchable at <http://palmm.fcla.edu/feol>. The easiest search method to access the imaged documents is to choose "Items Available Online" and then use a keyword search with the terms "house document."

The NOAA Coastal Services Center (CSC) has approved full funding for a new project, "A Coastal Data Information Server System for the Gulf Intracoastal Waterway and Adjoining Bay Waters of Southwest Florida." The scope includes collating bathymetric and land use/land cover data generated in prior FSG projects, as well as scanning and georeferencing imagery and maps collected over years (e.g., 600+ Historic aerial photographs, hydrographic and topographic maps, etc.). The data and metadata will be provided to UF's Florida Geographic Data Library (FGDL), which will soon become a Federal Geographic Data Committee (FGDC) node, so that it can be made available on the World Wide Web. (Fann: CDI-Fann)

- 5.2 Intensive boating by over one million boaters in Florida waterways puts tremendous environmental pressure on the waterways. 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. (Spranger/Swett: R/C-P-24)

Florida Sea Grant initiated a number of education projects; they are described in detail below. Education projects include a Manatee Protection Decision and Education Support System (see item 5.6), a boater education guide for St. Augustine (5.7), an extension-style brochure (5.8) that educates the public about the environmental and economic benefits of regional waterway management, and an assessment of boater awareness of the Clean Vessel Act (5.9). Research projects were initiated to provide information on the needs and behaviors of recreational boaters; the resulting information will benefit resource managers and policy-makers, and will aid in the development of boater education products (e.g., 5.10). A recreational boating characterization was completed for Tampa and Sarasota Bays and the design of similar projects in Sarasota County and in Greater Charlotte Harbor was initiated (5.4).

- 5.4 In coastal communities across the nation, there is a growing concern that current development patterns, dominated by what some call "sprawl," are contributing to water quality and environmental degradation. Though supportive of growth, communities are increasingly seeking solutions to balance growth with community and environmental values. Often, community decision-making lack the resources and training necessary to address these issues resulting in a new demand and a new opportunity for smart growth extension programming. (2006) (Spranger/Sidman: R/C-P-28CC)

Land-oriented "smart growth" planning benefits from abundant geographic information. Unfortunately, most of this information stops at the water's edge. To help offset this disparity, Florida Sea Grant initiated a "Recreational Boating Geographic Information System (GIS) for Sustainable Florida Waterways." The GIS provides detailed spatial information for a science-based, proactive approach to planning and management of coastal areas. FSG completed the initial application of the recreational boating GIS in Tampa and Sarasota Bays (6/2004) and published the methods and results as Florida Sea Grant TP-130.

The project's progress and effectiveness can be measured by (1) new partnerships, (2) new applications of the recreational boating GIS, and (3) complementary research that enhances spatial boating information. The project partners now include Florida Sea Grant, the Florida Wildlife Conservation Commission Florida Wildlife Research Institute (FWRI), the West Coast Inland Navigation District, the Sarasota Bay National Estuary Program, and the Sarasota County Natural Resources Department. FSG has begun two new applications of the recreational boating GIS: the first, to support Sarasota County's manatee protection and marine facilities siting plans, will be completed in 2006; the second will be completed in 2005 for the Greater Charlotte Harbor region. Finally, the FWRI has requested \$2 million in federal appropriations, over five years, for statewide application of the recreational boating GIS.

- 5.6 A GIS-based 'Manatee Protection Decision and Education Support System' will be developed to assist resource managers and educate stakeholders in the designation, classification, and evaluation of manatee protection zones within high-use boating regions. This is the first year of the two-year project (Swett/Sidman)

The project began in April 2004 and will be completed in 2006; project partners include the Bureau of Protected Species, the Fish and Wildlife Research Institute, the West Coast Inland Navigation District, and the Tampa Bay Estuary Program. Project personnel presented the Manatee Protection Decision and Education Support System at two workshops and solicited feedback from the attendees: (1) the Southwest Florida Manatee Research Conference held at the Florida Gulf Coast University in Fort Myers, Florida (5/14/2004) and (2) the Tampa Bay Manatee Awareness Committee in St. Petersburg Florida (7/13/2004). The workshops helped to identify important spatial and non-spatial themes and to initiate the process of ranking their relative importance to the MPDESS. Spatial trend surface maps of boating preferences, activities, and use-patterns for Tampa and Sarasota Bays have been completed, based on a sample of over 2000 area boaters stratified by county (Sarasota, Manatee, Hillsborough, and Pinellas) and by trip origin type (marina wet-slip,

dry-storage facility, ramp, and private dock). Boater water-use profiles and marine facility service areas for Tampa and Sarasota Bays are completed. The information will help identify areas where boating use, accidents, and manatee concentrations coincide and will provide an analysis of boating patterns. The Center for Governmental Responsibility at the Levin College of Law at the University of Florida developed educational materials that incorporate a discussion of the legal, administrative, and regulatory framework. The project is scheduled to be completed in April 2006. The value that the final product will bring to the Coastal Management Community is a clearer vision of the decision process and information considered when developing manatee protection measures. Providing stakeholders with an interactive GIS-based visualization tool to view, query, synthesize, and interpret relevant information—whether regarding manatees, habitat, and boats/boaters—will engender greater understanding and appreciation of this complex management issue.

- 5.7 A boating and anchoring guide will be produced for St. Augustine, Florida to (1) enhance the experiences of local and transient boaters, (2) promote safe navigation and responsible boating and anchoring behaviors, and (3) provide boaters with information on area resources and amenities. (Swett/Fann/Stevely)

The Commissioners of the St. Augustine Port, Waterway, and Beach District approved the final version of the 22 x 34-inch boating and anchoring guide that Florida Sea Grant produced for the St. Augustine Inlet and vicinity. The Commissioners authorized printing 10,000 copies, which the Port District and Florida Sea Grant will jointly distribute. The guide is unique in providing site-specific information on hazardous boating and anchoring conditions inherent to the area. Because of the project, Florida Sea Grant and Center for Governmental Responsibility at the Levin College of Law (University of Florida) will work with the City of St. Augustine and with the Port District on the development of a mooring field and management plan for the municipal anchorage.

- 5.8 An extension-style brochure, a Web-site, and map server will highlight significant accomplishments, such as the regional waterway management system and the general permitting effort, that have resulted from a 5-year cooperative agreement between Florida Sea Grant and the West Coast Inland Navigation District (WCIND). The public will be better equipped to support WCIND objectives if informed about accomplishments resulting from WCIND management actions on priority issues. (Swett/Fann)

The West Coast Inland Navigation District (WCIND) approved the final version of the extension-style brochure that highlights the award-winning Regional Waterway Management System (RWMS) and the Noticed General Permitting (NGP) effort. The WCIND has approved printing 5,000 copies of the brochure, which WCIND and Florida Sea Grant will jointly distribute to public officials and resource managers throughout Florida. Policy-makers and resource managers will be better equipped to support RWMS and NGP objectives if informed about their methods and accomplishments. The material produced for the brochure will be used to construct a complementary Web site and map server in 2005.

- 5.9 A statewide survey will be conducted to assess boater awareness and impacts of the Clean Vessel Act (CVA) grant program and the Clean Marina Program (CMP). A secondary objective is to assess the ability of a Web-based survey to provide a statistically valid assessment of boater awareness of the CVA and the CMP. The success of these programs depends on marina and boater awareness of environmental laws, rules and regulations, and jurisdictions with which they must comply. (Swett/Sidman)

Florida Sea Grant initiated a project to assess boater awareness of the Clean Vessel Act (CVA) (project period: 06/04-06/05). The project comprises three phases; phases one and two—a Web-based survey and mail survey of owners of vessels 16 feet and greater in length—are complete. Phase three—a mail survey of owners of vessels 26 feet in length or greater—is still in progress. The project design allows for comparison of results with a survey done four years ago, while

incorporating improved methods for future implementations of the CVA survey. Survey results permit better design and implementation of boater education programs with particular emphasis on the environmental laws, rules and regulations, and jurisdictions with which boaters must comply.

- 5.10 A service-area analysis will be conducted for Tampa and Sarasota Bay boating facilities to determine land-side market areas and water-use patterns. Spatial information about trip origins, favorite destinations, and intervening travel routes, obtained from a mail survey of Tampa and Sarasota Bay ramp and marina users will provide for model parameterization. The study addresses the need to provide adequate future public access to both the shore and water, while minimizing ecological impacts. (Sidman/Swett/Fik; Sargent-FMRI)

Water-use profiles and marine facility service areas were developed and mapped for Tampa and Sarasota Bays. The information will allow for better identification of areas where boating-use, accidents, and manatee concentrations coincide, and determining facility service areas for public boat ramps. The project satisfies important elements of local manatee protection plans, such as (1) an analysis of boating patterns, (2) an assessment of marine facility uses, needs, and siting, and (3) increased public education for resource stewardship and manatee protection. This work will also be important for local/state coordination in planning boating safety regulations, on-the-water signage, and public access enhancements.

- 5.11 A Web-based data server will be developed to provide access to vessel registration information. This project will establish a Web-site that will allow for interactive queries of boater information obtained from the Vessel Title Registration System. A recent Florida Sea Grant research project documented the utility of Florida's Vessel Title Registration System (VTRS) to locate (geographic coordinates) and characterize recreational boating populations. Florida Sea Grant and many other entities use this information on a regular basis for research and outreach purposes. (Swett/Sidman)

Florida Sea Grant developed a Web-based data server that provides interactive access to vessel information obtained from the State's Vessel Title Registration System (VTRS). The data server is the result of a recent Florida Sea Grant research project (Florida Sea Grant TP-138) that documented the utility of Florida's Vessel Title Registration System (VTRS) to locate (geographic coordinates) and characterize recreational boating populations in Florida. The data server provides Florida Sea Grant and other entities with on-line access to VTRS information for research and outreach purposes.

- 5.12 The State of Florida, with the guidance of Florida Sea Grant (FSG), is developing a new administrative rule for dredging public waterways in Lee County under the authorization of a general permit. The rule will apply to trafficsheds with high priority maintenance dredging needs as identified by applications of the FSG Regional Waterway Management System. Impacts include state policy based on "best available science", better efficiency and effectiveness in dredging and waterway maintenance, savings in dollars and staff time, and (4) better public policy through a holistic, environmentally-based decision-making process. (Swett/Fann)

In 2004, Florida Sea Grant, the West Coast Inland Navigation District, Lee County, and the Florida Department of Environmental Protection held five workshops, during which they completed their assessment of 69 Lee County boat trafficsheds (boat source areas) and 13 secondary channel systems (serving multiple trafficsheds) considered for a Noticed General Permit (NGP). The final step, to be completed in 2005, is to develop the administrative rule language that will be adopted by the State of Florida. NGP impacts include state policy based on "best available science," better efficiency and effectiveness in dredging and waterway maintenance, savings in dollars and staff time, and better public policy through a holistic, environmentally based decision-making process.

- 5.13 The St. Johns Water Management District requested Florida Sea Grant assistance to transform historical maps and imagery to digital formats as input into hydrodynamic models and to mesh with

contemporary GIS datasets. The goal is to re-create the predevelopment hydrodynamic behaviors of estuaries in order to set Pollutant Load Reduction Goals, and to understand pre-development land cover. (Fann)

- 5.14 Geospatial extension services are being provided to the State Agricultural Response Team (SART) to support its mission to develop a statewide GIS in support of a coordinated, interagency effort to prepare and plan for, respond to, and recover from crop and animal-related emergencies in Florida. (Sidman/Swett)

Florida Sea Grant provided four geospatial extension services to the Florida division of the United States Department of Agriculture (USDA) and to the State Agricultural Response Team (SART):

- (1) FSG designed and helped conduct a needs assessment regarding homeland security, risk management, disaster preparedness, and disaster recovery;
- (2) FSG helped draft a proposal to obtain funding for a SART commercial agriculture production GIS;
- (3) FSG assisted SART members and the USDA Hernando/Pasco farm service agency to implement a test GIS to track and map commercial agricultural producers in Hernando County. FSG participation included on-site GIS training for the USDA staff;
- (4) For the February 2004 SART meeting, FSG created and delivered a formal presentation entitled "A GIS for the USDA Farm Service Agency."

Appointed to SART committees in Citrus and Hernando Counties which are to prepare and plan for, respond to and recover from crop and animal-related (including fisheries) emergencies in Florida. To date, nothing has been completed.

- 5.15 Serve as the principal Sea Grant liaison for the Florida Clean Boating Partnership. (D. Jackson)

- 5.15.1 Continue working with the Clean Boating Partnership to designate clean marinas, clean boatyards, clean boaters, and clean marine retailers.

Attended all four meetings of the CBP, supplied support materials and shared in discussions and activities. Results have been new marinas and boatyards through the joint efforts of the Partnership for a total of 94 marinas and 10 boatyards by late fall, 2004, with the likelihood of 100 marinas by the end of 2004.

- 5.15.2 Serve as chair of the Visions Committee of the Clean Boating Partnership to identify future efforts for the Partnership.

Information gathered and organized on new target groups was accepted by the Partnership, as presented through the Visions Committee.

- 5.16 Assist marinas in Brevard County with specific programs and through participation in the Clean Marina Program as follows (Combs):

- 5.16.1 Resolve stormwater issues at four marinas.

Stormwater issues at four marinas (Banana River Marine, Diamond 99, Sebastian River Marina and Boatyard, and Sebastian Inlet Marina) were identified and customized solutions proposed in conjunction with EcoSenseUSA, Merritt Island, a designer and manufacturer of Clean Marina Program approved and listed (for BMPs) stormwater filtration systems. The 2004 hurricanes damaged all of these facilities, and all other marinas and boatyards in Brevard Co. Until repairs are completed at marinas and boatyards, stormwater system modifications must await their turn in the long list of repair

priorities at every facility. Wherever possible, stormwater control improvements are being incorporated into the repair schedule at all marinas and boatyards.

- 5.16.2 Conduct on-site training and guidance to assure Clean Marina or Clean Boatyard designation at three marinas.

On-site guidance/training was conducted by Sea Grant Agent Combs at five Brevard Co. marinas/boatyards in working towards designation as Clean Marinas and/or Clean Boatyards: Banana River Marine, Sebastian River Marina and Boatyard, Sebastian Inlet Marina and Boatyard, St. Sebastian Marina and Yacht Club, and Eau Gallie River Boatyard.

- 5.16.3 Increase public awareness of Clean Marina/Clean Boatyard program by 10% by conducting educational programs on Brevard County Space Coast Government TV (SCGTV).

A 10-minute segment concerning the Clean Marina/Clean Boatyard program in Brevard Co., recorded by Sea Grant Agent Combs for Brevard Co. Space Coast Government TV (Feb. 25), was shown repeatedly during 2004, at different times of day. Agent Combs has been surprised by the number of personal compliments received from citizens and government officials, and more segments will be recorded in 2005. Other planned recording sessions in late 2004 were interrupted by hurricane-related issues.

- 5.16.4 Reduce marine debris through industry adoption of proper disposal methods of waste petroleum products, cleaning solutions, dead batteries and other harmful products and increase use of pump-out stations through educational programming at six Clean Marinas/Clean Boatyards in Brevard County.

Clean Marina training on-site at Brevard Co. marinas in Micco (3 marinas), Melbourne (2 marinas), Eau Gallie (1 marina, 1 boatyard), Merritt Island (1 marina, 1 marine-related business), Cape Canaveral (2 marinas, 1 marina/boatyard), and Titusville (2 marinas), resulted in adoption by these 14 businesses of proper disposal methods of waste petroleum products, cleaning solutions, and other products harmful to the environment, and increased use of pump-out facilities at the marinas.

- 5.16.5 Strengthen ties between the Marine Industries Association of Brevard, the Marine Industries Association of Florida, Florida Fish and Wildlife Conservation Commission, Florida Department of Environmental Protection, the US Coast Guard, and fellow Sea Grant Agents in expanding the influence of the Clean Boating Partnership around the state of Florida.

The Brevard Marine Agent attends monthly meetings of the Marine Industries Association of Brevard Co. (MIAB), monthly meetings of the Brevard Co. Commission Marine Advisory Council (BCCMAC), regular meetings of the Port Canaveral/Brevard Co. Spill Cleanup Committee, and regular meetings of the Clean Boating Partnership, in a successful effort to strengthen ties between Clean Boating partners (MIAB, MIAF, FFWCC, FDEP, USCG, USCGA, and fellow Sea Grant Agents) in expanding the influence of the Clean Boating Partnership around the state of Florida.

- 5.17 Facilitate linkages between related local Waterways projects, such as the Derelict Vessel Removal program of the Brevard County Commission Marine Advisory Council (BCCMAC), and the Spoil Island restoration project of the Citizens for Florida's Waterways (CFW) boating group, by attending meetings of these groups, providing them Extension information, and developing new

educational materials as needed in support of these efforts. Participate in two Adopt-An-Island field trips and two field work-days in accomplishing these goals. (Combs)

The Brevard Marine Agent facilitates linkages between related Brevard Co. Waterways projects, such as the Derelict Vessel Removal Program, the Artificial Reef Development Program, and the Boaters Guide program of the Brevard Co. Commission Marine Advisory Council (BCCMAC), and the Spoil Island Restoration project of the Citizens for Florida's Waterways (CFW) by attending meetings of such groups, providing IFAS Extension and Sea Grant Extension and Research information and educational materials in support of these and other programs. The Brevard Agent participated in two field trips to "Sandy Island" in Banana River, researched historical and contemporary aerial photographs of this area, and drafted a working map of the island in support of these ongoing efforts by CFW. Because of a recent illegal trespassing/bird-hunting incident on Sandy Island, the Brevard Agent is now working with the DEP spoil island project coordinator and the Florida Inland Navigation District (FIND), to assure continued access to the island by CFW members for recreational purposes.

5.18 Enhance the environmental sustainability of marine businesses in Miami-Dade County. (Crane)

5.18.1 At least 20 marine businesses will gain knowledge on the Clean Marina's Program environmentally and economically friendly management practices for boating and marine industries as described in the Clean Marina Program by attending a workshop or site visit. Knowledge gained will be measured by a survey and the number of businesses participating in program.

Miami-Dade Agent presented the "Clean Marina/Boatyard Program to 30 graduate students in a coastal management class at University of Miami and to 12 marina managers. Of the 42 responding to a survey, 93% said information they learned was useful for their job or personal life and 55% said they would make a practice change and adopt best management practices as a result of this program.

Agent represented Sea Grant and spoke at the awards ceremony to recognize Dinner Key Marina and MiaMarina as "Clean Marinas". Assistance was provided in the inspection of these marinas. 50 people in attendance.

Agent assisted in the inspection of Mirabella Marina and Sealine Marina for designation as "Clean Marinas", with FDEP and Coast Guard Auxiliary. Both marinas passed inspection scoring 100% of required points and 98% of optional points. A ceremony will take place to designate these marinas as "Clean Marinas".

5.18.2 At least 100 boaters will gain knowledge on environmentally and economically friendly management practices to prevent fuel spills into the environment by receiving bilge socks and educational materials. Knowledge gained will be determined by survey and the number of participants in the program.

Over 600 boaters have received fuel spill kit bags at their local marina, fishing store, boating club, and boat ramp. Bags contain a bilge sock, absorbent pad, clean boater booklet, clean boater sticker, and pledge card. Boaters completed a pledge card vowing to practice clean boating habits. Assistance with this project was provided by DEP Clean Marina Program, U.S. Coast Guard Auxiliary, and representatives of marinas and fishing businesses. In addition, 33 high school students donated 229 volunteer hours by filling spill kit bags and distributing them to boaters. Continuing to work with volunteers to distribute more bags and survey boaters.

5.19 Promote behavioral changes in boaters and marine operators to exercise environmentally friendly boating habits through the exhibits, mass media, distribution of informational material, and the “Clean Marina/Clean Boatyard” certification program. (Creswell)

5.19.1 At least four marinas and/or boatyards in St. Lucie, Martin, and Indian River Counties will complete or enlist in the “Florida’s Clean Marina Program”.

The agent served on the certification review team for four marinas that were designated as “Clean Marinas” during 2004.

5.19.2 Complete installation of monofilament recycling stations in St. Lucie and Indian River counties.

With financial support of the Florida Inland Navigational District, the agent installed monofilament recycling containers (15) at public boat ramps and fish cleaning stations throughout St. Lucie County. These collection bins are monitored regularly and the monofilament prepared for shipment to recycling centers.

5.19.3 Continue to promote utilization of monofilament recycling through newspaper articles and radio programming.

During 2004 the agent conducted two- 30 minute radio broadcasts (WPSL, Port St. Lucie) dedicated to monofilament recycling, and in collaboration with county public relations staff developed two newspaper articles promoting the program and providing information of collection locations. The agent also provided information and gave a demonstration of monofilament recycling during the annual St. Lucie County Beach Clean-up.

5.19.4 Continue to plant mangrove seedlings along the Indian River Lagoon through the “IRL Mangrove Restoration Program”.

The agent served on the steering committee for the “Indian River Lagoon Mangrove Restoration Program” which replanted mangrove seedlings throughout the IRL in 2004.

5.19.5 Teach at least 30 fishermen and/or scientists the importance of venting fish bladders and demonstrate its method.

This item was not completed in 2004.

5.20 Continue working with the Clean Boating Partnership to establish additional clean marina designations and clean boatyard designations in 2004. Present Clean Boater educational materials to boaters at the Pensacola Boat show and other environmental events. (Diller)

Represented Florida Sea Grant at the induction of Rod & Reel Marina into the Clean Marina Program. Spoke to attendees about Sea Grant’s role in the Clean Boating Partnership and the local educational programs conducted.

Had 322 people take the Clean Boating Pledge at the Pensacola Boat Show, pledging to protect local waterways. One hundred fifty bilge socks were distributed, which could prevent up to 56 gallons of fuel and oil from impacting water quality. Two hundred children’s life-jackets were also distributed.

5.21 Enhance the marine industries in Northeast Florida. (McGuire)

- 5.21.1 Work with staff from the DEP's NE District to certify five new clean marinas or boatyards in NE Florida.

Three new marinas were certified as Clean Marinas in NE Florida. As part of the requirements for certification, the St. Augustine Municipal Marina implemented used oil recycling; a service not previously offered to boaters. Julington Creek Marina increased its emergency preparedness, by adding fire extinguishers and educating staff about fire preparedness and other emergency planning. Arlington Marine increased the educational information provided to its patrons.

- 5.21.2 Complete boater and angler recreational guide for Duval County.

The text for the Duval boater and angler's guide has been finished and submitted to FWRI, whose GIS department is designing the guide. A draft of the map has been reviewed and corrections have been submitted to FWRI. Funding (\$45,000) for the guide has been obtained from the Jacksonville Environmental Protection Board and the Jacksonville Port Authority.

- 5.21.3 Work with Flagler County planners to develop a similar guide for Flagler County.

Text for a Flagler County boater and angler's guide has been submitted to FWRI. The first draft of the map has been reviewed.

- 5.21.4 Work with St. Augustine Ports and Waterway Authority and Florida Sea Grant waterways faculty to develop a boater guide for St. Augustine/St. Johns County.

The Northeast Florida Sea Grant extension agent is working with the Sea Grant Boating and Waterways specialists to provide educational information for a St. Augustine boating guide.

- 5.22 Facilitate national meeting of parasailing operators to develop non-regulatory approach to improve safety. Activity requested by Tampa Coast Guard Marine Safety Officer. (Stevely)

Sea Grant Extension Agent Stevely facilitated a national meeting of parasail operators (125 participants; Tampa, January 21, 2004) organized by the office of the Coast Guard Tampa Marine Safety Officer. As a result of the meeting, the Tampa Coast Guard Marine Safety Officer has reported that his office is now actively engaged in developing a voluntary, non-regulatory management program with the Florida parasailing industry.

- 5.23 Enhance the environmental sustainability of marine businesses in Lee County. (Wasno)

- 5.23.1 A 300 yard section of Estero River has been eroded from boat wakes in the heavy vessel area. Volunteers will be recruited to place rip-rap materials at the sites.

- 5.23.2 A brochure will be developed to guide novice/tourists boaters to destinations in Lee County. It is anticipated that environmental impacts by wayward boaters will be minimized.

Created a *Boaters Destination Guide for Lee County*. This Guide will be printed in early 2005. It contains information for local and transient boaters on boater accessible restaurants, marinas, pump-out facilities, fishing tackle and bait, fuel, hotels, boat friendly beaches, Lee County parks, boater safety and other water related information. Funding was provided by West Coast Inland Navigation District. 15,000 copies will be printed for distribution.

Through the Clean Marina Program, Lee County Agent and Florida Department of Environmental Protection partnership, 3 Lee and 2 Collier County Marinas were certified in 2004. Other CMP activities included 2 workshops as an introduction to the CMP attended by 17 marinas that have signed pledge cards promising to work towards certification. 5 additional marinas have qualified for the designation and will be certified in early 2005.

5.23.3 Lee, Charlotte and Collier county marinas have been aggressively recruited to participate in the Clean Marina Program. The goal is to add five new marinas this year.

5.24 Enhance the boating and marine industries around Pensacola Bay. (Verlinde)

5.24.1 Promote the Clean Marina Program.

Promoted Clean Marina program at the Pensacola Boat Show, and local fish camps.

5.24.2 Redesign the Boater's Guide to Pensacola Bay. This guide will include safe and clean boating tips, recreational fishing information, boat ramp and marina locations, clean marina designations, boating issues, and information on endangered and exotic species.

Met with the FWCC point of contact to discuss the reprinting and design of the Pensacola Bay System Boat Guide. Still gathering data, there are many changes since the storm.

5.25 Conduct four workshops, meetings and coordinate commercial fishing input into Monroe County local land management processes to encourage maintenance of working waterfront access for the commercial fishing industry. (Gregory)

Two workshops were organized and conducted specifically for industry leaders. Assisted and accompanied fishermen to three different meetings with County Commissioners. Participated in two public meetings in support of maintaining a working waterfront and spoke at one meeting. Accompanied industry leaders, two county commissioners, and county and city staff planners to a Marine Industries Association Meeting in Orlando to discuss the statewide perspective of the need to maintain working waterfronts. As a result, the Board of County Commissioners is considering a moratorium on redevelopment of the waterfront and have funded a Waterfront Marine Management Plan study to recommend what developments are appropriate for the existing waterfront.

5.26 Recruit marinas and boatyards to participate in the Clean Marina and Boatyard Program in Broward County. Conduct workshops to instruct marina staff on proper pollution prevention and best management practices. Present participating facilities with literature and hands-on training regarding CMP components as outlined in the handbook. Inspect marinas for compliance with CMP required and optional criteria. Designate facilities as "Clean Marinas/Boatyards" through a flag ceremony. (Behringer)

Participated in a workshop to recruit eight (8) marinas and boatyards into the Clean Marina Program. The workshop was conducted to introduce potential participants to the program, establish certification criteria and distribute program literature.

Served on the review team and spoke at the Clean Marina designation ceremony for Lighthouse Point Marina. The marina has implemented five (5) of the program's best management practices as measured by follow-up phone survey and site visit

The review and designation of Lauderdale Marina was postponed until 2005 due to hurricanes.

Distributed information and materials on Clean Marina/Boatyard Program at the annual International Fort Lauderdale Boat Show. Approximately 1,200 visitors received information and 320 of them signed Clean Boater pledge cards.

Presented a talk on marine debris and water pollution prevention to the National Save the Sea Turtle Foundation and distributed ten (10) "Don't Splash Your Trash" signs for posting at piers, docks and boat ramps.

Created a *Boaters Destination Guide for Lee County*. This Guide will be printed in early 2005. It contains information for local and transient boaters on boater accessible restaurants, marinas, pump-out facilities, fishing tackle and bait, fuel, hotels, boat friendly beaches, Lee County parks, boater safety and other water related information. Funding was provided by West Coast Inland Navigation District. 15,000 copies will be printed for distribution.

Through the Clean Marina Program, Lee County Agent and Florida Department of Environmental Protection partnership, 3 Lee and 2 Collier County Marinas were certified in 2004. Other CMP activities included 2 workshops as an introduction to the CMP attended by 17 marinas that have signed pledge cards promising to work towards certification. 5 additional marinas have qualified for the designation and will be certified in early 2005.

Coastal Ecosystem Health and Public Safety

Goal 6: Protect and Enhance Coastal Water Quality and Safety

- 6.1 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. (Chanton/Burnett/Corbett: R/C-E-44)

Results on the ^{15}N of stormwater are (to our knowledge) the first measurements ever reported on this important source of N to coastal waters. Ammonia volatilization apparently leads to the production of ^{15}N enriched ammonia. The Marine Resistivity Approach is quite new and successful utilization of it is an advance to the field. The tracers of Rn and CH_4 continue to serve well in identifying groundwater discharge, quantifying rates and finding hot spots. Adding caffeine as a tracer may link septic tank contamination of groundwater which then discharge to surface waters.

- 6.6 Increase the quality of coastal and marine waterways in Brevard County. (Combs)

- 6.6.1 Write a bi-monthly educational article for the UF/IFAS Brevard County Extension newsletter, "Agriculture and More".

The Brevard Marine Agent wrote bi-monthly educational articles for the UF/IFAS Brevard Co. Extension Newsletter, "Agriculture and More." Article titles were: 2004 Issue 1, "Safe Clams and Oysters;" Issue 2, (Cover article) "Safe Boating;" Issue 3, "Rip Currents;" Issue 4, "New Fishing Rules on Dolphin and Wahoo;" Issue 5, "What is SEACOOS?;" Issue 6, (post-hurricanes Frances and Jeanne) "Storm Surge."

- 6.6.2 Present an educational program on Space Coast Government TV (SCGTV) concerning stormwater issues in Brevard County and how they are being addressed.

A planned presentation on Space Coast Government TV (SCGTV) by the Brevard Sea Grant Agent concerning stormwater issues in Brevard Co. was postponed until 2005 because of countywide schedule conflicts caused by Hurricanes Charley, Frances, and Jeanne.

- 6.6.3 Educate 10 members of the Brevard County Commission Marine Advisory Council on IFAS and Sea Grant resources available to assist this Council in achieving its goals, including derelict vessel removal from the Indian River Lagoon.

The Brevard Sea Grant Agent provides, on an ongoing basis (at monthly meetings), educational information and printed materials from IFAS Extension and Sea Grant to the 10 members of the Brevard Co. Commission Marine Advisory Council (BCCMAC) for their in-house library, in support of achieving their goals, including derelict vessel removal from the Indian River Lagoon, establishment of new artificial reefs offshore, a boaters guide, and other subjects.

- 6.6.4 Conduct two waterway cleanup exercises, designed to educate 50 participants in the environmental damages caused by litter in the marine environment.

Waterway cleanup exercises, normally conducted twice annually by Brevard Sea Grant, were replaced in 2004 by ongoing countywide cleanup exercises (continuing into 2005) following Hurricanes Charley (August), Frances, and Jeanne (September), and involving

other County employees, numerous Boy Scout Troops, and thousands of citizen-volunteers.

- 6.6.5 Develop two fact-sheets concerning storm water runoff and its environmental impact in the Indian River Lagoon.

Two Fact-Sheets concerning stormwater runoff and its environmental impact on the Indian River Lagoon (IRL) that were intended to be developed in conjunction with, and in support of, the planned SCGTV program by Brevard Sea Grant concerning stormwater runoff, were postponed along with the TV presentation until 2005.

- 6.8 Assist the Florida Yards and Neighborhood program and Florida Lakewatch program in Escambia County by working with volunteers and local community leaders to understand and develop water quality monitoring programs and reduce stormwater. (Diller)

Created educational display and answered questions at BayScape 2004, a workshop on environmentally friendly coastal living by the Florida Yards and Neighborhoods program. Display included information on water quality, oyster gardening, and stormwater pollution.

Escambia County contact for Florida Lakewatch volunteers and drop-off location for water samples.

Assisted with organization and set up of the Stormwater Workshop coordinated by Santa Rosa County marine extension agent. Presented the “Stormwater” and “Watersheds” episodes of the “Resource Rangers” television series to participants.

With the Escambia FYN agent, taught Escambia High School Science Club water quality sampling techniques at Big Lagoon State Recreation Area.

Assisted the Florida Yards and Neighborhood agent with an educational display for the Pensacola Interstate Fair.

- 6.10 Continue work as a member of the Nature Conservancy’s Apalachicola River Basin Invasive Exotics Workgroup. (Mahan)

The Franklin County Agent worked as a member of the Nature Conservancy’s Apalachicola River Basin Invasive Exotics Workshop. The Agent attended two workgroup meetings this year on 21 January 2004 and 30 March 2005. As a result of the meetings, the members of the workgroup were updated on various invasive issues within the Apalachicola River watershed.

- 6.11 Coordinate and supervise the use of herbicides to spot-treat invasive plant species living in the Apalachicola Bay drainage system along Hwy 65 during the FL DOT’s repaving project. (Mahan)

The Franklin County Agent supervised and coordinated the spot treatment of Japanese Climbing Fern growing along Highway 65 in Franklin County. As a result of this effort Japanese Climbing Fern was sprayed with a selective herbicide to reduce the spread of this invasive plant as a result of the repaving project. The treatment was completed without incidence.

- 6.12 As a member of the US Fish and Wildlife Service’s manatee entanglement and manatee education working groups, continue to work on issues relating to derelict crab/fishing traps. (McGuire)

The NE Florida Sea Grant Extension Agent provided input to the Florida Fish and Wildlife Conservation Commission regarding needed changes to the state’s commercial blue crab regulations. These recommendations in part led to the formation of a state blue crab advisory

board, which has suggested several changes to the current regulations, including the establishment of a rotating closed season to allow for removal of derelict crab traps. The recommendations also were used by the state to establish a definition of a “derelict” trap and to allow for organized cleanup efforts to remove these traps.

6.13 Work to enhance water quality around Pensacola Bay. (Verlinde)

6.13.1 Coordinate sampling, training and collection of samples for the UF/IFAS Lakewatch program in Santa Rosa County.

Coordinated water sample drop-off, supplies and provided training for Lakewatch volunteers. Met with Skiwatch residents to discuss management of their lake. These are residential lakes used for water skiing. This group is active in the management of the lakes. They have incorporated Lakewatch and Florida Yards and Neighborhood techniques to increase water quality in the lakes.

Attended Watershed in-service training in Gainesville. This in-service included additional Lakewatch instruction and materials.

6.13.2 Coordinate and lead Pensacola Watershed Tour. This will be a tour of the watershed from Alabama to the coastal area of Florida for community leaders. The goal is to educate participants on watershed impacts on local water quality and continue collaborative efforts of watershed management for officials in both states of the watershed.

The Pensacola Bay Watershed Tour was cancelled due to Hurricane Ivan damage, tentatively rescheduled for fall 2005.

6.13.3 Contribute to the 2004 revision of the 1998 Pensacola Bay Watershed Management Plan.

The plan was published in December 2004 (hard copy and CD). Goals of the plan include: restore and maintain water resources to designated uses, promote awareness of watershed issues, develop partnerships with adjacent watershed groups, promote economic prosperity and quality of life. The plan provides documented needs and projects that can be utilized for grant applications. More than 40 agency, local government representatives and organizations contributed to the revision of this plan.

6.13.4 With UF researchers and watershed supporters, coordinate and provide projects for the Pensacola Bay Watershed Initiative Grant proposal to the US Environmental Protection Agency.

With UF-Milton Natural Resource researchers, provided water quality management projects to the 2004 application of the Pensacola Bay Watershed Initiative grant to the EPA. Total proposal was \$1.2 million. The proposal placed in the top four for the southeast division, but was not funded.

6.13.5 Attend national Watershed Academy at Weeks Bay National Estuarine Research Reserve. Topics include: stream restoration, stormwater Best Management Practices, smart growth, community involvement, and watershed mapping and planning.

This academy brought watershed managers from across the country together to discuss watershed management issues from stormwater to smart growth. Many contacts were made and hands-on watershed management techniques were provided.

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

- 7.2 Over the last several years swamp eels have been discovered in aquatic habitats in Georgia and Florida. These are large ambitious predators capable of dispersal over land with the potential to disrupt ecosystems. The goal of this project is to discover how eels are introduced, how this can be prevented, describe their ecology and life history, and support methods to control them. (Collins/Trexler/Nico/Loftus: R/C-E-46)

This project discovered that a new, but as yet unreleased species of swamp eel, *Monopterus cuchia*, was being sold live in U.S. markets. This may enable the prevention of yet another invasive species into U.S. waters. A second important discovery is that the Atlanta population is distinct from other U.S. introduced populations and related to populations from Japan, Korea, and Taiwan. This means that it is feasible and worthwhile to extirpate this restricted population.

- 7.3 A critical and emerging need for ocean sciences education is to determine and catalog the types and impacts of aquatic nuisance species in the Gulf of Mexico region. Leaders will learn and develop materials for K-12 classroom use. This is a joint project with Mississippi/Alabama Sea Grant and includes holding elementary, middle school and high school teacher workshops. (Spranger/Jacoby: E/NS-2)

Inservice training programs for extension agents were held in 2004. A primer on saltwater invasive species, identification cards for divers on invasive species, and several fact sheets on specific invasive species were developed and distributed to FSGEP faculty and interested clientele. Invasive species was also a topic of discussion at COSEE Informal Education Workshop (December 2003), and 2004 COSEE Summer Teacher Institute. FSGEP agents in Northeast, Southeast, and Panhandle of Florida also developed teacher training workshops in invasives in their respective areas.

- 7.6 An invited scientific session on improvement of marine habitat for fisheries and conservation will be convened at the World Fisheries Congress. (Seaman)

A session on restoration of marine fisheries through habitat improvement included presentations from Korea, Japan, Italy, England and the United States. Attendance of 50-75 during the program (one of 10 concurrent sessions) learned the newest scientific basis for artificial habitat planning.

- 7.7 Proliferations of an exotic invasive alga, *Caulerpa brachypus*, have been documented on reefs off of the east coast of central and south Florida. It has been suggested that elevated nutrients from ground water seepage is the cause for the increase in algal abundance and that *C. brachypus* is smothering Florida reefs. The goal of this project is to determine the potential for an invasive macroalga, *Caulerpa brachypus*, to establish populations within the Indian River Lagoon system based on salinity tolerances. (Irlandi: PD-03-11)

Results suggest establishment of *C. brachypus* is unlikely to occur in regions of the Indian River Lagoon where salinities fall below 25 psu, but that populations could successfully be established in the vicinity of inlets where salinities are higher.

- 7.9 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. (Spranger/Jacoby: E/T-13)

Seven workshops were held for 126 middle and high school teachers in Florida. More than 12,600 Florida students (126 teachers x 100 students/teacher) increased their knowledge about invasive

species, current research and management issues. Twelve workshops for 388 non-formal educators were held in Florida. More than 38,800 members of general public (388 non-formal educators x 100 members of general public) increased their knowledge about invasive species, current research and management issues. A display on invasive species was set up at the Museum of Science and History in Jacksonville at their annual "water festival celebration." The display was seen by over 5,800 visitors who increased their knowledge about invasive species, current research and management issues.

7.10 Reduce the number of invasive marine species in Brevard County waters as follows (Combs):

- 7.10.1 Conduct six one-hour public seminars, targeting fishermen, in different locations in Brevard County, addressing the environmental and economic impacts of invasive exotic marine species upon recreational and commercial fisheries.

Public seminars addressing the environmental and economic impacts of invasive exotic marine species upon recreational and commercial fisheries were conducted by the Brevard Sea Grant Marine Agent, as follows: "Green Mussels, Tiny Terrorists" April 2, at Fisherman's Landing, Grant; "Invasive Marine Species Imported by Ships" April 30, New Smyrna Beach; "Unwelcome Invasive Exotic Marine Species in the Indian River Lagoon" May 12, Titusville; "Potential Impact of Invasive Exotic Marine Species on Fishing in the Indian River Lagoon" June 2, Cocoa Beach; plus eight presentations concerning impacts of invasive exotic marine species on commercial and recreational fishing to commercial clammers during regularly scheduled environmental seminars.

- 7.10.2 Develop six one-page fact sheets addressing the environmental and economic impacts of invasive exotic marine species upon recreational and commercial fisheries.

Six Fact Sheets concerning Invasive Exotic Marine Species have not been developed as planned. This will be accomplished during 2005.

- 7.10.3 Present two educational programs on Space Coast Government TV (SCGTV) concerning marine invasive exotic species and their environmental and economic impacts, in order to heighten public awareness of the importance of these unwanted neighbors.

Two educational programs on Space Coast Govt. TV (SCGTV) concerning invasive exotic marine species, intended to heighten public awareness of this problem, were postponed until 2005 because of schedule conflicts following the 2004 hurricanes that impacted Brevard County.

- 7.10.4 Set up four or more manned educational exhibits at the annual Grant Seafood Festival, the annual Brevard County Fair, the Brevard Marine Industries Association Boat Show, the Blue Water Open Deep Sea Fishing Tournament, and other related events to increase general public awareness of invasive exotic species in marine ecosystems, and the threat posed.

Manned educational exhibits designed to heighten public awareness of the importance of invasive exotic marine species were set up at Grant Seafood Festival (80,000 attendance) (Feb. 28-29); "State of the Indian River Lagoon Conference" at Florida Inst. Technology (200 attendance) (May 15); Florida Sport Fishing Association Fishing Tournament, Port Canaveral (700 attendance) (June 5); Brevard Co. Space Coast Fair, Cocoa (100,000 attendance) (Nov. 4-14). The planned Brevard Marine Industries Association Boat Show was cancelled so was not available for an exhibit. The annual Blue Water Open Deep Sea Fishing Tournament, for which the Brevard Agent was Weighmaster for six years,

was moved out of Brevard Co. in 2004, and out of Brevard's jurisdiction, so was not available for an exhibit.

- 7.10.5 Write a newspaper article about the environmental and economic impact of marine invasive exotic species.

An article entitled, "Scientists Uncertain About Mussel's Impact," based upon an interview with Brevard Sea Grant Agent, was featured on the front page of Florida Today newspaper, Sunday, December 5, 2004 (Sunday circulation, 106,000).

- 7.10.6 Develop three educational brochures, designed to enhance recreational boaters' understanding of endangered marine species, the importance of protecting them, and methods to do so, especially manatees, green sea turtles, and loggerhead sea turtles, all of which are found in the IRL during a part of their life-cycle.

Development of three educational brochures, designed to enhance recreational boater's understanding of endangered marine species, were not developed as planned. This will be accomplished during 2005 (see 7.10.2 above).

- 7.10.7 Continue serving on the multi-agency Project Development Team (PDT) of the Indian River Lagoon-North (IRL-N), and the PDT Ecological Sub-Team, in addressing IRL issues that might impact the Comprehensive Everglades Restoration Program (CERP) – meets monthly.

Brevard Sea Grant Agent Combs continues to serve on the multi-agency Project Development Team (PDT) of the Indian River Lagoon-North (IRL-N), and the PDT Ecological Sub-Team, in addressing issues that might impact the Comprehensive Everglades Restoration Program (CERP). The Brevard Agent was also appointed in 2004 to serve on the Coral Advisory Panel of the South Atlantic Fishery Management Council (SAFMC).

- 7.10.8 Conduct eight classes for 60 commercial clammers concerning Indian River Lagoon water quality as potentially impacted by marine invasive exotic species.

Eight classes were conducted in 2004 for 80 commercial clammers, concerning the potential impact on Indian River Lagoon water quality of invasive exotic marine species, such as the Indonesian Green Mussel.

- 7.10.9 Conduct local workshops for K-12 teachers and interested citizens on marine invasives.

A total of twelve workshops for interested citizens concerning marine invasive exotic species were conducted by the Brevard Sea Grant Agent in 2004.

- 7.11 Improve the quality and quantity of coastal and marine habitat in Escambia County. (Diller)

- 7.11.1 Conduct local workshops for K-12 teachers and interest citizens on marine invasives.

Taught marine/aquatic invasive species at two Marine Collectors Permit workshops for Escambia County secondary teachers. Provided teachers with educational materials on invasives.

- 7.11.2 Develop coastal restoration programs such as sea grass planting, dune restoration and beach renourishment that will improve coastal ecosystems.

Recruited 4-H youth volunteers to plant marsh grasses at a coastal planting demonstration site at Bayview Park in Pensacola.

Assisted 4-H youth volunteers during a dune planting for a demonstration/experimental site on Navarre Beach with UF-IFAS West Florida REC staff.

Escambia, Santa Rosa, and Okaloosa/Walton Sea Grant and FYN agents met with UF-IFAS West Florida REC staff about dune restoration and coastal re-vegetation following Hurricane Ivan. The group is updating materials for distribution and plans to host workshops for Panhandle residents in 2005.

- 7.11.3 Continue to work with the Project Greenshores team to develop site two of this coastal ecosystem restoration project in Pensacola Bay that includes oyster reefs, seagrass beds, and salt marsh habitats.

Coordinated a tour of Project GreenShores and the Dept. of Environmental Protection's greenhouse for the directors of Mississippi-Alabama Sea Grant, Dauphin Island Sea Lab, Mobile Bay National Estuary Program, and the Auburn University Shellfish Lab.

Answered financial, design, environmental, and educational questions about the Project. The visiting group is developing a similar project along Dauphin Island Parkway and/or in Mobile Bay.

Answered passenger's questions about the development of Project Greenshores during an educational cruise to gather support for the continuation of this ecosystem restoration project.

The U.S. Environmental Protection Agency's Gulf of Mexico Program honored Project GreenShores with the First Place Gulf Guardian Award, which recognizes outstanding projects that restore and protect the nation's Gulf of Mexico coastal environment.

- 7.13 Provide general educational training and assistance to improve coastal habitats in Northeast Florida. (McGuire)

- 7.13.1 Conduct training for the 5th grade students (approx. 300 students), local and regional park staff and the general public about invasive species.

283 5th grade students from St. Johns County schools attended "Stop the Invasives" workshops where they learned about invasive plants and animals. The thirteen teachers completed evaluation forms which indicated that they felt that the activities provided addressed appropriate state standards for science and/or mathematics, and that the students learned new information from the activities. 50 members of the general public attended a "Stop the Invasives" open house where they completed a "scavenger hunt" which required them to complete a series of questions by using information presented in displays and presentations. These questions included identifying native and invasive plants and animals. 400 members of the public attended the Whitney Lab Open House, and 2000 people attended the Earth Day program at Washington Oaks Gardens State Park, where the Sea Grant extension agent had a display on invasive species and distributed fact sheets about the identification and control of invasives. 26 staff members from St. Johns County parks, engineering and road and bridge departments, state and private parks learned how to identify and control invasive plants at a workshop coordinated by the Sea Grant extension agent. Post-test scores were 81% higher than pre-test scores. The pre- and post-test asked participants to list invasive plants and animals, and to show a knowledge about the methods of spread of invasives, as well as possible control methods.

- 7.13.2 Invasive species is a topic in the “Exploring our Environment” program which is offered at Marineland twice a year to a class of 20 adults each time.
- 39 participants in the “Exploring our Environment” program learned about invasive plants and animals—methods of introduction, and their control.
- 7.13.3 Invasive species is a topic that will be addressed in approximately seven summer camp programs (4-H and other) in 2004.
- 111 youth participating in 4-H and other summer camp programs learned about invasive marine species and the problems that they can cause.
- 7.13.4 Invasives are mentioned in the field component of the coastal Master Naturalist classes which are lead for Duval and Volusia counties (3-4 classes each year).
- 50 participants in Volusia County Master Naturalist classes and 14 participants in a Duval County Master Naturalist class learned about invasive green mussels as part of their training.
- 7.13.5 Work with homeowner association in St. Augustine Beach to replant a section of dunes.
- Fact sheets on sea oats planting and lists of commercial suppliers of sea oats were sent to two St. Augustine Beach homeowners. They have not yet contacted the Sea Grant office for further help with their planting efforts.
- 7.14 Provide general educational training and assistance to improve coastal habitats. (Stevely)
- 7.14.1 Present poster of oyster mapping work using GIS coverages and archived cartographic resources at World Fisheries Congress.
- The results of the project “A Historical Perspective for Determining Changes in the Distribution of Oyster Habitats in Southwest Florida Using Archived Maps and Charts of Federal Agencies” were presented at national and international conferences: First National Conference on Ecosystem Restoration (December 6-10, Orlando, Florida); World Fisheries Congress (May 2-6, Vancouver, Canada). As a result 250 scientists and resource managers increased their understanding of how Geographical Information System technology and archived historical cartographic information could be used in planning and evaluating oyster habitat restoration.
- 7.14.2 Assist Tampa Bay Estuary Program in mapping historical locations of oyster reefs.
- The Sea Grant Extension Agent served in an advisory role in this effort. The planned direct role in this effort was curtailed due to the untimely death of Dr. Gustavo Antonini and inability of Army Corps of Engineers to provide funding.
- 7.14.3 Maintain functionary Sarasota Bay National Estuary Program Technical Advisory Committee in role as Chairman.
- The Sea Grant Extension Agent chaired five meetings of the Sarasota Bay Estuary Program Technical Advisory Committee (1/23/04; 3/26/04; 5/28/04; 10/1/04; 12/3/04) A fully functional advisory has been maintained and has resulted in cooperation and collaborations with local governments and state agencies.

- 7.15 A collaborative project with Florida Gulf Coast University, South Florida Water Management District, Florida Department of Environmental Protection and Sea Grant, will enhance oyster reefs at the mouths of 12 rivers and creeks in Lee and Collier counties. Volunteers have created oyster bags from mined fossil oyster shells and placed in areas of historically documented reef areas. This project will be presented at the Estuary Enhancement Conference in Seattle, Washington – September, 2004. (Wasno)

Partnered with Ocean Watch Foundation to work with volunteers from the Royal Caribbean and Celebrity Cruise Lines to restore dunes at Hallandale Beach. Presented a talk on sea oats and gave a sea oat planting demonstration to 170 volunteers who planted 400 sea oats.

- 7.16 Inform citizen groups about invasives which are coming into the Florida coastal ecosystems. (Sweat)

Have publicized the problem of invasives which are coming into the Florida coastal ecosystems through articles in newsletter and through distribution of invasives posters at selected coastal sites and boat shows throughout area of responsibility.

- 7.17 Provide general educational training and assistance to improve coastal habitats around Pensacola Bay. (Verlinde)

7.17.1 Provide aquatic nuisance species information to 4-H leaders, teachers, and the public at various talks and programs.

7.17.2 Coordinate an oyster reef restoration project in East Bay. Oyster reef importance/ecology curriculum will be developed to support this project.

Oyster reef restoration in East Bay planning, site development and education materials have been discussed, evaluated and proposed. Funding for this project is dependent on mitigation money from violations in the construction of the Garcon Point Bridge. Funds have not been released, but planning may contribute to DOACS restoration (with FEMA funds) of identified sites in 2005.

7.17.3 Work with UF/IFAS West Florida Research and Education Center researchers on dune restoration research project. Will coordinate volunteers for planting, an informational kiosk at the site, a brochure and presentation about the project.

This agent and researchers from the West Florida Research and Education Center collaborated to receive funding from the UF School of Natural Resources and Santa Rosa County to support a graduate student's research project. Dune facilitation using plant diversity was provided via a website, presentations, an on-site kiosk and brochure. Visitors and residents of the beach were provided with information about dune restoration and plant diversity. 50 Navarre Beach residents were exposed to dune restoration information. The demonstration sites and kiosks were washed out as a result of Hurricane Ivan. Plans to re-vegetate and promote this project will begin in 2005.

7.17.4 Work with county and other agencies to coordinate funding for 330 acres of wet prairie/pine flatwood restoration project. Project will include an education program, and recreational activities.

Due to a prescribed burn that got out of hand in 1999, the restoration of 330 acres of wet prairie and pine flatwood wetland area has been re-evaluated. Restoration through the use of prescribed fire will reduce chances of wildfire. A wildfire could affect neighboring urban areas and interstate 10. A prescribed burn in the past got out of control

and caused the Florida Division of Forestry much grief. This has resulted in the project being modified to a smaller scale.

7.17.5 Continue to support Project Greenshores, a FDEP habitat restoration initiative.

Project Greenshores is an estuarine habitat restoration project in the Pensacola Bay System. Phase 2 will begin in the spring of 2005. Florida Sea Grant supports this project with educational materials, oyster gardening guide and awareness of the project.

7.18 Coordinate the Appreciation and Awareness focus area working group and serve as liaison to the Southeast Florida Coral Reef Initiative (SEFCRI) coordinator. Develop a marketing identity and media awareness package and other educational initiatives. Funding will come from the United States Coral Reef Task Force. Some of the target audiences include boaters, fishers, divers and marine-related businesses. (Behringer)

SEFCRI progress was delayed from January – May, 2004 until a new SEFCRI coordinator was hired (Behringer).

Coordinated the SEFCRI Awareness and Appreciation Focus Team and hosted four (4) team meetings to develop a draft strategy and priority projects. Received funding from FDEP and NOAA to implement priority projects in FY 2005.

Presented the Awareness and Appreciation Focus Team draft strategies to the SEFCRI coordinator and other Focus Teams at six (6) SEFCRI team meetings.

In partnership with other SEFCRI team members, conducted two public workshops to introduce and receive feedback on the SEFCRI draft strategy to protect the reefs of southeast Florida. Presented a talk on the Awareness and Appreciation portion of the strategy. Approximately 184 members of the public attended the meetings. In total, 33 public comments were received on the Awareness and Appreciation draft strategy.

In partnership with FDEP and FFWCC, developed a brochure on the Coral Reefs of Southeast Florida, to educate the public on the location of reefs in southeast Florida, benefits of coral reefs, impacts to them, what people can do to help, and the SEFCRI. Printed 200,000 copies.

In partnership with FDEP and PADI Project Aware, organized the Sustainable Diving and Snorkeling Practices Workshop at the United States Coral Reef Task Force meeting to present information on diver/snorkeler impacts to coral reefs; programs and rationale for promoting sustainable diving and snorkeling practices; and to obtain feedback from the southeast Florida dive community to assist in planning future workshops for dive operators to be held in 2005. Introduced SEFCRI to participants and moderated the group discussion on local solutions and ideas to develop sustainable dive practices and operations in southeast Florida. Approximately 64 attendees. 82% of the post workshop evaluations indicated that the workshop was very good or excellent and 74% of the attendees would like to see future workshops on this issue.

In partnership with NOAA and UM RSMAS, organized a coral reef teacher training workshop, held in conjunction with the United States Coral Reef Task Force meeting. Presented a talk on SEFCRI and how teachers can get involved. Approximately 50 teachers attended.

Presented a talk on the SEFCRI to an environmental seminar class at the Broward Community College Series on the Environment and led small group discussions debating the issue of marine protected areas. Approximately 26 attended. Written evaluations showed a 68% increase in knowledge on local coral reef management and conservation issues.

Served as the marine resources panel representative for the Leadership Broward Foundation Class XXIII and presented a talk on the SEFCRI and coral reef management and conservation issues to class participants as part of the History, Urban and Environment Day. Approximately 32 attendees (Behringer). Refer to Goal 10.17.8.

Three (3) volunteers staffed a coral reef education booth at the annual Ocean Watch Reef Sweep and distributed 250 SEFCRI coral reef brochures.

Staffed a Sea Grant Extension exhibit at the Ocean Fest Dive and Adventure Sports Expo with eight (8) volunteers and distributed approximately 1,500 SEFCRI coral reef brochures and information on SEFCRI.

Two (2) volunteers staffed a Sea Grant Extension exhibit at World Ocean Day at the Museum of Discovery and Science and distributed approximately 250 SEFCRI coral reef brochures.

- 7.19 Develop a shelling restoration program for the oyster fishery in Levy County by identifying a public site for collection of clam shells, developing local partnerships, and identifying funding sources. Clam shell is a byproduct of clam processing and makes an excellent cultch material for oysters. (Sturmer)

Began developing a shell restoration program for the oyster fishery in Levy County by identifying a public site for collection of clam shells, developing local partnerships with the city and county, and identifying funding sources from the clam growers and oystermen's associations for building bins and for signage. The project was kick-off with the opening of oyster season in September. Clam shell is a byproduct of clam processing and makes an excellent cultch material for oysters.

- 7.20 The economic impacts of artificial reef development in Florida are considerable. A study in south Florida concluded that artificial reef-related sales expenditures generated an annual \$148 million in Palm Beach County, \$961 million in Broward County, \$419 million in Miami-Dade County, and \$127 million in Monroe County. Beyond economic consideration, artificial reef development must be conducted in concert with fishery management objectives to maintain sustainable fisheries resources.

The 2004 Florida Artificial Reef Summit was held April 27-28, 2004 (Mote Marine Laboratory, Sarasota). A total of 130 registrants participated in the conference, and 43 evaluation surveys were completed and returned.

Coordinated 75 divers and 28 fishing guides for a 2 day event to clean the bottom of Boca Grande Pass. New fishing regulation has been established for the Boca Grande Pass area. During the 2004 Boca Grande Pass Clean-Up, FWC Commissioners Dick Corbett and David Meehan participated in the event. Reports from divers and witnessing much of the lead that was brought up from the Pass, the Commissioners implemented a new regulation banning break-away jigs and leads used in the popular tarpon fishing site. (Wasno, Stevely, Jacoby)

Boca Grande Pass Clean-Up event's educational component included a special workshop open to all participants. Mote Marine Laboratory and Florida Sea Grant Specialist conducted an informative presentation on identifying and reporting invasive species. Attendees in this workshop came from a large area of west and south eastern Florida offering a large range audience. 32 participants attended. Participants were able to identify green mussels and convey proper reporting procedures for future sightings. Lee Marine Agent presented the overall mission of the clean-up and diver safety instructions. To date, no diver has been injured at this event. (Wasno, Jacoby, Stevely)

Coordinated effort to place 156 tons of rip-rap material to shore-up a 300 yard section of the Estero River. Funding was provided by West Coast Inland Navigation District. Participating agencies to

include South Florida Water Management District, Florida Department of Environmental Protection, Estero Bay Buddies, REDstart volunteers and Lee County Parks and Recreation. Rip-rap material secured shoreline and prevented continued silting of the river bottom suffocating seagrasses and fisheries habitat. (April 2004)

Assisted effort to restore oyster bars at several locations throughout Lee County waterways. In conjunction with Florida Gulf Coast University, Marine Agent completed all permitting for reef restoration project. In addition, coordinated volunteers for placement of the fossil oyster shell to establish new growth. Additional activities include follow-up inspections and volunteer oyster gardening workshops for waterfront residences to grow oyster spat to be collected and used on new reefs. (Feb., June, August 2004)

Assisted with Marathon Sponge Survey with Agents Stevely and Sweat. Conducted underwater operations inventorying sponge species and population on 5 designated sites in Florida Keys. Agent Stevely is responsible for compiling data. Report was delivered December 2004. (Stevely, Sweat, Wasno)

Marine Agent and Keep Lee County Beautiful, Inc. Board Member coordinated and conducted coastal clean-up of local beach park. 172 participants, including 123 elementary students, cleaned 2 mile section of beach. Cumulative total of debris was 595 pounds. Students were taught about sources of pollution and prevention of trash in our waterways. (April, September 2004)

Goal 8: Prepare and Respond to Coastal Storms

- 8.2 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. It is a continuation of project R/C-S-40. (Thieke/Hanes/Dean: R/C-S-42)

The observations from Duck, NC previously reported and those at both Ormond Beach and RIPEX have confirmed the original hypothesis that rip channels are largely stable features that can persist for a considerable length of time at one location.

For the first time a substantial body of measurements have been made of the vertical structure of a rip current in the field. These measurements are essential if we are to determine the role of the wave mass transport in rip current dynamics. A predictive index for rip currents has been developed, which, although perhaps specific for conditions on the Florida East coast, improves upon previous predictive schemes for this region.

- 8.3 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. (Gurley/Pinelli/Subramanian: R/C-S-43)

This project was the first of two (one currently on-going). The design for a mobile 5-meter tower was completed and the tower was constructed. Data collection software was updated and tested to facilitate communication with the remote transmission hardware. Initial performance test of a wireless data acquisition prototype were completed. Software for the efficient visualization, analysis and dissemination of collected hurricane wind data was completed. Data were collected during Hurricane Lili and tropical storm Isadore. Four students were involved and a number of publications and presentations made. The real pay-off from this initial work occurred in the follow-on project which will be reported on in a subsequent annual report.

- 8.5 Forty-six percent of all hurricanes or tropical storms that pass over Florida will touch the St. Johns River watershed. A new offshore sentinel buoy near Jacksonville is providing weather and ocean conditions in real time. This NOAA coastal storms initiative will allow emergency managers to make better predictions on which areas to evacuate and determine the best evacuation routes among other uses. Florida Sea Grant is providing the education/outreach component of the project. This will be the final year of the project. (Jackson)

Research activities have been completed. Final products are available and delivered, mostly to federal and state agencies. Final public presentations were made at boat shows and to marine extension agents. Emergency managers in Brevard and Volusia counties have adopted and have made operational a "Hazard Locator Tool" specific to those two counties. The program is essentially complete with the exception of three meetings now scheduled for January, 2005.

- 8.6 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. (On-going). (Spranger/Simoniello/D. Jackson/various county faculty: E/T-12)

A full-time (1.0 FTE) Regional SEACOOS Education Coordinator (Chris Simoniello) was hired in February 2004 to coordinate educational Sea Grant Extension programs within the four SE Atlantic States, and work with scientists within the SEACOOS network. Several in-service training workshops on ocean observation systems was held for FSGEP faculty. More than 20 presentations were made by the Chris Simoniello, Don Jackson and Mike Spranger at a number of national and state meetings such as the National Marine Educators Association annual conference and State of Florida Clean Boating Partnership. Chris Simoniello participated in several regional SEACOOS workshops, held in Raleigh, NC; Charleston, SC; Houston, TX; Madison, WI; and Jacksonville, FL. SEACOOS educational materials were handed out at several major boat shows in Florida (Miami, Ft. Lauderdale).

- 8.10 Help organize and participate in the National Rip Currents Conference scheduled for Jacksonville, Florida. (Spranger/Kearl)

A national Rip Currents Conference was held in May 2004 in Jacksonville, FL. More than 40 scientists and resource managers, and agency personnel from across the United States attended this workshop to present and discuss the latest scientific research on rip currents. Following this workshop, a National Media Day on Rip Currents, coordinated by the North Carolina Sea Grant Program was held in North Carolina.

- 8.11 At least 30 boaters will gain awareness of hurricane preparedness and how to protect their personal life and property by receiving the Hurricane Manual For Marine Interests. Knowledge gained will be measured by a survey at the end of training session and by the number of hurricane manuals distributed. (Crane)

Distributed approximately 1,200 Hurricane Manuals to boaters to help them prepare for hurricanes. Materials were circulated at marine festivals, local boating meetings, and at marinas. The manual will be used to create a DVD on hurricane preparedness and safety for marine facilities and boat owners. The Miami-Dade Advisory Committee has supported the idea and is helping to pursue funding to produce this educational resource guide.

Spoke at a Local Mitigation Strategy Meeting on Hurricane Preparedness to resource managers and local business organizations of Miami-Dade County. Presented the need to create a comprehensive educational DVD on marine safety and emergency storm preparedness for boaters and marina owners. (60 people attended)

- 8.12 Research and write at least two columns for the Apalachicola & Carrabelle Times Newspapers educating area homeowners on steps they can take to prepare for coastal storms. (Mahan)

Research and write at least two ... This year the Franklin County Agent researched and wrote two columns for the Apalachicola and Carrabelle Times newspapers on preparing and or recovering for damage caused by coastal storms. These newspapers have a combined circulation of 6,200.

- 8.13 Continue work with Franklin County Emergency Operations and Red Cross to educate residents on coastal storms. (Mahan)

Continue work with Franklin County Emergency Management ... The Franklin County Agent continued to work with Franklin County Emergency Management and Red Cross personnel to educate area residents on coastal storms. The Agent provided one-on-one consultations to 65 individuals and wrote two emergency management related stories which were published in the Apalachicola & Carrabelle Times newspapers, circulation 6,200.

8.14 Provide beach safety information at various events and programs. (Verlinde)

Beach and boat safety was promoted at the Gulf Breeze Power Squadrons' annual Family Boat and Beach Safety Day, Seagrass Awareness Celebration, Earth Day events and Santa Rosa Library presentations.

Education and Human Resources

Goal 9: Produce a Highly Trained Workforce

- 9.1 Enhance graduate education in disciplines related to the coast and ocean by active participation in public and privately funded graduate programs. (Cato)
- 9.1.1 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.
- For the 2004 Class of Fellows, two applicants were submitted. One was selected to receive a fellowship.
Chosen: Gustavo Rubio (FIU)
Submitted: Dana Gaydos (USF)
- From 2000-2004, a five year period, six Fellows have been selected.
- 9.1.2 At least one national Sea Grant Industrial Fellow candidate (of 2-4 per year nationally) will be successful every three years.
- One Industrial Fellow was selected for 2004. The student is J. Matos, with faculty member D. Julian in the Zoology Department, University of Florida. The industry partner is EnVirtue Biotechnologies, Inc.
- 9.1.3 At least 25 percent of the annual Florida Sea Grant federal core program research budget will be used to support graduate students.
- For 2004, 38% of all research funds supported graduate students.
- 9.1.4 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.
- A total of five students were on Aylesworth (4) and Old Salt (1) scholarships during 2004.
- 9.1.5 One high school student will receive a college scholarship through the Chuck Skoch Florida Sea Grant Scholarship.
- One high school senior, Jessica Caesar, Rockledge High School, received a one-year scholarship and enrolled at the University of Central Florida.
- 9.1.6 A minimum of two qualified applicants will be submitted to the NOAA Coastal Services Center Competition each time it is held.
- Seven applications were received for the NOAA Coastal Service Center Fellowship. The limit of three was submitted, but none were selected.
Submitted:
Jaron E. Ming (UM)
Denise Apeti (FAMU)
Don Behringer (ODU)

- 9.2 A minimum of \$600,000 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 \$1,351K in non-core Sea Grant funds were received in 2004.

- 9.3 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) for this analysis.

- 9.4 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 2004-05 core Florida Sea Grant two-year program, 11 of the 16 participating institutions were successful in competing for research funds.

Florida Atlantic University	Nova Southeastern University
Florida Institute of Technology	University of Florida
Florida International University	University of Miami
Florida State University	University of South Florida
Harbor Branch Oceanographic Institution	University of Central Florida
Mote Marine Laboratory	

A total of 18 different academic departments (disciplines) are participating in 2004.

Aquaculture (HBOI)	Marine Affairs and Policy (UM)
Biological Sciences (FIT)	Marine Biology and Fisheries (UM)
Chemistry and Biochemistry (FAU)	Marine Geology and Geophysics (UF)
Civil and Coastal Engineering (UF)	Mechanical and Aerospace Engineering (FIT)
Fisheries and Aquatic Sciences (UF)	Mechanical and Aerospace Engineering (UF)
Food and Resource Economics (UF)	Oceanography (NSU)
Food Science and Human Nutrition (UF)	Pharmacology and Therapeutics (UF)
Law (UF)	Urban and Regional Planning (FSU)
Marine Affairs and Fisheries (UM)	Veterinary Medicine (UF)

Six faculty progress reports were distributed.

Four campuses were visited during 2004. They were FAU, FIU, HBOI, MML. In addition, a meeting of the statewide campus coordination was held.

- 9.5 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-04-1)

Seminars in 2004 included presentations at Florida Institute of Technology by Dr. Ximing Guo of Rutgers University (“Shellfish Genetics, Genomics and Their Applications in Aquaculture and Fishery Management”); at the University of Central Florida by Dr. Mark Luckenbach of the Virginia Institute of Marine Science (“Oyster Restoration in Chesapeake Bay”); at the University of Florida by Dr. James Kirkley of the College of William and Mary (“Relating Capacity Estimates to Goals and Objectives of Fishery Buyback Programs”), and also by Dr. Paula Watnick Tufts

University (“Environmental Survival Strategies of Bacterial Pathogens”); and at Florida Gulf Coast University by Dr. Glenn Parsons, University of Mississippi (“Sharks of the Gulf of Mexico”) and also by Dr. Iris Anderson, Virginia Institute of Marine Science (“Benthic-Pelagic Coupling in Littoral Zone Systems”).

- 9.6 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-04-2)

Funds were used to help three faculty present research results at aquaculture meetings and to sponsor a national technical workshop on rip currents to coordinate research and outreach. Participation by two Extension faculty in a Leadership Institute was sponsored.

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

FSGEP agents attended a number of inservice training workshops throughout the year as part of their professional development activities. These included such topics as invasive species, watershed management, environmental education, dealing with conflict and controversy, beach safety, rip currents, ocean observation systems, fisheries management, coastal hazards, smart growth, aquaculture.

- 9.8 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 FSGEP faculty meeting was held in October 2004 in Ft. Lauderdale. This meeting was held jointly with the biennial FSG campus coordinators meeting. This was the first such meeting held where FSG administrators, FSGEP faculty, and FSG campus coordinators shared information with one another. One outcome of this meeting is that campus coordinators will be asked to participate as members of each FSGEP county faculty’s advisory committee. Additionally, at this meeting a number of UF IFAS Extension “work groups” (14 in total) were developed. These work groups, composed of interested state and county faculty will develop educational programs and materials in specific marine and coastal topical areas for the 2005 program year.

- 9.9 Serve as member of National Extension Tourism Program Planning Committee to coordinate annual conference that will be held in September 2004 in Orlando. (Spranger)

Mike Spranger provided assistance to the National Extension Tourism Program Planning Committee. Due to several hurricanes that hit Florida in 2004, this national conference that was scheduled for September 2004, was cancelled.

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

Mike Spranger served as Extension Administrative Liaison during 2004. Due to several hurricanes that hit Florida in 2004, the annual FAEP conference, that was scheduled for September 2004, was cancelled. (Spranger)

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

Progress continues towards Master’s Degree.

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

Progress continues on thesis. Field work is underway and eight hours of class credit needs to be completed.

- 9.13 Continue planning work for a National Sea Grant Academy, and if funded serve on the initial staff for the first presentation of the Academy. This Academy will be designed to provide initial training and orientation for new agents and specialists from the 30 Sea Grant programs. The Academy will consist of two one-week sessions approximately six months apart with integrated distance learning between the sessions. It will be a nationally funded effort conducted by a rotating staff of four from various Extension programs. (D. Jackson)

The National Sea Grant Academy is scheduled for March, 2005 with a planning number of 30 participants. The curriculum is being finalized through review by the staff of four. Locations have been scouted and reserved. Selection criteria and priorities are in place.

Mike Spranger and Don Jackson continued to develop the program for a National Sea Grant Extension Academy. Don coordinated logistical arrangements. Mike made presentation to Assembly of Sea Grant Extension Professionals who endorsed project. He also submitted proposal to National Sea Grant Office for funding. Funding was approved in early 2005. Plans are to conduct the First National Sea Grant Extension Academy in March 2005 (DC) and September 2005 (Florida).

- 9.14 Present session at the National Extension Tourism Conference as part of a 3-state presentation on successes and failures of clean marina programs in Florida, California and Texas. (D. Jackson)

This Conference was cancelled because of hurricanes. Materials prepared for presentation will be published in print and on a website by the National Extension Tourism Association.

- 9.15 Attend at least two one-day Coastal Training Program Workshops. At least one workshop will cover Wetland Restoration and Mitigation. (Mahan)

The Franklin County Agent attended and participated in two Coastal Training Program Workshops the year. One was on Wetlands Restoration and Mitigation and the second was the "Leave No Trace Behind Workshop" on minimizing impacts on wilderness areas. In addition the Agent was one of the instructors for the "Leave No Trace Behind" workshop teaching proper catch and release fishing techniques. Sixty-five people attended the workshops.

- 9.16 Participate as a Fellow in the Natural Resources Leadership Institute to develop the skills necessary for effective natural resources leadership communication and conflict resolution. Over the course of 2004, seven 3-day seminar and activity sessions will be attended, a course practicum completed and graduation attended. (Crane, Behringer)

Graduated from the Florida Natural Resources Leadership Institute Fellowship. Participated in seven 3-day seminars and activity sessions, completed a practicum project and presented it at graduation. (Behringer)

Miami-Dade agent completed the Florida Natural Resources Leadership Institute (FNRLI) Training. Agent conducted a practicum on developing an educational poster with local stakeholders titled "Have you been Biscayne Bay Friendly Today?" Agent attended sessions and learned skills in conflict resolution, facilitating, and understanding natural resource issues statewide.

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)
 - 10.1.2 At least ten print or broadcast news releases will be produced. (Kearl/Zimmerman)
 - 10.1.3 The Florida Sea Grant Internet home page and website will be upgraded and maintained. (Zimmerman/Whitehouse/Damron/Wagner)
- (see Section 6.0, Publications, and Section 9.0, Outreach Activities; Displays and Web-based Technologies).
- 10.2 Conduct public education programs in Brevard County. (Combs)
- 10.2.1 Offer public education through two workshops in Brevard County with newly developed “custom” written materials concerning proper methods of protecting and conserving endangered species, especially manatees and sea turtles.
- (See Task 7.10.6 above) Two planned workshops with related educational materials concerning protection of endangered species, such as manatees and sea turtles, were postponed until 2005.
- 10.2.2 Work with Rockledge High School, the Clean Boating Partnership, and Brevard County government in production of approximately 100 Monofilament Collection bins to be distributed to Clean Marinas around the state of Florida – funding provided by the Clean Boating Partnership, bin-construction by 80 Rockledge High School Environmental Science Students.
- The Brevard Sea Grant Agent coordinated the production of 90 Monofilament Collection bins constructed by 80 Rockledge High School Environmental Science students (under teacher Tom Stewart), with funding provided by the Clean Boating Partnership, and technical cooperation with Brevard Co. Dept. Natural Resources Management (Kari Ruder). One class entitled, “Effects of Monofilament Recovery from Marine Environments,” concerning the impact of monofilament fishing line in the marine environment upon various marine species (birds, fish, marine turtles, marine mammals), was taught by the Sea Grant Agent as guest lecturer at Rockledge High School (Jan. 23). Sixty monofilament recycling bins (of 90 constructed) have to date been distributed by the Brevard Agent to designated Clean Marinas around the state of Florida.
- 10.3 Assist federal, state and local agencies in development of sea turtle awareness programs. (Combs)
- 10.3.1 Conduct eight 1-2 hour sessions of programming for Brevard County 4-H youth and adults interested in participating in the annual State 4-H Marine Ecology Event; subject areas studied will include marine ecosystems, marine plants, marine invertebrates, and marine vertebrates.

Six 2-hour programs were conducted in Palm Bay and Titusville (four 2-hour programs were cancelled) for Brevard Co. 4-H youth and adults interested in participating in the annual State 4-H Marine Ecology Event (held October 30, Camp Ocala). Subjects covered included marine ecosystems, marine plants and marine invertebrates and vertebrates.

- 10.3.2 Enter a Junior Team and a Senior Team from Brevard County in the annual State 4-H Marine Ecology Contest.

The hurricanes of August and September, and disaster relief efforts involving the Sea Grant Agent extending into October, caused cancellation of several 4-H Marine Ecology classes, so the 4-H teams elected to not participate in the 2004 State Marine Ecology Event. The Brevard Marine Agent will continue this program in 2005, and expects to enter Junior and Senior teams in the 2005 State Marine Ecology Event.

- 10.4 Conduct public education programs in Miami-Dade County. (Crane)

- 10.4.1 At least 75 volunteers who will participate in the Annual Coastal Cleanup will remove at least 50 bags of marine debris from the shoreline and will learn the basic concepts of the litter reduction. Knowledge gained will be determined by survey at the end of clean-up event. At least 80% of survey respondents will have learned concepts of litter reduction and will make a change to practice better litter reduction habits.

Miami-Dade Extension agent participates as a site coordinator for the International Coastal Cleanup. 88 participants donated 260 volunteer hours by removing over 1,000 pounds of trash within 3.5 miles of the shoreline filling 65 trash bags. Most of the items collected were plastic bags and glass bottles. Survey found that at least 83% of survey respondents said they have learned several concepts of litter reduction and they would make many changes on how to better protect beaches from marine debris after participating in the Coastal Cleanup.

- 10.4.2 A minimum of 15 out of 30 teachers who attend a teacher workshop will increase their knowledge on the basic concepts on the ecology of the coastal and marine systems involving invasive species and coral reefs and at least 10 teachers will teach this information to their classes. This increase in knowledge will be measured by pre and post test. Follow-up survey of teachers will indicate number of students reached with information from the workshop.

Taught 25 teachers and educators who attended a workshop on Invasive and Exotic Species of South Florida. Of the 24 responding to a survey, 100% said they increased their knowledge, and 100% said they would make a practice change as a result of attending this program. Approximately 2,379 students would learn about invasive species from teachers attending this workshop. Pre and post test indicated a gain in 24 points on the post-tests. Follow-up surveys indicated at least 1,500 students have been taught the information from the workshop.

- 10.4.3 At least 50 volunteers will be recruited and trained to educate citizens on the impacts of discarded fishing line to the marine environment. Volunteers will construct bins, monitor bins, conduct shoreline clean ups, and survey recreational anglers on their awareness of the fishing line recycling program. Success of this activity will be measured by the number of volunteers who participate and the number of recreational anglers they have reached about the program. An oral presentation on the Mono Fishing Line Recycling

Program will be presented at the Association of Natural Resources Extension Professionals (ANREP) in Wheeling, WV.

In 2004, four boy scouts earned their Eagle Scout Badge by participating in the Mono Fishing Line Recycling Program. The measurable results were:

- 27 outdoor bins installed at marinas, fishing piers, public parks
- 64 volunteers donated 469 volunteer hours installing bins and educating the public about the recycling program.
- Surveys indicated 80% of 91 anglers would use the bins to recycle their unwanted fishing line.
- Almost 200 pounds of fishing line was collected from outdoor bins.
- Newspaper article of program published in the Miami Herald reached 500,000 readers.

Since 2003, an estimated total of 1,500 pounds of fishing line has been collected and recycled from seventy indoor and outdoor bins. 145 volunteers have donated over 1,000 volunteer hours. Over 5,000 dollars have been raised to support this project.

- 10.4.4 At least 70% of youth (K-12 Grade) who will participate in marine lectures will increase their knowledge on the basic concepts of the coastal and marine systems such as coral reefs, marine debris, sharks, and sea turtles. Knowledge gained will be measured by survey at the end of the program. Of the anticipated audience of 200, at least 100 are targeted to increase knowledge.

Taught 864 K-12 students on marine issues such as marine debris, coral reefs, sea turtles, seagrass, and sharks. Programs included hands-on interactive activities such as snorkel trips or sea grass collections.

Taught 218 students about coral reefs and marine debris. Of the 218 responding to a survey, 70% said they increased their knowledge on the subject and 60% said they would make a practice change as a result of attending the program.

Agent coordinated an Environmental Immersion Day for 8 high school students. The students learned about coral reefs on a snorkel trip and identified creatures that live on the reef. Cost of boat trip was provided as in-kind service valued at \$1,400.

Miami-Dade Agent taught thirty children from Miami-Dade Community College Environmental Summer Camp on fishing line recycling. Students constructed an artificial reef cage made out of recycled fishing line and deployed it into the campus lake to enhance habitat for fish. Fish cage was donated by Pure Fishing Company (\$75).

- 10.4.5 At least 13 adults will gain knowledge and interpretation skills of the marine environment by participating in the Florida Master Naturalist Coastal Module Class. This gain in knowledge and skills will be measured by a pre and post test.

Two courses of the Florida Master Naturalist Coastal Module were taught to 20 individuals. Students had a 19% gain in knowledge and skills as measured by a pre and post-test. Students from the program have donated volunteer hours to assist Miami-Dade Agent at special events and programs.

- 10.4.6 A local workshop will be conducted for Landscape architects on Mangrove Biology, Ecology, Trimming Regulations, and Restoration Activities in South Florida. Knowledge gained will be measured by pre and post test.

Miami-Dade agent organized, hosted, and presented a Mangrove Short Course Seminar for landscape architects, park managers, and professional mangrove trimmers. Of the 17 responding to a pre and post-test survey, results indicated a 7% increase in knowledge after the course.

In addition of the 22 people who completed the program evaluation form:

- 99% said the class was very useful
- 82% said that they will share most of the information with others
- 95% said that they had gained a fair amount or a lot of knowledge
- 64% said that they would make a practice change
- 41% said that the class will improve their lives in a lot of ways

- 10.4.7 An educational poster titled “Have you Been Bay Friendly Today: will be developed with local stakeholder input on how to protect Biscayne Bay’s marine environment.

Miami-Dade Agent developed an educational poster for Biscayne Bay with local stakeholder input. Agent received \$1,500 in donations from Captain Harry’s Fishing Supply, Citizens for a Better South Florida, and the South Florida Water Management District to support the printing of educational posters. Posters convey environmental stewardship messages of Biscayne Bay. 2,000 copies were distributed to clientele at meetings, festivals, schools, and environmental centers.

- 10.4.8 Online or hard-copy newsletter or newspaper articles will be developed on local marine/coastal topics that are distributed to interested citizens. Bi-monthly “At the Waters Edge” will be distributed to 500 people.

Miami-Dade County Agent produced six bi-monthly newsletters which are sent in hard copy or electronically to over 500 subscribers.

- 10.5 Stewardship of marine life will be enhanced through education. Three hundred 4th grade students will become more knowledgeable about the marine environment by attending a program at the St. Lucie County Marine Center. Two hundred 7th grade students will become more knowledgeable about the marine environment by attending a program at the St. Lucie County Marine Center in conjunction with classroom instruction at their schools. Three hundred 5th grade students attending middle and high schools in the St. Lucie County School District will improve their knowledge of marine science through the “Motion in the Ocean” program, a hands-on instructional which focuses on the relationship between anatomical form, function and adaption to the environment. Two hundred 4-H, Indian River “Lagoon Days”, and other summer camp students will increase their knowledge of the Indian River Lagoon through field activities, such as beach seining, benthic sampling, and observation. (Creswell)

- 10.5.1 Conduct classroom instruction for “Motion in the Ocean” 5th grade program.

The agent taught over 625 - 5th graders in the St. Lucie County School District. At the conclusion of each program, approximately 60% of fifth grade students attending "Motion in the Ocean" differentiated between corals, bivalve and gastropod mollusks, and echinoderms by correctly placing at least two specimens in the appropriately labeled container.

- 10.5.2 Conduct ecology and canoeing instruction to 5th graders through the “Lagoon Days” program.

The agent taught over 720 - 5th graders in the Indian River County School District canoe paddling techniques, safe handling of the canoe, and proper methods to load and off-load from a dock. During this “Lagoon Days” program, 90% of the students demonstrated to the instructor these skills while operating the boat in the water. In addition, students gained an awareness of the quiet, environmental compatibility of non-motorized boats by observing shallow-water fish, wading birds, and other organisms of the mangrove community.

- 10.5.3 Conduct field trip exercises with 4th graders through the “Ecosystem Explorer” program at the St. Lucie County Marine Center.

The agent taught 520 – 4th grade students from the St. Lucie County School District the ecology of the Indian River Lagoon through the “Ecosystem Explorers” program. 100% of the students attending successfully completed puzzles related to the habitats of the Indian River Lagoon, made drawings and made quantitative measurements of feeding dynamics, and utilized instrumentation to record water quality data.

- 10.5.4 Conduct field trip exercises with 7th graders through the “Ecosystem Explorer” program at the St. Lucie County Marine Center.

The agent taught 96 – 7th grade students from the St. Lucie County School District fundamental skills used by a marine through the “Ecosystem Explorers” program. During the instruction, students were asked to complete a puzzle on adaptations of marine organisms, correctly identify 10 different mollusks using a dichotomous key, and calculate relative percent cover and diversity of a simulated coral reef system. Approximately 80% of the students successfully completed two of the three exercises without teacher supervision.

- 10.5.5 Hold “4-H Indian River Exploration Summer Camp”.

The agent conducted a one-week marine camp entitled, “4-H Indian River Exploration Summer Camp”. Fifteen campers learned canoeing skills, planted native vegetation on spoil islands, became knowledgeable about the relationship between mosquitoes, mangroves and man, and learned to identify local fish species by seining in the Indian River Lagoon.

- 10.5.6 Provide marine day programs for 4-H summer camps (4).

The agent conducted two “marine day” programs for 4-H camp. Students learned to identify local fish species by seining in the Indian River Lagoon. They also became familiar with the habitats of the Indian River Lagoon by visiting the exhibits at the St. Lucie County Marine Center, where each student successfully completed puzzles and games testing their knowledge.

- 10.6 The awareness of the citizens of St. Lucie County will be increased about the anthropogenic impacts on Florida’s coastal waters, and more specifically, the Indian River Lagoon. (Creswell)

- 10.6.1 Conduct “Our Coastal Environment” seminar series (four part series relating coastal ecology and environmental landscaping through FYN) to at least five homeowner associations and other civic groups in St. Lucie County.

The agent conducted two four-part seminars series (1.5 hours per week for four weeks) entitled “Our Coastal Environment” to local homeowner associations. The seminars were conducted at the St. Lucie County Marine Center and focused on estuarine ecology,

beach ecology, and residential management of landscaping and water management. In a written survey, 90% of the attendees stated that they had a better understanding of the anthropogenic impact of coastal development on marine ecosystems.

- 10.6.2 Continue bi-weekly radio broadcast “At Home in St. Lucie” (1/2 hour program) discussing topics related to the impacts of coastal development and mans’ activities on the marine environment.

The agent produced six radio shows (WPSL, Port St. Lucie, FL) regarding anthropogenic impacts to the Indian River Lagoon. Topics in the ½ hour broadcasts included: “Nutrients and the Indian River Lagoon”, “Beach Erosion along Our Barrier Islands”, “Hurricane Preparations for Marine Interests in St. Lucie County” (2 programs), “Coral Reefs at Risk”, and “Seagrasses of the Indian River Lagoon”.

- 10.6.3 Conduct at least two workshops dedicated to public education of marine invasive species.

This activity was not completed.

- 10.6.4 Distribute invasive species information to retail pet outlets throughout St. Lucie County.

This activity was not completed.

- 10.6.5 Continue to work with “The Caulerpa Taskforce” to develop strategies for public identification of this and other algal invasive to the Treasure Coast.

The agent participated in planning meetings for the “Caulerpa TaskForce” and co-authored a fact sheet on *Caulerpa* entitled, “Invasive Marine Algae Along Florida’s East Coast” (C. Jacoby and B. La Pointe) for distribution.

- 10.7 Conduct a general marine environmental education program for youth and adults in Escambia County. (Diller)

- 10.7.1 Maintain and update the Escambia County Marine Extension website with local marine resource information, sea turtle education, and educational events.

Maintained and updated the Escambia County Marine Extension website. The site won a Communication Award from the Florida Association of Natural Resource Extension Professionals and has had nearly 2500 visits since its creation.

- 10.7.2 Continue support and development of educational programs for teachers, boaters and interested citizens on marine debris, coastal clean-ups, and monofilament line recycling.

Presented monofilament recycling program to youth and adult audiences at the Escambia County 4-H leader meeting, BayScape 2004, and the University of West Florida’s recycling fair.

Writer for the Resource Rangers episode entitled “Recycling”. Filmed parts of the episode at a Pensacola Pelicans minor league baseball game while teaching children and fans in attendance.

Created display for the Escambia County Safety and Wellness Fair that included beach and boating safety, monofilament recycling, and environmental health and safety.

Served as Coastal Cleanup site coordinator for Perdido Key. Cleanup was cancelled due to Hurricane Ivan.

- 10.7.3 Work with Extension 4-H agents in the development of marine environmental programs for local clubs. Assist with development and activities at state marine and county 4-H camps.

Spoke at the Escambia County 4-H leader and advisory committee meeting. Presented marine extension programs available for 4-H youth participation including Resource Rangers, monofilament recycling, Seagrass Awareness Festival, and Turtle Friendly Beaches.

Taught marine science at Camp Timpooshee during the Pensacola Stake 2004 girls camp. Activities included seining, fish identification and adaptations, and shark education for 40 youth.

Instructor at the Escambia and Santa Rosa County 4-H home-school beach ecology field trip. Taught 65 youth biology and conservation of sea turtles and coastal habitats.

Instructor for Camp Timpooshee State 4-H Marine Camp field day on Okaloosa Island. Along with other educators, taught 60 youth about stormwater pollution, sea turtles, fishing skills, and fish painting.

Presented program on marine mammals to the "5th H" home-school 4-H group at the Santa Rosa County UF-IFAS Extension office.

Coordinated the Resource Rangers educational activities for "Operation: Military Kids" with the 4-H program. Over 90 children of members of the 412th Engineering Unit of the Army Reserves participated in the program, assisted with local 4-H youth and parents. Activities educated youth about coastal environments and included a touch tank with marine organisms, sea turtles, fish painting, "eat a seagrass", Earth Day bracelets, and birds of prey.

- 10.7.4 Develop marine environmental programs for local K-12 teachers and youth. Continue Resource Rangers video series and educational programming.

Writer for three Resource Rangers television/video episodes entitled The Water Cycle, Wetlands, and Recycling. Assisted with production and appeared in segments of the episode on recycling as filming proceeded. The shows aired on cable access television stations in Escambia, Santa Rosa, and Bay Counties. Copies of the shows on VHS were provided to every elementary and middle school in Escambia and Santa Rosa Counties.

Presented a workshop on the Resource Rangers youth environmental education program to sixteen educators at the National Marine Educators Association annual conference in St. Petersburg, Florida. All participant evaluation forms rated the presentation a "5" on a one to five scale.

Conducted a "Resource Rangers day" at a Pensacola Pelicans minor league baseball team game. Filmed part of the television/video episode on recycling at the game utilizing children and fans in attendance. Included on-the-field contests between innings and educational activities in the children's area. Average attendance at games was 1037 fans.

Wrote a public service announcement on watersheds for the Resource Ranger program to air on WUWF radio.

“Resource Rangers”, the environmental education television/video series was recognized with four awards. The national Association of Natural Resource Extension Professionals (www.anrep.org) awarded the series with its top honor for educational materials in the video category. Other awards include a Telly Award (www.telly.com), Videographer Award, and the Environmental Project of the Year from the Northwest Chapter of the Florida Association of Environmental Professionals.

Taught lipid extraction procedures to advanced high school biology students participating in a University of West Florida Biology Department program. Students will use procedure in a research project to examine energy content in fish.

Coordinated an educational field trip for the Escambia High School Science Club to Big Lagoon State Recreation Area. Taught students water quality, seagrasses, coastal dunes, fish identification, salt marsh habitats, and sea turtles.

Presented sea turtle and dune ecology seminars to three marine science classes at Escambia High School and five marine science classes at Pine Forest High School. Students were introduced to sea turtle species, their coastal and aquatic habitats, and current research in the Pensacola area. Question and answer session followed including marine science careers information.

Co-sponsored and judged the “Marine Science Award” at the 49th West Panhandle Regional Science and Engineering Fair with Santa Rosa County agent.

Instructor for three Jr. Ranger Day Camps at Gulf Islands National Seashore. Taught forty-eight youth fish identification, seagrasses, water quality, and sea turtles.

Conducted educational programs for teachers and students at six elementary schools. Approximately 340 children were introduced to topics including seagrasses, stormwater pollution, sea turtles, marine debris, and coastal dune and aquatic ecosystems.

Created and presented program on “Florida’s Swimmers and Flyers” at the Tryon Branch Library and Baptist Health Care’s Lakeview Center. Program introduced youth to fish and coastal bird species found in northwest Florida.

Taught youth about Florida’s marine mammals at Baptist Health Care’s Lakeview Center Day Camp and the Pensacola Library Children’s Program.

Conducted a hurricane and endangered species educational program for “Hurricane Camp” at Baptist Hospital’s Lakeview Center. The program taught youth about species that utilize coastal beaches and the impacts that hurricanes have on these animals.

10.7.5 Develop online or hard-copy newsletter or newspaper articles on local marine/coastal topics that are distributed to interest citizens.

As an invited author, wrote entry on Gulf Islands National Seashore for publication in “Encyclopedia of the U.S. National Parks”, a reference manual due to be published in 2005.

Created and updated pages on the Escambia County Marine Extension website that address local marine/coastal topics.

- 10.7.6 Provide Master Naturalist Program training on coastal systems to interested citizens and continue to develop a local volunteer program for marine extension.

Assistant instructor for the Florida Master Naturalist Program - Coastal Systems course in Santa Rosa County. Twenty students became certified Master Naturalists after more than forty hours of instruction.

- 10.7.7 Develop and coordinate the Turtle Friendly Beaches program for sea turtle awareness and protection. Produce an education brochure on protecting sea turtles. Provide educational assistance and Sea Grant Extension representation to various sea turtle working groups.

Developed and coordinated the Turtle Friendly Beach Program. Program was delayed by Hurricane Ivan and will continue in 2005. Activities included:

- Created and published 13,250 copies of the program brochure, 1000 stickers for award signage, and produced property owner guidelines for recognition in the program.
- Received a \$2500 grant from the U.S. Fish and Wildlife Service to retro-fit light fixtures on Perdido Key and Navarre Beach as part of the Turtle Friendly Beach Program.
- In partnership with Gulf Islands National Seashore, had a \$29,000 grant proposal accepted for the 2005 NOAA Gulf of Mexico Community-Based Restoration Program. Of the funds, \$12,500 will be utilized in the “Turtle Friendly Beach Program” to retro-fit light fixtures for Escambia County residents and businesses.
- Conducted a sea turtle lighting survey on Pensacola Beach with Escambia County Marine Resources. Data used with Turtle Friendly Beach Program to reduce impacts of artificial lights.

Invited to the Northwest Florida Sea Turtle Lighting Summit by Federal and State wildlife managers. Offered Florida Sea Grant assistance for workshops to adopt turtle-friendly lighting along Panhandle beaches. The “Turtle Friendly Beach Program” will be included in these efforts.

Assisted with sea turtle nest monitoring in Escambia County and updated Escambia County Marine Extension website with nesting/hatching information.

Presented seminar on human impact on sea turtles and other marine species at the University of West Florida’s Student Environmental Action Society and Perdido Bay Power Squadron meetings.

Set up and staffed a sea turtle education display at the 4th Seagrass Awareness Celebration, Wildlife Sanctuary of Northwest Florida’s “Wildfest”, and other environmental fairs. Display included a shrimp net turtle excluder device (TED) that children could crawl through. More than 500 people attended the events.

- 10.8 Conduct a general marine environmental education program for youth and adults in Okaloosa and Walton Counties. (S. Jackson)

- 10.8.1 Develop educational programs for teachers, boaters and interested citizens on marine debris and monofilament line recycling.

- 10.8.2 Work with volunteers in annual fall coastal clean-up campaigns.

- 10.8.3 Work with Extension 4H Agents in the development of marine environmental programs for local clubs.
- 10.8.4 Develop marine environmental programs for local K-12 teachers.
- 10.8.5 Develop online or hard-copy newsletter or newspaper articles on local marine/coastal topics that is distributed to interested citizens.
- 10.8.6 Provide Master Naturalist Programs featuring wetlands and coastal systems to interested citizens and establish a volunteer coastal program for marine extension.

In 2004 two Master Naturalist modules were presented in Okaloosa and Walton counties, Wetlands and Coastal Systems. Sea Grant Extension organized educational events and team taught these courses with other UF-IFAS Extension Agents from 4-H and Florida Yards and Neighborhoods. Area natural resource professionals were also utilized. 23 students participated in the Coastal Systems module while seven participated in the Wetlands module.

Pre and post test scores percent knowledge gained for Coastal Systems was 26.0% and 4.3% for Wetlands. Beyond the increase in the knowledge gained were the new educational resources produced for our community as a result of project work associated with these classes. Class restoration and water quality projects for Choctawhatchee Bay; Field guide quick reference card set for beach safety, stewardship, plant and animal interpretation; A new kayak and canoe trail for Choctawhatchee River and Bay; Brochure for Wetlands Owner – Informational brochure on wetlands designed for realtors and potential homeowners; A resource list of local coastal butterflies and their supporting plants; Stewardship opportunities for wetland owners were compared and summarized between a Audubon Certified coastal golf course business and those of a local farmer interested in responsible rural tourism.

Master Naturalists continue to support Florida Sea Grant Extension outreach efforts in Okaloosa and Walton Counties. Former class members have returned to assist with classes regarding sea turtle biology and local monitoring/stewardship opportunities. Outreach to tourists and youth are often fulfilled by Master Naturalist volunteers. Other graduates are involved with local Choctawhatchee Bay water quality initiatives supported by Florida DEP. Additionally, several graduates are volunteers with local state parks, community and conservation organizations.

10.9 Conduct a general marine environmental education program for youth and adults in Franklin County. (Mahan)

- 10.9.1 Work with Panhandle-area FSG Agents to provide technical and educational support for Marine Science 4-H Camps.

The Franklin County Agent assisted the 4-H Environmental Education Specialist and the FL Panhandle Sea Grant Agents in planning activities for this year's Statewide 4-H Marine Science Camp. However, scheduling conflicts prevented the Agent from teaching at the camp.

- 10.9.2 Research and write at least 20 columns this year for the Apalachicola & Carrabelle Times Newspapers on marine-related topics.

The Franklin County Agent researched and wrote 25 marine-related featured newspaper columns for the Apalachicola and Carrabelle Times newspapers. Topics included;

NOAA navigational charts, pompano, horseshoe crabs, lionfish, recreational fishing, red tides, sharks, Gulf of Mexico marine life, and the state of the world's fisheries.

- 10.9.3 Present at least 10 Marine Updates to the Franklin County Board of County Commissioners on a variety of local and state marine issues.

The Franklin County Agent presented 22 "Marine Updates" to elected county officials, the general public and members of the press during the Board of County Commissioner's regularly scheduled meetings. On average 43 individuals attended each meeting.

- 10.9.4 Continue work with County High Schools to help provide research and technical support for student's science fair projects and to be a judge at the Annual Science Fair.

The Franklin County Agent provided one-on-one consultations to three students this year on science fair related topics and questions. In addition the Agent was one of five judges invited to participate in this year's Apalachicola Middle/High School Science Fair.

- 10.9.5 Teach at least one homeowner program on a marine issue or topic.

The Franklin County Agent assisted Leslie Sturmer (Shellfish Aquaculture Agent) with planning a clam farming educational display for the Florida State University Marine Lab Open House. Several hundred people attended the open house.

- 10.10 Conduct a general marine environmental education program for youth and adults in Northeast Florida. (McGuire)

- 10.10.1 Work with Texas SG and Puerto Rico SG to develop monofilament recycling programs.

John O'Connell (TX SG) has implemented a monofilament recycling program in Texas, in partnership with the Texas Parks and Wildlife Division. Lesbia Montero (Puerto Rico SG) and Miguel Lugo (University of Puerto Rico) are seeking funding to start a monofilament recycling program in Puerto Rico. Both of these programs are using information, signs and/or stickers provided by the NE Florida Sea Grant Extension Agent.

- 10.10.2 Present monofilament recycling workshop at National Marine Educator's Association annual conference.

Nine people attended a monofilament recycling workshop conducted jointly by Texas and Florida Sea Grant extension agents at the National Marine Educators Association conference in 2004. All participants indicated that they were interested in implementing the program in their areas and that they were going to look for partners and funding.

- 10.10.3 Continue to manage monofilament recycling in NE Florida.

The Northeast Florida Sea Grant extension agent continued to manage the monofilament recycling program in 4 counties (approximately 85 recycling locations and 20 volunteers).

- 10.10.4 Represent FSG on the US Fish and Wildlife Service's manatee entanglement and manatee education working groups.

The Northeast Florida Sea Grant extension agent represents the University of Florida/Sea Grant on two US Fish and Wildlife Service working groups—the manatee entanglement and manatee education working groups.

10.10.5 Help coordinate beach cleanup programs in April and September (St. John County).

10.10.6 Continue to help state 4-H staff make improvements to the state marine ecology judging event. Work with youth in northeast Florida to prepare them for the competition.

The Northeast Florida Sea Grant extension agent gave a presentation on the dangers of marine debris to 24 youth who were participating in beach cleanup activities in April and October 2004.

10.10.7 If funded by EPA, create 4-H marine project books.

Project was not funded. Agent has applied for a grant from the Florida 4-H Foundation and is waiting to hear if that will be awarded.

10.10.8 Conduct teacher workshops for formal and informal educators on marine-related topics.

A total of 35 educators attended collecting permit workshops designed to teach ethical field collection methods and alternatives to field collections. All 35 participants received 3-year special activity licenses from the Florida Fish and Wildlife Conservation Commission. A total of 83 teachers attended one of five other teacher workshops conducted throughout the state. Venues included the Florida Association of Science Teachers conference. Workshops covered topics including ocean observing data, estuaries, field studies and monofilament recycling.

10.10.9 Present workshop on field studies at National Marine Educator's Association annual conference.

Thirty-one educators attended a workshop conducted by the NE Florida Sea Grant extension agent on field studies at the National Marine Educators Association annual conference.

10.10.10 If funded by EPA, conduct two 2-day workshops on field studies for formal (K-12) and informal educators.

Proposal was not funded.

10.10.11 Produce a quarterly newsletter which is distributed to over 700 interested residents.

A quarterly newsletter, "aqua-notes" was distributed in February, May, August and November. Print copies were sent to over 650 people; over 150 people receive electronic copies of the newsletter. The newsletter is also available for viewing or printing on the internet.

10.10.12 The newsletter includes information about selected marine topics and upcoming marine/coastal events.

Topics covered in 2004 included cephalopods, shellfish harvesting, beachcombing, commercial crabbing, the US Commission on Ocean Policy, and ocean observing systems.

10.13 Conduct a general marine educational program for youth and adults in Santa Rosa County. (Verlinde)

10.13.1 With UF/IFAS researchers, North Carolina State University and US Fish and Wildlife Service, coordinate and present at two stormwater best management practices workshops.

Coordinated and presented at the Stormwater Best Management Practices workshop. This workshop was sponsored by UF/IFAS Soil and Water Science Department, Santa Rosa County Sea Grant Extension and the US Fish and Wildlife Service. Researchers from UF and North Carolina State University and local agency representatives provided stormwater BMP information. 32 participants from local agencies, industry and local government attended the workshop. A written survey demonstrated 94% of participants would use the information provided in the future. Many were willing to promote and seek state approval and promotion of new stormwater management techniques.

10.13.2 Coordinate level 2 stream restoration workshop.

A level 1 stream restoration workshop will take place in the fall of 2005. Level 2 stream restoration workshop will take place in winter 2006.

10.13.3 Provide coastal information articles to various media outlets.

Provided coastal issues news articles to the Santa Rosa County 4-H newsletter, Pensacola News Journal, Navarre Press and Gulf Breeze News, Sustainable West Florida website and the Bay Area Resource Council newsletter.

10.13.4 Continue to support, coordinate and develop curriculum and videos for the Resource Ranger Program, and environmental education program for 4-H and students. The program includes curriculum, videos and field trips about coastal issues.

More than 400 students in the two county area attended Resource Ranger field trips. 47 written surveys were returned and 100% of students were able to list three things they learned on these field trips. Continue to support and contribute to script writing and curriculum development of the Resource Ranger Program. Six Resource Ranger episodes are currently airing in four local markets, funding for four more episodes is available.

Presented the Resource Ranger program at the annual meeting of the National Marine Educators Association.

10.13.5 Coordinate the 4th annual Seagrass Awareness Celebration.

More than 500 people attended the fourth annual Seagrass Awareness Celebration. Activities included: kayaking, seining, touch tanks, fishing, enviroscape presentations, seagrass information and many other educational activities. Along with 4-H members, three area high schools provided volunteers. Students from Navarre High School started a kayak club as a result of learning how to kayak at this event. This club meets once a month for kayaking trips and has 15 members. In addition, each year the same families come back to the celebration, and many go to the site throughout the year to learn more on their own.

10.13.6 Teach Florida Master Naturalist Program wetlands and coastal modules.

Taught the Florida Master naturalist Coastal module to 21 area adults. Pre and post-tests indicated that participants increased their knowledge of coastal systems and issues 92%

- 10.13.7 Coordinate 20th annual NW Florida Rivers Clean-up and International Coastal Clean-up.

The 19th annual NW Florida Rivers clean-up was conducted for the three months in 2004, instead of only during June. More than 19 pick-up truck loads of debris was removed from area rivers. The Santa Rosa County 4-H citizens club removed more than 300 pounds of cans, bottles, nails, clothes and many miscellaneous items when then they cleaned along Coldwater Creek. The international coastal clean-up was cancelled due to Hurricane Ivan.

- 10.13.8 Develop educational programs for 4-H, teachers, boaters and interested citizens on marine debris and monofilament recycling.

Continue to coordinate monofilament recycling. Many recycling units were lost due to Hurricane Ivan. Marine debris timeline and activities were utilized at seven Resource Ranger field trips and four festivals.

- 10.13.9 Work with extension 4-H agents in the development of coastal programs and activities for local clubs.

Advised and provided activities for seven Santa Rosa County senior marine science club classes. This is new group formed to address marine issues at a senior level. Seventeen students started the class. Ten students attend regularly since the storm.

Taught and helped coordinate the 4-H state marine camp at camp Timpooshee, more than 95 youth participated in marine activities for five days.

Provide marine activities to 45 youth at camp and a field trip, with the Santa Rosa Community in Schools program.

- 10.13.10 Develop on-line newsletter concerning coastal issues.

Provide coastal information via e-mail to local residents, civic organizations, local government, teachers and agency employees.

- 10.13.11 Provide coastal information and activities at various environmental events.

Provided touch tanks, seagrass information, safe boating, beach safety, monofilament, marine debris, sharks, invasive species information at various festivals such as Earth Day, Seagrass Awareness, the Navarre Fun Fest, Bay Scape and Wildfest. The 2nd annual Coastal Encounters was cancelled due to Hurricane Ivan.

- 10.13.12 Provide Santa Rosa County community leaders with coastal information. Support the SRC marine advisory committee.

Attended monthly meetings throughout the year to provide resources, grant writing and information.

- 10.13.13 With Andrew Diller provide “Sea Turtle Friendly Beaches” program to beach residents. (Verlinde/Diller)

See item 10.7.7 above.

The “Sea Turtle Friendly Beach” program was introduced to 35 Navarre Beach residents. Four residents signed up for the program. Due to Hurricane Ivan, the program will continue in 2005.

10.13.14 Provide coastal issue talks to various community organizations.

Provided talks on sea turtles, sharks, coastal resources, shoreline restoration, dune restoration, sea turtle friendly beach program, barrier island ecology, resource rangers and Florida Lakewatch to 527 program participants.

10.13.15 Support 4-H marine and county camps. Provide 4-H leaders and teachers with coastal information and opportunities.

See 10.13.9

10.14 Conduct 16th Annual St. Petersburg Pier Kid’s Fishing Tournament. Fishing techniques and ethics will be taught to 500 kids twelve years of age and younger. (Sweat)

As tournament Director, conducted 16th Annual St. Petersburg Pier Kid’s Fishing Tournament. 525 kids, 12 years of age and younger (each with an adult sponsor), learned fishing techniques and fishing ethics from 40 volunteers from the College of Marine Science at USF and various local fishing clubs.

10.15 Offer public education through two workshops in Brevard County concerning environmental and economic issues impacting marine industries, and the constantly changing local, state, and federal regulations that affect such issues. (Combs)

Public education concerning environmental and economic issues impacting marine industries, and changing regulations affecting these issues, was offered by the Brevard Marine Agent in workshops, classes, and presentations, on: Jan. 8, Jan. 23, Feb. 25, Feb. 26, Mar. 25, Apr. 2, Apr. 28, Apr. 30, May 15, June 2, June 12, June 22, June 25, July 16, Aug. 6, Oct. 6, Oct. 27, Nov. 5, Nov. 19, Dec. 1 (Total = 20). Because of hurricanes in August and September, and subsequent associated public disaster relief duties in September and October, other planned workshops and presentations were cancelled or postponed until 2005.

10.16 At least 50 youth will learn environmentally and economically friendly management practices for recreational fishing. Knowledge gained will be measured by a survey after training session. (Combs)

A planned Youth Fishing Tournament, to be associated with the 2004 Space Coast Fair, and operating in conjunction with the Palm Bay Bassmasters Club, which was intended to educate at least 50 youth in environmentally and economically friendly management practices for recreational fishing, was cancelled and tentatively rescheduled for 2005 due to major scheduling conflicts caused by the August/September 2004 hurricanes.

10.17 Conduct a general marine educational program for youth and adults in Broward County. (Behringer)

10.17.1 Implement the Monofilament Recovery and Recycling Program (MRRP). Funding will be secured and volunteers will build the PVC recycling bins for placement at local marinas. Volunteers will be contacted through Ocean Watch, a local dive club. Marina staff will be educated on the purpose and process of monitoring and collecting the used monofilament fishing line. Local bait and tackle shops will be identified as

monofilament collection sites. The bin locations will be depicted on the statewide MRRP website providing locations and educational resources.

Presented a talk on the Monofilament Recovery and Recycling Project to the Marine Industries Association of South Florida and received funding to construct 20 bins to be located at marinas throughout Broward County.

Presented a talk at the Regional Ocean Conservation Club on the MRRP to recruit student volunteers. Approximately 50 students and teachers attended.

- 10.17.2 Develop an interactive coral reef display for use at Water Matters Day in March 2004 to educate visitors on the coral reefs of Broward County, with specific emphasis on water quality. Approximately 2,000 people attended last year's event.

Created a "Water Matters to Coral Reefs" exhibit and presented information on coral reefs and the SEFCRI to approximately 1,000 attendees at the Water Matters Day event.

- 10.17.3 In March 2004, 200 volunteers will be organized to remove trash and debris from the North Fork of the New River, one of the remaining natural waterways in Broward County. This waterbody is located in an economically depressed area. Last year volunteers removed 15 cubic yards of debris including a drum of toxic waste. Girl Scout troop leaders will be educated about the impacts of trash and debris in our waters and taught hands-on activities to engage their troops in (150 Girl Scouts) on the day of the event.

Coordinated 160 volunteers to pick up approximately 500 pounds of trash from the North Fork of the New River. Developed educational activities about marine debris and pollution prevention for 110 participating Girl Scouts. Received funding to sponsor a lunch for participating Girl Scouts.

- 10.17.4 In April 2004, 25 4-H youth will be educated on the coral reefs of Broward County. Through lecture and hands-on activities, the youth will understand the values of the coral reefs, identify the threats and impacts to the ecosystem and demonstrate what they can do to help.

Educated 22 4H youth on coral reef ecology, threats and impacts, and what they can do to help at the 4H Water Wise Guys Summer Camp. Participated in a field trip to the Everglades and presented a talk on wildlife. Written follow-up surveys showed a 70% increase in knowledge on coral reefs and related issues.

- 10.17.5 100 land based volunteers and certified SCUBA divers will be organized to remove trash and debris from Hollywood beach. Volunteers are educated on the impact that trash and debris has on our coastal environment. They are instructed to record the different types of debris collected from this one site. A total of 20 sites participate in this event. Additionally, a Coastal Cleanup/Sea Grant display will be created for the Broward County Government Center the week before Coastal Cleanup. September 2004.

Participated in the annual International Coastal Cleanup by serving as site coordinator for Hollywood North Beach. Coordinated 55 volunteers who picked up 665 pounds of trash from the beach and dunes. Educated volunteers on types and quantities of trash collected.

Created a Coastal Cleanup/Monofilament Recycling exhibit for display in the Broward.

- 10.17.6 Serve as the marine resources panel representative for the Leadership Broward Foundation Class XXIII and present coral reef management and conservation issues to

class participants as part of the History, Urban and Environment Day. LBF is a 20+ year old program that attracts prestigious professionals from the business, civic and non-profit communities to participate in its premier leadership development program. Participants learn about the infrastructure of Broward County and the critical issues it faces. October 2004.

Listed accomplishment under Task 7.18.

10.17.7 Increase manatee awareness and boater safety.

10.17.7.1 A manatee education toolbox will be developed containing information and activities for informal and formal educators to use with their students. Through a workshop, 10 4-H leaders will be educated on manatee awareness and boating safety and show demonstrations from the toolbox. This toolbox will be available on loan to educators. October 2004.

The toolbox was not completed.

10.17.7.2 In honor of Manatee Awareness month, students and youth groups will be invited to participate in a poster contest to artistically demonstrate their knowledge of manatees and boating safety. School/club winners will enter a regional contest and winners will be selected by the Manatee Awareness Group – a regional group made of federal, state, local government and non-profit representatives. Regional winners are formally presented with plaques. November 2004.

Designed and distributed a flyer to promote a Manatee Awareness and Boating Safety poster contest to schools and 4H clubs. Collected entries and presented them to the Manatee Awareness Group committee for judging. Designed certificates and photographed winning entries to create prize plaques. Distributed 26 certificates, 12 plaques and presented a talk on manatees to 437 students.

10.17.8 Partner with the Miami-Dade agent to conduct a workshop to educate middle school teachers on southeast Florida's coral reefs. Teachers will be instructed on coral reef ecology, threats and impacts and the Southeast Florida Coral Reef Initiative. November 2004.

Refer to Goal 7.18.

10.17.9 Serve as mentor to a student chosen to participate in this County Commission-lead program. Provide qualified high school students comprehensive, structured work and hands-on experience to educate them on the professions available in public service. Fall Semester 2004.

Served as a mentor to a high school senior for 12 weeks through the Future Government Leader program sponsored by the Broward County Commission. Developed a Student Plan of Work detailing marine extension projects for the student to complete in order to provide hands-on experience in public service. Reviewed student progress on a weekly basis and provided constructive feedback.

10.17.10(added) Develop marine environmental programs for K-12 teacher (Behringer, etc.)

Presented three (3) education programs on coral reef ecology for the Broward County Public Schools Summer Science Series. Approximately 95 students participated. A follow-up written survey indicated that 95% of the attendees learned new information and found the programs interesting; 96% felt other students would benefit from the information.

Partnered with the International Game Fish Association and NOAA Fisheries and received sponsorship from National Geographic Society's Geographic Education Foundation to organize and participate in a 2-day conference entitled, "Here Today, Here Tomorrow: Keeping Our Fisheries Healthy." 100 high school students were educated about the issues and challenges of maintaining sustainable fisheries by interacting with experts in various fields relating to fisheries management and conservation. Presented a talk on the role of Sea Grant Extension in maintaining sustainable fisheries. This two-day event included plenary sessions, professional panel presentations, in-depth group breakout sessions, a sleepover, field trips and student panel presentations. 97% of the attendees rated the conference as excellent.

Conducted a Marine Explorations program at Anne Kolb Nature Center on water quality issues and what students can do to help improve our marine environment. Students participated in seining, benthic sampling and marine organism identification. Approximately 45 students attended. Post workshop surveys indicated 94% increased their knowledge on water quality and 95% indicated they would take action in their homes to conserve water.

- 10.17.11 (added) Develop online or hard-copy newsletter or newspaper articles on local marine/coastal topics that are distributed to interested citizens (Behringer, etc.).

Organized and developed a layout for the Broward County Sea Grant Extension webpage. Wrote six (6) web articles on the Southeast Florida Coral Reef Initiative; Hurricane Season Preparedness for Boat Owners; Rip Currents; Manatees; Fish Kills and Brown Pelicans. Developed a "Frequently Asked Questions" page.

Wrote an article on the Student Ocean Conference that appeared in the Broward CountyLine newsletter.

Interviewed by the Deerfield Beach Observer for an article on the Manatee Awareness and Boating Safety poster contest and education initiative.

Interviewed by the Miami Herald for an article on the Broward County Future Government Leader program and Sea Grant Extension's participation.

- 10.18 Continue educational programs for teachers, boaters and interested citizens on monofilament line recycling. (Sturmer)

Continued providing support for the Cedar Key marine biology class of which five students are maintaining four collection bins for monofilament line recovery and recycling.

- 10.19 Develop and conduct a seminar series to explore the importance and regional impact of the Gulf of Mexico's marine resources on the coastal communities of the Big Bend region. (Sturmer)

Developed and conducted a seminar series entitled Gulf Awareness to explore the importance and regional impact of the Gulf of Mexico's marine resources on the coastal communities of the Big Bend region. Six seminars featuring topics on the clam aquaculture industry, bay scallop recreational fishery, FWC's fishery monitoring program, Suwannee regional artificial reef system

and the research program at the Seahorse Key marine laboratory drew the attendance of over 120 citizens.

10.20 Conduct a general shellfish aquaculture program for youth and adults. (Sturmer)

10.20.1 Provide information about the economic and environmental benefits of shellfish aquaculture to a variety of groups, including youth, students, citizens, local government officials, state agency representatives, legislators and the media, through tours, presentations and written materials.

Provided information about the economic and environmental benefits of shellfish aquaculture to a variety of groups, including youth, students, citizens, local government officials, state agency representatives, legislators and the media, through tours, presentations and written materials.

10.20.2 Serve on a steering committee in developing a Clamerica Celebration to be held on 4th of July in Cedar Key. This community event is planned to focus attention on the importance of the area's aquaculture industry. (Sturmer)

Served on a steering committee in developing a Clamerica Celebration held on 4th of July in Cedar Key. Over 7,000 people participated in the first ever community event which focused attention on the importance of the area's aquaculture industry.

10.20.3 Provide educational programs on shellfish aquaculture to local K-12 teachers and to 4-H youth. (Sturmer)

Provided an educational program entitled "A Day in a Clam Farmer's Life" to 25 youth during 4-H Youth Congress on July 29. In addition provided educational materials and an exhibit on clam farming to local K-12 teachers.

10.21 Train 50 Extension Service Master Gardeners in identification and ecology of coastal plants. (McGuire)

A total of 123 Master Gardener volunteers from 8 counties learned about water and watersheds as part of new Master Gardener training.

10.22 Organize 23rd Annual Cortez Commercial Fishing Festival. Annually this festival reaches 15,000 citizens with information in environmental issues, and raises \$35,000 - \$55,000 for acquisition of environmentally sensitive land. (Stevely)

The 23rd Annual Cortez Commercial Fishing Festival was held February 21-22. The Sea Grant Extension Agent has played a founding role in the establishment of this event and played an instrumental role in Festival planning. Approximately 1,200 local residents attended educational presentations on commercial fishing and environmental issues presented at the Festival. Total attendance was 10,000 - 12,000.

Most importantly, the Festival generated \$62,000 in net profit for the purchase of the FISH (Florida Institute for Saltwater Heritage) Preserve. To date over \$300,000 has been generated for this purpose. The FISH Preserve includes 95 acres of environmentally sensitive land adjacent to the historic fishing village of Cortez.

Additional accomplishments under this objective were realized this year. In recognition of the Festival success, the 2004 Manatee Co. Farm City Week focused on the seafood industry. Farm City Week accomplishments included the following: 300 people increased their understanding of

commercial fishing issues by participating in tours of commercial fishing facilities; 50 community leaders increased their knowledge of the economic impact of commercial fishing and agriculture; 1,100 middle school students increased their knowledge of local marine life by participating in the marine life touch tank at the Manatee Co. 2004 Ag venture program.

- 10.23 (added) Ocean exploration requires a synergistic balance of science and engineering. Over the past decade of technology development, an additional tool to explore the ocean more effectively became available. This technology, called autonomous underwater vehicles (AUVs), runs missions without requiring a physical tether, is installed with many ocean sensors, and can be programmed to survey a wide area at a much faster pace. To increase the awareness and interest of high school students about ocean science and engineering, a 5-day Model Submarine Design & Testing Workshop was held. A total of 23 competitive high school students (GPA at least 3.0) with interest in engineering, math, and science were selected to participate in this workshop. Overall, the workshop had a positive impact on the students in their interests in ocean engineering. They considered staffing support and competition close to *excellent*, whereas they considered time to construct, test and modify only *average*. One important observation from this survey is that 15 out of 18 students who filled out the survey are now considering Ocean Engineering to be their college choice, two of them are not considering, and one of them remains undecided.

Key to Individual Responsibilities

Adams	4, 5, 6, 7, 19, 21, 22, 24, 27	Lopez	1
Baker	19	Mahan	13, 21, 23, 34, 35, 49, 61, 66, 76
Balaban	29	Marcus	18
Behringer	46, 57, 66, 81, 83, 84	Mari	2
Burnett	48	Mason	4
Cato	3, 63, 64, 65	McGuire	44, 49, 54, 77, 85
Chanton	48	Murie	4
Collins	51	Nico	51
Combs	8, 23, 33, 41, 43, 48, 52, 67, 81	Otwell	4, 5, 29, 30, 31, 32, 34, 35, 36
Corbett	48	Pinelli	60
Crane	43, 61, 66, 68	Rodrick	1
Creswell	10, 16, 20, 25, 26, 44, 70, 71	S. Jackson	11, 75
D. Jackson	41, 66	Sargent	40
Damron	67	Scarpa	19
Dean	60	Schneider	1
Diller	11, 44, 49, 53, 72, 80	Seaman	3, 51, 64, 65
Fann	37, 39, 40, 41	Shivji	4
Fields	2	Sidman	38, 39, 40, 41
Fik	40	Simoniello	61
Floyd	6	Soti	1
Francis-Floyd	18	Spranger	4, 5, 6, 37, 38, 51, 61, 65
Gregory	6, 7, 17, 34, 46	Stamper	18
Gurley	60	Stevely	13, 14, 16, 39, 45, 55, 58, 59, 85
Hanes	60	Sturmer	19, 22, 23, 24, 26, 27, 28, 36, 58, 84, 85
Holland	6	Subramanian	60
Irlandi	51	Sweat	16, 21, 33, 56, 59, 81
Jackson	60, 61	Swett	37, 38, 39, 40, 41
Jacoby	4, 51, 58	Thieke	60
Jamir	30	Tilghman	18
Jamison	30	Trexler	51
Kearl	61, 67	Verlinde	16, 46, 50, 56, 62, 65, 79, 80
Kem	1	Wagner	67
Kerr	1	Wasno	13, 14, 15, 21, 23, 34, 45, 56, 58, 59, 66
Kristinsson	29	Welt	29
Lin	19	Whitehouse	67
Lindberg	4	Wright	1, 2
Loftus	51	Zimmerman	67
Longley	2		

3.0 PROGRAM FUNDING FROM ALL SOURCES

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 2004 was still 39 percent below the peak year. With 2004 core program funds at \$1,990K, and adding funds awarded to Florida due to national competitions of \$968K, the overall 2004 buying power of the program was still 13 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 has ranged from 39 to 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 about \$49,000. 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 2002-2003 to 2004-2005 indicates that the federal NOAA Sea Grant core program funds represented from 34 to 43 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 8.4 times the amount of state appropriations received through the Education and General budget of the University of Florida for 2004-05. Including faculty salaries dedicated to the program by UF/IFAS, 3.1 grant dollars were generated per state dollar of 2004-05 appropriations as shown in Table 8.

Table 1. Federal Sea Grant funding (\$1,000's) for Florida Sea Grant College Program, 1972-2005^e

Year	Current			Real ^a		Percent Below Peak Year	
	Core Funding	National Competitions	Total	Core	Total	Core	Total
1972	378			1251		58	
1973	600			1887		37	
1974	740			2132		29	
1975	900			2368		21	
1976	975			2425		19	
1977	1125			2635		12	
1978	1260			2757		8	
1979	1450			2929		3	
1980	1627			3007		0	
1981	1575			2665		11	
1982	1575			2520		17	
1983	1428			2190		27	
1984	1458			2157		28	
1985	1458			2092		31	
1986	1506 ^b			2115		30	
1987	1506			2057		32	
1988	1386 ^c			1831		39	
1989	1489			1894		37	
1990	1530			1875		38	
1991	1652			1937		35	
1992	1652			1912		37	
1993	1500	86	1586	1697	1794	44	41
1994	1500	127	1827	1661	2023	45	33
1995	1620	626	2246	1759	2439	42	20
1996	1620	455	2075	1727	2212	43	27
1997	1880	194	2074	1970	2174	35	28
1998	1780	322	2102	1846	2178	40	28
1999	1846	444	2290	1886	2339	38	23
2000	1907	1125	3032	1907	3032	37	0
2001	1965	463	2428	1919	2371	36	22
2002	1990	535	2525	1912	2426	37	20
2003	1990	504	2494	1877	2353	34	22
2004	1990	874	2864	1839	2647	39	13
2005 ^e	1990	893	2883				

^a Deflated using Gross Domestic Product Price deflator, 1996=100.

^b Includes MAREP add-on and GRH reduction.

^c After NOAA overall budget cut of seven percent from base of \$1,489K.

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

^e As of March 2005.

Table 2. Individuals and full-time equivalents (FTEs) supported by federal Sea Grant core program funding 1972-2005.

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	^b	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	^b	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
2005	37	22	59	16	0	0	35	26	94	42

Table 3. Florida Sea Grant funding effort by source for fiscal years (1 July - 30 June)
2002-2003 to 2004-2005

Source	2002-03		2003-04		2004-05	
	\$000	%	\$000	%	\$000	%
Federal NOAA Sea Grant Core Program	2,000	42.6	1,990	34.2	1,990	36.3
Federal NOAA Sea Grant National Competitions	504	10.8	874	15.0	893	16.3
Faculty Match (Core + National) ^a	794	16.9	1,114	19.2	938	17.0
Other Federal Grants	277	5.9	327	5.6	271	4.9
Non-federal Grants	97	2.1	400	6.9	187	3.4
State Appropriations ^b	810	17.3	849	14.6	920	16.8
Florida Counties	208	4.4	220	3.8	236	4.3
Foundations/Endowments	NR	NR	42	0.7	48	0.9
Total Program Effort	4,690	100.0	5,816	100.0	5,483	100.0

^a This includes all match except state university system appropriations used as match.

^b 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.

^c Does not include a \$418K USDA special award in 2004 coordinated by S. Otwell.

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	2002-03	2003-04	2004-05
	Core (%)		
Research	51.3	51.1	51.1
Extension	31.0	31.1	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	51.6	59.2	58.3
Extension	35.7	28.4	28.6
Communications	5.9	5.8	6.1
Management	6.8	6.6	7.0
TOTAL	100.0	100.0	100.0

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

Table 5. 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
TOTAL SEA GRANT CORE	\$2,000,000	\$1,000,089
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
TOTAL FEDERAL SEA GRANT NATIONAL COMPETITION	\$ 503,530	\$ 246,402
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
TOTAL OTHER FEDERAL GRANTS	\$ 277,236	\$ 43,500
TOTAL FEDERAL GRANTS	\$2,780,766	\$1,289,991
MATCH COVERED BY STATE APPROPRIATIONS		\$(496,000)
NET MATCH		\$ 793,991
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
TOTAL NON-FEDERAL GRANTS	\$ 97,280	0
TOTAL GRANT FUNDING	\$2,870,046	\$ 793,991
Counties	\$ 208,315	0
State Appropriations		
E&G	363,180	0
IFAS	446,964	0
TOTAL SEA GRANT FUNDING	\$3,888,505	\$ 793,991

Table 6. 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
TOTAL SEA GRANT CORE	\$1,990,000	\$ 999,346
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
TOTAL FEDERAL SEA GRANT NATIONAL COMPETITIONS	\$ 873,575	\$ 633,475
Other Federal 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
TOTAL OTHER FEDERAL GRANTS	\$ 326,830	0
TOTAL FEDERAL GRANTS	\$3,190,405	\$1,632,821
MATCH COVERED BY STATE APPROPRIATIONS		\$(518,500)
NET MATCH		\$1,114,321
Non-Federal Grants:		
South Florida Water Management District	400,000	0
TOTAL NON-FEDERAL GRANTS	\$ 400,000	0
TOTAL GRANT FUNDING	\$3,590,405	\$1,114,321
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
TOTAL SEA GRANT FUNDING	\$4,701,653	\$1,114,321

Table 7. Sea Grant funding July 1, 2004 to June 30, 2005

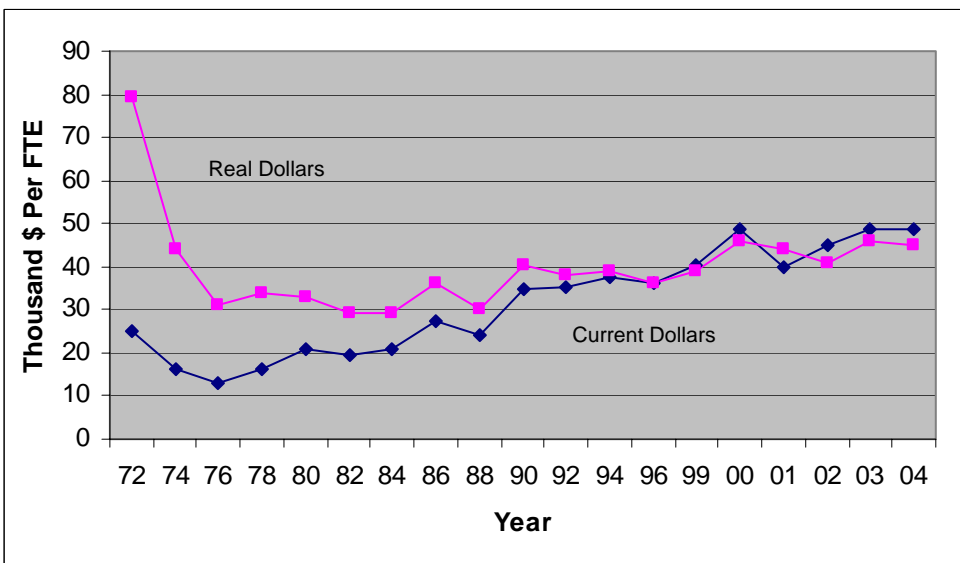
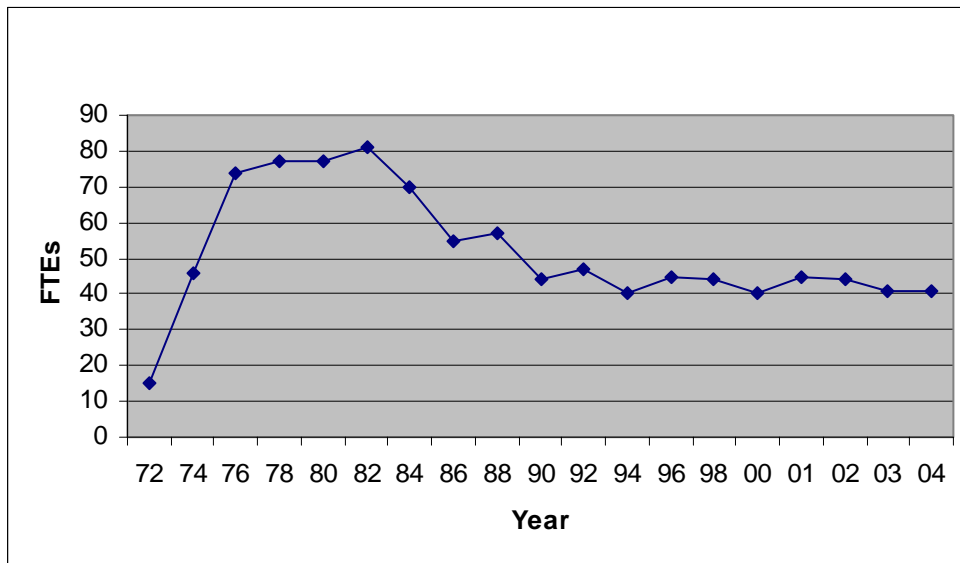
Federal Sea Grant Core:	Federal	Match
Research	\$1,016,000	\$471,442
Extension	620,000	310,000
Communications	165,000	87,500
Management	189,000	133,500
Other	0	0
TOTAL SEA GRANT CORE	\$1,990,000	\$1,002,442
Federal Sea Grant National Competitions:		
SGEP-13FE	195,300	53,319
E/INDST-4 Industry Fellow	30,000	15,000
E/ST-30 Knauss Fellowship - J. Wilson	40,000	0
E/T-11	149,326	73,169
R/C-E-47	79,997	40,000
R/C-E-48	121,416	74,845
R.MI-12	100,000	121,828
E/ST-31 Knauss Fellow - K. Denit	40,000	0
E/ST-32 Knauss Fellow - C.M. Almeida	40,000	0
R/LR-A-42	69,800	50,000
R/C-E-49	27,084	19,156
TOTAL FEDERAL SEA GRANT NATIONAL COMPETITIONS	\$892,923	\$447,317
Other Federal Grants:		
SEA-COOS University of North Carolina	\$157,186	\$ 0
E/T-13 NA16RG2258 Aquatic Nuisance	39,432	19,716
E/T-9 NOAA So. Fla. Marine Ecosystem	\$50,000	\$ 0
E/T-15 Case Studies	24,785	0
TOTAL OTHER FEDERAL GRANTS	\$271,403	\$19,716
TOTAL FEDERAL GRANTS	3,154,326	1,469,475
MATCH COVERED BY STATE APPROPRIATIONS		(531,000)
NET MATCH		938,475
Non-Federal Grants:		
EX-FDEP-1 Clean Vessel	\$12,500	\$ 0
EX-WCIND-3 Sarasota Boating	70,052	0
EX-SAPW-1 Guide to Boating	24,000	0
EX-FWCC-1 Mapping Tampa	80,000	0
TOTAL NON-FEDERAL GRANTS	\$186,552	\$ 0
TOTAL GRANT FUNDING	\$3,340,878	\$938,475
Foundations/Endowment Revenues	\$48,343	\$ 0
Counties	236,262	0
State Appropriations:		
E&G 07/01/03 - 06/30/04	\$396,106	\$ 0
IFAS 07/01/03 - 06/30/04	523,791	0
TOTAL SEA GRANT FUNDING	\$4,545,380	\$938,475

Table 8. Florida Sea Grant total grants generated per dollar of state appropriations, 2004-05 program year.

	UF Appropriations Through Education and General Budget (\$396,106)	UF/IFAS Faculty Dedicated to Sea Grant (\$523,791)	Total (\$919,897)
Sea Grant Federal Funds (\$2,882,923)	7.3	5.5	3.1
All Other Extramural Grants (\$457,955)	1.2	.9	0.5
TOTAL (\$3,340,878)	8.5	6.4	3.6

Source: Calculated from Table 6.

Figure 1. A comparison of Florida Sea Grant core program FTEs and current and real funding per FTE, 1972-2004.



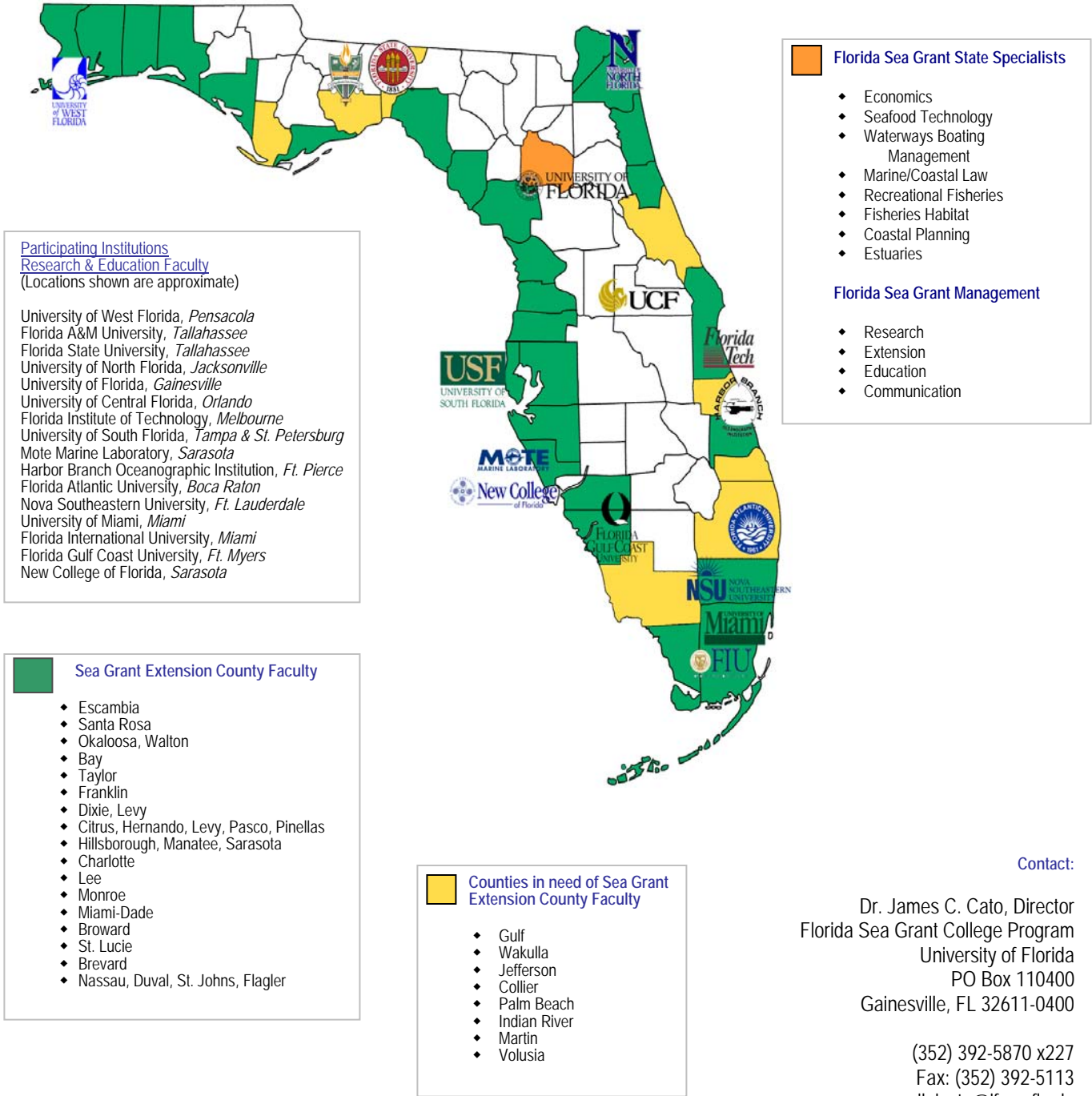
4.0 INSTITUTIONS INVOLVED

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 2004 11 of 16 institutions (both public and private) participated through the receipt of Sea Grant funding for annual projects. In addition, three cooperating institutions and laboratories, four NOAA offices, two state agencies, two regional management districts, four foundations and non-governmental organizations, four 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, 2004.

<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> Clemson University University of North Carolina University of Southern Mississippi</p> <p style="text-align: center;">GOVERNMENT</p> <p><u>Districts</u> South Florida Water Management District West Coast Inland Navigation District St. Augustine Boating Authority</p> <p><u>State</u> Florida Fish & Wildlife Conservation Commission, Florida Marine Research Institute Florida Department of Agriculture & 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> Gulf and South Atlantic Fisheries Development Foundation Harbor Branch Oceanographic National Geographic Society Wildlife Conservation Society</p> <p style="text-align: center;">INDUSTRY</p> <p>ABC Research Co. Aquaculture Center of the Florida Keys, Inc. EcoMicrobials, LLS. Guy Harvey Research Institute</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																																						
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Flagler	Okaloosa																																							
Franklin	Palm Beach																																							

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



5.0 PROJECTS FUNDED

List of Florida Sea Grant Projects That Were Active During 2004 and Funded by Sea Grant/NOAA and Extramural Sources, in Three Major Categories

I. CORE SEA GRANT PROGRAM PROJECTS

(This list includes projects that were completing or in process in 2004)

I.A. Research (For complementary projects see section II.A)

I.A.1. Fisheries and Aquaculture

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-56, Combining DNA Forensic and Population Genetic Approaches for Application to Shark Conservation, Management, and Trade Monitoring - - There is an urgent need for better tracking of shark fisheries and trade on a species and population specific basis to better serve and manage sharks on a worldwide basis. This continues earlier work to develop identification markers for shark species that is already being used by NOAA law enforcement.

R/LR-B-57, Assessment of Regional Spiny Lobster Stock Abundance Trends and Linkages that Explain Florida Stock Abundance Declines -- In spite of a 50% reduction in traps, the Florida spiny lobster fishery shows a 58% decrease in landings during the 1999 to 2002 fishing seasons. Significant catch decreases are observed also in the Bahamas, Cuba, and Nicaragua. No knowledge regarding the origin of these common decreasing trends is available, but regional overexploitation and environmental change are suspected. This proposal investigates the roots of such decreasing trends.

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-39, Enhancing Stress Resistance of Cultured Hard Clams in Florida by Triploidy -- Florida has approximately 350 active clam growers producing a crop worth of \$18.2 million in 2001. Recently, the need for a hardier clam strain has become evident as clam culturists in Florida report below average survivals or total losses during the prolonged hot summers. Triploid clams may be a solution to this problem as they are virtually sterile, spawning does not occur, and energy may be available during this stressful period for basic metabolism.

R/LR-A-40, Improved Hatchery Technology of Cobia Using Proactive Microbial Management and a Simplified Live Food Regime -- The objective is to develop innovative, reliable and environmentally sustainable

hatchery technology for larval rearing and production of cobia fingerlings. This will be achieved by developing proactive health management methods aiming to reduce the input of microbes from major sources of contamination during the culture cycle.

R/LR-A-41-PD, Development of Feeding Mechanics, Performance and Prey Selectivity in Marine-fish Larvae: A Novel Approach to Understanding Food Requirements of Marine Ornamental Fish -- High mortality during larviculture remains a major obstacle to successful rearing of a large number of marine ornamental fish species. In particular, catastrophic mortality is associated with first-feeding or the “critical period” during which larvae switch from endogenous to exogenous feeding. This research is aimed at determining the causes of mass mortality during the early stages of exogenous feeding in hatchery-reared marine ornamental fish larvae.

R/LR-A-42, Demonstrating Hatchery and Growout Technology for Production of Cobia from Egg to Market -- The objective is to improve hatchery and offshore growout technology to expand the marine fish aquaculture fin the US. This work will perfect and transfer innovative, reliable and environmentally sustainable technologies and protocols for disease prophylaxis and management of cobia (*Rachycentron canadum*) eggs, larvae, postlarvae, fingerlings, juveniles and adults, by developing methods for controlling disease outbreaks at the hatchery, nursery, shipping and growout stages, as well as reducing the costs and risks of fingerling transport.

I.A.2. Biotechnology

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 throughout 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/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/LR-MB-20, Design and Development of New Antifouling Paint Additives Based on Marine Pyridyls -- This project builds on the investment and findings in R/LR-MB-16 (above). Researchers will synthesize pyridyl compounds and field test their ability as paint additives to reduce biofouling.

R/LR-MB-21, Characterization and Synthesis of Hydroxconophans: A New Class of Neuropharmacological Agents from Cone Snails -- This project builds on the investment and findings in R/LR-MB-18 (above). Researchers will expand the set of conopeptides from cone snails and evaluate therapeutic potential.

I.A.3. Coastal Ecosystems

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-E-51, Using Natural Chemical Tracers to Evaluate Point-Source and Non-Point Sources of Fresh Water Inputs to Biscayne Bay -- Identification of point-source and non-point sources of fresh water to coastal estuaries is essential in understanding the water quality of these areas. Planned future changes in fresh water deliveries to Biscayne Bay from point-source discharges via canals to non-point source discharge from wetlands and groundwater flow requires a monitoring method that effectively detects these changes, i.e., one that can detect changes in canal discharge versus groundwater seepage. The results of this project will provide a scientific-based tool for assessing the results of the fresh water redistribution plan.

I.A.4. Coastal Hazards

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-S-44, Development of a Predictive Index for Rip Currents -- Building on R/C-S-42 (above) a predictive rip current index can be employed to reduce the number of rip current related rescues and deaths. It would more accurately identify the conditions under which the strongest and most dangerous rip currents will occur, and provide real-time information with which to assist lifeguards with staffing decisions and to alert the public to the hazard. The goal of this project is to develop the index.

R/C-S-45, Risk Versus Mitigation Measures: Quantifying Residential Vulnerability to Hurricane Winds and Evaluating the Cost Effectiveness of Retrofits -- The implementation of affordable solutions to mitigate damage from hurricane winds can only follow from a quantification of the wind forces causing this destruction, models that relate wind forces to the capacity of man-made structures to resist them, and engineering-based evaluations of the cost effectiveness of various mitigation techniques. There is a strong need for a public risk model that will allow for a scientific and accurate evaluation of the cost effectiveness of mitigation measures on the scale of city, county, or state.

I.A.5. Waterfront Communities

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-26, Mitigating the Exposure and Vulnerability of Coastal Communities to Hurricane Flood Damage Through Growth Management -- Vulnerability of human settlements to damage from natural disasters is a significant constraint to local and global sustainability. Local growth management strategies have been advocated as a principal strategy for reducing such vulnerability, but empirical analysis of direct measures of the effectiveness of such strategies is very limited. Principal beneficiaries will include the Florida Department of Community Affairs, local governments of coastal jurisdictions in Florida, and state and local governments in other coastal areas of the United States.

R/MI-13-PD, Intelligent Manatee Idle Speed Zones -- Controversy currently exists between users of waterways and proponents that wish to protect manatee habitat. Manatee idle speed zones greatly impact coastline property values, constrain the construction of docks and boat ramps, and affect the total economic output of the Florida marine industry (\$14.1 billion dollars/180,000 related jobs). This research has the potential to significantly reduce the economic impact that round-the-clock idle speed zones have on boating associated businesses and recreational boating activities in Florida's waterways, while maintaining the integrity of the manatee habitat.

I.A.6. Seafood Technology

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.

R/LR-Q-27, Regulation of Capsular Polysaccharide and Virulence in *Vibrio vulnificus* -- The goal of this work is to define genetic elements that regulate the on/off switching involved in the phase variation from virulent to avirulent forms of *V. vulnificus*. Preliminary data have identified phase variable genes within the capsular polysaccharide operon, and these mechanisms and others will be investigated for application to intervention

strategies to reduce risk of oyster consumption and also for virulence-specific gene probes and/or molecular typing.

I.B. Extension and Communications

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 18 agents and 4 full-time 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 – The production of high-quality publications and other research, extension and education support materials continues through the communications program to effectively communicate results of Florida Sea Grant activities to both general and specialized audiences. Productions have included Florida Sea Grant Reports, Florida Sea Grant Technical Papers, books and book chapters, extension publications, brochures, maps and posters. Productions have also included educational videos, news releases and features for Florida Sea Grant's web site. A five-year publication list covering 2000-2004 summarizes communication program output at www.FLSeaGrant.org online. The Communications Program oversees the Florida Sea Grant web site, which contains nearly all of the Florida Sea Grant productions, as they are routinely posted there as part of the production process and policy.

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. The latest Federal program review evaluated FSG as "Excellent" for all criteria, tops in the nation.

M/PD-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 2004 are:

- 01-10 Development of a Report "Legacy of Florida's Beaches"
- 02-4 Florida Bay Education Project
- 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
- 03-7 Validation of Fatty Acid Signatures in Diet Analysis of Elasmobranch Fishes
- 03-9 Larviculture of Ornamental Emerald Crab and Caribbean 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
- 04-1 Florida Sea Grant Elise B. Newell Seminar Series
- 04-2 Timely Marine Issues
- 04-3 2004 Florida Artificial Reef Summit: Implementing Strategic Planning
- 04-4 Development of an Educational Outreach Program in Ocean Science and Engineering
- 04-5 A Critical Evaluation of Two Approaches to Biomonitoring: Functional Assays and Stress Protein Biomarkers in *Mercenaria mercenaria* (hard clam)
- 04-6 Pre-K Through 12th Grade Educators Workshop on Coral Reef Research and Restoration
- 04-7 Use of Carbon Monoxide and Other Modified Atmospheric Conditions in Seafood Processing
- 04-8 Mud Minnow Production Sustaining Water Conservation and Nutrient Recovery
- 04-9 Florida Ocean Issues Science-Writing Initiative
- 04-10 Atlantic Tsunami Run-up Modeling
- 04-11 Documenting a Macrophyte Shift From Seagrass to an Alga: First Measures of Alga Growth Rates, Light Environments and Possible Seagrass Loss

II. ADDITIONAL PROJECTS FROM SEA GRANT SPECIAL INITIATIVES AND NATIONAL OPPORTUNITIES

(Either in process or started in 2004)

II. A. Research

II.A.1. Seafood Technology

R/LR-Q-23, 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, 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.

II.A.2. Coastal Ecosystems

R/C-E-46, 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 at 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 -- 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/C-P-27-CC, Waterways and Waterfronts: The Legal Framework for Public Access -- Local waterfront governments often lack the time, funds or expertise to pursue waterfront policy innovation and secure this within their comprehensive planning structure. This will benefit from a comprehensive legal analysis of coastal policymaking authority, especially in the confusing nearshore jurisdictional environment, and from a systematic assessment of the planning tools at their disposal that are packaged in a useable format. This project will provide this assessment and incorporate non-regulatory alternatives such as tax and other land use incentives.

R/C-P-28-CC, Smart Growth for Coastal Communities -- In coastal communities across the nation, there is a growing concern that current development patterns, dominated by what some call "sprawl," are contributing to water quality and environmental degradation. Though supportive of growth, communities are increasingly seeking solutions to balance growth with community and environmental values. Community decision-making often lacks the resources and training necessary to address these issues resulting in a new demand and a new opportunity for smart growth extension programming.

R/MI-12 Development of an Advanced Underwater Video Telemetry and Data Collection Instrument for Remote Observation of Aquatic Organisms and Underwater -- There is widespread interest in the scientific application of underwater video units from researchers at academic institutions, government agencies, non-profit research foundations and the fishing industry. This project will test the application of CRITTERCAM on nurse, bull and hammerhead sharks.

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

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.

E/FE-GM, Gulf of Mexico Regional Fish Extension Project -- The FY02 National Sea Grant federal appropriation required the enhancement of Sea Grant's fisheries extension program. The topic of focus for Florida Sea Grant is participation in the sustainability of the Gulf of Mexico shrimp industry.

E/FE-SA, South Atlantic Regional Fish Extension Project -- The FY02 National Sea Grant federal appropriation required the enhancement of Sea Grant's fisheries extension program. Florida Sea Grant Extension is a member of the South Atlantic Regional Fish Extension Project team addressing marine protected areas essential fish habitat and fisheries management.

E/FE-FSG, Fisheries Extension Enhancement -- The FY02 National Sea Grant federal appropriation required the enhancement of Sea Grant's fisheries extension program.

SGEP-13-FE-A & C [2 modules], Florida Sea Grant Fish Extension Project -- The FY03 National Sea Grant federal appropriation continued the required enhancement of Sea Grant's fisheries extension program. Florida Sea Grant will hire two new fisheries oriented county faculty (Bay, Collier) and increase its recreational fishery extension program activity by one-half FTE.

E/T-8, National Fish Extension Enhancement: Sharks in Perspective: From Fear to Fascination -- This project seeks to present an enlightened and balanced science-based view of sharks to the general public through the media and through public outreach, information and technology transfer programs conducted by professionals such as Sea Grant Extension agents; federal, state and local public information officers; and community leaders. The initial dissemination mechanism will be a national conference where media representatives, outreach professionals, community leaders and interested public will receive information packets that include shark fact sheets, identification of shark web (internet) sites, and a list of shark experts. National shark experts and individuals who have experience in shark/human interactions will also transfer information to conference participants via lecture and small group discussions.

II.C. Fellowships

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.

E/INDST-4, A Critical Evaluation of Two Approaches to Biomonitoring: Functional Biomarkers Assays and Stress Protein Biomarkers in *Mercenaria mercenaria* (Hard Clam) -- Biomarkers are biological changes that are observed in an animal following exposure to sublethal environmental or anthropogenic stressors. This project proposes to test the following assumption: stress protein biomarkers expression profiles correlate with traditional functional biomarker assays of bivalve health. This will be done by exposing *Mercenaria mercenaria*

to two important environmental stressors, high temperature and low-oxygen conditions (hypoxia), both of which are known to induce stress protein responses and affect the health of aquatic organisms.

E/ST-29, Knauss Fellowship -- One student is currently spending one year in Washington, D.C. working in the EPA Coastal Management Branch.

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 2004 is presented below.

III.A. Extension

E/T-12, Southeast Atlantic Coastal Ocean Observing System -- Florida Sea Grant Extension will continue outreach 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 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 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 Sciences 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 (CERP).

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 57 different publication items (with thousands of copies) were completed in 2004, and 78 are in various stages of completion. A listing of Communication publications and products from 2000 through 2004 is shown in Table 1.

Table 1. Summary of Florida Sea Grant Publications and Other Educational Products, 2000 to 2004.					
	Published				
	2004	2003	2002	2001	2000
Sea Grant Reports	1	0	1	3	2
Sea Grant Extension Publications	8	4	9	8	17
Sea Grant Technical Papers	7	5	8	12	9
Books	0	2	2	1	2
In Press	0				
Book Chapters	2	5	2	6	4
Scientific Journal Articles	10 ^a	24	24	29	16
In Press	6				
Submitted	43				
Graduate Thesis or Dissertation	11	14	22	11	21
In Process	29				
Staff Papers/Conference Proceedings	3 ^a	19	64	25	10
Extension Newsletters ^b	5	7	7	5	5
WWW Pages Maintained ^c	10	10	1	1	1 ^c

^a Number reflects totals prior to processing all 2004 project final reports.

^b Each newsletter has multiple volumes.

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

Note: Florida Sea Grant maintains a running five-year list of publications sponsored by its research, education extension, communications and management efforts. For the current year it categorizes items as either published or in press. For all years it identifies publications according to the categories of Florida Sea Grant Report; Florida Sea Grant Technical Paper; Books and Book Chapters; Journal Articles; Graduate Theses and Dissertations; Florida Sea Grant Extension Publications; Extension Newsletters; Miscellaneous Papers, Articles and Conference Proceedings; and Websites. The project from which it originated is indicated by the code number in parentheses at the right side of the last line of each entry.

CALENDAR YEAR 2005
(As of Pre-January 31, 2005)

I. Florida Sea Grant Report

A. Published

B. In Press

C. In Process, Planned, Submitted, etc.

National Seafood HACCP Alliance. . (in process-2005). **Sanitation Control Procedures for Processing Fish and Fishery Products**. Seafood HACCP Alliance Course - Second Edition for Training and Education. SGR-119. 3rd Edition. (E/TP-2)

II. Florida Sea Grant Technical Paper

A. Published

B. In Press

III. Books and Book Chapters

A. Published

B. In Press

Adams, C., and S. Versaggi. (in press-2004) **International Agricultural Trade Disputes: Case Studies in North America**. Shrimp Trade Dispute (SGEP-13)

Cato, J., Adams, C., Hernandez, E. (in press-2004) **Special Issue Integrated Coastal Management in the Gulf of Mexico Large Marine Ecosystem** In: Ocean & Coastal Management Journal (SGEP-13)

C. In Process, Planned, Submitted, etc.

IV. Journal Articles

A. Published

Sidman, C., Fik, T. 2005. **Modeling the Spatial Patterns of Recreational Boaters: Vessel, Behavioral and Geographic Considerations**. Leisure Sciences 27:1-15. (R/C-P-24)

B. In Press

Butler, M.J. IV. (in press-2004). **Incorporating ecological process and environmental change into spiny lobster population models using a spatially-explicit, individual-based approach**. Fisheries Research (R/LR-B-50)

- Dillon, K. and J. Chanton. (in press-2004). **Nutrient transformations between rainfall and stormwater runoff in an Urbanized Coastal Environment, Sarasota Bay, Florida U.S.A.** Limnology and Oceanography. (R/C-E-44)
- Greenawalt, J.M., Frazer, T.K., Keller, S.R., and C.A.Jacoby. (in press-2004). **Abundance and size of bay scallops in heterogeneous seagrass habitats along the Gulf coast of Florida.** Gulf of Mexico Marine Science. (SGEP-13)
- Larkin, S. and C. Adams. (in press-2004). **The marine life fishery in Florida: 1990-98.** Marine Fisheries Review. (SGEP-13)
- Schofield, O., Moline, M.A, Vargo, G.A., Steward, R.G. and G. Kirkpatrick. (in press-2004). **Spectral inherent optical and fluorescence properties of natural populations of the toxic dinoflagellate, *Gymnodinium breve*, in the Gulf of Mexico.** EOS Trans AGU 79(1):OS161. (R/NCOP-5)
- Stringer, C.E. and W.C. Burnett. (in press-2004). **Sample Bottle Design Improvements for Radon Emanation Analysis of Natural Waters.** Journal of Health Physics. (R/C-E-44)
- C. In Process, Planned, Submitted, etc.**
- Aldo, F., Moller, C., Mora, D., Cano, H. and F. Mari (submitted-2004). **Size exclusion hplc separation of complex mixtures of marine neuropeptides.** Anal Biochem. (R/LR-MB-18)
- Baker, B.J., M. Van Ert, A.C. Leonard, and J.E. Grimwade. (awaiting patent clearance-2001). **Cold-water marine invertebrate-associated microorganisms as sources of drug leads.** International Journal of Pharmacognosy. (R/LR-MB-4)
- Blicht, S.B., T.K. Frazer, K.M. Blicht, M.H. Posey, and T.D. Alphin. (in preparation-2004). **Growth of juvenile blue crabs *Callinectes sapidus* in seagrass and marsh channel habitats along Florida's central gulf coast.** (R/LR-B-46)
- Brennan, N.P. (in preparation-2005). **Effects of release micro-habitat on survival and growth of hatchery snook (*Centropomus undecimalis*), in a Florida Estuary.** (R/LR-A-25)
- Clarke, S., J.E. Magnussen, D.L. Abercrombie, M. McAllister and M.S. Shivji. (pending-2005). **Identification of species composition in trade using molecular genetic methods: an application to the Hong Kong shark fin market.** Submitted to Conservation Biology. (R/LR-B-54)
- Dillon, K., Chanton, J., and L. Smith. (in process-2005). **Denitrification rates in limestone surrounding a wastewater injection well in the Floirda Keys.** Biogeochemistry. (R/C-E-44)
- Dolan, T. W. III and Butler, M.J. IV. (in review-2004). **Modeling ontological changes in the social behavior of juvenile Caribbean spiny lobster, *Panulirus argus*.** Animal Behavior (R/LR-B-50)
- Duchon, K.A., Brennan, N.P., Leber, K., anmd J.M. Miller (in preparation-2005). **Comparing the growth of caged and released fish: assessing habitat quality for stocking and relative role of directive factors.** (R/LR-A-25)
- Ehrhardt, N. (in process-1998). **Risk Assessment of Adopting BRD Designs to Reduce Shrimp Bycatch to Accomplish Management Actions on Directed Fisheries.** Fishery Bulletin. (R/LR-B-42)
- Enright, E., J.V. Lopez, C.L. Peterson, and S.A. Pomponi. (in preparation-2000). **Cloning and Characterization of Two Cyclin Dependent Kinase from the Sponge *Axinella Corrugata*.** (R/LR-MB-5)
- Frazer, T.K., S.B. Blicht, M.H. Posey, T.D. Alphin, K. Blicht, and T.P. Glancy. (in revision-2005). **Use of shallow-water habitats by juvenile blue crabs along Florida's north central gulf coast: the potential influence of seagrass on distributional patterns.** (R/LR-B-46)

- Frodyma, M.E., M. Van Ert, B. Furrow, A.C. Leonard, B.J. Baker, and J.E. Grimwade. (awaiting patent clearance-2001). ***Pseudoalteromonas clarkii*, sp. nov., a psychrotrophic bacterium isolated from the Antarctic nudibranch *Tritoniella belli*.** International Journal of Systematic and Evolutionary Microbiology. (R/LR-MB-4)
- Irlandi, E. and J. Zsiros. (Submitted 2004). **Morphometric Changes and tolerance to low salinity for an exotic green alga (*Caulerpa brachypus*) and consequences to invasion success.** Aquatic Botany. (PD-03-11)
- Kane, M. (in process – 2005). **Comparative in Vitro Shoot Production and Rooting and Early Ex Vitro Growth of Sea Oats (*Uniola paniculata* L). Genotypes.** (R/C-S-42)
- Kane, M. (in process – 2005). **Comparative Field Performance of In Vitro Propagated Sea Oats (*Uniola paniculata* L). Genotypes.** (R/C-S-42)
- Kane, M. (in process – 2005). **Comparative in Vitro Growth and Development of Easy-and Difficult-to-Acclimate Sea Oats (*Uniola paniculata* L). Genotypes.** (R/C-S-42)
- Kane, M. (in process – 2005). **Comparative Carbohydrate Status of Easy-and Difficult-to-Acclimate Sea Oats (*Uniola paniculata* L). Genotypes.** (R/C-S-42)
- Kane, M. (in process – 2005). **Comparative Photosynthetic Competence of Easy-and Difficult-to-Acclimate Sea Oats (*Uniola paniculata* L). Genotypes.** (R/C-S-42)
- Kem, W.R., Rittcof, D., and Soti, F. (submitted-2005). **Synthesis and chemical –biological characterization of all eight possible methyl-2,3'-bipyridyls.** Department of Pharmacology and Therapeutics, University of Florida College of Medicine (R/LR-MB-9)
- Larkin, S., Degner, R., and W. Rubinstein. (in review-2005). **Preferences for Wild-Caught, Ecolabeled, and Tank-Raised Marine Aquarium Species within the Marketing Channel.** Marine Resource Economics, FAES Journal Series No. R-09678. (R/LR-A-29)
- Larkin, S., Adams, C., Ballyram, B., Mulkey, D., and A. Hodges. (in review-2004). **Red Tides and Coastal Business: Measuring Economic Consequences in Florida.** Ocean and Coastal Management. (SGEP-13)
- Lopez, J.V., C.L. Peterson, R. Willoughby, and S.A. Pomponi. (in preparation-2001). **Application of Anti-Sense Oligonucleotide (ASO) Technology to Inhibit Cell Cycle Regulating Genes for Sponge Culture Optimization.** (R/LR-MB-5)
- Lopez, J.V. C.L. Peterson, R. Willoughby, A.E. Wright, E.J. Enright, S. Stacy, and S.A. Pomponi. (submitted-2001). **Molecular Genetic Markers for *in vitro* Cell Verification of the Marine Sponge, *Axinella corrugata*.** (R/LR-MB-5)
- MacMahan, J., Thieke, R.J., Dean, R.G., Hanes, D.M., and R.A. Holman. (in preparation-2002). **Analysis of Rip Channel Stability.** Journal of Marine Geology. (R/C-S-40)
- MacMahan, J., Thornton, E., Stanton, T. and A. Reniers. (submitted-2005). **RIPEX: Observations of a rip current system.** Journal of Geological Research. (R/C-S-42)
- MacMahan, J., Reniers, A., Stanton, T., Thornton, E., Dean R. (in preparation-2002). **Field measurements rip current instabilities.** Journal of Geological Research. (R/C-S-40)
- Mester, G.A., Meharotra, A., Ault, J.S. and E.K. Baker. (submitted-2004). **Reserves for designing marine fish management.** Journal of Management Science. (R/LR-B-47)
- Mora, D., Pflueger, F., Fields, G. B., and Frank Mari. (submitted-2004). **First example of Hydroxyvaline (ghv) within a polypeptide chain: A novel conopeptide from *Conus gladiator* contains ghv.** Science. (R/LR-MB-18)

- Mora, D., Pflueger, F., Fields, G. B., and F. Mari. (submitted-2004). **Polypeptides Chains Containing γ -Hydroxyvaline (Hv): An Intriguing Posttranslational Modification found in Conus Peptides.** Proc. National Academy of Science. (R/LR-MB-18)
- Peterson, B.J., Chester, C.M., and J.W. Fourquean. (in process-2002). **The potential role of the sponge community in controlling phytoplankton blooms in Florida Bay.** Marine Ecology Progress Series. (R/C-E-43)
- Peterson, B.J., and J.W. Fourquean (in process-2002). **An experimental manipulation of sponge grazing on seagrass growth dynamics.** Marine Ecology Progress Series. (R/C-E-43)
- Peterson, B.J., Boyer, J., Cornwell, J. and J.W. Fourquean. (in process-2002). **Biogenic inputs of nitrogen by the sponge community into Florida Bay.** OIKOS. (R/C-E-43)
- Posey, M.H., T.K. Frazer, T.D. Alphin, and S.B. Blicht. (in revision-2005). **Facultative Habitat Use: Does Function Change with Landscape?** (R/LR-B-46)
- Posey, M.H., T.D. Alphin, T.K. Frazer, S.B. Blicht, J.A. Hartsell, J. Christian, and T.P. Glancy. (in revision-2005). **Juvenile Blue Crab Use of Shallow Water Habitats in Southeastern North Carolina: Distribution Among Seagrass, Oyster and Marsh Habitats.** (R/LR-B-46)
- Ranamukhaarachchi, D., M.E. Kane, and T.H.M. Mes. (in revision-2005). **Character Incompatibility: An Approach to Determine Reproduction of Sea-Oats (*Uniola paniculata* L). Populations.** Molecular Ecology. (R/C-S-36)
- Ranamukhaarachchi, D., M.E. Kane, D.W. Crewz, C.L. Guy, and N.P. Philman. (in revision-2005). **Molecular Analysis of Genetic Diversity in four Florida Sea – Oats (*Uniola paniculata* L. *poaceae*) Populations: Implications for restoration of dune communities** Journal of Coastal Research. (R/C-S-36)
- Reniers, A., MacMahan, J., Stanton, T., Thornton, E. (in preparation-2002). **Modeling of Infragravity Motions on a Complex Beach.** Journal of Geological Research. (R/C-S-40)
- Rhyne, A. and J. Lin. (submitted-2004). **Growth, development and survival of larval *Mithraculus sculptus* A. Milne Edwards and M. forceps (Lamarck) (Decapoda: Brachyura: Majidae): economically important marine ornamental crabs.** Aquaculture. (PD-03-09)
- Soti, F., Rocca, J., and Kem, W.R. (in process-2005). **Isolation and structure elucidation of bipyridyl and dihydroisoquinolyl alkaloids from a marine worm, *Amphiporus angulatus*.** Department of Pharmacology and Therapeutics, University of Florida College of Medicine (R/LR-MB-9)
- Stringer, C.E., Burnett, W.C., and J.P. Chanton. (submitted-2004). **Assessment of Groundwater Discharge to Lake Barco, FL via Radon Tracing.** Water Research. (R/C-E-44)
- Thornton, R., and R. Kerr. (in process-2005). **Examination of stimuli designed to induce pseudopterosin production in the soft coral *Pseudopterogorgia elisabethae*.** (R/LR-MB-8)
- Van Ert, M.N., M. Frodyma, B.J. Baker, A.C. Leonard, & J.E. Grimwade. (in preparation-2001). **Characterization of Bioactive Metabolite Production in Bacteria Associated with Antarctic and Temperate Marine Invertebrates.** Applied and Environmental Microbiology. (R/LR-MB-4)
- Van Ert, M., B. Gancarz, M. Frodyma, J. Grimwade, B. Baker, and A. Leonard. (awaiting patent clearance-2001). **Distribution, Size, and Host-range Specificity of Plasmids Harbored by Bacteria Associated with Antarctic and Temperature Marine Invertebrates.** Applied and Environmental Microbiology. (R/LR-MB-4)

V. Graduate Thesis and Dissertations

A. Published

B. Pending

- Abbasi, H. (pending-2005). **Conus dalli: Isolation and Characterization of Novel Conopeptides from a Panamic Mollusk-hunting Conus**. Dissertation. Department of Chemistry and Biochemistry, Florida Atlantic University. (R/LR-MB-18)
- Aponte, L. (pending-2005). **Design of hurricane data collection hardware and real-time data transmission**. Dissertation. Department of Civil and Coastal Engineering, University of Florida. (R/C-S-43)
- Blicht, S.B. (pending-2005). **Tentative Project "Growth of Juvenile Blue Crabs (*Callinectes sapidus*) in Two Different Habitat Types"**. Thesis. Department of Fisheries and Aquatic Sciences, University of Florida. (R/LR-B-46)
- Bouwma, P. (pending-2006). **Antipredator behavior and morphology of the spiny lobsters *Panulirus argus* and *Panulirus guttatus***. Dissertation. Florida State University. (R/LR-B-50)
- Butler, M. (in progress-2004). **Determination of metabolic rates of Suwannee Regional Reef gag grouper using electrion transport system (ETS) assay**. Thesis. University of Florida. (R/LR-B-53)
- Cano, H. (pending-2005). **Novel conopeptides from the venom of *C. purpurascens* and *C. ermineus***. Dissertation. Department of Chemistry and Biochemistry, Florida Atlantic University. (R/LR-MB-18)
- Donahue, S. (pending-2004). **The Ecology of Shallow Water Sponges in the Florida Keys**. Thesis. Old Dominion University. (R/LR-B-50)
- Dulaiova, H. (pending-2005). **Multiple isotopic traces for the study of coastal hydraulic processes**. Dissertation. Florida State University. (R/C-E-42)
- Franco, A. (pending-2004). **Novel conopeptides from the venom of *C. regius* and *C. spurius***. Dissertation. Department of Chemistry and Biochemistry, Florida Atlantic University. (R/LR-MB-18)
- Goldstein, J. (pending – 2004). **Postlarval settlement responses in Caribbean Spiny Lobster**. Theseis. Old Dominion University. (R/LR-B-50)
- Kline, R. (In progress-2004). **Density-dependent Activity Budgets and Related Swimming Energetics of Gag Grouper**. Thesis. University of Florida. (R/LR-B-53)
- Larsen, S. (In progress-2004). **Influence of conspecific abundance and refuge availability on anti-predator responses by gag grouper, *Mycteroperca microlepis***. Thesis. University of Florida. (R/LR-B-53)
- Lear, J. (pending-2004). **Lobster-Octopus Dynamics in the Florida Keys**. Thesis. Old Dominion University. (R/LR-B-50)
- Magnussen, J. (pending-2005). **Forensic Genetic Assessment of Trade in Shark Products in the Global Marketplace**. Dissertation. Oceanographic Center, Nova Southeastern University. (R/LR-B-54)
- Martin, J. (pending 2005). **The use of *Vibrio vulnificus* bacteriophages to decontaminate naturally and experimentally infected oysters**. Thesis. Molecular Genetics & Microbiology, University of Florida. (R/LR-Q-24)
- Matei, E. (pending-2005). **3D structure and Dynamics of Conopeptides in Solution using Nuclear Magnetic Resonance**. Dissertation. Department of Physics, Florida Atlantic University. (R/LR-MB-18)

- Molina, H. (pending-2004). **Title to be Determined.** Dissertation. (R/LR-B-47)
- Moller, Carolina. (pending-2005). **Novel conopeptides from the venom of *C. floridanus* and *C. villepini*.** Dissertation. Department of Biology, Universidad Simon Bolivar, Caracas, Venezuela. (R/LR-MB-18)
- Mora, David. (pending-2004) **Novel conopeptides from the venom of *C. gladiator*.** Thesis. Department of Chemistry and Biochemistry, Florida Atlantic University. Currently employed at Ivax Pharmaceuticals, Miami Gardens, Fl. (R/LR-MB-18)
- Murray, M. (pending-2005). **Groundwater Discharge in Sarasota Bay.** Dissertation. Department of Oceanography, Florida State University. (R/C-E-44)
- Nagy, B. (In progress-2004). **Spatio-temporal distribution and abundance of pelagic planktivorous fish in relation to benthic habitat.** Dissertation . Department of Fisheries and Aquatic Sciences, University of Florida. (R/LR-B-53)
- Nissmen, L.D. (pending 2004). **Investigation of the Blood Ark, *Anadara ovalis*, and Ponderous Ark, *Noetia ponderosa*, Reproduction and Development.** Thesis. Environmental Biology. Florida Atlantic University. (R/LR-37-PD)
- Pflueger, F.C. (pending-2004). **Novel conopeptides from the venom of *C. brunneus*.** Dissertation. Department of Chemistry and Biochemistry, Florida Atlantic University. (R/LR-MB-18)
- Pisarewicz, Katarzyna. (pending-2004). **Novel conopeptides from the venom of *C. mus*.** Thesis. Department of Chemistry and Biochemistry, Florida Atlantic University (R/LR-MB-18)
- Randall, M.T. (pending-2004). **Tentative Project "The Ecology of Drift Macroalgae in a Relatively Undisturbed Shallow Water Estuary Along the Gulf Coast of Florida".** Thesis. Department of Fisheries and Aquatic Sciences, University of Florida. (R/LR-B-46)
- Rhyne, A.L. (pending-2006). **Title to be Determined.** Dissertation. Biology Department. Florida Institute of Technology. (E/INDST-2)
- Richards, V. (pending-2005). **Population Genetic Structure in Diverse Elasmobranchs.** Dissertation. Oceanographic Center, Nova Southeastern University. (R/LR-B-54)
- Valero-Aracama, Carmen. (Pending 2003). **Physiological and Anatomical Basis For Differences in In vitro and Ex Vitro Growth Performance of Sea Oats Genotype.** Dissertation. Physiological and anatomical studies. University of Florida. (R/C-S-41)
- Williams, Orette. (pending-2004). **Novel conopeptides from the venom of *C. jaspadius*.** Thesis. Department of Chemistry and Biochemistry, Florida Atlantic University. (R/LR-MB-18)

VI. Florida Sea Grant Extension Publications

A. Published

B. Pending

C. In Process, Planned, Submitted, etc.

Jacoby, Charles A. (submitted-2004). **Nutrients in Coastal Waters.** University of Florida: Department of Fisheries and Aquatic Sciences. 42 Pg. (SGEP-13)

Kearl, S. (in progress-2005). **Non-Formal Education: Florida Sea Grant Contributes and Participates Statewide.** (COMM-5)

VII. Extension Newsletters

A. Published

Stevely, J.M. 2005. Manatee County Extension Services (SGEP-13)
The Marine Scene. Six Editions-Bimonthly. 6 pg.
January – February 46(1)

VIII. Miscellaneous Papers, Articles and Conference Proceeding

A. Published

B. In Press

Greenawalt, J.M., Frazer, T.K., Jacoby, C.A., and W.S. Arnold. (in press-2004). **Estimating mortality rates of bay scallops along Florida's Gulf coast.** In: 17th Biennial Conference of the Estuarine Research Federation. (SGEP-13)

Jamison, J. (in press-2003). **Available Technologies for Post Harvest Processing of Oysters.** (R/LR-Q-23)

Jamison, J. (in press-2003). **Post Harvest Processing Technologies for Oysters.** (R/LR-Q-23)

Masters, F., Aponte, L., Gurley, K., Reinhold, T. 2004. **Gust Factors Observed in Tropical Cyclones Isabel, Lili, Isidore Gabrielle and Irene during the 1999-2003 Atlantic Hurricane Seasons.** ASCE joint specialty conference on probabilistic mechanics and structural reliability, Albuquerque, NM, July 16-28, 2004. (R/C-S-43)

Moye, H.A. (in press-1997). **Opportunities for Pesticide Residue Analytical Methods Development: The Potential for Aqueous Extractions of Pesticide Residues from Fruits and Vegetables.** In: Proceedings of the 8th International Congress of Pesticide Chemistry: Options 2000. (R/C-E-38)

Pomponi, S.A., R. Willoughby, A.E. Wright, C. Pecorella, J. Lopez, and G. Samples. (in press-1997). **Development of an *in vitro* System for Production of the Ecteinascidins, Antitumor Compounds from the Tunicate, *Ecteinascidia turbinata*.** In: Proceedings of the Congress on in vitro Biology.(R/LR-MB-1)

Posadas, B. and R. Posadas. (in press-2003). **Consumer Preferences for Postharvest Processed Raw Oyster Products in Coastal Mississippi.** Technical Bulletin of the Mississippi Agricultural and Forestry Experiment Station. (R/LR-Q-23)

C. Submitted, In Preparation, Planned

Adams, C., and L. Sturmer. (in review-2004). **Economic Impact of the Florida Cultured Hard Clam Industry.** In: Aquaculture America Vol. February (SGEP-13)

McDaniel, L., D.W. Griffin, J. Crespo-Gomez, M.R. McLaughlin, and J.H. Paul. (submitted-2002). **Evaluation of Marine Bacterial Lysogens for use in a Mutagen Detection (Prophage Induction) Assay.** American Society for Microbiology Meeting, Los Angeles, CA, May 21-25. (R/LR-MB-3)

Otwell, W.S., Garrido, V., and A. Lahsen. (in progress-2004). **Validations, Verifications and Audits.** Rome, Italy WHO/FAO. (SGEP-13)

Subramanian, C., Pinelli, J. P., Buist, L., Jha, A. (planned-2003). **A Wireless Data Acquisition System for Coastal Wind Monitoring.** The 11th International Conference on Wind Engineering, June. (R/C-S-43)

Pomponi, S.A., R. Willoughby, and C.G. Russell. (in preparation-1997). **Application of DNA Microarray Technology for Gene Discovery and Expression Analysis in a Non-model Organism.** To be presented: 2001 Congress on In Vitro Biology. St. Louis, MO. June 16-20. (R/LR-MB-13)

Pomponi, S.A. (in preparation-2000). Marine **Invertebrate Models for In Vitro Production of Bioactive Compounds**. International Marine Biotechnology Conference 2000. Townsville, Australia. September 28 - October 4. (R/LR-MB-13)

Ruth, A., Sturmer, L., and C. Adams. (in process-2004). **Organizational Structures and Strategies for the Hard Clam Industry in Florida**. Gainesville, FL: University of Florida, November 60 Pg. (SGEP-13)

Willoughby, R., C.G. Russell, and S.A. Pomponi. (in preparation-2000). **Application of DNA Microarray Technology to Development of a Marine Sponge Model**. International Marine Biotechnology Conference 2000. Townsville, Australia. September 28 - October 4. (R/LR-MB-13)

IX. Websites

A. Published

Florida Sea Grant Home Page

<http://flseagrant.org/>

Florida Bay

<http://flseagrant.org/>

Seafood Science and Technology

<http://sst.ifas.ufl.edu/>

Anchorage Inventory

http://flseagrant.org/program_areas/boating/anchorage/anchorage_inventory.htm

Non-Native Invasive Aquatic and Wetland Plants in the United States

<http://plants.ifas.ufl.edu/seagrant/aquinv.html>. Vic Ramey.

Escambia County Marine Extension.

<http://escambia.ifas.ufl.edu/marine>. Andrew P. Diller

The Miami-Dade County Sea Grant Extension Program.

<http://miami-dade.ifas.ufl.edu/programs/seagrant.htm>. Marella Crane.

REDstart Fisheries Enhancement Project

<http://www.lee-county.com/extensionsservices/marine.htm>. Bob Wasno.

UF/Monroe County Extension Service.

<http://monroe.ifas.ufl.edu/mces3.htm>. Doug Gregory

St. Johns County – Northeast Marine Extension.

<http://stjohns.ifas.ufl.edu/sea/seagrant.htm>. Maia P McGuire

CALENDAR YEAR 2004

I. Florida Sea Grant Reports

A. Published

National Seafood HACCP Alliance. 2004. HACCP: Programa de capacitacion en analisis de peligros y puntos criticos de control. Seafood HACCP Alliance Course – Fourth Edition for Training and Education. SGR-125. (SGR-120 in Spanish). (E/TP-2)

II. Florida Sea Grant Technical Papers

A. Published

Florida Sea Grant. 2004. **Florida Sea Grant College Program Year 2004 Work Plan.** TP-137. (M/PM-13)

Florida Sea Grant. 2004. **Performance Counts: Annual Progress Report for 2003.** TP-135. (M/PM-13)

Florida Sea Grant. 2004. **Florida Sea Grant College Program 2004-2005 Implementation Plan.** TP-131. (M/PM-13)

Schrope, M. and W.S. Seaman. 2004. **The Promise of Marine Biotechnology in Florida.** TP-132. (M/PM-13)

Sidman, C., Fik, T., and B. Sargent. 2004. **A Recreational Boating Characterization for Tampa and Sarasota Bays.** TP-130. (R-C-P-24)

Swett, R., C. Sidman, T. Fik, and B. Sargent. 2004. **Florida's Vessel Title Registration System as a Source of Boat Locations and Characteristics.** TP-138. (R/C-P-25-PD)

Tilghman, G.C., Francis-Floyd, R., and R.E. Klinger. 2004. **A Histological Atlas of Surgeonfish.** TP-123. CD. (R/LR-A-30)

III. Books and Book Chapters

A. Published

IV. Journal Articles

A. Published

Adams, C. and L. Sturmer. 2004. **Hard clam culture: a commercial success story in Florida.** World Aquaculture 35(3):56-60. (SGEP-13)

Adams, C., Sturmer, L., Hodges, A., and D. Mulkey. 2004. **The economic impact of the culture hard clam industry in Florida.** Journal of Applied Aquaculture 15(1/2):85-99. (SGEP-13)

Coleman, F.C., P. Baker, and C. Koenig. 2004. **A review of Gulf of Mexico marine protected areas: successes, failures and lessons learned.** Fisheries 29(2):10-21. (R/LR-B-51)

Harwood V. J., Gandhi, J. P., and Wright, A. C. 2004. **Methods for isolation and confirmation of *Vibrio vulnificus* from oysters and environmental sources: a review.** Journal of Microbiol. Methods. 59:301-316. (R/LR-MB-15)

Joseph, L. A. and Wright, A. C. 2004. ***Vibrio vulnificus* capsular polysaccharide inhibits boil formation.** Journal of Bacteriol. 186:889-893. (R/LR-MB-15)

- Kohl, A. and R. Kerr. 2004. **Pseudopterosin biosynthesis: Aromatization of the diterpene cyclase product, elisabethatriene.** *Marine Drugs*, 1:54-65. (R/LR-MB-14)
- Kohl, A. and R. Kerr. 2004. **Identification and characterization of the pseudopterosin diterpene cyclase, elisabethatriene synthase, from the marine gorgonian, *Pseudopterogorgia elisabethae*.** *Arch. Biochem. Biophys.* 424, 97-104. (R/LR-MB-14)
- Larkin, S.L., Keithly, W., Adams, C.M. and R.F. Kazmierczak, Jr. 2004. **Buyback programs for capacity reduction in the U.S. Atlantic shark fishery.** *Journal of Agriculture & Applied Economics* 36(2):317-332. (SGEP-13)
- MacMahan, J.H., Reniers, A., Stanton, T.P., and E.B. Thornton 2004. **Infragravity rip current pulsations.** *Journal of Geological Research* 109(C01033):9. (R/C-S-42)
- Medoza, T.E., Welt, B.A., Otwell, W.S., Teixeira, A.A., Kristonsson H. and M.O. Balaban. 2004. **Kinetic parameter estimation of time-temperature integrators intended for use with packaged fresh seafood.** *Journal of Food Science* 69(3):90-96. (R/LR-Q-22)

V. Graduate Theses and Dissertations

A. Published

- Gray, M. 2004. **Detection and Quantification of *Karenia brevis* by Carbon Fixation Gene Expression Analysis.** Thesis. College of Marine Science. University of South Florida. (R/LR-MB-12)
- Jepson, M.E. 2004. **The Impact of Tourism on a Natural Resource Community: Cultural Resistance in Cortez, Florida.** Dissertation. Anthropology, University of Florida. (Aylesworth)
- Lapilli, C. D. 2004. **Wireless Pressure Monitoring System.** Thesis. Civil Engineering Dept. Florida Institute of Technology. (R/C-S-43)
- Licamele, J. 2004. **Linking Prey Selectivity with Feeding Functional Morphology In Marine Fish Larvae.** Thesis. Dept. Florida Institute of Technology. (R/LR-A-38)
- Liss, J.L. 2004. **The Ecology of Drift Algae in the Indian River Lagoon, FL.** Thesis. Dept. of Biology. University of Central Florida. (R/C-E-45)
- Nielsen, J.T. 2004. **Molecular Genetic Approaches to Species Identification and Delineation in Elasmobranchs.** Thesis. Oceanographic Center, Nova Southeastern University. (R/LR-B-54)
- Park, Y.C. 2004. **Chemical Investigation of Three Antarctic Marine Sponges.** Dissertation. Chemistry Dept. University of South Florida. (R/LR-MB-10)
- Peeler, K. 2004. **Caffeine as an anthropogenic source Indicator in Freshwater and Marine Systems.** Thesis. Department of Oceanography, Florida State University. (R/C-E-44)
- Stringer, C. E. 2004. **Assessment of Groundwater Discharge to Lake Barco via Radon Tracing.** Thesis. Dept. of Oceanography. Florida State University. (R/C-E-44)
- Wall, L. 2004. **Impacts of Recreational Boating Activities on Intertidal Oyster Reefs.** Thesis. Dept. of Biology. University of Central Florida. (R/C-E-45)
- Wilson, J.A. 2004. **Habitat Quality, Competition, and Recruitment Processes in Two Marine Gobies.** Dissertation. Zoology. University of Florida. (R/LR-B-52)

VI. Florida Sea Grant Extension Publications

A. Published

- Diller, A. 2004. **Turtle Friendly Beach Program**. Florida Sea Grant. University of Florida. SGEF-160. (SGEP-13)
- Florida Sea Grant College Program. 2004. **Science Serving Florida's Coast: Florida Sea Grant Program Directory 2004-2006**. SGEF-159. (SGEP-13)
- Jacoby, Charles A. and L. Walters. 2004. **Can we stop "Killer Algae" from invading Florida?** SGEF-155. (PD-01-07)
- Jacoby, Charles A., Walters, Linda, Baker, Shirley, and Blyler, Karen. 2004. **Primer on Invasive Species in Coastal and Marine Waters**. SGEF 60. University of Florida: Department of Fisheries and Aquatic Sciences. (PD-01-07)
- Jacoby, Charles A. and L. Walters. 2004. **Are Native and Nonindigenous Seaweeds Overgrowing Florida's East Coast Reefs?** SGEF-156. (PD-01-07)
- Seaman, W. 2004. **Artificial Reef Monitoring in Florida Coastal Counties**. SGEF-58. (M/PM-13)
- Sweat, D. E. 2004. **Recreational Harvesting of the Florida Bay Scallop**. SGEF-153 revised. (SGEP-13)
- Swett, R., C. Sidman, T. Fik, and B. Sargent. 2004. **Florida's Vessel Title Registration System as a Source of Boat Locations and Characteristics: A Case Study in Lee and Manatee Counties – Summary Report**. SGEF-148. (R/C-P-25PD)

VII. Extension Newsletters

A. Published

- Gregory, D. 2004. UF/IFAS/Monroe County Extension (SGEP-13)
Educating with Extension. 4p.
January 3(1)
February 3(2)
March 3(3)
April 3(4)
May & June 3(5-6)
July 3(7)
August 3(8)
September 3(9)
October 3(10)
- McGuire, M.P. 2004. St. Johns Ag. Center. (SGEP-13)
Aqua Notes. 6 pg.
February 4(1)
May 4(2)
August 4(3)
November 4(4)
- Sturmer, L. 2004. Levy County: Cooperative Extension Service (SGEP-13)
The Bivalve Bulletin. 6 p.
January VIII(1)
July VIII(2)
October VIII(3)

Stevely, J.M. 2004. Manatee County Extension Services (SGEP-13)
The Marine Scene. Six Editions-Bimonthly. 6 pg.
January – February 45(1)
March – April 45(2)
May – June 45(3)
July-August 45(4)
September – October 45(5)
November – December 45(6)

Sweat, D.E. 2004. Pasco County Extension Newsletter. (SGEP-13)
Marine Times. 8p.
January-March 27(1)
April-June 27(2)

VIII. Miscellaneous Papers, Articles and Conference Proceedings

A. Published

Creswell, R.L. (Ed). 2004. **GCFI Proceedings of the Fifty-Fifth Annual Gulf and Caribbean Fisheries Institute.** Xel-Ha, Quintana Roo, Mexico, November 2002. (SGEP-13)

Jamir, T.V.VC., Jamison, J., Posadas, R., Smith, E., Mitchell, T., McNeeely, J., Balthrop, P., Posadas, B., Andrews, A. and P. Coggins. 2004. **Integrated Oyster Market Research, Product Development, Evaluation, Promotion and Consumer Education for the Gulf of Mexico's Oyster Industry – Gulf Oyster Manual.** (R/LR-Q-23)

Oesterling, M.J., Adams, C.M. and A.M. Lazur. 2004. **Marine Baitfish Culture: Workshop Report on Candidate Species & Considerations for Commercial Culture in the Southeast U.S.** Ruskin, FL December 2004. (SGEP-13)

IX. Websites

A. Published

Florida Sea Grant Home Page

<http://flseagrant.org/>

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<http://flseagrant.org/>

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Non-Native Invasive Aquatic and Wetland Plants in the United States

<http://plants.ifas.ufl.edu/seagrant/aquinv.html>. Vic Ramey.

Escambia County Marine Extension.

<http://escambia.ifas.ufl.edu/marine>. Andrew P. Diller

The Miami-Dade County Sea Grant Extension Program.

<http://miami-dade.ifas.ufl.edu/programs/seagrant.htm>. Marella Crane.

REDstart Fisheries Enhancement Project

<http://www.lee-county.com/extensionservices/marine.htm>. Bob Wasno.

UF/Monroe County Extension Service.

<http://monroe.ifas.ufl.edu/mces3.htm>. Doug Gregory

St. Johns County – Northeast Marine Extension.

<http://stjohns.ifas.ufl.edu/sea/seagrant.htm>. Maia P McGuire

CALENDAR YEAR 2003

I. Florida Sea Grant Reports

II. Florida Sea Grant Technical Papers

Deyle, R.E., and R.E. Smith. 2003. **The Costs of Hurricane Emergency Management Services: A risk-Based Method for Calculating Property Owners' Fair Share.** TP-121. Also available in Edis # SG063. (R/C-P-21)

Florida Sea Grant College Program. 2003. **Florida Sea Grant College Program Year 2003 Work Plan.** TP-127. (M/PM-13)

Florida Sea Grant College Program. 2003. **Performance Counts: Annual Progress Report for 2002.** TP-129. (M/PM-13)

Nakamura, Y., J.P. McVey, S. Fox, K. Churchill, C. Neidig, and K. Leber (eds).. 2003. **Ecology of Aquaculture Species and Enhancement of Stocks: Proceedings of the Thirtieth U.S. – Japan Meeting on Aquaculture.** Sarasota, FL, 3-4 December, 2001. UJNR. TP-128. (PD-01-03)

Sturmer, L.N. Adams, C.M., and J.E. Supan. 2003. **Enhancing Seed Availability for the Hard Clam (*Mercenaria mercenaria*) Aquaculture Industry by Applying Remote Setting Techniques.** TP-125. (R/LR-A-27)

III. Books and Book Chapters

Cato, J.C. and C.L. Brown. (ed.) 2003. **Marine Ornamental Species: Collection, Culture & Conservation.** Iowa State Press. (PD-00-04)

Corbin, J.S., Cato, J.C., and C.L. Brown. 2003. **Marine Ornamentals Industry 2001: Priority Recommendations for a Sustainable Future.** In: Marine Ornamental Species: Collection, Culture & Conservation. Iowa State Press. Pp. 3-9. (PD-00-04)

Larkin, S. 2003. **The U.S. Wholesale Marine Ornamental Market: Trade, Landings, and Market Opinions.** In: Marine Ornamental Species: Collection, Culture & Conservation. Iowa State Press. Pp. 77-89. (R/LR-A-29)

Larkin, S.L., Bodisco, C., and R. Degner. 2003. **Wholesale and Retail Break-Even Prices for MAC-Certified Queen Angelfish (*Holocanthus ciliaris*).** In: Marine Ornamental Species: Collection, Culture & Conservation. Iowa State Press. pp. 125-137. (R/LR-A-29)

Ochi, M.K. 2003. **Hurricane-Generated Seas.** Elsevier Ocean Engineering Book Series, Volume 8. (R/C-S-37)

Otwell, W.S. and D.R. Ward. 2003. **Scientific Criteria to Ensure Safe Food.** National Academy Press. 424 pp. (SGEP-13)

Tilghman, C.G., Francis-Floyd, R., and E. Klinger. (ed.) 2003. **Captive Nutritional Management of Herbivorous Reef Fish Using Surgeonfish (*Acanthuridae*) as a Model.** In: Marine Ornamental Species: Collection, Culture & Conservation, J.C. Cato and C. Brown. Iowa State Press:101-108. (R/LR-A-30)

IV. Journal Articles

Adams, C., Palma, M., and F. Wirth. 2003. **Buying Cultured Sturgeon.** Global Aquaculture Advocate. (6)6:31-32. (PD-02-06)

- Burnett, W.C., H. Bokuniewicz, M. Huettel, W.S. Moore, and M. Taniguchi. 2003. **Groundwater and porewater inputs to the coastal zone.** Biogeochemistry.66:3-33. (R/C-E-42)
- Campbell, M. A., Wright, A. C. 2003. **Real-time PCR detection of *Vibrio vulnificus* in oysters.** Applied Environmental Microbiology 69:7137 –7144. (R/LR-MB-15)
- Chockley, BR, CM St. Mary. 2003. **Effects of body size on growth, survivorship, and reproduction in the banded coral shrimp (*Stenopus hispidus*).** Journal of Crustacean Biology 23(4):836-848. (R/LR-B-52)
- Coursey, Y., Ahmad, N., McGee, B.M., Steimel, N., and M. Kimble. 2003. **Amebocyte Production Begins at Stage 18 during Embryogenesis in *Limulus polyphemus*, the American Horseshoe Crab.** Biological Bullitine/Marine Biological Laboratory. 204:21-27. (PD-00-08)
- Chanton, J.P., W.C. Burnett, M. Taniguchi, H. Dulaiova, and D.R. Corbett. 2003. **Seepage rate variability in Florida Bay driven by Atlantic tidal height.** Biogeochemistry 66:187-202. (R/C-E-42)
- Chapman, D., D. Abercrombie, C. Douady, E. Pikitch, M. Stanhope and M. Shivji. 2003. **A streamlined, bi-organelle, multiplex PCR approach to species identification: application to global conservation and trade monitoring of the great white shark, *Carcharodon carcharias*.** Conservation Genetics. 4:415-425. (R/LR-B-54)
- Deyle, R.E. and M.K. Falconer. 2003. **Revenue Options for a Risk-Based Assessment of Developed Property in Hurricane Hazard Zones.** Journal of Land Use and Environmental Law, 18 (2):299-330. (R/C-P-21)
- Dillon, K., Burnett, W., Chanton, C., Kim, G., Corbett, D.R., Elliot, K., and L. Kump. 2003. **Groundwater flow and phosphate dynamics surrounding a high discharge wastewater disposal well in the Florida Keys.** Journal of Hydrology. 284:193-210. (R/C-E-44)
- Douady, C.J., M. Dosay, M. S. Shivji, and M. J. Stanhope. 2003. **Molecular phylogenetic evidence refuting the hypothesis of Batoidea (rays and skates) as derived sharks.** Molecular Phylogenetics and Evolution 26:215-221. (R/LR-B-54)
- Erdogdu, F., Balaban, M.O. and Otwell, W.S. 2003. **Construction of Shrimp Cooking Charts Using Previously Developed Mathematical Models for Heat Transfer and Yield Loss Predictions.** Journal of Food Engineering. 60:107-110. (SGEP-13)
- Glancy, T.P., Frazer, T.K., Cichra, C.E. and W.J. Lindberg. 2003. **Comparative Patterns of Occupancy by Decapod Crustaceans in Seagrass, Oyster, and Marsh-edge Habitats in a Northeastern Gulf of Mexico Estuary.** Estuaries. 26(5):1291-1301. (R/LR-B-46)
- Kem, W.R., Soti, F., and Rittschof, D. 2003. **Inhibition of barnacle larval settlement and crustacean toxicity of some hoplonemertine pyridyl alkaloids.** Biomolecular Engineering 20:355-361(R/LR-MB-16)
- Lambert, M.J. and W.C. Burnett. 2003. **Submarine groundwater discharge estimates at a Florida coastal site based on continuous radon measurements.** Biogeochemistry. 66:55-73. (R/C-E-42)
- Larkin, S. and C. Adams. 2003. **Facilitated Blue Crab Management Workshops: Stakeholder Preferences and Lessons Learned.** Journal of Agricultural and Applied Economics. 35/2:453.(SGEP-13)
- Lawrence, J.M., Plank, L.R., and A.L. Lawrence. 2003. **The effect of feeding frequency on consumption of food, absorption efficiency, and gonad production in the sea urchin *Lytechinus variegates*.** Comparative Biochemistry a Physiology Part A 134:69-75 (R/LR-A-21)
- Mari, F. and Fields, G.B. 2003. **Conopeptides: Unique Pharmacological Agents that Challenge Current Peptides Methodologies.** Chimica Oggi, 21:43-48. (R/LR-MB-18)

- Notestein, S.K., Frazer, T.K., Hoyer, M.V. and D.E. Canfield, Jr. 2003. **Nutrient Limitation of Periphyton in a Spring-Fed, Coastal Stream in Florida, USA.** Journal of Aquatic Plant Management. 41:57-60. (R/LR-B-46)
- Otwell, W.S. 2003. **Reduced oxygen packaging of fresh seafood.** Journal of Food Science. (R/LR-Q-22)
- Shima, J. and C.W. Osenberg. 2003. **Cryptic density dependence: effects of spatio-temporal variation among reef fish populations.** Ecology 84:46-52 (R/LR-B-52)
- Smith, S., Jacob, S., Jepson, M., and G. Isreal. 2003. **After the Florida Net Ban: The Impacts on Commercial Fishing Families.** Society and Natural Resources. 16:39-59. (R/LR-E-14)
- Sylvia, D., A. Alagely, M. Kane and N. Philman. 2003. **Compatible host/mycorrhizal fungus combinations for micropropagated sea oats. I. Field sampling and greenhouse evaluations.** Mycorrhiza 13:177-183. (R/C-S-38)
- Vanderklift, Mathew A., Jacoby, Charles A. 2003. **Patterns in fish assemblages 25 years after major seagrass loss.** Marine Ecology Progress Series. 247:225-235. (SGEP-13)
- Welt, B.A., Sage, D.S., Berger, K.L. 2003. **Performance specification of time-temperature integrators designed to protect against botulism in refrigerated fresh foods.** Journal of Food Science.68(1):2-9. (R/LR-Q-22)

V. Graduate Theses and Dissertations

- Abercrombie, D. 2003. **Efficient PCR-based identification of shark products in global trade: applications for the management and conservation of commercially important mackerel sharks (Family Lamnidae), thresher sharks (Family Alopiidae) and hammerhead sharks (Family Sphyrnidae).** Thesis. Oceanographic Center, Nova Southeastern University. (R/LR-B-54)
- Calero, A.G. 2003. **Application of Molecular Detection Methods to Most Probable Number (MPN) Enumeration of *Vibrio vulnificus* in Oysters.** Thesis. Food Science and Human Nutrition. University of Florida (R/LR-MB-15)
- Campbell, M.S. 2003. **Development of Real-Time Pcr Assay For Detection and Enumeration Of *Vibrio Vulnificus* In Oysters.** Thesis. Department of Food Science and Human Nutrition. University of Florida. (R/LR-MB-15)
- Dillon, K.S. 2003. **The Use of Stable and Radioactive Isotopes in Tracing Nutrient Sources and Sinks in two Urbanized Coastal Environments of Florida: The Florida Keys and Sarasota Bay.** Dissertation. Dept. of Oceanography, Florida State University. (R/C-E-44)
- Engle, J.A. 2003. **Formulation of a Rip Current Forecasting Techniques through Statistical Analysis of Rip Current-Related Rescues.** Thesis. Dept. of Civil and Coastal Engineering. University of Florida. (R/C-S-42)
- Gnanaraj J. 2003. **Evaluation of Oxygen Transmission Rate of Packaging Films on Growth of *Clostridium Sporogenes* and Media Oxidation Reduction Potential in Packaged Seafood Simulating Media.** Thesis. Agricultural and Biological Engineering , University of Florida.(R/LR-Q-22)
- Hutchinson, S.D. 2003. **An economic analysis of multi-fishery participation among commercial fishers in South Florida.** Thesis. Food and Resource Economics. University of Florida. (R/LR-E-18A)
- Kohl, A.C. 2003. **Identification of the Diterpene Cyclase and Elucidation of Early Steps in the Pseudopterosin Biosynthetic Pathway.** Dissertation. Chemistry and Biochemistry. Florida Atlantic University. (Aylesworth)

- MacMahan, J.H. 2003. **Field Observations of Rip Current Dynamics**. Dissertation. Dept. of Civil and Coastal Engineering. University of Florida. (R/C-S-42)
- Mendoza, T. F. 2003. **Kinetic Parameter Estimation of Time-Temperature Integrators Intended for use with Packaged Fresh Seafood**. Thesis. Agricultural and Biological Engineering, University of Florida. (R/LR-Q-22)
- Rubinstein, W. 2003. **Conjoint Analysis Addressing Eco-Labeling for Marine Ornamentals Along the Marketing Chain**. Thesis. Department of Food and Resource Economics, University of Florida. (R/LR-A-29)
- Sedlacek, C. 2003. **Effect hypoxia has on feeding and egg production rates of *Acartia tonsa* Dana 1849 (Copepoda: Calanoida)**. Thesis. Agricultural and Biological Engineering, University of Florida. (R-LR-A-36)
- Weaver, R.N. 2003. **Hurricane Data Collection Hardware and Software: Improvements, Maintenance and Development**. Thesis. Department of Civil and Coastal Engineering.. University of Florida.(R/C-S-43)
- Williamson, S.J. 2003. **Lysogeny, Pseudolysogeny, and Sporulation In The Marine Environment**. Dissertation. College of Marine Science. University of South Florida. (Old Salt)

VI. Florida Sea Grants Extension Publications

- Florida Sea Grant College Program. 2003. **Commercial Suppliers of Sea Oats in Florida**. SGEF-150. (SGEP-13)
- Florida Sea Grant College Program. 2003. **Florida Sea Grant**. SGEF-154. (M/PM-13)
- Florida Sea Grant College Program. 2003. **Internet Directory of Marine Education and Research Organizations in Florida**. SGEF-132. - Revision (COMM-5)
- Sweat, D. E. 2003. **Recreational Harvesting of the Florida Bay Scallop**. Florida Sea Grant, 2003. SGEF-153. (SGEP-13)

VII. Extension Newsletters

- Crane, M.G. 2003. Homestead: Miami-Dade County Cooperative Extension Office. (SGEP-13)
At the Water's Edge. 4 p.
 Vol. 3(1) Oct. – Nov. 2003.
- Gregory, D. 2003. UF/IFAS/Monroe County Extension (SGEP-13)
Educating with Extension. 4 p.
 Vol. 2(10) October 2003.
 Vol. 2(12) December 2003.
- McGuire, M.P. 2003. St. Johns County (SGEP-13)
Aqua Notes. 3(4) November 2003. 4 p.
- Novak, R.L. 2003. Charlotte County Extension Newsletter. (SGEP-13)
Spotted Seatrout Stay at "Home"- Oct., Nov., & Dec. 2003.
- Stevely, J.M. 2003. Manatee County Extension Services (SGEP-13)
The Marine Scene. Six Editions-Bimonthly. 6 pg.
 November – December 44(6)
- Sturmer, L. 2003. Levy County: Cooperative Extension Service (SGEP-13)
The Bivalve Bulletin. May 2003. 6 p.

Sweat, D.E. 2003. Pasco County Extension Newsletter. (SGEP-13)
Marine Times. 8p.
Vol. 26(1) January-March, 2003
Vol. 26(4) October – December 2003.

VIII. Miscellaneous Papers, Articles and Conference Proceedings

Adams, C. and Larkin, S. 2003. **The use of Vessel Logbooks to Collect Economic Data: A Point-Counterpoint Discussion.** In: First Biennial Conference of the North American Association of Fisheries Economists. New Orleans, LA April 1-4, 2001. Pp. 35-41. (SGEP-13)

Adams, C., and D. Sweat. 2003. **The Financial Characteristics of a Zero-Water Exchange Shrimp Culture System.** In: 6th Congress on Marine Sciences. Havana, Cuba, December 1-2, 2003. pp 20-21. (SGEP-13)

Adams, C., Herman, J., and J. Burkhardt. 2003. **The 3rd Annual FRE Graduate research Symposium.** Gainesville, UF Food and Resource Economics Dept. TLP 02-23 November:28. (SGEP-13)

Cato, J.C. and S. Subasinge. 2003. **Case Study: The Shrimp Export Industry in Bangladesh.** In: Food Safety in Food Security and Food Trade, 2020 Focus 10:9 of 17. (M/PM-11)

Crane, M.G. 2003. **Hurricane Manual for Marine Interests.** 16 pg. (SGEP-13)

Creswell, L.R. 2003. **Fifty-Fourth Proceedings of the Gulf and Caribbean Fisheries Institute.** 799 pg. (SGEP-13)

Diller, A.P., Verlinde, C.M., and E. Godwin. 2003. **Environmental Education Coordination Team: Cooperative efforts in natural resource education and grant writing.** In: Florida Association of Extension Professionals Seventeenth Annual Proceedings. Pp. 60. (SGEP-13)

Diller, A.P. 2003. **Reptiles.** In: Water: Science and Issues. 4:43-47. (SGEP-13)

Greenawalt, J.M., Frazer, T.K., Jacoby, C.A., and W.S. Arnold. 2003. **Managing Scallops Along Florida's West Coast: The Importance Of Interactions Among Scallop Biology, Habitat Availability, Recreational Fishing Effort, and Fisheries Management.** In: 14th International Pectinid Workshop. Pp. 199-200. (SGEP-13)

Howard, R., Dodge, P., Doggett, A., Finney, J., Gurley, K., Levitan, M., Reinhold, T., Schroeder, J. and Stone, G. 2003. **The Landfall of Hurricane Lili in Louisiana: A Summary of Cooperative Data Collection Efforts.** 11th International Conference on Wind Engineering, Lubbock, TX, June 2-5, 2003. (R/C-S-43)

Jacoby, C.A. and M.S. Spranger. 2003. **Saltwater Invasive Species: Partnership and Programs.** In: Florida Association of Extension Professionals Conference. Pp. 64 (SGEP-13)

Jamison, J. 2003. **Integrated Oyster Market Research, Product Development, Evaluation, Promotion and Consumer Education for the Gulf of Mexico's Oyster Industry.** Final Report. (R/LR-Q-23)

Masters, F., Gurley, K. and Reinhold, T. 2003. **Ground Level Wind Characteristics for Isidore and Lili.** The 11th International Conference on Wind Engineering, Lubbock, TX, June 2-5. (R/C-S-43)

Novak, R., Stevely, J. Adams, C., Sweat, D., and M. Crane. 2003. **Increasing Survival of Recreationally Released Fish.** In: Florida Association of Extension Professionals Vol. September (SGEP-13)

Otwell, W.S., Balaban, M. and H. Kristinsson. 2003. **Use of Carbon Monoxide for Color Retention in Fish.** In: Trans-Atlantic Fisheries Technology Conference. (Reykjavik, Iceland). Pp. 24-26. Online: <http://vefur.rf.is/TAFT2003/taft.pdf>. (SGEP-13)

- Perruso, L., Larkin, S., Lee, D., and Adams, C. 2003. **An Empirical Investigation of the US Atlantic Longline Fleet: Specification and Estimation of a Multi-Species Cost Function with Suggestions for Missing Data Problems.** In: First Biennial Conference of the North American Association of Fisheries Economists. New Orleans, LA April 1-4, 2001. Pp. 25-26. (SGEP-13)
- Seaman, W., Smiley, B., Pitcher, T., and L. Wood. 2003. **Research and Monitoring of Marine Reefs Using Volunteer Divers.** Fisheries Centre Research Reports 2003, Vol 11(2). Proceedings of the North American Practitioners Workshop, Sidney, British Columbia, Canada. June 2002. (M/PM-13)
- Verlinde, C., Holland, D., and J. Jarret. 2003. **“Fresh Catch” Cookbook.** 175 pg. (SGEP-13)
- Verlinde, C.M., Diller, A.P., Jackson, L.S., McDonald, K., Shultz, H., Davis, P.J. and W.T. Mahan. 2003. **District 1 Marine Camp, an Aquatic Adventure!** In: Florida Association of Extension Professionals Seventeenth Annual Conference Proceedings. Pp 66. (SGEP-13)

IX. Websites

Florida Sea Grant Home Page
 Florida Bay
 SST
 Anchorage
 Non-Native Invasive Aquatic and Wetland Plants in the United States
<http://plants.ifas.ufl.edu/seagrant/aquinv.html>. Vic Ramey.
 Escambia County Marine Extension. <http://escambia.ifas.ufl.edu/marine>. Andrew P. Diller
 The Miami-Dade County Sea Grant Extension Program. <http://miami-dade.ifas.ufl.edu/programs/seagrant.htm>. Marella Crane.
 REDstart Fisheries Enhancement Project. <http://www.lee-county.com/extensionservices/marine.htm>. Bob Wasno.
 UF/Monroe County Extension Service. <http://monroe.ifas.ufl.edu/mces3.htm>. Doug Gregory
 St. Johns County – Northeast Marine Extension. <http://stjohns.ifas.ufl.edu/sea/seagrant.htm>. Maia P McGuire

CALENDAR YEAR 2002

I. Florida Sea Grant Reports

Letson, D., and J.W. Milon. 2002. **Florida Coastal Environmental Resources: A Guide to Economic Valuation and Impact Analysis.** SGR-124 (M/PM-13)

II. Florida Sea Grant Technical Papers

Cato, J. 2002. **An Investment in Florida's Future: Sea Grant Sponsored Graduate Education.** TP-117. (M/PM-13)

Florida Sea Grant College Program. 2002. **Florida Sea Grant College Program Year 2002 Work Plan.** TP-119. (M/PM-13)

Florida Sea Grant College Program. 2002. **Performance Counts: Annual Progress Report for 2001.** TP-118. (M/PM-12)

Fann, D. A., Swett, R.A., Alexander, L.C. and G.A. Antonini. 2002. **Regional Waterway Management System for Lee County, Phase 3.** TD-5. (R/C-P-24)

Stephan, K.E., Stein, T.V., and K.J. Lindgren. 2002. **Rookery Bay Estuarine Research Reserve Visitor Study.** TP-120. (PD-99-11)

Sturmer, L., M. Zylstra, and C. Adams. 2002. **C.L.A.M. Computer Logbook and Management: A User's Guide for Commercial Hard Clam Growers.** TP-122. (SGEP-13)

Swett, R., and D. Fann. 2002. **Bathymetric Data for Coastal Resource Management in Southwest Florida Waterways: Enhancement and Standardization of Field Collection Methods Used by the West Coast Inland Navigation District.** TP-126. (CDI)

Swett, R.A., Fann, D.A. and G.A. Antonini. 2002. **Regional Waterway Management System for Manatee County: Bishop Harbor, Tidal Braden River, and Lower Reaches of the Upper Manatee River.** TD-6 (R/C-P-24)

III. Books and Book Chapters

Adams, C., Mulkey, D., and A. Hodges. 2002. **Economic Importance of the San Carlos Island Shrimp Processing Industry to the Lee County Economy.** In: Florida Coastal Environmental Resources: A Guide to Economic Valuation and Impact Analysis SGR-124. Pp. 131-144. (SGEP-13)

Creswell, L.R. and R. Flos. (Ed) 2002. **Perspectives on Responsible Aquaculture for the New Millennium.** World Aquaculture Society. (SGEP-13)

Douglass, S.L. 2002. **Saving America's Beaches: The Causes of and Solutions to Beach Erosion.** World Scientific Publishing. (PD-01-09)

Otwell, S., Garrido, L., Garrido, V., and Benner, R. 2002. **Methods for Improving Shrimp Farming in Central America.** In: Good Aquaculture Practices for Product Quality and Safety. Pp. 169-228.(SGEP-13)

IV. Journal Articles

Antoine, F.R., Wei, C.I., Otwell, W.S., Sims, C.A., Little, R.C., Hogle, A.D., and Marshall, M.R. 2002. **TVB-N Correlation with Odor Evaluation and Aerobic Plate Count in Mahi-Mahi (*Coryphenena hippurus*).** Journal of Food Science. 67/9:3210-3214. (R/LR-Q-21)

- Benetti, D.D., J.A. Matera, O.M. Stevens, J.F. Alarcon, M.W. Feeley, F.J. Rotman, Y. Minemoto, G.Banner-Stevens, J. Fanke, S. Zimmerman, and L. Eldridge. 2002. **Growth, Survival, and Feed Conversion Rates of Hatchery-Reared Mutton Snapper, *Lutjanus analis*, Cultured in Floating Net Cages.** Journal of the World of Aquaculture Society. 16(3):349-357. (R/LR-A-35)
- Bolker, B.M., C.M. St. Mary, C.W. Osenberg, R.J. Schmitt, and S.J. Holbrook. 2002. **Management at a different scale: marine ornamentals and local processes.** Bulletin of Marine Sciences 70:733-748. (R/LR-B-52)
- Burnett, W.C., M. Lambert, J. Christoff, J. Chanton, M. Taniguchi, W. Moore, L. Smith, S Krupa, E. Kontar, C. Smith, R. Paulsen, and D. O'Rourke. 2002. **Assessing Methodologies for Measuring Groundwater Discharge to the Ocean.** EOS, Transactions, American Geophysical Union. 83 (11):117, 122-123. (R/C-E-42)
- Burns, K.M. and V. Restrepo. 2002. **Survival of Reef Fish after Rapid Depressurization: Field and Laboratory Studies.** American Fisheries Society Symposium 30:148-151, 2002. (R/LR-B-40)
- Cervený, K.E. , DePaola, A., Duckworth, D.H., and P. A. Gulig. 2002. **Phage Therapy of Local and Systemic Disease Caused by *Vibrio Vulnificus* an Iron-Dextran Treated Mice.** Infection and Immunity. 70 (11):6251-6262. (R/LR-Q-20)
- Coleman, F.C. and Williams, S.L. 2002. **Overexploiting Marine Ecosystem Engineers: Potential Consequences for Biodiversity.** Trends in Ecology and Evolution. 17 (1):40-44. (R/LR-B-51)
- Collins, T.M., Trexler, J., Nico, L., and T.A. Rawlings. 2002. **Genetic Diversity in a Morphologically Conservative Invasive Taxon: Multiple Introductions of Swamp Eels to the Southeastern United States.** Conservation Biology 16 (4):1024-1035. (R/C-E-46)
- Corbett, D.R., K. Dillon, W. Burnett, and G. Schaefer. 2002. **The Spatial Variability of Nitrogen and Phosphorus Concentration in a Sand Aquifer Influenced by Onsite Sewage Treatment and Disposal Systems: A Case Study on St. George Island, Florida.** Environmental Pollution. 117:337-345. (R/C-E-42)
- Donaldson, K.A., D.W. Griffin, and J.H. Paul. 2002. **Detection, Quantitation and Identification of Enteroviruses from Surface Waters of the Florida Keys Using Real-Time RT-PCR.** Water Research 36:2505-2514. (R/LR-MB-12)
- Duckworth, D.H. and Gulig, P.A. 2002. **Bacteriophages: Potential Treatment for Bacterial Infections.** Biodrugs. 16 (1):57-62. (R/LR-Q-20)
- George, S. B. and J. M. Lawrence. 2002. **The Effect Of Carotenoids on Egg Production and Larval Development of The Edible Sea Urchin, *Lytechinus Variegates*: The Role of Adult and Larval Diets.** World Aquaculture. 33:55-61. (R/LR-A-21)
- Grizzle, R.E., Adams, J.R., and L.J. Walters. 2002. **Historical Changes in Intertidal Oyster (*Crassostrea virginica*) Reefs in a Florida Lagoon Potentially Related to Boating activities.** Journal of Shellfish Research. 21:749-756. (R/C-E-45)
- Jackson, S.L., Robinson, E.H., Li, M.H., Wolters, W.R., and D. McKee. 2002. **Restricted and Satiated Feeding of Two Genetically Isolated Strains of Juvenile Channel Catfish *Ictalurus punctatus* Reared on 28% and 32% Protein Diets.** Journal of the World Aquaculture Society. (SGEP-13)
- Kimble, M., Y. Coursey, N. Ahmad, and G.W. Hinsch. 2002. **Behavior of The Yolk Nuclei During Embryogenesis, and Development of the Midgut Diverticulum in the Horseshoe Crab, *Limulus Polyphemus*.** Invertebrate Biology 121(4):365-377. (PD-00-8)

- Lin, J., and P. Shi. 2002. **Effect of Broodstock Diet on Reproductive Performance of the Golden Banded Coral Shrimp *Stenopus scutellatus***. *Journal of the World Aquaculture Society*. 33(3):383-385. (R/LR-A-31)
- Lopez, M., Russ, A., and C. Adams. 2002. **Projected Cost Comparison of Semi-intensive Zero-Exchange Culture Systems in Nicaragua**. *Global Aquaculture Advocate*. 5/6:88-89. (E/INT-1)
- Osenberg, C.W., C.M. St. Mary, J.A. Wilson, and W.J. Lindberg. 2002. **A quantitative framework to evaluate the attraction-production controversy, with application to marine ornamental fisheries**. *ICES Journal of Marine Science* 59S:212-219. (R/LR-B-52)
- Osenberg, C.W., C.M. St. Mary, R.J. Schmitt, S.J. Holbrook, P. Chesson, B. Byrne. 2002. **Rethinking ecological inference: density dependence in reef fishes**. *Ecology Letters* 5:715-721. (R/LR-B-52)
- Seaman, Jr. W. 2002. **Unifying Trends and Opportunities In Global Artificial Reef Research, Including Evaluation**. *ICES Journal of Marine Science*. 59:S14-S16 (M/PM-12)
- Shivji, M.S., S. Clarke, M. Pank, L. Natanson, N. Kohler and M. Stanhope. 2002. **Genetic Identification of Pelagic Shark Body Parts for Conservation and Trade-Monitoring**. *Conservation Biology* 16(4):1036-1047. (R/LR-B-54)
- Sturmer, L.N., Supan, J.E., and C.M. Adams. 2002. **Enhancing Seed Availability for the Hard Clam Aquaculture Industry Through Application of Remote Setting Techniques**. *Journal of Shellfish Research*. 21(1):385. (R/LR-A-27)
- F. Thornton, R.S., and R.G. Kerr. 2002. **Induction of Pseudopterogorgia Biosynthesis in the Gorgonian *Pseudopterogorgia elisabethae***. *Journal of Chemical Ecology*, 28(10):. (R/LR-MB-8)
- Wirth, F., Garrido, L., Davis, K., and Otwell, S. 2002. **Combining Taste Panels with Focus Groups to Elicit Consumer Preferences Toward a New Shrimp**. *Journal of Food Distribution Research* 33(1):151-154. (SGEP-13)

V. Graduate Theses and Dissertations

- Alarcon, J.F. 2002. **Development of a Breeding Program for Mutton Snapper *Lutjanus analis* with Application to Other Marine Fish Species**. Thesis. Rosenstiel School of Marine and Atmospheric Science, University of Miami. (R/LR-A-35)
- Behringer, D. 2002. **The ecological ramifications of disease and density in the Caribbean spiny lobster, *Panulirus argus***. Dissertation. Ecological Sciences. Old Dominion University. (R/LR-B-45)
- Brooks, R.A. 2002. **Plant-Animal Interaction within the Red Mangroves, *Rhizophora Mangle* L., of Tampa Bay: Mangrove Habitat Classification and Isopod, *Sphaeroma Terebrans* Bate, Colonization of a Dynamic Root Substrate**. Dissertation. Dept. of Biology. University of South Florida. (Aylesworth)
- Brown, J.J., 2002. **Comprehensive Sediment Budget for the East Coast of Florida**. Thesis. University of Florida. (R/C-S-39)
- Chesnes, T.C. 2002. **Responses of Subtropical Seagrasses to Fluctuations in Salinity within an Experimental Facility**. Dissertation. Environmental Engineering Sciences, University of Florida.(Aylesworth)
- Chockley, B.R. 2002. **Natural History and Factors Influencing Population Structure in the Banded Coral Shrimp (*Stenopus hispidus*)**. Thesis. Zoology. University of Florida. (R/LR-B-52)
- Cobb, J., 2002. **A Dietary Comparison of Offshore and Near-shore Populations of the Co-occurring Sea Urchins *Lytechinus variegatus* and *Arbacia punctulata* (Echinodermata) Along the Central Florida Gulf Coast**. Thesis. Department of Biology, University of South Florida. (R/LR-A-21-PD)

- Coursey, Y. A. 2002. **Hemopoiesis in *Limulus polyphemus***. Thesis. Dept. of Biology. University of South Florida. (Aylesworth /OS & PD-00-08)
- Dukeman, A.K. 2002. **The Reproductive Cycle of the Flame Scallop, *Lima scabra Scabra* (Born 1778), From the Lower Florida Keys, USA**. Thesis. College of Marine Science, University of Florida. (Aylesworth /OS)
- Felkey, K.D. 2002. **Optimization of Chlorine Treatments and the Effects on Survival of *Salmonella* spp. On Tomato Surfaces**. Thesis. Food Science and Human Nutrition, University of Florida.(Aylesworth)
- Ferdie, M. 2002. **Nutrient Limitation of Benthic Primary Production in the Upper Florida Keys**. Thesis. Dept. of Biological Sciences. Florida International University. (R/C-E-43)
- Garcia, M.A., 2002. **Market Preferences Toward Farm-Raised Sturgeon in the Southeastern United States: A Conjoint Analysis**. Thesis. Dept. Food and Resource Economics, University of Florida.(PD-02-6)
- Hahm, C.M., 2002. **Chemical investigations of the marine bacterium *Pseudoalteromonas clarkii***. Thesis. Department of Chemistry. University of South Florida. (R/LR-MB-10)
- Hale, J.A. 2002. **Changes In Coverage Of Submersed Aquatic Vegetation Along Florida's Gulf Coast: Applying Image Processing Procedures To Aerial Photograph Interpretation**. Thesis. College of Natural Resources and Environment, University of Florida. (R/LR-B-46)
- Hart, M.K., 2002. **Habitat-Mediated Direct and Indirect Effects Among Three Serranid Fishes**. Thesis. Fisheries and Aquatic Sciences Department. University of Florida. (R/LR-B-49)
- Heisig, J. 2002. **Male Reproductive Dynamics in the Caribbean Spiny Lobster, *Panulirus argus***. Thesis. Biological Sciences. Old Dominion University. (R/LR-B-50)
- O'Connell, T.J., 2002. **Identification and Genetic Analysis of Marine Invertebrate-Associated Bacteria**. Thesis. Department of Biological Sciences, Florida Institute of Technology,. (R/LR-MB-10)
- Ramlakhan, R., E., 2002. **Isolation and Characterization of Novel Ceno peptides from *Conus nux***. Thesis. Department of Chemistry and Biochemistry, Florida Atlantic University. (R/LR-MB-18)
- Rotman, F.J. 2002. **Studies on Proactive Health Management as a Tool for Sustainable Marine Finfish Hatchery Techniques**. Thesis. Rosenstiel School of Marine and Atmospheric Science, University of Miami. (R/LR-A-35)
- Stephan, K.E., 2002. **Rookery Bay Recreation Management Strategies: An Exploratory Study**. Thesis. School of Forest Resources and Conservation, University of Florida. (PD-99-11)
- Stevens, P.W. 2002. **Test of Salt Marsh as a Site of Production and Export of Fish Biomass with Implications for Impoundment Management and Restoration**. Thesis. Environmental Engineering Sciences. (Aylesworth)
- Willoughby, R. 2002. **In Vitro Gene Expression in Marine Sponge Cells Stimulated by Phytohemagglutinin**. Dissertation. Department of Biological Sciences. Florida Institute of Technology. (R/LR-MB-13)

VI. Florida Sea Grant Extension Publications

- Adams, C., Jacob, S., and S. Smith. 2002. **What Happened After the Net Ban?** SGEF-110. Also available in Edis # FE123. (R/LR-E-17)
- Antonini, G.A., D.A. Fann, and P. Roat. 2002. **A Historical Geography of Southwest Florida Waterways**. Volume Two. SGEB-56. (R/C-P-24)

- Florida Sea Grant College Program. 2002. **Science Serving Florida's Coast: Florida Sea Grant Program Directory 2002-2004**. SGEF-145. (SGEP-13)
- Jackson, D. 2002. **NOAA Coastal Storms Initiative**. SGEF-147 (E/T-10)
- Novak, R. 2002. **Boater's Guide to Charlotte Harbor**. SGEF-52. (Revised) (SGEP-12)
- Novak, R. 2002. **Circle Hooks**. SGEF-108. (SGEP-13)
- Novak, R. 2002. **Los Anselo Circulares**. SGEF-109. Also available in Edis # SG043. (SGEP-13)
- Seaman, W., and R. Scott. 2002. **Biotechnology's New Wave in Florida**. SGEF-149 (PD-02-3)
- Zimmerman, D. 2002 **Common Sharks of Florida** SGEF-146. Also available in Edis # SG062. (SGEP-13)

VII. Extension Newsletters

- Crane, M.G. 2002. Homestead: Miami-Dade County Cooperative Extension Office. (SGEP-13)
At the Water's Edge. Vol. 1(3) February 2002. 4 pg.
At the Water's Edge. April 2002. 4 pg.
At the Water's Edge. June 2002. 4 pg.
At the Water's Edge. August 2002. 4 pg.
At the Water's Edge. Vol. 2(1) October 2002. 4 pg.
- Florida Bay Project Staff. 2002. Florida Bay Watch Report.
Acquiring a Taste for Florida Bay June 2002. (PD/02-04)
- McGuire, M.P. 2002. Marineland; St. Johns Ag. Center. (SGEP-13)
Aqua Notes. 2(1) February 2002. 6 pg.
Aqua Notes. 2(2) May 2002. 6 pg.
Aqua Notes. 2(3) August 2002. 6 pg.
Aqua Notes. 2(4) November 2002. 6 pg.
- Novak, R.L. 2002. Charlotte County Extension Newsletter. (SGEP-13)
Marine Update.
- Stevely, J.M. 2002. Manatee County Extension Services (SGEP-13)
The Marine Scene. Six Editions-Bimonthly. 6 pg.
- Sturmer, L. 2002. Levy County: Cooperative Extension Service (SGEP-13)
Shellfish Aquaculture Newsletter. February 2002. 6 pg.
Shellfish Aquaculture Newsletter. July 2002. 6 pg.
Shellfish Aquaculture Newsletter. October 2002. 6 pg.
- Sweat, D.E. 2002. Pasco County Extension Newsletter. (SGEP-13)
Marine Times. 4 editions, 8 pg.

VIII. Miscellaneous Papers, Articles and Conference Proceedings

- Adams, C. 2002. **Zero-Exchange Demonstration Posts Good Results in Nicaragua**. Global Aquaculture Advocate 5/5:50-53. (E/INT-1)
- Adams, C. 2002. **Economic Consequences and Public Awareness of Red Tide Events in Coastal Florida Communities**. In: 3rd Natural Resource Extension Professional Conference Abstracts. p. 64. (SGEP-13)

- Adams, C., Larkin, S., Mulkey, D., Hodges, A., and Ballyram, B. 2002. **Measuring the Economic Consequences and Public Awareness of Red Tide Events in Florida.** Gainesville, University of Florida. 150 pg. (SGEP-13)
- Adams, C. 2002. **The Commercial Bottom Trawling Industry in Florida: Balancing Environmental Impact with Economic Contribution.** Gainesville, UF IFAS. Also Available In Edis # FE345. 6 Pg. (SGEP-13)
- Adams, C., Andrew, C., and J. Herman. 2002. **The 2nd Annual FRE Graduate research Symposium.** Gainesville, UF Food and Resource Economics Dept. TLP 02-2328 November 2002. (SGEP-13)
- Adams, C., Larkin, S., and D. Gregory. 2002. **Effect of Import of Caribbean Spiny Lobster on the Dockside Price of Panulirus argus in Florida.** In: International Institute of Fisheries Economics and Trade, Proceedings No. 194. (SGEP-13)
- Adams, C. 2002. **Economic Consequences and Public Awareness of Red Tide Events in Coastal Florida Communities.** In: Proceedings of the 18th International Conference of the Coastal Society. 2002:1-1. (SGEP-13)
- Baker, S., Heuberger, D., Philips, E.J., and L.N. Sturmer. 2002. **Water Quality and its Role on Hard Clam Production.** Gainesville, Department of Fisheries and Aquatic Sciences, April 2002. 6 pg. (SGEP-13)
- Cato, J.C., and W. Seaman, Jr. 2002. **Planning, Partnerships, and progress in Marine Biotechnology Research and Outreach in Florida.** In: Marine Biotechnology in the Twenty-First Century. Pp. 97-99. (M/PM-13)
- Crane, M.G. 2002. **What Happens When Seagrass and Excess Nutrients Mix?** February 2002. 2 pg. (SGEP-13)
- Crane, M.G. 2002. **Seagrass Bookmark.** February 2002. 2 pg. (SGEP-13)
- Creswell, L.R. 2002. **53rd Proceedings of the Gulf and Caribbean Fisheries Institute.** 707 pg. (SGEP-13)
- Creswell, L.R. 2002. **Abstracts of the 53rd Gulf and Caribbean Fisheries Institute.** 178 pg. (SGEP-13)
- Creswell, R.L. (Ed). 2002. **GCFI Proceedings of the Fifty-Third Annual Gulf and Caribbean Fisheries Institute.** Biloxi, Mississippi, November 2000. (SGEP-13)
- Diller, A.P. 2002. **Utilizing Sea Turtle Biology and Habitat to Educated Clientele on Coastal Resources.** In: Florida Association of Extension Professionals Sixteenth Annual Conference Proceedings. Pp 57. (SGEP-13)
- Engle, J., MacMahan, J., Thieke, R.J., Hanes, D.M. and R.G. Dean. 2002. **Formulation of a Rip Current Predictive Index Using Rescue Data.** In: Florida Shore and Beach Preservation Association National Conference. (R/C-S-42)
- Gurley, K. and T. Reinhold. 2002. **Measurement of Ground Level Hurricane Winds.** The Wind Engineer, November. (R/C-S-43)
- Gurley, K. and Reinhold, T. 2002. **Measurement and Analysis of Ground Level Hurricane Wind Fields.** 3rd Joint Workshop of Task Committee D (Wind Engineering) of the U.S.-Japan Cooperative Program on Natural Resources (UJNR), Seattle, October 2002. (R/C-S-43)
- Jackson, S.L. 2002. **Restoration and Community Stewardship of Coastal Dunes.** In: Florida Association of Extension Professionals Conference Proceedings. (SGEP-13)
- Jackson, S.L., Pickel B., and E. Rivers. 2002. **Rip Current Danger and Safety.** 1 pg. (SGEP-13)

- Jackson, S.L. and B. Christianson. 2002. **Dunes in Schools – Sunshine Standards and Activities for Elementary Students.** 2 pg. (SGEP-13)
- Jackson, S.L. 2002. **Rip Current Danger and Safety Information.** 1pg. (SGEP-13)
- Larkin, S. and R. Degner. 2002. **Eco-labeled Marine Ornamentals: Expected Demand and Value from a Conjoint Survey.** IIFET 2002: Fisheries in the Global Economy, Book of Abstracts, No. 191.(RLR-A-29)
- Larkin, S., Adams, C., and S. Hutchinson. 2002. **Multi-Species Fisherman in South Florida: Trends and Management Implications.** In: IIFET Proceedings. No. 194. (R/LR-E-18)
- Larkin, S.L., Degner, R., and Rubinstein, W. 2002. **Market Preferences, Wholesale Demand and Breakdown Prices for Marine Ornamental Fish Cultured and Collected in Florida.** Staff Paper SP02-5. Food and Resource Economics, University of Florida, Gainesville, FL. (R/LR-A-29)
- Lopez, M., Adams, C., Cato, J., and D. Sweat. 2002. **Cost and Return s Budgets for an Intensive Zero Water-Exchange Shrimp Culture Demonstration Project in Nicaragua, 2001.** Gainesville. 28 pg. (E/INT-1)
- Lopez, M., Adams, C., Cato, J., and D. Sweat. 2002. **Economic Analysis of an Intensive, Zero-Water Exchange, Saltwater Shrimp Culture Demonstration Project in Nicaragua.** Gainesville, UF IFAS. Also Available In Edis # FE 361. (E/INT-1)
- MacMahan, J., Thornton, E., Stanton, T., Reiners, A., and Dean, R.G. 2002. **RIPEX - rip current pulsation measurements.** In: Proceedings 28th International Conference on Coastal Engineering, ASCE, Cardiff, Wales, 736-746. (R/C-S-42)
- McDonald, K.B. and S.L. Jackson. 2002. **Application of Internet Technology to Support and Aquaculture Education Program for Middle School Youth.** In: Florida Association of Extension Professionals Conference Proceedings. (SGEP-13)
- McGuire, M.P. 2002. **How to start a monofilament recycling program.** 2 pg. (SGEP-13)
- McGuire, M.P. 2002. **Monofilament recycling bin construction and installation.** 3 pg. (SGEP-13)
- McGuire, M.P. 2002. **Koi.** 2 pg. (SGEP-13)
- McGuire, M.P. 2002. **What are we likely to get in an intracoastal seine.** 2 pg. (SGEP-13)
- McGuire, M.P. 2002. **Maia’s secchi disk.** 1 pg. (SGEP-13)
- McGuire, M.P. 2002. **Making a quadrat.** 1 pg. (SGEP-13)
- McGuire, M.P. 2002. **Clean Marina and Boatyard Program.** 1 pg. (SGEP-13)
- McGuire, M.P. 2002. **Used Fishing Lines (Brochure).** 1 pg. (SGEP-13)
- McGuire, M.P. 2002. **Bringing the Estuary into your classroom.** Marineland. 70 pg. (SGEP-13)
- McGuire, M.P. 2002. **Coral Reefs-teacher’s guide.** Marineland. 31 pg. (SGEP-13)
- McGuire, M.P. 2002. **Introduction to Field Studies—Teacher guide.** 161 pg. (SGEP-13)
- McGuire, M.P. 2002. **Florida’s Beaches.** 1 pg. (SGEP-13)

- McGuire, M.P. 2002. **Florida leads the way in recycling fishing lines.** *Coastlines*. 12(2):6-7 (SGEP-13)
- Otwell, S. 2002. **Reduced Oxygen Packaging – Educational Approach.** *In:* Proc. of the 6th Joint meeting of SST & AFT. Online at <http://sst.ifas.ufl.edu/26thAnn/file45.pdf>. (R/LR-Q-22)
- Otwell, S. and V. Garrido. 2002. **PHT (Post Harvest treatments) for Oysters – Educational Perspective.** *In:* Proc. of the 6th Joint meeting of SST & AFT. Online at <http://sst.ifas.ufl.edu/26thAnn/file39.pdf>. (SGEP-13)
- Persuso, Larry, Larkin, Sherry, Lee, Donna, and Adams, Chuck. 2002. **A Dual Production Analysis of a Multispecies Fishery: The Case of the US Atlantic Longline Fleet.** *In:* IIFET Proceedings. No. 194. (R/LR-E-18)
- Sidman, C., Pearse, C., Haney, D., Burr, D., and J. Robertson. 2002. **West Coast Navigation District 5-Year Strategic Plan.** 32 pg. (E/WCIND-2)
- Sidman, C., Fik, C., and Flamm, R. 2002. **Blueways Recreational Boating Characterization for Charlotte Harbor, Florida: Trend Surface Analysis of Boating Use and Tests of Statistical Association Between Use and Various A Environmental and Occurrence Variables.** (Phase 6).(R/C-P-24)
- Sidman, C. and T. Fik. 2002. **Blueways Recreational Boating Characterization for Charlotte Harbor, Florida: Enhancements to a Regression-Based Approach to Estimate Preferred Recreational Boating Destinations in Charlotte Harbor, Florida.** (Phase 5). (R/C-P-24)
- Simmons, M.H., Brinkley, M.L. Grant, H.G., Bennett, D.L. Vergot, P., Converse, D.L., Giolei, K.T., Stevely, J.M., and S.H. Brown. **International Extension Training, Why Should I Participate?** *In:* Florida Association of County Extension Professionals. (SGEP-13)
- Stevely, J.M. Culbreath, R., Garner, A., Zacharias, J. and M. Green. 2002. **Florida Institute for Saltwater Heritage (FISH) Preserve Management Plan.** 15 pg. (SGEP-13)
- Stevely, J. M. and D.E. Sweat. 2002. **The Recovery of Sponge Populations in Florida Bay and Upper Keys Following a Widespread Sponge Mortality.** Contract Final Report to FMRI/FWC. December 2002. 40 pg. (SGEP-13)
- Sturmer, L. 2002. **Hard Clam, Mercenaria, Aquaculture in Florida, U.S.A.: From Small-scale Business Development to a Sustainable Industry.** World Aquaculture 2002 Conference Proceedings. Beijing, China. 725 pg. (SGEP-13)
- Sturmer, L. 2002. **Clam Farming in Florida.** 2 pg. (SGEP-13)
- Sturmer, L. 2002. **2002 Florida Seed Suppliers List for Hard Clams (*Mercenaria mercenaria*)** 2 pg. (SGEP-13)
- Sturmer, L. 2002. **Clam Bag Suppliers** March 2002. 1 pg. (SGEP-13)
- Sturmer, L. 2002. **Farm-Raised Clams: Retail Establishments.** 1 pg. (SGEP-13)
- Sturmer, L. 2002. **Clam Seed Buying, Transporting and Handling Tips.** 1 pg. (SGEP-13)
- Sturmer, L. 2002. **Description of Bottom Bag Technology for Hard Clam Aquaculture in Florida.** 1 pg. (SGEP-13)
- Sweat, D. E. 2002. **Recreational Harvesting of the Florida Bay Scallop.** Florida Sea Grant, 2002. (SGEP-13)

Swett, R., and C. Sidman. 2002. **A Method to Improve the Utility of the Vessel Title Registration System to Characterize Florida's Boating Population.** Interim Report to the Florida Wildlife Conservation Commission, Florida Marine Research Institute, St. Petersburg, Florida. (R/C-P-24)

Valero-Aracama, C., M. E. Kane, S. B. Wilson, and N. L. Philman. 2002. **Genotypic differences of *in vitro* propagated sea oats genotypes (*Uniola paniculata*).** Proc. SNA Research Conference 47:357-360. (R/C-S-41)

Verlinde, C. and A.P. Diller. 2002. **Beach Ecology Field Trips.** In: Florida Association of Extension Professionals Sixteenth Annual Proceedings. Pp. 64. (SGEP-13)

Verlinde, C.M. 2002. **Seagrass Awareness Celebration.** . In: Florida Association of Extension Professionals Sixteenth Annual Proceedings. (SGEP-13)

Verlinde, C., Holland, D., and J. Jarret. 2002. **"From the Estuary" Cookbook.** 143 pg. (SGEP-13)

IX. CD-ROM Releases

Crane, M.G. 2002. **Sea Turtle Tracks.** Gainesville, FL: IFAS Communication Services, March 2002. (SGEP-13)

Creswell, L.R. 2002. **The Directory of Marine Science Educational Resources of the Treasure Coast.** (SGEP-13)

McGuire, M.P. 2002. **4-H Marine Ecology Judging Event Study Guide.** 221 pg. (SGEP-13)

McGuire, M.P. 2002. **Coastal Ecology Teaching Materials.** (SGEP-13)

Sturmer, L., M. Zylstra, and C. Adams. 2002. **C.L.A.M. Computer Logbook and Management: A user's Guide for Commercial Hard Clam Growers.** Produced with TP-122. (SGEP-13)

X. Home Page

Florida Sea Grant Home Page.

CALENDAR YEAR 2001

II. Florida Sea Grant Reports

- National Seafood HACCP Alliance. 2001. **HACCP: Hazard Analysis and Critical Control Point Training Curriculum.** Seafood HACCP Alliance Course – Fourth Edition for Training and Education. SGR-120. (E/TP-2)
- National Seafood HACCP Alliance. 2001. **Fish and Fisheries Products Hazards & Control Guidance: Third Edition.** Seafood HACCP Alliance Course – Third Edition for Training and Education. SGR-121. (E/TP-2)
- Philippakos, E., Adams, C., Hodges, A., Mulkey, D., Comer, D., and Sturmer, L. 2001. **Economic Impact of the Florida Cultured Hard Clam Industry.** SGR-123 (SGEP-12)

II. Florida Sea Grant Technical Papers

- Adams, C.M., S.L. Larkin, D.J. Lee, R.L. Degner, and J.W. Milon. 2001. **International Trade in Live, Ornamental “Fish” in the U.S. and Florida.** TP-113. (R/LR-A-23)
- Ehrhardt, N.M. 2001. **Biological and Economic Modeling and Assessment of Limited Entry Strategies in Multi-Species Fisheries in South Florida.** TP-114. (R/LR-E-18)
- Florida Sea Grant College Program. 2001. **Florida Sea Grant College Program Strategic Plan 2002 - 2005.** TP-108. (M/PM-12)
- Florida Sea Grant College Program. 2001. **Florida Sea Grant College Program Year 2001 Work Plan.** TP-116. (M/PM-12)
- Florida Sea Grant College Program. 2001. **Performance Counts: Annual Progress Report for 2000.** TP-115. (M/PM-12)
- Larkin, S.L., C.M. Adams, R.L. Degner, D.J. Lee, and J.W. Milon. 2001. **An Economic Profile of Florida’s Marine Life Industry.** TP-111. (R/LR-A-23)
- Larkin, S.L., R.L. Degner, C.M. Adams, D.J. Lee, and J.W. Milon. 2001. **Results and Implications 1999 U.S. Tropical Fish Wholesalers Survey.** TP-112. (R/LR-A-23)
- Seaman, W., Jr., and J.H. Whitehouse. 2001. **Florida Marine Biotechnology: Research, Development and Training Capabilities to Advance Science and Commerce.** TP-110. (M/PM-12)
- Sidman, C., and R. Flamm. 2001. **A Survey of Methods for Characterizing Recreational Boating in Charlotte Harbor, Florida.** TP-109. (E/WCIND-1)
- Smith, R.A., and R.E. Deyle. 2001. **Simulation Training on Recovery & Mitigation - STORM. An Overview.** TP-96. (R/C-P-22)
- Swett, R.A., and D.A. Fann. 2001. **A Manual of Methods and Procedures for the Regional Waterway Management System.** TP-124 (R/C-P-24)
- Swett, R.A., D.A. Fann, G.A. Antonini, L.C. Alexander. 2001. **Regional Waterway Management System for Lee County, Phase 2.** TD-4. (E/WCIND-2)

III. Books and Book Chapters

- Dean, R.G., and R.A. Dalrymple. 2001. **Coastal Processes with Engineering Applications.** Cambridge University Press. (R/C-S-35)

- Lawrence, J.M., and T.S. Klinger. 2001. **Digestion in Sea Urchins.** In: Edible Sea Urchins: Biology and Ecology. Elsevier Science Press, Amsterdam. Pp. 103-113. (R/LR-A-21)
- Lawrence, J.M. 2001. **The Edible Sea-Urchins.** In: Edible Sea Urchins: Biology and Ecology. Elsevier Science Press, Amsterdam. 4 pg. (R/LR-A-21)
- Lawrence, J.M., and Y. Agatsuma. 2001. **The Ecology of Tripneustes.** In: Edible Sea Urchins: Biology and Ecology. Elsevier Science Press, Amsterdam. Pp. 395-413. (R/LR-A-21)
- Lawrence, J.M. 2001. **Sea-urchin Roe Cuisine.** In: Edible Sea Urchins: Biology and Ecology. Elsevier Science Press, Amsterdam. Pp. 415-416. (R/LR-A-21)
- Tajima, K., and J.M. Lawrence. 2001. **Disease in Edible Sea Urchins.** In: Edible Sea Urchins: Biology and Ecology. Elsevier Science Press, Amsterdam. Pp. 139-148. (R/LR-A-21)
- Watts, S.A., J.B. McClintock, and J.M. Lawrence. 2001. **The Ecology of *Lytechinus variegatus*.** In: Edible Sea Urchins: Biology and Ecology. Elsevier Science Press, Amsterdam. Pp. 375-393. (R/LR-A-21)

IV. Journal Articles

- Adams, C.M., S.L. Larkin, and D.J. Lee. 2001. **Volume and Value of Marine Ornamentals Collected in Florida, 1990-98.** Aquarium Sciences and Conservation. 3:25-36. (R/LR-A-23)
- Adams, C., D. Sweat, N. Blake, and B. Degner. 2001. **The Economic Feasibility of Small-Scale, Commercial Culture of Bay Scallops in Florida.** Journal of Aquaculture Economics and Management. 5(1-2):81-98. (R/LR-A-33)
- Arnold, W.S. 2001. **Bivalve enhancement and restoration strategies in Florida, U.S.A.** Hydrobiologia. 465:7-19. (R/LR-A-28)
- Bell, S.S., M.O. Hall, S. Soffian, and K.M. Madley. 2001. **Assessing the Impact of Propeller Scars on Fish and Shrimp Utilizing Seagrass Beds.** Ecological Applications, 12(1):206-217. (R/C-E-39)
- Benetti, D.D. 2001. **Mesocosm Systems for Semi-Intensive Larval Rearing of Marine Fish.** The Advocate, Global Aquaculture Alliance Technical Magazine, 3(6):22-23. (R/LR-A-35)
- Berger, D.K. and Butler, M.J. IV. 2001. **Octopuses influence den selection by juvenile Caribbean spiny lobster.** Marine Freshwater Research 52:1049-53. (R/LR-B-45)
- Brooks, R.A., and S.S. Bell. 2001. **Colonization of a Dynamic Substrate: Factors Influencing Recruitment of the Wood-Boring Isopod, *Sphaeroma terebrans*, onto Red Mangrove (*Rhizophora mangle*) Prop Roots.** Oecologia. 127:522-532. (Aylesworth)
- Butler, M.J., IV, T. Dolan, W. Herrnkind, and J. Hunt. 2001. **Modeling the Effect of Spatial Variation in Postlarval Supply and Habitat Structure on Recruitment of Caribbean Spiny Lobster.** Marine and Freshwater Research. 52:1243-52. (R/LR-B-50)
- Butler, M.J. IV. 2001. **The 6th International Conference and Workshop on Lobster Biology and Management : An Introduction.** Marine Freshwater Research 52:1033-5 (PD-99-8)
- Childress, M., and W. Herrnkind. 2001. **The Guide-Effect Influence on Gregariousness of Juvenile Caribbean Spiny Lobster.** Animal Behaviour. 62:465-472. (R/LR-B-50)
- Childress, M., and W. Herrnkind. 2001. **The Influence of Conspecifics on the Ontogenetic Shift of Juvenile Caribbean Spiny Lobsters.** Marine and Freshwater Research. 52:1077-84. (R/LR-B-50)

- Diaz, G.A., S.G. Smith, J.E. Serafy, and J.S. Ault. 2001. **Allometry of the Growth of Pink Shrimp *Farfantepenaeus duorarum* in a Subtropical Bay.** American Fisheries Society. 130:328-335. (R/LR-B-47)
- George, S.B., J.M. Lawrence, A.L. Lawrence, J. Smiley, L. Plank. 2001. **Carotenoids in the Adult Diet Enhance Egg and Juvenile Production in the Sea Urchin *Lytechinus variegatus*.** Journal of World Aquaculture Society. 199:353-369. (R/LR-A-21)
- Herrnkind, W., M. Childress, and K. Lavalli. 2001. **Cooperative Defense and Other Benefits Among Exposed Spiny Lobsters: Inferences From Group Size and Behavior.** Marine and Freshwater Research. 52:1113-24. (R/LR-B-50)
- Kem, W.R., and F. Soti. 2001. ***Amphiporus* Alkaloid Multiplicity Implies Functional Diversity: Initial Studies on Crustacean Pyridyl Receptors.** Hydrobiologia. 456:221-231. (R/LR-MB-9)
- Kim, G., W.C. Burnett, P.W. Swarzenski, and W.S. Moore. 2001. **Measurement of ²²⁴Ra and ²²⁶Ra Activities in Natural Waters Using a Radon-in-air Monitor.** Environmental Science and Technology., 35:4680-4683. (R/C-E-42)
- Larkin, S.L., and R.L. Degner. 2001. **The U.S. Wholesale Market for Marine Ornamentals.** Aquarium Sciences and Conservation. 3:13-24. (R/LR-A-23)
- Larkin, S. 2001. **MAC Valuation Study at the University of Florida.** OFI Journal, Ornamental Fish International, 37:2-3. (R/LR-A-29)
- Lin, J., and D. Zhang. 2001. **Effect of Broodstock Diet on Reproductive Performance of the Peppermint Shrimp, *Lysmata wurdemanni*.** Journal of Shellfish Research. 20(1)361-363. (R/LR-A-31)
- Lin, J., and D. Zhang. 2001. **Reproduction in a simultaneous hermaphroditic shrimp, *Lysmata wurdemanni*: any two will do?** Marine Biology. 139:919-922. (R/LR-A-31)
- Lin, J., M. Sparsis, and R.W. Hagood. 2001. **Growing Giant Clam (*Tridacna derasa*) in Aquaculture Effluent.** Aquarium Sciences and Conservation. 3:225-230. (E/INDST-1)
- MacMahan, J. 2001. **Hydrographic Surveying from Personal Watercraft.** Journal of Surveying Engineering. 127(1):12-24. (R/C-S-40)
- Murray, M. M. 2001. **Survival and Diapause Egg Production of the Copepod *Centropages Hamatus* raised on Dinoflagellate Diets.** Journal of Experimental Marine Biology and Ecology. 270 (2002) 39-56 (R/LR-A-22)
- Olave, S., E. Bustos, J.M. Lawrence, and P. Carcamo. 2001. **The Effect of Size and Diet on Gonad Production by the Chilean Sea Urchin *Loxechinus Albus*.** Journal of World Aquaculture Society. Vol 32(2):210-214. (R/LR-A-21)
- Robertson, D.N., M.J. Butler, and F.C. Dobbs. 2001. **An Evaluation of Lipid- and Morphometric-Based Indices of Nutritional Condition for Early Benthic Stage Spiny Lobsters, *Panulirus argus*.** Marine Freshwater Research. 33:161-171. (R/LR-B-50)
- Sparsis, M., J. Lin, and R.W. Hagood. 2001. **Growth, Survivorship, and Nutrient Uptake of Giant Clams (*Tridacna*) in Aquaculture Effluent.** Journal of Shellfish Research. 20(1)171-176. (E/INDST-1)
- Tilghman, C.G., R. Klinger-Bowen, and R. Francis-Floyd. 2001. **Feeding Electivity Indices in Surgeonfish (Acanthuridae) of the Florida Keys.** Aquarium Sciences and Conservation. 3:215-223. (R/LR-A-30)
- Williamson, S.J., M.R. McLaughlin, and J.H. Paul. 2001. **Interaction of the ΦHSIC Virus with Its Host: Lysogeny or Pseudolysogeny?** Applied and Environmental Microbiology. 67(4)1682-1688. (R/LR-MB-3)

Wilson, J.A., C.W. Osenberg, C.M. St. Mary, C.A. Watson, and W.J. Lindberg. 2001. **Artificial reefs, the attraction-production issue, and density-dependence in marine ornamental fishes.** *Aquarium Sciences and Conservation* 3:95-105. (R/LR-B-52)

V. Graduate Theses and Dissertations

Barile, P.J. 2001. **Local, regional and global biogeochemical linkages to the Physiological ecology of macroalgae on coral reef communities near Green Turtle Cay, Abaco Cays, Bahamas.** Dissertation. Environmental Sciences. Florida Institute of Technology. (Aylesworth)

Benner, R.A. 2001. **Evaluation of Putrescine, Cadaverine, and Indole as Chemical Indicators of Decomposition in Penaeid Shrimp.** Dissertation. Department of Food Science and Human Nutrition, University of Florida. (SGEP-12)

Berresford, K.G. 2001. **The role of Predation in Determining Recruitment of Infaunal Bivalves Including Hatchery Spawnd Hard Clams, *Mercenaria mercenaria*.** Thesis. Marine and Environmental Systems. Florida Institute of Technology. (R/LR-A-28)

Cervený, K.E., 2001. **Use of Bacteriophage as Therapy For Disease Caused by *Vibrio vulnificus* in a Mouse Model and for Decontamination of Experimentally Infected Oysters.** Thesis. Dept. of Molecular Genetics and Microbiology, University of Florida. (R/LR-Q-20)

Donaldson, K. 2001. **Molecular Evolution of a Coding and Non-Coding Region of the Mitochondrial Genome of Three Transisthmian Species of Fishes (Centropomidae: *Centropomus*).** Dissertation. Department of Marine Sciences, University of South Florida (R/LR-B-39)

Eakin, S.B. 2001. **Zooplankton Abundance and Community Structure in Florida Bay, USA,** Thesis. Dept. of Fisheries and Aquatic Sciences, University of Florida (R/C-E-36)

Hays, J.R. 2001. **Examination of a Crenulate Bay and Historic Infilling: Causes and Interpretations.** Thesis. Department of Civil and Coastal Engineering, University of Florida. (R/C-S-39)

Michael, J.R. 2001. **Planning for a Disaster Resilient Community: An Evaluation of Mitigation Planning in Escambia County, Florida.** Thesis. Department of Urban and Regional Planning, Florida State University. (R/C-P-22)

Murray, M. M. 2001. **Survival and Diapause Egg Production of the Copepod *Centropages hamatus* raised on Dinoflagellate Diets.** Thesis. Department of Oceanography, Florida State University.(R/LR-A-22)

Osentoski, M. F. 2001. **Population genetic structure and male reproductive success of a Blanding's turtle (*Emydoidea blandingii*) population in southeaster Michigan.** Dissertation. University of Miami. (R/C-E-46)

Robertson, D. 2001. **The Implications of the Target-Area Hypothesis on the Population Dynamics of the Spotted Spiny Lobster, *Panulirus guttatus*.** Dissertation. Old Dominion University. (R/LR-B-45)

VI. Florida Sea Grant Extension Publications

Corbett, D.R., W.C. Burnett, and J.P. Chanton. 2001. **Submarine Groundwater Discharge.** SGEB-54. Also available in Edis# SG060. (SGEP-12)

Crane, M. 2001. **Turtle Tracks - Sea Turtle Conservation in Miami-Dade County.** SGEF-141. (SGEP-12)

Armentano, T. 2001. **Florida Bay Watch Report - Mangroves in Florida Bay: Dying-Back (Again)?** SGEF-152 (SGEP-12)

Florida Sea Grant College Program. 2001. **Florida Sea Grant College Program Strategic Plan Executive Summary 2002-2005**. SGEF-140. (M/PM-12)

Florida Sea Grant Extension Program. 2001. **Venting - A Guide to Releasing Reef Fish with Ruptured Swimbladders**. SGEF-46. (SGEP-12)

Hauxwell, J., C. Jacoby, T.K. Frazer, and J. Stevely. 2001. **Nutrients and Florida's Coastal Waters**. SGEB-55. Also available in Edis # SG061. (SGEP-12)

Ottwell, S., Garrido, L., Garrido, V. and R. Benner. 2001. **Farm-Raised Shrimp: Good Aquaculture Practices for Product Quality & Safety**. SGEB-53. (E/INT-2)

Seaman, W., and A. Hoover. 2001. **Artificial Reefs: The Florida Sea Grant Connection**. SGEF-144. (M/PM-12)

Tavares, S., and M. Crane. 2001. **Don't Splash Your Trash ... Get a Grip on It!** SGEF-142. (SGEP-12)

VII. Extension Newsletters

Crane, M. 2001. **At the Waters Edge**. October-November, Volume 1, Issue 1. (SGEP-12)

Florida Bay Project Staff. 2001. Florida Bay Watch Report. (SGEP-12)
The Plume and the Bloom. August 2001.
South Florida's "Current" Concerns Require a Global View. October 2001.

Novak, R. 2001. In Charlotte County Extension Newsletter. (SGEP-12)
RedStart. Volume 15, Number 1, Page 5.
New Marine Newsletter. Volume 15, Number 4, Page 3.
Preparing Your Boat for a Hurricane. Volume 15, Number 6, Page 4.
Whales Drawn to Waters off Mississippi River Delta. Volume 15, Number 9, Page 8.
UF Experts Assist Statewide Clean Marina Program. Volume 15, Number 10, Page 8.
Venting Reduces Mortality in Bottom Fish. Volume 15, Number 10, Page 8.

Sweat, D. 2001. **Marine Times**. January-March, Volume 24, Number 1, April-June, Volume 24, Number 2, July-September, Volume 24, Number 3, October-December, Volume 24, Number 4. (SGEP-12)

Verlinde, C., A. Diller, and S. Jackson. 2001. **Emerald Currents**. August, Issue Number 08/01. (SGEP-12)

VIII. Miscellaneous Papers, Articles and Conference Proceedings

Adams, C. 2001. **New Approaches to Management and Allocation**. In: RecFish 2000: Managing Marine Recreational Fisheries in the 21st Century. San Diego, CA. 1:85-92. (SGEP-13)

Adams, C. 2001. **Outlook 2001: Seafood**. In: Florida Food and Resource Economics, Number 146. University of Florida, Gainesville, FL. November-December 2000. p. 6. (SGEP-12)

Adams, C., Andrew, C.O., and J.L. Herman. 2001. **1st Annual FRE Graduate Student Symposium**. In: Teaching and Learning Paper Series. TLP 01-7. University of Florida, Gainesville, FL. (SGEP-12)

Adams, C., and Lazue, A. 2001. **Economic Considerations for the Prospective Mudminnow Culturist in Florida**. University of Florida, Gainesville. Also available in Edis # FE309. (SGEP-12)

Adams, C., Phillippakos, E., Hodges, A., and Mulkey, D. 2001. **An Overview of the Relative Economic Importance of Florida's Coastal Counties**. University of Florida, Gainesville. Also available in Edis # FE306. (SGEP-12)

- Ault, J.S., S.G. Smith, G.A. Meester, J. Luo, and J.A. Bohnsack. 2001. **Site Characterization for Biscayne National Park: Assessment of Fisheries Resources and Habitats**. Staff Paper. Final Report. (R/LR-B-47)
- Creswell, R.L.(Editor) 2001. **GCFI Proceedings of the Fifty-Second Annual Gulf and Caribbean Fisheries Institute**. Key West, Florida, November 1999. (PD-99-12)
- Deas, A., Taylor, T.G., Reynolds, J.E., and C. Adams. 2001. **Information Technology in the U.S. Economy**. In: Teaching and Learning Paper Series. TLP 01-9. University of Florida, Gainesville, FL.(SGEP-12)
- Florida Department of Agriculture and Consumer Services. 2001. **New Oyster Product: Processing and Market Research**. Miscellaneous Staff Paper. (R/LR-Q-21A)
- Hodges, A., Mulkey, D., Phillippakos, E., and Adams, C. 2001. **Economic Impact of Florida's Commercial Fisheries and Aquaculture Industries**. University of Florida, Gainesville. Also available in Edis # FE280 (SGEP-12)
- Hutchinson, S., S. Larkin, C. Adams, and D. Lee. 2001. **A Comprehensive Analysis of Fishing Effort, Participation, and Landings Data for South Florida Fisheries 1994-98**. Staff Paper SP01-9. Food and Resource Economics, University of Florida, Gainesville, FL. (R/LR-E-18A)
- Hutchinson, S., S. Larkin, D. Lee, and C. Adams. 2001. **Economic Assessment of Limited Entry Strategies in Multi-species Fisheries in South Florida**. In: Proceedings of the 53rd Annual Meeting of the Gulf and Caribbean Fisheries Institute, University of Miami, Miami, FL. 393-405:12pp.(R/LR-E-18)
- Kane, M., and N.L. Philman, 2001. **Influence of Stage II Cytokinin Selection on Rooting and Acclimatization of Native Coastal and Wetland Plants**. P-21. In: Invitro Volume 37, #3, Part II:11-A, St. Louise, Missouri. (R/C-S-36)
- Kane, M., and N.L. Philman, 2001. **In Vitro Culture for Habitat Revegetation: Issues & Opportunities**. P-4. In: Invitro 37(3),Part II:7-A, St. Louise, Missouri. (R/C-S-36)
- Larkin, S.L., Degner, R., Lee, D., and C. Adams. 2001. **Perceptions and Market Opinions of U.S. Marine Ornamental Wholesalers**. In: Second International Conference on Marine Ornamentals: Collection, Culture and Conservation. University of Florida, Gainesville (R/LR-A-29)
- Larkin, S.L., Rubinstein, W., and Degner, R. 2001. **Value and Demand for MAC-Certification**. In: Second International Conference on Marine Ornamentals: Collection, Culture and Conservation. University of Florida, Gainesville (R/LR-A-29)
- Larkin, S.L., Tucker, J.E., and Degner, R.L. 2001. **Developing an Internet Instrument: Application for Florida Sea Grant Marketing Study**. Staff Paper SP01-8. Food and Resource Economics, University of Florida, Gainesville, FL. (R/LR-A-29)
- Larkin, S.L., D.J. Lee, R.L. Degner, J.W. Milon, and C.M. Adams. 2001. **Florida's Ornamental Marine Life Industry**. In: Second International Conference and Exhibition: Marketing and Shipping Live Aquatic Products, ed. B. Paust, University of Alaska Sea Grant, Fairbanks, AK-SG-01-03. (R/LR-A-23)
- Lawrence, J.M., McBride, S.C., Plank, L.R., and Shpigel, M. 2001. **Ammonia tolerance of the sea urchins *Lytechinus variegatus*, *Arbacia punctulata*, *Strongylocentrotus fanciscanus*, and *Paracentrotus lividus***. Echinoderm Research 2001. Pg 233-236. (R/LR-A-21)
- Lopez, M., Adams, C., Cato, J., and D. Sweat. 2001. **Cost and Return s Budgets for a Semi-Intensive Shrimp Farm in Nicaragua, 1994-2000**. Gainesville. 63 pg. (E/INT-1)
- Lopez, M., Adams, C., and J. Cato. 2001. **The Relative Importance of Nicaraguan Cultured Shrimp Within the Nicaraguan Seafood Industry and US Major Shrimp Import Markets: 1994-2000**. Gainesville. 22 pg. (E/INT-1)

MacMahan, J., Thieke, R.J., Dean, R.G., Miller, G., Engle, J., Thornton, E., Stanton, T., Reniers, A., Ruggiero, P. and G. Gelfenbaum. 2001. **Feasibility of Measuring Currents in the Nearshore from a Personal Water Craft.** In: Fourth International Symposium Waves 2001, September 2-6, 2001, San Francisco, CA. 66-75. (R/C-S-42)

Rubec, P.J., S.G. Smith, M.S. Coyne, M. White, A. Sullivan, T. MacDonald, R.H. McMichael, Jr., M.E. Monaco, and J.S. Ault. 2001. **Spatial Modeling of Fish Habitat Suitability in Florida.** In: Proceedings of 17th Lowell Wakefield Fisheries Symposium, Spatial Processes and Management of Marine Fish Populations. Alaska Sea Grant College, Fairbanks, Alaska. (R/LR-B-47)

Stein, T.V. 2001. **Developing a Recreation Management Strategy for Rookery Bay National Estuarine Research Reserve.** In: Proceedings of the 12th Biennial Coastal Zone Conference, Cleveland, OH, July 15-19, 2001. (PD-99-11)

Stephan, K. and Adam, C. 2001. **Recreational Fishing License Sales in Florida: 1990-2000.** University of Florida, Gainesville. Also available in Edis # FE302 (SGEP-12)

IX. CD-ROM Releases

None

X. Home Page

Florida Sea Grant Home Page.

I. Florida Sea Grant Reports

National Seafood HACCP Alliance. 2000. **Sanitation Control Procedures for Processing Fish and Fishery Products.** Seafood HACCP Alliance Course - First Edition for Training and Education. SGR-119. (E/TP-1)

National Seafood HACCP Alliance. 2000. **Sanitation Control Procedures for Processing Fish and Fishery Products.** Seafood HACCP Alliance Course - First Edition for Training and Education. Spanish Edition of SGR-119. SGR-122. (E/TP-2)

II. Florida Sea Grant Technical Papers

Antonini, G., N. West, C. Sidman, and R. Swett. 2000. **A Recreational Boater-Based Method for Redesigning the NOS Small-Craft Chart.** TP-107. (E/CSC-4)

Antonini, G.A., R. Swett, S. Schulte, and D. Fann. 2000. **Regional Waterway Management System for South Sarasota County.** TD-1 - Revised. (SAR-1)

Blake, N.J., C. Adams, R. Degner, D. Sweat, S. Moss, and Leslie Sturmer. 2000. **Aquaculture and Marketing of the Florida Bay Scallop in Crystal River, Florida.** TP-106. (R/LR-A-20)

Cato, J.C., and W. Seaman. 2000. **Science Serving Coastal Florida: Florida Sea Grant Delivering Results! 2000.** TP-104. Also available in Edis # SG055. (M/PM-12)

Florida Sea Grant College Program. 2000. **Florida Sea Grant College Program Year 2000 - Implementation Plan.** TP-100 - Revised. (M/PM-12)

Sidman, C., A. Antonini, S. Sauers, G. Jones, and N. West. 2000. **Evaluating Recreational Boating Patterns at Selected Sites in Southwest Florida for Regional Anchorage Management.** TP-105.(E/CSC-3)

Smith, S., S. Jacob, C. Adams, G. Israel, G. Evans, J. Gates, and M. Zacks. 2000. **The Impacts of the Florida Net Ban on Commercial Fishing Families.** TP-101. (R/LR-E-17)

Swett, R.A., D.A. Fann, G.A. Antonini, and L.C. Alexander. 2000 **Regional Waterway Management System for Lee County, Phase 1.** TD-3. (E/CSC-4)

Swett, R.A., G.A. Antonini, and S. Schulte. 2000. **Regional Waterway Management System for North Manatee County.** TD-2 - Revised. (E/CSC-1, E/CSC-2)

III. Books and Book Chapters

Allemand, D., E. Debernardi, and W. Seaman, Jr. 2000. **Artificial Reefs in the Principality of Monaco: Protection and Enhancement of Coastal Zones.** In: A.C. Jensen, K.J. Collins and A.P.M. Lockwood, eds. Artificial Reefs in European Seas. Kluwer Academic Publishers, London. pp. 151-166. (M/PM-12)

Bortone, S.A. 2000. **Seagrasses: Monitoring, Ecology, Physiology, and Management.** CRC Press, Boca Raton, Florida. 318 pp. (PD-98-3)

Butler, M.J., IV, and W.F. Herrnkind. 2000. **Puerulus and Juvenile Ecology.** In: Spiny Lobster Management. B. Phillips, S. Cobb, and J. Kittaka (editors). Blackwell Press, Oxford. 15:276-301. (R/LR-B-50)

Cato, J.C., and C.A. Lima dos Santos. 2000. **Costs to Upgrade the Bangladesh Frozen Shrimp Processing Sector to Adequate Technical and Sanitary Standards and to Maintain a HACCP Program.** In: The Economics of HACCP: New Studies of Costs and Benefits. L. Unnevehr (editor). Eagan Press, St. Paul, MN. pp. 385-402. (M/PM-12)

Seaman, W. Jr. 2000. **Artificial Reef Evaluation – with Application to Natural Marine Habitats**. ISBN 0-8493-9061-3. CRC Press. 246 pp. (M/PM-12)

Seaman, W., Jr., and A.C. Jensen. 2000. **Purposes and Practices of Artificial Reef Evaluation**. In: W. Seaman, Jr., ed. *Artificial Reef Evaluation*. CRC Press, Boca Raton. pp. 1-19. (M/PM-12)

IV. **Journal Articles**

Benetti, D.D., and J. Alarcón. 2000. **General Prophylaxis and Quarantine of Marine Brood Fish**. The Advocate, Global Aquaculture Alliance Technical Magazine. 3(5):60-61. (R/LR-A-35)

Corbett, D.R., Kump, L., Dillon, K., Burnett, W., and Chanton, J. 2000. **Fate of wastewater-borne nutrients under low discharge conditions in the subsurface of the Florida Keys, USA**. Marine Chemistry 69:99-115. (R/C-E-42)

Deyle, R.E., and R.A. Smith. 2000. **Risk-Based Taxation of Hazardous Land Development**. Journal of the American Planning Association. 66(4):421-434. (R/C-P-21)

Dillon, K.S., D.R. Corbett, J.P. Chanton, W.C. Burnett, and L. Kump. 2000. **Bimodal Transport of a Waste Water Plume Injected into Saline Ground Water of the Florida Keys**. Ground Water. 38(4):624-634. (R/C-E-37)

George, S.B., J.M. Lawrence, A.L. Lawrence, and J. Ford. 2000. **Fertilization and Development of Eggs of the Sea Urchin *Lytechinus variegatus* Maintained on an Extruded Feed**. Journal of the World Aquaculture Society. 31(2):232-238 (R/LR-A-21)

Jeedigunta, S., J.M. Krenisky, and R.G. Kerr. 2000. **Diketopiperazines as Advanced Intermediates in the Biosynthesis of Ecteinascidins**. Tetrahedron. 56:3303-3307. (R/LR-MB-6)

Larkin, S.L., Adams, C.M., and D.J. Lee. 2000. **Reported Trip Cost, Gross Revenues, and Net Returns for U.S. Atlantic Pelagic LongLine Vessels**. Marine Fisheries Review. 62(2):49-60 (SGEP-12)

Lawrence, J.M., and J. Herrera. 2000. **Stress and Deviant Reproduction in Echinoderms**. Zoological Studies 39(3):151-171. (R/LR-A-21)

Lee, D.J., S.L. Larkin, and C.M. Adams. 2000. **A Bioeconomic Analysis of Management Alternatives for the U.S. North Atlantic Swordfish Fishery**. Marine Resource Economics 15:77-96. (SGEP-12)

Paul, J.H., M.R. McLaughlin, D.W. Griffin, E.K. Lipp, R. Stokes, and J.B. Rose. 2000. **Rapid Movement of Wastewater from On-site Disposal Systems into Surface Waters in the Lower Florida Keys**. Estuaries 23(5):662-668. (R/LR-MB-3)

Pitcher, T.J., and W. Seaman, Jr. 2000. **Petrarch's Principle: How Protected Human-Made Reefs Can Help the Reconstruction of Fisheries and Marine Ecosystems**. Fish and Fisheries 1:73-81. (M/PM-12)

Ranamukhaarachchi, D.G., M.E. Kane, C.L. Guy, and Q.B. Li. 2000. **Modified AFLP Technique for Rapid Genetic Characterization in Plants**. Bio Techniques 29(4):856-866. (R/C-S-36)

Robertson, D.N., M.J. Butler, and F.C. Dobbs. 2000. **An Evaluation of Lipid- and Morphometric-Based Indices of Nutritional Condition for Early Benthic Stage Spiny Lobsters, *Panulirus argus***. Marine Freshwater Behavioral Physiology. 33:161-171. (R/LR-B-50)

Sharp, W.C., W.A. Lellis, M.J. Butler, W.F. Herrnkind, J.H. Hunt, M. Pardee-Woodring, and T.R. Matthews. 2000. **The Use of Coded Microwire Tags in Mark-Recapture Studies of Juvenile Caribbean Spiny Lobster, *Panulirus argus***. Journal of Crustacean Biology. 20(3):510-521. (R/LR-B-50)

St. Mary, C.M., C.W. Osenberg, T.K. Frazer, and W.J. Lindberg. 2000. **Stage Structure, Density Dependence, and the Efficacy of Marine Reserves.** *Bulletin of Marine Science*. 66:675-690. (R/LR-B-46)

Willoughby, R., and S.A. Pomponi. 2000. **Quantitative Assessment of Marine Sponge Cells *In vitro*: Development of Improved Growth Medium.** *In Vitro Cell Development Biology-Animal*. 36:194-200. (R/LR-MB-5)

V. Graduate Theses and Dissertations

Anastasiou, C.J. 2000. **Temporal Effects of Soil PH, Redox Potential, and Elevation on *Spartina patens* Planted at a West Central Florida Salt Marsh Restoration Site.** Thesis. Department of Biology, University of South Florida. (Aylesworth-2000)

andorfer, John. 2000. **Physiological Integration and Translocation of Carbon and Nitrogen in the Seagrass *Thalassia testudinum* Banks Ex König.** Dissertation. Department of Biology, University of South Florida. (Aylesworth /OS-2000)

Boswell, M.R. 2000. **Redefining Environmental Planning: Evidence of the Emergence of Sustainable Development and Ecosystem Management in Planning for the South Florida Ecosystem.** Dissertation. Department of Urban and Regional Planning, Florida State University. (R/C-P-21)

Denny, C.B., 2000. **Do They Want To Learn? Investigating Visitors' Preference and Motivations For Recreation Opportunities in the Ocala National Forest, Florida.** Thesis. School of Forest Resources and Conservation, University of Florida. (PD-99-11)

De Oliveira, A.C.M. 2000. **Quality Aspects of Cultured Gulf of Mexico Sturgeon, *Ancipenser oxyrinchus desotoi* As Potential Food Commodity.** Dissertation. Food Science and Human Nutrition, University of Florida (R/LR-Q-20)

Dolan, T.W. 2000. **Modeling Aggregation of Juvenile Caribbean Spiny Lobster, *Panulirus argus*.** Thesis. Old Dominion University. (R/LR-B-50)

Enright, E. 2000. **cDNA Library Construction in *Axinella corrugata* (= *T. morchella*).** Non-Thesis agree. Florida Institute of Technology. (R/LR-MB-5)

Glancy, T.P. 2000. **A Comparison of Seagrass, Oyster Reef, and Salt Marsh Edge as Habitat for Decapod Crustaceans.** Thesis. Department of Fisheries and Aquatic Sciences, University of Florida. (R/LR-B-46)

Hepner, T.L. 2000. **Effect of El Niño (1997-98) on the Peninsular Gulf Coast of Florida.** Thesis. Department of Geology, University of South Florida. (PD-98-8)

Hill, S. 2000. **Effects of Abiotic and Biotic Stress on the Energy Budgets of *Arbacia punctulata* and *Lytechinus variegatus* (Echinodermata: Echinoidea).** Dissertation. Department of Biology, University of South Florida. (R/LR-A-21)

Islam, A.K.M. 2000. **Post Storm Model for the Reconstruction of Habitable Coastal Structures.** Thesis. Department of Civil and Environmental Engineering, Florida A&M University. (R/C-D-17)

Jarrell, J.L. 2000. **Use of a Synthetic Polypeptide to Determine the Sex and Reproductive Status of Field-Caught Red Grouper, *Epinephelus morio*.** Thesis. Department of Marine Science, University of South Florida. (Aylesworth -2000)

Matera, J.A. 2000. **Open Ocean Cage Aquaculture: An Internship Report.** Thesis. M.A. Marine Affairs, University of Miami. (R/LR-A-35)

- McLaughlin, M.R. 2000. **Evaluation of the *Bacteroides fragilis* Phase Assay as an Alternative Indicator of Sewage Pollution.** Thesis. Department of Marine Science, University of South Florida. (R/C-E-41)
- Notestein, S.K. 2000. **Physical, Chemical, and Vegetative Characteristics of the Chassahowitzka River.** Thesis. Department of Fisheries and Aquatic Sciences, University of Florida. (R/LR-B-46)
- Plank, L.R. 2000. **The Effect of Dietary Carotenoids on Carotenoid Profiles and Gonad Growth, Development and Color in *Lytechinus variegatus* (Lamarck) (Echinodermata: Echinoidea).** Thesis. Department of Biology, University of South Florida. (R/LR-A-21)
- Ranamuka A.D. 2000. **Molecular Analysis of Genetic Diversity in Four Florida Sea-Oats (*Uniola paniculata*) Populations: New Approaches to Generate and Analyze Molecular Data.** Dissertation. Department of Environmental Horticulture, University of Florida. (R/C-S-36)
- Ross, M.P. 2000. **The Influence of Exposure to Carbon Monoxide on the Quality Attributes for Yellowfin Tuna Muscle.** Thesis. Department of Food Science and Human Nutrition, University of Florida. (SGEP-12)
- Sherman, R.L. 2000. **Studies on the Roles of Reef Design and Site Selection in Juvenile Fish Recruitment to Small Artificial Reefs.** Dissertation. Department of Oceanography, Nova Southeastern University. (Aylesworth -00)
- Thornton, R.S. 2000. **Aquaculture of *Pseudopterogorgia elisabethae* and Induction of Pseudopterossins.** Thesis. Department of Chemistry and Biochemistry, Florida Atlantic University. (R/LR-MB-8)
- Tilghman, C.G. 2000. **Feeding Electivity Indices and Nutritional Values of Forage Items of Surgeonfish (Acanthuridae) of the Florida Keys.** Thesis. Department of Fisheries and Aquatic Sciences, University of Florida. (R/LR-A-24)

VI. Florida Sea Grant Extension Publications

- Adams, C., P.S. Vega, and A.G. Alvarez. 2000. **An Overview of the Cuban Commercial Fishing Industry and Recent Changes in Management Structure and Objectives.** Food and Resource Economics, University of Florida, Gainesville, FL. Also available in Edis # FE 218. 12 pp. (SGEP-12)
- Adams, C. 2000. **Since the Net Ban: Changes in Commercial Fishing in Florida.** SGEF-117. (R/LR-E-17)
- Antonini, G., N. West, C. Sidman, and R. Swett. 2000. **A Recreational Boater-Based Method for Redesigning the NOS Small-Craft Chart.** Executive Summary. SGEF-139. (E/CSC-4)
- Antonini, G. 2000. **Forks of the Loxahatchee River.** Photomap. SGEF-136. (E/CSC-1)
- Antonini, G. 2000. **Jupiter Inlet Vicinity.** Photomap. SGEF-137. (E/CSC-1)
- Antonini, G. 2000. **Jupiter Inlet Vicinity Boating Infrastructure.** Photomap. SGEF-138. (E/CSC-1)
- Antonini, G. 2000. **Loxahatchee River Central Embayment.** Photomap. SGEF-135. (E/CSC-1)
- Crane, M.G. 2000. **Sea Turtle Nesting Season.** SGEF-131. (SGEP-12)
- Florida Sea Grant College Program. 2000. **Florida Sea Grant Publication and Communication Support Guidelines.** SGEF-133. (M/PM-12)
- Florida Sea Grant College Program. 2000. **Internet Directory of Marine Education and Research Organizations in Florida.** SGEF-132. (COMM-5)

- Florida Sea Grant College Program. 2000. **Science Serving Coastal Florida: Florida Sea Grant Program Directory 2000-2002.** SGEF-122. (SGEP-12)
- Novak, R. 2000. **Boater's Guide to Charlotte Harbor.** SGEF-52. (SGEP-12)
- Novak, R. 2000. **Release Techniques for Marine Fishes.** SGEF-121. Also available in Edis # SG047. (SGEP-12)
- Philippakos, E., A.W. Hodges, D. Mulkey, and C.M. Adams. 2000. **The Manatee and Sarasota County Economies: An Overview.** Food and Resource Economics, University of Florida, Gainesville, FL. Also available In Edis # FE 178. (SGEP-12)
- Seaman, W., Jr., and J. Whitehouse. 2000. **A Resource for Marine Educators.** SGEF-123. Also available in Edis # SG048. (M/PM-12)
- Stevly, J., and D. Sweat. 2000. **The Biology and Fishery of Florida's Commercial Sponges.** SGEF-119. Also available in Edis # SG045. (COMM-5)
- Sweat, D.E. 2000. **Fish Facts for Florida Consumers - Blue Crab.** SGEF-120. (SGEP-12)

VII. Extension Newsletters

- Florida Bay Project Staff. 2000. Florida Bay Watch Report. (SGEP-12)
Destructive Urchin Grazing in a Seagrass Bed in Western Florida Bay: When Should Resource Managers Intervene? May 2000.
Florida Bay's Murky Past. July 2000.
Rust and Rotten Eggs: Iron and Sulfur in Florida Bay. August 2000.
The Plume and the Bloom. August 2001.
- Florida Bay Project Staff. 2000. **Seahorse Sentinel.** Winter, Volume 2, Number 3, Spring, Volume 2, Number 4, Summer, Volume 3, Number 1, Volume 3, Number 2. (SGEP-12)
- Novak, R. 2000. In Charlotte County Extension Newsletter. (SGEP-12)
Coastal Trees Falling Victim to Saltwater Exposure. January, Volume 14, Number 1, Page 3.
Attention Boaters! January, Volume 14, Number 1, Page 13.
National Symposium on Catch and Release in Marine Recreational Fisheries. February, Volume 14, Number 2, Page 13.
Bay Scallops. April, Volume 14, Number 4, Page 4.
1998 Aquaculture Census Catches Nearly \$1 Billion in U.S. Sales. Volume 14, Number 4, Page 12.
Crevalle Jack: More than a Good Fighter! 14(5):3-4.
Waste Not, Want Not!! Volume 14, Number 8, Page 8-9.
Sharks!! Volume 14, Number 9, Page 6.
Marine Update. Volume 14, Number 9, Page 8.
Tis' the Season for Seafood. Volume 14, Number 11, Page 5.
Oyster Stuffing and Roasted Oysters. (Holiday Recipes) Volume 14, Number 11.
- Stevly, J.M. 2000. **The Marine Scene.** January-February, Volume 41, Number 1. (SGEP-12)
- Sweat, D. 2000. **Marine Times.** January-March, Volume 23, Number 1, April-June, Volume 23, Number 2, July-September, Volume 23, Number 3, October-December, Volume 23, Number 4. (SGEP-12)

VIII. Miscellaneous Papers, Articles and Conference Proceedings

- Adams, C. 2000. **An Overview of the Cuban Commercial Fishing Industry and Implications to the Florida Seafood Industry of Renewed Trade.** International Working Paper IW93-3. Food and Resource Economics. University of Florida, Gainesville, FL. Also Available In Edis #FE 162. 12 pp. (SGEP-12)

- Adams, C., P.S. Vega, and A.G. Alvarez. 2000. **An Overview of the Cuban Commercial Fishing Industry and Recent Changes in Management Structure and Objectives.** In: Proceedings of the International Institute of Fisheries Economics and Trade Conference, Corvallis, OR. 7 pp. (SGEP-12)
- Adams, C.M., D. Mulkey, A. Hodges, and J.W. Milon. 2000. **Development of an Economic Impact Assessment Methodology for Occurrence of Red Tide.** Staff Paper SP 00-12. Food and Resource Economics, University of Florida, Gainesville, FL. (SGEP-12)
- Adams, C., P.S. Vega, and A.G. Alvarez. 2000. **Recent Changes in Management Structure and Strategies of the Cuban Fishing Industry.** In: Proceedings of the Annual Meeting of the Association for the Study of the Cuban Economy. 8 pp. (SGEP-12)
- Frazer, T.K., S.B. Blicht, M.H. Posey, T.D. Alphin, and T.P. Glancy. 2000. **Habitat Use by Juvenile Blue Crabs Along Florida's North Central Gulf Coast.** Miscellaneous Staff Paper presented at the 29th Annual Benthic Ecology Meeting, University of North Carolina, Wilmington, 9-12 March. (R/LR-B-46)
- Hutchinson, S., S.Larkin, W. Milon, D. Lee, and C. Adams. 2000. **Economic Assessment of Limited Entry Strategies in Multi-Species Fisheries in South Florida.** Abstract In: Proceedings of the Gulf and Caribbean Fisheries Institute, 53rd Annual Meeting, November 6-10. (SGEP-12)
- Lawrence, J.M. 2000. **Conflict Between Somatic and Gonadal Growth in Sea Urchins: A Review.** Workshop on the Coordination of Green Sea Urchin Research in Atlantic Canada Moncton, New Brunswick, Canada. 1-2 June 2000. (R/LR-A-21)
- Philippakos, E., A.W. Hodges, D. Mulkey, and C.M. Adams. 2000. **The Economy of Manatee and Sarasota Counties.** Staff Paper SP 00-1. Food and Resource Economics, University of Florida, Gainesville, FL. 60 pp. (SGEP-12)
- Posey, M., T. Alphin, T. Frazer, S. Blicht, and T. Glancy. 2000. **Juvenile Blue Crab Habitat Use in Southeastern North Carolina.** Miscellaneous Staff Paper presented at the 29th Annual Benthic Ecology Meeting, University of North Carolina, Wilmington, 9-12 March. (R/LR-B-46)
- Seaman, W. 2000. **Evaluating Human-Made Marine Reefs for Economic, Engineering and Ecological Performance.** In: Soon Kil Yi, ed. Proceedings of the International Symposium on Marine Ranching Toward 21st Century, Ministry of Marine Affairs and Fisheries, Republic of Korea, Seoul. November 20-26, 2000. pp. i-xiv. (M/PM-12)

IX. CD-ROM Releases

None

X. Home Page

Florida Sea Grant Home Page.

7.0 STUDENTS

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

Introduction

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.

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

- Research Assistantships
- Dean John A. Knauss Marine Policy Fellowships
- Sea Grant Industrial Fellowships
- National Marine Fisheries Service/Sea Grant Fellows in Marine Economics and Populations Dynamics
- NOAA Coastal Service Center Coastal Management Fellowship

Private Funds

- Aylesworth Foundation for the Advancement of Marine Sciences
- Old Salt Fishing Club Scholarship
- Charles Skoch Sea Grant Scholarship

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.

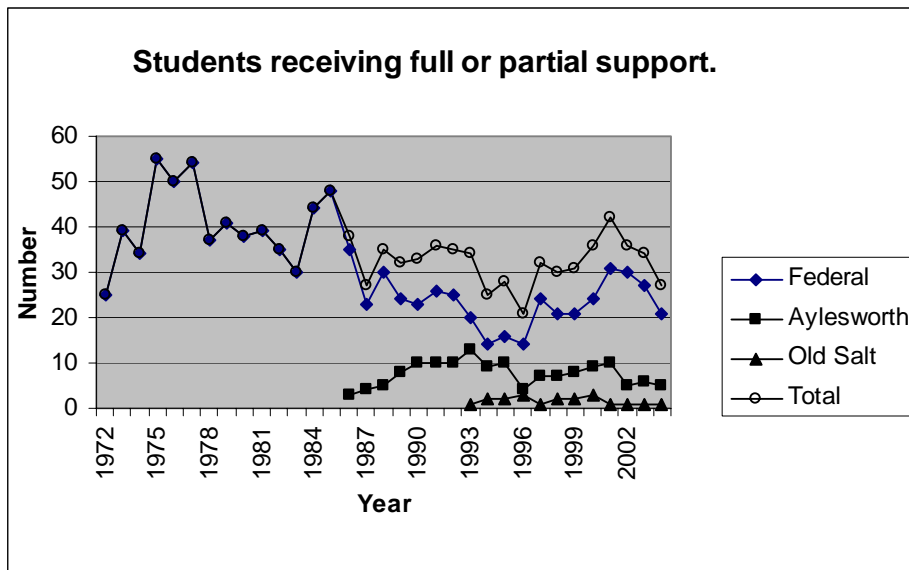
Beginning in 1993, Florida Sea Grant adopted the policy that, at minimum, 25 percent of the Florida Sea Grant federal research budget would be used to support graduate students. Beginning in 1998, Florida Sea Grant research project funding guidelines indicated that the inclusion of graduate students 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).

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 2004, a total of 35 graduate students received some federal Sea Grant support (see Figure 1).



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. That report was updated in 2004 in Sea Grant Technical Paper 140, “An investment in Florida’s future: Sea Grant sponsored graduate education, 2004.” A summary of key highlights from that document is below.

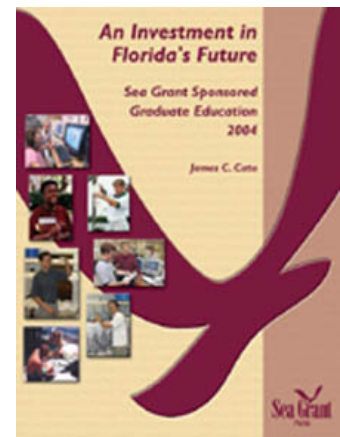
Public Funds

From 2000-2004:

- 36 percent of research funds supported assistantships.
- 65 MS and 23 PhD students graduated or are in process.

Since 1986:

- The top six (of about 35) academic disciplines supported have been biology, engineering, chemistry/biochemistry, fisheries/aquatic sciences, food science and human nutrition and oceanography.
- 329 students have been supported or are in process in the following categories: PhD (72); MS (176); Post-doc (10); undergraduate (61); withdrew (9).
- For those completed students known, 52 percent are working in Florida, 42 percent in 28 other states, and 6 percent internationally.
- Students are working in the following classifications: industry/non-governmental organizations (19%); government agencies (16%); university teaching/research (17%); pursuing additional education (12%); in progress (19%); not known (17%).



FSG has also participated actively in other student programs. From 2000-2004:

- FSG has placed 32 students from seven institutions as Knauss Fellows from 1986 to 2005. From 2000-2005, ten Knauss Fellows have represented FSG. For the 28 completed students, 54 percent work in federal or state governments and 11 (39 percent) work for NOAA. The 28 are working in 12 different states and one foreign country.
- FSG has placed four Sea Grant Industrial Fellows, with three of them from 2002-06.
- FSG has placed two NOAA Coastal Services Center Management Fellows with one occurring in the 2000-2004 period.

Private Funds

- FSG assisted the Aylesworth family, St. Petersburg, Florida, in the establishment of this private foundation in 1986. An annual FSG competition is held statewide to select scholarship recipients. To date, 76 students in 12 Florida universities have received scholarships averaging \$5,631 annually for a total of \$427,974 in support. Sixty-six completed degree programs by mid-2004. Between 2000-2004, 20 students are on scholarship for a total commitment of \$104,000. Of the 66 students now at work, 48 percent are working in Florida and the rest in 14 other states and two countries.
- FSG and the Aylesworth Foundation also administer a scholarship program using funds generated by the Old Salt Fishing Club of St. Petersburg, Florida, for students at the University of South Florida. Since 1993, 12 students have received scholarships totaling \$31,350, or \$2,612 per student. Between 2000-2004, five students have received a total commitment of \$14,000.
- In 1997, the Charles Skoch Family of Boynton Beach, Florida, created a Florida Sea Grant endowment at the University of Florida that funds a \$1,000 per year scholarship to a high school senior that is selected through competition in the Florida Annual State Science and Engineering Fair. Seven annual scholarships have been awarded through 2004.

8.0 PROGRAM AWARDS

The following awards represent a sample of the awards presented to various Florida Sea Grant Extension and Education faculty and statewide, regional and national awards during 2004.

Local Awards

Marella Crane	Miami-Dade County Consumer Services Department Employee of the Quarter (April - June).
John Stevely	Longevity award, Sarasota Bay Estuary Program, for a decade of service as chair of the technical advisory committee.
Don Sweat	Superior Achievement Award, St. Petersburg Pier Aquarium Board of Directors, for 15 years of service as director of kid's fishing tournament. Letter of commendation, Citrus County Tourist Development Council, for continued involvement in the scallop restoration effort.

Statewide

Marella Crane	Florida Association of Natural Resource Extension Professionals: <ul style="list-style-type: none">• State Specialist Early Career Leadership Award• State Communications Newsletter Award - "At the Waters Edge."• State Communications Short Publication Award - "Hurricane Preparedness for Marine Interests."
Maia McGuire	Florida Association of Natural Resource Extension Professionals: <ul style="list-style-type: none">• Award for Program Leadership - "Monofilament Recycling Program."

Regional

Chuck Adams	Received Certificate of Appreciation for Service, South Atlantic Fishery Management Council. Government Employee of the Year, Southeastern Fisheries Association.
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National

Steve Holland	William Penn Mott, Jr. Award for Excellence, National Society for Park Resources (one of two presented in 2004).
Steve Otwell	Myron Solberg Award, Institute of Food Technologists, for national and international leadership in the establishment, development, and continuation of an industry/government/academic cooperative organization.

9.0 OUTREACH ACTIVITIES

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 2004. 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. The Florida Marine Biotechnology Summit IV was organized by Florida Sea Grant and held in Boca Raton, Florida, October 17-18, 2004. It was an invited session of the BioFlorida annual conference, resulting in record combined attendance (430), with 19 oral and 26 poster reports on marine biotechnology. This afforded an outstanding and unique opportunity to deliver science-based information directly to executives in industry, who may be considering “the buzz” about marine biotechnology and whether to get involved. Possibly this was the first U.S. Sea Grant meeting with both a Nobel Laureate and sitting governor of the state attending. The magazine, “The Promise of Marine Biotechnology in Florida,” was published, as a calling-card style corporate report for use in educating business, industry, educational, media and other leaders. Attendees at the BioFlorida conference requested extra copies. Meanwhile, FSG educated its own Extension staff by providing them with print and electronic information resources useful to answering inquiries from the public. Development of a national website on marine biotechnology continued, with completion slated for 2005. In cooperation with technology transfer staff from the host campus, an FSG researcher “transitioned” his studies of synthesis of biologically active compounds into formation of a new company, Tequesta Marine Biosciences, as a powerful means of outreach to a targeted client. The FSG associate director 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 participated on the board of directors of BIOFlorida, the statewide trade association for this field.

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 2004 were:

Carnival Cruise Line
FAU/Cantanese Center for Urban and
Environmental Problems
Florida Institute of Oceanography
Florida Ports Council
Florida Sea Grant
Harbor Branch Oceanographic Institution
Harris Corporation

Holland and Knight
Hubbs-Sea World Research Institute
IGFA, Fishing Hall of Fame and Museum
Mote Marine Laboratory
Royal Caribbean International Cruises
St. Joe Company
The Nature Conservancy
University of Miami/RSMAS

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 (CBP), the sponsor of the first clean marina program in the nation. Major partners include the Florida Department of Environmental Protection (FDEP), Marine Industries of Florida, and U.S. Coast Guard. FSG contributions to the CBP include writing the curricula for the clean marina and clean boatyard workshops. Mike Spranger serves on the CMP Board and serves on the CBP Education and Public Relations Committee. Don Jackson served as chair of the CBP Visioning Committee. FSG County faculty participate in local workshop presentations and are involved in marina “designation” inspections with the FDEP and Marine Industries representatives. Currently, there are 96 clean marinas and 17 clean boatyards designated with 150 more “in the pipeline.” Ten other states are now involved in clean marina programs, and a number of states are contemplating initiating a program. Most of these programs have used elements of the Florida Clean Marina model in designing their programs. In addition, over 2,000 copies of the popular “Panic File” produced by FSG on behalf of the CBP have been distributed to marinas across the United States.

The CBP have calculated that they have been responsible for preventing a significant level of pollution and contaminants from entering Florida’s waterways over the past year. CBP estimates 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 that kept these materials from reaching Florida’s waterways. The CBP has an active bilge sock distribution project underway that provides the sock to individual boaters that frequent the Clean Marina and pledge to be a clean boater. Each sock absorbs 2.5-4 quarts of oil and grease from the bilge area. CBP estimates more than 13,500 gallons of materials were collected from these bilge areas in individual boats during 2004.

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 (Alabama, Florida, Louisiana, Mississippi, Texas) that board 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 daily lives. This project links educators, researchers, and interested publics both regionally and thematically, focusing on the Gulf of Mexico as the vehicle to teach ocean sciences education. FSG collaborators include the Florida Museum of Natural History and the University of Florida Seahorse Key Marine Lab.

A one-week, field-based education program for ten teachers and seven scientists was held in the summer of 2004. The field-based course focused on the broad areas of coastal habitats, coastal processes and marine technologies, and how they relate to federal and state curricula standards. FSG Extension faculty (Chuck Jacoby, Scott Jackson, Maia McGuire, Chris Simoniello, Mike Spranger, Bob Swett) served as key instructors for the

institute. These topical areas were complemented with a six-week distance learning program that followed the field-based institute. Topics covered in this distance learning program included hypoxia, harmful algal blooms, invasive species, sharks, and fisheries. Results from pre/post tests indicate that all increased their knowledge and are utilizing this new knowledge and skills in their respective classrooms. Chris Simoniello and Mike Spranger presented a presentation on the GOM-COSEE at the 2004 National Marine Educator Association's annual meeting, held in July 2004 in St. Petersburg, FL. GOM-COSEE and FSG also were sponsors of the State 4H Youth Marine Ecology Contest that was held in October 2004 at the 4H Youth Camp in the Ocala National Forest.

NOAA Coastal Storms Initiative

Florida continued with the outreach and extension component of the NOAA Coastal Storms Initiative, a study that focused on the St. Johns watershed. This first national pilot involves several units within NOAA for research and data cataloguing. The objective of this research is to forecast a smaller footprint of prediction of coastal storms, amelioration of effects of storms, and better planning efforts based on knowledge of potential storm surges, flooding, and vulnerability to contaminant releases during a storm events. Information and presentation on the outreach process and products produced was provide to individuals in Oregon and Washington who are coordinating the second phase of this project in the Pacific Northwest. A final close-out meeting of researchers, outreach personnel and county officials for the Florida project was postponed due to the hurricanes that hit Florida in the fall of 2004. These closeout sessions were held in early 2005, attended by over 60 individuals. Don Jackson provided the logistical arrangements and provided a presentation at these closeout sessions.

SEA-COOS

Florida Sea Grant is involved in the extension and education aspects of two regional ocean observing system projects. These regional systems will be part of the national integrated ocean observing system (IOOS) that is in the initial stages of development in the United States. FSG has been involved as one of the initial members of the Southeast Atlantic Coastal Ocean Observing System (SEACOOS) project. This project involves identifying stakeholders, providing information on the various projects and presenting the research results, data and products throughout the Southeast Atlantic region. This is an integrated extension and education outreach effort with the Sea Grant programs of North Carolina, South Carolina, and Georgia; a host of universities involved in ocean observing systems research, and the Southeast Atlantic COSEE, Florida COSEE, and Gulf of Mexico-COSEE projects. An SEACOOS Extension and Education Work Group has been established to coordinate regional extension and education projects. Mike Spranger serves as FSG representative to the work group. In 2004, FSG received funds to hire a Regional SEACOOS Extension Outreach Specialist. Chris Simoniello was hired in February 2004, with an office based at the University of South Florida in St. Petersburg. Her responsibilities are to develop extension and educational materials, as well as provide support that will increase the capacities for the southeast region's Sea Grant Programs to develop localized SEACOOS programs. She also worked on several case studies of potential ocean observing system state-holder groups through a grant provided by NOAA's Coastal Services Center.

Florida Sea Grant was also involved in the initial formation meeting of the Education and Outreach Council of the Gulf of Mexico Coastal Ocean Observing System (GCOOS). In the summer of 2004, Mike Spranger was asked to coordinate a Gulf of Mexico-wide workshop, bringing together formal and informal educators to develop a term of reference for a GCOOS Education and Outreach Council. A group of 25 educators that included representatives from Sea Grant Programs, National Estuary Programs, National Estuarine Research Reserve Systems, Office of the Navy, universities and public school system attended this meeting. In addition to developing a term of reference and organizational structure for the Council, the group also identified specific programmatic questions that should be addressed by GCOOS. The recommendations were passed on to the GCOOS Governing Group, and discussed at their business meeting in January 2005 in New Orleans.

Major Program Plans of Work

Long range planning for the FSG Extension Program is carried out under the auspices of the University of Florida IFAS Extension's four-year plan of work and strategic plan. Every four years, Extension develops a planning process that is used to define their future needs and work activities. This four-year strategic plan and work activities are updated annually through the annual plans of work by all Extension faculty, including those connected with FSG. During 2003, UF IFAS Extension developed a planning process that included "listening sessions" in each of Florida's 67 counties as well as "listening sessions" within all UF IFAS Academic Departments to determine needs and future direction.

As a result of this process, and several external reviews of the Extension infrastructure, a new planning and reporting process was initiated in 2004. In place of the more than 60 State Major Program Areas, UF IFAS Extension will now concentrate its activities through Goal Teams, Focus Teams and Work Action Groups in the goal areas identified for 2004-2007 that are listed below:

1. To enhance and maintain agriculture and food systems.
2. To maintain and enhance Florida's environment.
3. To develop responsible and productive youth through 4H and other youth programs.
4. To create and maintain Florida friendly landscapes
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.

This is a new shared governance process where faculty and administrators work together to develop the organizational plans of work. The goal teams and focus teams (sub areas) consist of interested faculty in specific areas of common interest. Specific task-oriented work action groups are then formed among interested specialists and agents to develop materials and educational activities for local, county, state and regional audiences. For FSG, there are currently 14 work action groups that focus on such topics as artificial reefs, ethical angling, clean marinas/boatyards, invasive species, boating and waterway management, seafood technology and safety, water quality, and marine education. These work action groups were identified at the FSG Extension annual meeting, held in October 2004 in Ft. Lauderdale, FL.

To develop work activities, FSG Extension faculty rely on local, county, and regional advisory committees to assist in identifying program needs, strategic planning and priority setting. Each campus faculty has one or more advisory committees to guide the development of their annual plan of work (POW). These POWs correspond to one of the seven Extension goal areas cited above. At the state level, through the new University of Florida Faculty Accountability System (UNIFAS), these individual POWs are integrated into the statewide goal and focus team areas.

This planning process accounts for approximately 70 percent of a FSG Extension faculty member's work activities. The goals and tasks related to extension activities that are found in Section 2.0 result from the planning efforts described above. The remaining 30 percent of a FSG Extension faculty member's time is used for emerging issues, responding to stakeholder questions and dealing with important marine issues that may arise outside of the seven identified goal areas. Annually, the planned activities undertaken in these POWs are documented through a report of accomplishment (ROA). The ROAs are used for individual staff evaluation, as well as used to develop new FSG work activities at the annual FSG Extension meeting that is generally held in the Fall.

FSG Extension Program proposals are also developed as a part of the overall Florida Sea Grant College omnibus proposal. Two, three or four-year proposals are developed, as appropriated. Much of the material for

the FSG Extension Omnibus proposal is taken from the UF IFAS Extension planning process that has been previously discussed. FSG Extension faculty POWs are also integrated into the overall Florida Sea Grant College Program's long range planning process, which helps link identified research and extension program priorities and program areas.

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 9.1 includes specific workshops and conferences that included presentations made by Sea Grant faculty, researchers and program managers from 2002 through 2004. 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 9.2 at the end of this section.

Over the three year period from 2002 through 2004, a total of 1,570 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 three leading areas are informed citizens (23.4%), coastal habitat (18.7%) and fisheries (17.3%). Audience type has also been documented as shown in Figure 9.2. Industry education is the leading audience type (24.4%). Finally, Figure 9.3 shows that 85.2% of all activity has occurred within Florida.

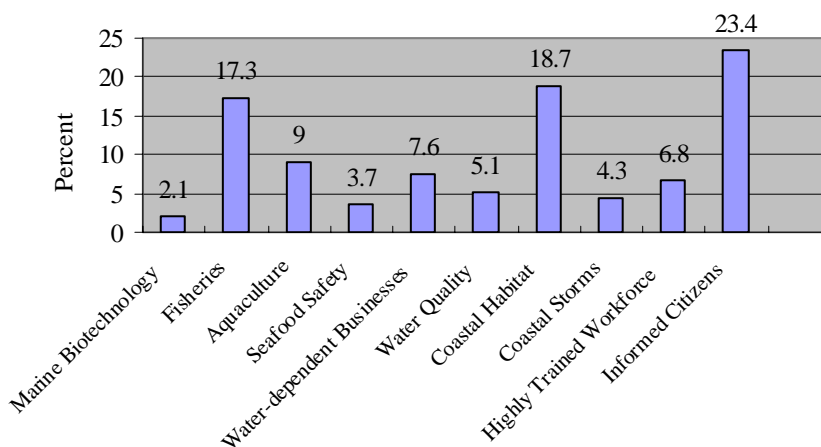


Figure 9.1 -- Percent of educational events by Florida Sea Grant goal area for 2002 - 2004.

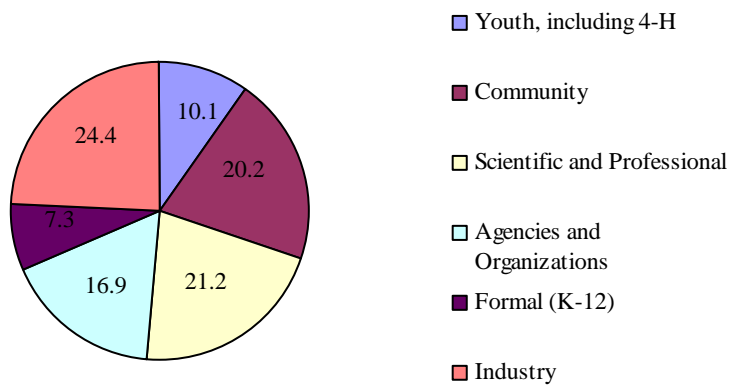


Figure 9.2 -- Percent of educational events by Florida Sea Grant audience type, 2002 - 2004.

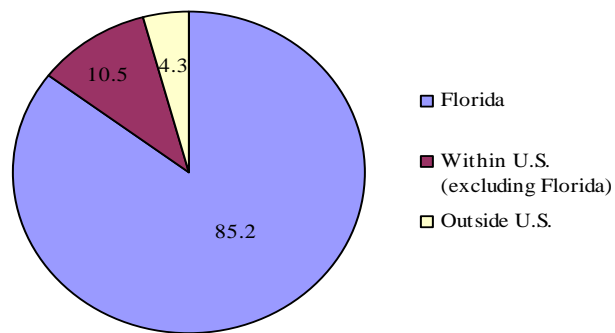


Figure 9.3 -- Percent of educational events by Florida Sea Grant geographic area of delivery, 2002 - 2004.

Total attendance was recorded for 1,037 of the 1,570 events at 478,656 people. Extrapolating to the total number of events indicates that 722,369 people were present at a Florida Sea Grant educational event from 2002 to 2004. Assuming one event per day, the 1,570 events occurred over 1,095 days (365 days/year) meaning that 1.4 events were occurring per day over the three year period.

Displays

Communications staff produced nearly 20 posters during 2004 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 2004 is indicated below.

<u>Theme</u>	<u>Event/Need</u>	<u>Location</u>
Ocean resource conservation	Oceans Day in the Capitol	Tallahassee, FL
SEACOOS	Oceans Day in the Capitol	Tallahassee, FL
Artificial reefs	State Summit of county artificial reef coordinators	Sarasota , FL
Florida Clean Boating Partnership	Miami, FL	Miami Boat Show
Support to graduate education	Florida Sea Grant Scholarships and Fellowships	statewide
Recreational fishing, Catch-and-release	35 sets of 3 panels each produced for FSG faculty	statewide
SEACOOS	32 sets of 3 panels each produced for FSG faculty	statewide
Ethical Angling	Florida Outdoor Writers Association	Venice, FL

Web-based Technologies

Maintenance and enhancement of the Florida Sea Grant website (www.FLSeaGrant.org) continued through 2004 in support of the total reorganization the previous year that presents information organized according to programmatic areas. This website is, and continues to grow as, the “window to the world” for Florida Sea Grant. It serves as a principal contact point, reference and archive for Sea Grant information serving Sea Grant personnel, collaborators and outside users. It has become a valuable and dependable resource.

Web enhancement is a scheduled and concerted effort to create new content and delivery techniques that give users greater utility than was previously available. Page maintenance is an ongoing and never-ending effort that requires almost daily attention, be it revision of html coding, replacement of dead links, or trouble-shooting display errors. During 2004, maintenance and enhancement of the Florida Sea Grant website has involved adding components of “static” content, that is, content which is relevant, accurate and comprehensive, and “interactive” features which let users query databases, download information or provide Sea Grant with valuable feedback. On the static side, feature stories and new links have been added to Sea Grant programmatic areas. All numbered Florida Sea Grant publications for 2004 have been added, including some that are being published exclusively in electronic mode, such as a histological atlas of surgeon fish. New staff listings to accommodate the expanding

network of county extension faculty have been incorporated; others have been updated. The series of illustrated impact statements highlighting successful efforts of Florida Sea Grant and its partners that appears on the home page has been expanded. Out-dated information continues to be routinely replaced with current information.

Advances have also been made with “interactive” aspects of web-based technologies. The web-based RFP submission page constructed in 2003 to streamline Florida Sea Grant’s biennial Request for Proposal and Review process proved successful. In 2004, the Beta version was revised and its capabilities were expanded. It was used successfully in the Statement of Interest process during the year and stands poised for the subsequent Request for Proposals that will cycle in 2005. This electronic proposal format has made the research proposal process faster and less expensive 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 browser interface screens. Florida Sea Grant is one of the few Sea Grant programs that manages its proposal submission process online.

Interactive web sites are also being developed in support of the Florida Sea Grant goal area Waterfront Communities. An online database was created and programmed to be both searchable and expandable by researchers that are employing GIS technology and bathymetry as parameters in coastal planning. In addition, communications program staff are assisting in the transition of a Southwest Florida anchorage inventory website from the static to the interactive, using dynamic, database-driven web technology to enhance the content and improve the inventory’s usability.

Out of the public view, Florida Sea Grant has created and maintains three intranets that network home office management and staff. One intranet server is dedicated to the communications program, its production support files and digital archive. The second intranet is web-based within the information technology structure of the University of Florida/Institute of Food and Agricultural Sciences, and provides an easily accessible medium for transferring files to collaborators and service providers throughout the state and nation. A third is dedicated to sharing work files among the entire statewide management staff. These networks facilitate open and ready access to internal files, publications, and other business and operational records, which results in increased productivity, collaboration, and file security.

The National Sea Grant Library’s *Program Activity Summary Reports* for 2004 indicate that Florida Sea Grant publications productivity exceeds by far that of most other Sea Grant programs. Communications staff routinely submit electronic or PDF versions of all of its numbered publications to the National Sea Grant library. Compared with other state Sea Grant programs, while Florida is 7th out of the top ten programs in terms of core funding received, Florida ranks first for number of documents submitted, including number of reprints and thesis/dissertation abstracts. Moreover, in 2004, Florida Sea Grant showed 144,913 PDF (portable document file) downloads from the national archive, far more than any other Sea Grant program in the country (more than three times higher than the second best showing).

Quarterly and Bi-Monthly Summaries

All outreach activities from our 17 field-based faculty and 10 campus-based specialists are too extensive to report in this document. In fact, it is a real accomplishment to maintain communications among our far-flung off-campus faculty who are separated by almost 1,000 miles at the extreme of the range (Pensacola – Key West). Agents and specialists touch base at regional district extension meetings, and statewide meetings where there is specific content interest (e.g. fisheries, artificial reefs, Clean Boating Partnership, shrimp TAA workshops). As an internal communication tool, each FSG Extension faculty member provides highlights of their past activities, a listing of their past “extension education events” in spreadsheet format, and list of future planned activities. This

information is then posted on the FSG website on a quarterly basis. Past reports can be found at the FSG website: <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 announces funding opportunities for faculty and students, as well as other information of interest. This report can also be found at the FSG website, noted above.

Table 9.2 Florida Sea Grant workshop/event and conference activities for ten goal areas, 2004.

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Goal 1: Create Products and Processes from Florida's Coastal Resources Using Marine Biotechnology							
Martin, Julio; Duckworth, Donna; Gulig, Paul A.	P	104th Annual Meeting of the American Society of Microbiology	The use of lytic bacteriophages against <i>Vibrio vulnificus</i> in artificially and naturally infected oysters			May, 2004	New Orleans, LA
Franco, A.; Pflueger, F.; Matei, E.; Mora, D.; Pisarewicz, K.; Fields, G.; Mari, F.	P	2004 Gordon Research Conference in Marine Natural Products	Hyperhydroxylation: A New Study for Neuronal Targeting by Venomous Marine Mollusks			February, 2004	Ventura, CA
Kerr, R.	P	2004 Gordon Research Conference in Marine Natural Products	Marine diterpene biosynthesis: Pathway elucidation, enzymology and identification of the cellular origin			February, 2004	Ventura, CA
Kerr, R.	P	World Aquaculture Society	Development of production methods of pseudopterinos: anti-inflammatory agents from a Gorgonian			March, 2004	
Shivji, M.; Chapman, D.; Pikitch, E.	P	Workshop on Conservation Research of Great White Sharks	Applying new DNA forensic methods to monitor trade in shark products, with special reference to great white sharks			January, 2004	New York
Goal 2: Determine Production and Management Techniques Which Make Florida's Fisheries Sustainable and Competitive							
Adams, Charles	C,P	Southern Ag. Econ. Annual Meetings	Capacity Reduction Symposium	S/P, A/O	25	16, 17 Feb 04	Tusla, OK
Adams, Charles	W	Gulf States Marine Fisheries Comm. Task Force Meeting	Chairman of the Task Force, conducted meeting in the process of drafting management plan for sheephead	S/P, A/O	15	19, 20 Feb 04	Pensacola, FL
Adams, Charles	W	Trade Adjustment Assistance Workshop	Overview /training for TAA certification (AK salmon)	I	8	5-Apr-04	Dade City, FL
Adams, Charles	C	Florida Reef Summit	Economic value of artificial reefs	S/P, A/O, G	200	26-28 April 04	Sarasota, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Adams, Charles	W	Trade Adjustment Assistance Workshop	Overview /training for TAA certification (FL shrimp)	I	50	6-May-04	Ft. Myers, FL
Adams, Charles	P	Tourist Development Council Workshop	Economic value of recreational scallop season to Citrus County	A/O, G	30	11-May-04	Crystal River, FL
Adams, Charles	W	Trade Adjustment Assistance Workshop	Overview /training for TAA certification (FL shrimp)	I	30	13-May-04	Apalachicola, FL
Adams, Charles	P	FRED Seminar Class	Economic issues related to Florida's coastal resources	F (UF)	40	25-May-04	Gainesville, FL
Adams, Charles	P,W	University of Florida Shrimp School	Status of Anti-Dumping Case on Imported Shrimp	I	25	14-Jul-04	Gainesville, FL
Adams, Charles	W	FRED Statewide Extension Meeting	Annual Planning for Departmental Extension	S/P	20	26-May-04	Ft. Pierce, FL
Adams, Charles	P,W	Trade Adjustment Assistance Workshop	Overview/training for TAA certification (FL shrimp)	I	25	1-Jun-04	Palmetto, FL
Adams, Charles	P,W	Trade Adjustment Assistance Workshop	Overview/training for TAA certification (FL shrimp)	I	20	3-Jun-04	Crystal River, FL
Adams, Charles	P/C	Southeastern Fisheries Association Annual Conference	The USDA Trade Adjustment Assistance Program for Florida Shrimpers	A/O, I	60	4,5-Jun-04	Sarasota, FL
Adams, Charles	P,W	Trade Adjustment Assistance Workshop	Overview/training for TAA certification (FL shrimp)	I	20	5-Jun-04	Sarasota, FL
Adams, Charles	P,W	Trade Adjustment Assistance Workshop	Overview/training for TAA certification (FL shrimp)	I	30	7-Jun-04	Key West, FL
Adams, Charles	P,W	Trade Adjustment Assistance Workshop	Overview/training for TAA certification (FL shrimp)	I	50	8-Jun-04	Homestead, FL
Adams, Charles	P,W	Trade Adjustment Assistance Workshop	Overview/training for TAA certification (FL shrimp)	I	80	17-Jun-04	Mayport, FL
Adams, Charles	P,W	Trade Adjustment Assistance Workshop	Overview/training for TAA certification (FL shrimp)	I	12	21-Jun-04	Cocoa, FL
Adams, Charles	P,W	Gulf States Marine Fisheries Economics and Trade Biennial Conference	Buyback Program for the Commercial Shark Fisheries in the Gulf of Mexico and Atlantic Region	A/O, I	10	22-Jun-04	Layton, FL
Adams, Charles	C/P	International Institute of Fisheries Economics and Trade Biennial Conference	Buyback Program for the Commercial Shark Fisheries in the Gulf of Mexico and Atlantic Region	S/P, A/O, I	100	24,28-Jul-04	Tokyo, Japan

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Adams, Charles	P, W	Shrimp Business Options Paper Roll-Out	Overview of the Shrimp Business Options Paper	S/P, A/O, I, G	60	23-Aug-04	Houston, TX
Adams, Charles	W	Gulf Fisheries Council SSC Workshop	Discuss management options for Florida fisheries	S/P, A/O, I	20	1-Sep-04	Tampa, FL
Adams, Charles	C, P	2004 Southern Region Ag. Outlook Conf.	Describe commercial seafood sector in SE U.S.	S/P, A/O, I	100	27,29-Sep-04	Atlanta, GA
Adams, Charles	W	Fisheries Extension Enhancement Workshop	Discuss fisheries extension options for SE region	S/P, A/O	6	6-Oct-04	Atlanta, GA
Adams, Charles	W, P	GSA Foundation Shark Project Workshop	Address current status of shark project	S/P, A/O, I, G	12	17-Nov-04	Tampa, FL
Adams, Charles	W	FWC Fisheries Management Workshop	Examine fisheries research /outreach priorities	S/P, A/O, I, G	60	18-Nov-04	St. Petersburg, FL
Adams, Charles	W	GSMFC Sheepshead Task Force workshop	Complete draft Sheepshead management plan	S/P, A/O, I, G	12	6,8-Dec-04	Fulton, TX
Adams, Charles	P, W	Shrimp Business Options Paper Roll-Out	Overview of the Shrimp Business Options Paper	S/P, A/O, I, G	60	23-Aug-04	Houston, TX
Combs, Chris	W, D	Shrimper Assistance	Shrimper Assistance Program Training	I	11	6-Jan-04	Port Canaveral, FL
Combs, Chris	W, D	Shrimper Assistance	Shrimper Assistance Program Training	I	11	8-Jan-04	Port Canaveral, FL
Combs, Chris	W, D	Shrimper TAA training	Shrimper Assistance Program via Farm Service A.	S/P, A/O, I	100	6-May-04	Ft. Myers, FL
Combs, Chris	C	Shrimper TAA training	Shrimper Assistance Program via Farm Service A.	I	2	13-May-04	Tallahassee, FL (phone)
Combs, Chris & Adams, Chuck	W, D	Shrimper TAA training	Shrimper Assistance Program via Farm Service Agency	I	10	21-June-04	Cocoa, FL
Combs, Chris	W	SAFMC Public Hearing	Shrimp Fishery Mgmt. Plan, Amend. 6	S/P, A/O, I	8	3-Aug-04	Cape Canaveral, FL
Combs, Chris	W, D	Shrimper TAA training	Shrimper Assistance Program via Farm Service Agency	I	6	6-Aug-04	Port Canaveral, FL
Combs, Chris	W, D	Shrimper TAA training	Shrimper Assistance Program via Farm Service Agency	I	1	17-Aug-04	Port Canaveral, FL
Creswell, LeRoy	P	57th Gulf and Caribbean Fisheries Institute	Status of GCFI	S/P	225	8-12-Nov-04	St. Petersburg, FL
Gregory, Douglas	Meeting	Gulf of Mexico Fishery Council SSC	red grouper Secretarial Amendment	scientists, Council and staff	28	6-7-Jan-04	Tampa, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Gregory, Douglas	Radio Show	US 1 Radio Morning Magazine	red grouper Secretarial Amendment	general public		27-Jan-04	Florida Keys
Gregory, Douglas	Meeting	Artificial Reef Needs for fishing	Review of how to establish and monitor a large area artificial reef site	agency reps, County Commissioner, fishermen, FKNMS	8	28-Jan-04	Marathon, FL
Gregory, Douglas	news article	New Fishing Regulations for Keys Gulf Fishermen	Red grouper, shrimp bycatch devices	fishermen		2-Feb-04	Florida Keys
Gregory, Douglas	Radio Show	US 1 Radio Morning Magazine	Shrimp Bycatch Reduction Devices Rules	general public		10-Feb-04	Florida Keys
Gregory, Douglas	Meeting	king mackerel stock assessment	king mackerel stock assessment	scientists, management staff	24	16-20-Feb-04	Miami, FL
Gregory, Douglas	Gulf Council limited access scoping hearing	Gulf Council limited access scoping hearing	Gulf Council limited access scoping hearing	fishermen	35	1-Mar-04	Key West, FL
Gregory, Douglas	Meeting	Working Waterfront needs	Working Waterfront needs	fishermen, county planners	8	2-Mar-04	Stock Island, FL
Gregory, Douglas	meeting	king mackerel stock assessment	overview of stock status and strategy for attending review workshop	fishermen	4	1-Apr-04	Stock Island, FL
Gregory, Douglas	Meeting	Working Waterfront needs	presented case for government involvement	Monroe County Marine and Port Advisory Committee	18	7-Apr-04	Marathon, FL
Gregory, Douglas	Meeting	Grant Monies for harbor redevelopment	Discussion of options for obtaining grant money to expand docks and upgrade infrastructure of a fishermen's owner association dock.	Marathon city manager, land use consultant, fishermen	12	15-Apr-04	Marathon, FL
Gregory, Douglas	news article	Working Waterfront needs	Full page article in Miami Herald's with quotes (as the result of advisory committee members interest in the subject.)	general public		18-Apr-04	Florida Keys

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Gregory, Douglas	Meeting	Gulf of Mexico Fishery Council SSC	Hogfish and Goliath Grouper Stock Assessments	scientists, Council and staff	28	28-29-Jan-04	Tampa, FL
Gregory, Douglas	Meeting	South Atlantic Fishery Council SSC	Hogfish, goliath grouper and king mackerel assessments	s/p, a/o	28	19-May-04	Charleston, SC
Gregory, Douglas	Meeting	South Atlantic Fishery Council Meeting	Attendance re: king mackerel, snapper grouper and shrimp issues	a/o	55	06/14/04 to 06/18/04	Key West, FL
Gregory, Douglas	R	US 1 Radio Morning Magazine	Trade Adjustment Funds for Shrimpers	G	7500	1-Jun-04	Lower Florida Keys
Gregory, Douglas	w	Trade Adjustment Funds for Shrimpers	Trade Adjustment Funds for Shrimpers	G	25	7-Jun-04	Key West, FL
Gregory, Douglas	N	News article	Trade Adjustment Funds for Shrimpers	G		16-Jun-04	Florida Keys
Gregory, Douglas	R	US 1 Radio Morning Magazine	Volunteer Angler tag recapture project	G	7500	29-Jun-04	Lower Florida Keys
Gregory, Douglas	W	Organizational Meeting	Volunteer Angler tag recapture project	s/p	24	12-Jul-04	Marathon, Florida
Gregory, Douglas	N	Volunteer Angler tag recapture project	Volunteer Angler tag recapture project	G		14-Jul-04	Florida Keys
Gregory, Douglas	R	Sun WIKZ 103.1 Radio News show	Volunteer Angler tag recapture project	G	4000	9-Jul-04	Upper Florida Keys
Gregory, Douglas	R	US 1 Radio This Week of Fishing in the Florida Keys	Volunteer Angler tag recapture project	g	7500	22-Jul-04	Lower Florida Keys
Gregory, Douglas	Meeting	Working Waterfront needs	Ongoing actions to save commercial waterfront	G	18	7-Jul-04	Key West, FL
Gregory, Douglas	T	Working Waterfront needs	Two stories for HD TV News	G		05/11-12/04	Key West, FL
Gregory, Douglas	Meeting	Working Waterfront needs	Arranged meeting tween fishermen and County Commissioner to discuss Stock Island waterfront	a/o, G	8	28-Jun-04	Key West, FL
Gregory, Douglas	Meeting	South Atlantic Fishery Council SSC	Snowy Grouper and tilefish Stock Assessment Review	s/p, a/o	38	25-Oct-04	Pawley Island, SC
Gregory, Douglas	Meeting	Gulf of Mexico Fishery Council SSC	Review king mackerel stock assessment and National Standard 1 overfishing definitions	s/p, a/o	15	1-Sep-04	Tampa, FL
Gregory, Douglas	Meeting	Monroe County Board of County Commissioners	Presentation on need to create a vision and plan for managing working waterfront development	G	35	18-Aug-04	Key Largo, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Gregory, Douglas	Meeting	Gulf of Mexico Fishery Council Finfish Stock Assessment Panel	Review National Standard 1 overfishing definitions	s/p, a/o	16	30-Aug-04	Tampa, FL
Diller, Andrew	TV	Pensacola Recreational Fisherman's Assoc. Television show	Fish Venting and catch-and-release methods	G		2-May-04	Pensacola, FL
Diller, Andrew	P	Pensacola Recreational Fisherman's Assoc. Meeting	Fish Venting and catch-and-release methods	G	32	11-May-04	Pensacola, FL
Diller, Andrew	E	Red Snapper World Championship Fishing Tournament	Fish Venting and catch-and-release methods	G	99	14-May-04	Pensacola, FL
Diller, Andrew	P	Coastal Conservation Assoc. Meeting	Fish Venting and catch-and-release methods	G	20	9-Jun-04	Pensacola, FL
Crane, Marella	W	TAA Training for shrimpers	Safe Handling of Commercial shrimp catches	I	50	8-Jun-04	Homestead, FL
Crane, Marella	P	TAA Training for shrimpers	Safe Handling of Commercial shrimp catches	I	2	21-Sep-04	Miami, FL
Crane, Marella	P	TAA Training for shrimpers	Safe Handling of Commercial shrimp catches	I	2	14-Jul-04	Miami, FL
Mahan, William	Meeting	Testing new Leatherback TEDs	Using the new leatherback TED	i	5	21-Jul-04	Apalachicola, FL
McGuire, Maia; Adams, Chuck; Otwell, Steve	W	TAA Training for shrimpers	Safe Handling of commercial shrimp catches	I	60	17-Jun-04	Mayport, FL
McGuire, Maia	P	TAA Training for shrimpers	Safe Handling of commercial shrimp catches	I	3	23-Aug-04	Mayport, FL
Stevely, John	E	Florida Fishing College	Catch and Release	G	5,000	7-Feb-04	Bradenton, FL
Stevely, John	C	2004 Florida Artificial Reef Summit	Implementatio of Florida Artificial Reef Strategic Plan	S/P	130	27-28-Apr-04	Sarasota, FL
Stevely, John	C	World Fisheries Congress	Venting: Releasing Fish with Ruptured Swim Bladders; Mapping Oyster Reefs using Archived maps and charts	S/P	1,500	3-7-May-04	Vancouver, BC
Stevely, John	P	District Extension Staff Meeting	Sustainability in marine extension programming	S/P	50	13-Apr-04	Port Charlotte, FL
Sweat, Donald	presentation	TAA shrimper's workshop	trade adjustment assistance	shrimpers	52	6-May-04	Ft. Myers

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Sweat, Donald	P	TAA Shrimpers Workshop	Trade Adjustment Assistance	Shrimpers	52	6-May-04	Ft. Myers, FL
Sweat, Donald	Tournament	16th Annual Kid's Fishing Tournament	Recreational Fishing	Under 12	554	8-May-04	St. Petersburg, FL
Sweat, Donald	P	TAA Shrimpers Workshop	Trade Adjustment Assistance	Shrimpers	15	1-Jun-04	Palmetto, FL
Sweat, Donald	P	TAA Shrimpers Workshop	Trade Adjustment Assistance	Shrimpers	42	3-Jun-04	Crystal River, FL
Goal 3: Develop the Food and Hobby Segments of Florida's Marine Aquaculture Industry							
Adams, Charles	E	IRREC Shrimp Harvest	Harvest first crop of shrimp from IRREC ponds	S/P, A/O, G	60	27-Oct-04	Ft. Pierce, FL
Adams, Charles	C, P	2004 FAA Fall Conference	Florida Sea Grant aquaculture extension activities	S/P, A/O, I, G	50	6-Nov-04	Ybor City, FL
Adams, Charles	E	IRREC Shrimp Project Media Day	Showcase the IRREC shrimp project to media	S/P, A/O, I	40	15-Nov-04	Ft. Pierce, FL
Adams, Charles	W	Economics of Clam Leases SW Florida	Financial Characteristics of 2-ac Hard Clam lease	I,C,A/O	20	7-Jan-04	Goodland, FL
Adams, Charles	W	Economics of Clam Leases SW Florida	Financial Characteristics of 2-ac Hard Clam lease	I,C,A/O	20	8-Jan-04	Everglades City, FL
Adams, Charles	W	Marine Baitfish Culture Workshop	Assess the feasibility of marine baitfish culture and identify candidate species	S/P, A/O	20	2-3 Feb 04	Ruskin, FL
Adams, Charles	C,P	World Aquaculture Society Annual Meetings	Status of Shrimp Farming in Florida	I, SP	50	3-Mar-04	Honolulu, HI
Adams, Charles	C,P	World Aquaculture Society Annual Meetings	Economics of Inland Shrimp Farming in Florida	I, SP	50	4-Mar-04	Honolulu, HI
Adams, Charles	C,P	World Aquaculture Society Annual Meetings	Aquaculture Economics Symposium	I,SP	40	4-Mar-04	Honolulu, HI
Adams, Charles	E	Ag Extravaganza	Introduction to Aquaculture	Y	120	7-Apr-04	Callahan, FL
Creswell, LeRoy	C	57th Gulf and Caribbean Fisheries Institute	Recruitment of spiny lobsters to submerged cages off Puerto Rico	S/P	225	9-Nov-04	St. Petersburg, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Creswell, LeRoy	N	"Florida Shrimp may Grow in Orange Groves" UF/IFAS Shrimp Demonstration Project	Fish Farming International	S/P		1-Apr-04	Glascow, Scotland
Creswell, LeRoy	W,D	DACS Shrimp Health	Marine shrimp health issues in Florida	S/P	15	28-Apr-04	Ft. Pierce, FL
Creswell, LeRoy	R	Hard Clam Aquaculture	Overview of clam farming	G/C	15000	8-Aug-04	Ft. Pierce, FL
Creswell, LeRoy	D	Shrimp Demonstration	Harvest and sale	G/C	125	5-Nov-04	Ft. Pierce, FL
Creswell, LeRoy	D	Shrimp Demonstration	Open house	G/C	85	15-Nov-04	Ft. Pierce, FL
Creswell, LeRoy	D	Shrimp Demonstration	Harvest and sale	G/C	94	19-Nov-04	Ft. Pierce, FL
Creswell, LeRoy	R	Biology and Culture of Grouper	Overview of grouper farming	G/C	15000	26-Feb-04	Port St. Lucie, FL
Francis-Floyd, Ruth	P	Marine Aquarists Workshop	Captive Management of Atlantic Surgeonfish: Nutrition, Husbandry and Disease Control			Nov-04	Sarasota, FL
Marcus, Nancy	P	World Aquaculture Society Meeting	The use of copepod nauplii		4,000	Mar-04	Honolulu, HI
Stevely, John	C	World Aquaculture Society	REDStart Community Based Fisheries Enhancement	I,S/P	4,000	1-Mar-04	Honolulu, HI
Sturmer, Leslie	W,P	Clam Aquaculture Workshops	Basics on Clam Farming	G	65	7-Jan-04	Goodland & Everglades City, FL
Sturmer, Leslie	W,P	Clam Aquaculture Workshop	Considerations in Applying for a Lease	G	40	26-May-04	Goodland, FL
Sturmer, Leslie	W.P	Clam Aquaculture Workshop	Review	I	12	19-Aug-04	Carrabelle, FL
Sturmer, Leslie	E	Open House at FSU Marine Lab	Clam Farming in Franklin County	C, G	1000	24-Aprl-04	Carrabelle, FL
Sturmer, Leslie	E	CLAMERICA Celebration	Clam farming demos, cooking demos, cook-off	C, G	10,000	4-Jul-04	Cedar Key, FL
Sturmer, Leslie	E	Seafood Festival	Clam farming info	C, G	35,000	16-17-Oct-04	Cedar Key, FL
Sturmer, Leslie	E	UF Shellfish Aquaculture Research & Education Facility	Open House and Dedication	C, G	250	4-Jun-04	Cedar Key, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Sturmer, Leslie	M, P	Original Florida Agritourism Media Press Tour	Introduction to clam farming	I, A/O	30	30-Apr-04	Cedar Key, FL
Sturmer, Leslie	W, P	2004 4-H Youth Congress	A Day in a Clam Farmer's Life	Y	25	29-Jul-04	Cedar Key, FL
Sturmer, Leslie	P	FL Association for Family and Community Education, District II Annual Meeting	Clam Farming in Levy County	S/P, C	70	15-Jan-04	Chiefland, FL
Sturmer, Leslie	P	Aquaculture 2004	Organizational Structures and Strategies for the Florida Hard Clam Aquaculture Industry	S/P	40	4-Mar-04	Hawaii, HI
Sturmer, Leslie	P	2004 Gulf and South Atlantic States Shellfish Conference	Clam Aquaculture in Florida: Industry Initiatives	S/P	70	20-Apr-04	Jekyll Island, GA
Sturmer, Leslie	P	NACAA Annual Meeting/Professional Improvement Conference	Overview of Clam Aquaculture in Florida	S/P	45	13-Jul-04	Orlando, FL
Sturmer, Leslie	C, P	FL Aquaculture Association Annual Conference	Educational Program/Conference Committee	I	120	6-Nov-04	Tampa, FL
Sturmer, Leslie	P	Alaska Shellfish Aquaculture Conference	Hard Clam Aquaculture in Florida: From small-scale business development to a sustainable industry	I, S/P	150	4-Dec-04	Anchorage, AL
Sturmer, Leslie	P	Florida Planners	Shellfish aquaculture and community development: the Cedar Key model	S/P	25	15-Oct-04	Cedar Key, FL
Sturmer, Leslie	P	Levy County Board of County Commissioners Special Meeting	Status of shellfish harvesting waters in Levy County	C, G	125	14-Dec-04	Bronson, FL
Sturmer, Leslie	M	NOAWG Shellfish Subgroup	Development of organic standards for shellfish aquaculture	S/P, I	12	19-Nov-04 / 20-Dec-04	Conference call
Sturmer, Leslie	M	Clam Health Monitoring Project	Review histological slides	S/P	15	3-4-May-04 & 27-Oct-04	Ruskin, FL
Sturmer, Leslie	M	CLAMMRS Project	Annual review by project partners	S/P	15	23-Nov-04	Gainesville, FL
Sturmer, Leslie	P	FL Law Enforcement Officers Meeting	Clam Farming in Florida: Rules and regulations	A/O	35	10-Aug-04	Cedar Key, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Sturmer, Leslie	M	IFAS Aquaculture Focus Team	Development of FAS2	S/P	5	20-21-Jan-04	Cedar Key, FL
Sturmer, Leslie	M	IFAS Goal 1 Focus Meeting	Development of FAS2	S/P	25	10-Jun-04	Gainesville, FL
Sturmer, Leslie	P	UF Aquatic Veterinarians Symposium	Shellfish Aquaculture Issues	S/P	20	16-Apr-04	Cedar Key, FL
Sturmer, Leslie	P	FAS 2024 Global and Regional Perspectives in Fisheries - UF undergraduate course	Shellfish Aquaculture and Coastal Development	F	35	19-Mar-04	Gainesville, FL
Sturmer, Leslie	M	Baitfish Aquaculture Workshop	participant	S/P, A/O	25	2-3-Feb-04	Ruskin, FL
Sturmer, Leslie	N	Bivalve Bulletin	Volume VIII, No. 1 issue	I	850	15-Jan-04	
Sturmer, Leslie	N	Bivalve Bulletin	Volume VIII, No. 2 issue	I	850	15-Jul-04	
Sturmer, Leslie	N	Bivalve Bulletin	Volume VIII, No. 3 issue	I	850	15-Oct-04	
Sturmer, Leslie	poster presentation	Shellfish Aquaculture Website	http://shellfish.ifas.ufl.edu	I, S/P, G, A/O		15-May-04	
Sweat, Donald	P	World Aquaculture Association	scallop aquaculture/restoration	aquaculturists	60	4-Mar-04	Oahu, Hawaii
Tilghman, Chris	P	Marine Ornamentals Conference	Effect of Vitamin A on Growth and Development of Captive Atlantic Surgeonfish			Mar-04	Honolulu, HI
Wasno, Bob	P	Redstart Tour	Aquaculture concepts and equipment	I	4	18-Feb-04	Sanibel Island, FL
Goal 4: Improve the Product Quality and Safety of Florida's Seafood Products							
Combs, Chris	W	Gray Brewer Clam Hatchery	Review of hatchery status	I	2	8-Jun-04	Sharpes, FL
Marella Crane	W	Shrimp TAA workshop	Shrimp Quality Control Measures	I	50	8,23-Jun-04	Miami, FL
Jamison, Judy	P	Oyster Education Public Conference	Year 2 Gulf Oyster Project Results			31-Jul-04	New Orleans, LA
Jamison, Judy	P	Institute of Food Technology Convention	Gulf Oyster Project's consumer acceptability/sensory studies			2004	Las Vegas, Nevada

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Bill Mahan & Steve Otwell	W	Oyster Post-Harvest Treatment Workshop	Update on UF-IFAS PHT Research & Planning	I	3	3-Feb-04	Apalachicola, FL
Bill Mahan & Steve Otwell	W	Oyster Post-Harvest Treatment Workshop	Update on UF-IFAS PHT Research & Planning	I	8	23-Feb-04	Apalachicola, FL
Bill Mahan	C	ISSC Committee Meetings	Vibrio vulnificus Ed., Post Harvest Treatment	S/P, A/O & I	35	9-11-Mar-04	Orlando, FL
Bill Mahan, Steve Otwell & Anita Wright	W	Oyster Post-Harvest Treatment Workshop	PHT Validation Results, Seafood Laboratory	A/O & I	15	24-25 Mar-04	Apalachicola, FL
Otwell & Mahan	W	Oyster Industry Workshop	Oyster Post Harvest Processing	I	9	13-May-04	Apalachicola
Otwell	W	Shrimp School 2004	Shrimp Safety and Quality	I	30	May, 2004	Gainesville, Fl
Otwell	W	Shrimp School (Spanish-Latin America) 2004	Shrimp Safety and Quality	I	30	1-Jul-04	Gainesville, Fl
Adams, Otwell & Mahan	W	TAA - Shrimp Workshop	Tariff Adjustment Assistance Program	I	27	13-May-04	Apalachicola
Mahan & Jackson	W	TAA - Shrimp Workshop	Tariff Adjustment Assistance Program	I	24	27-May-04	Panama City
Mahan & Otwell	E	Oyster Industry Lab Ground Breaking	Oyster Post Harvest Processing	C, A/O, I, G	250	28-May-04	Apalachicola
Goal 5: Increase the Economic Competitiveness and Environmental Sustainability of Coastal Water-Dependent Businesses							
Behringer, Dianne	W	Clean Marina/Boatyard Program	Clean Marina Program Workshop	I	10	20-Jan-04	Davie, FL
Behringer, Dianne	E	Fort Lauderdale International Boat Show	Clean Marina/Boatyard Prog and Boater Ed	I, G	1,200	Oct 28-Nov 1, 04	Ft. Lauderdale, FL
Combs, Chris	W, D	Clean Marina on-site training	Stormwater runoff	I	5	9-Jan-04	Micco, FL
Combs, Chris	W, D	Clean Marina on-site training	Stormwater runoff	I	5	15-Jan-04	Palm Shores, FL; Eau Gallie, FL
Combs, Chris	W, D	Clean Marina	New marina planning	I	4	18-Mar-04	Port Canaveral, FL
Combs, Chris	W	Clean Marina	Follow-up visits, 3 marinas	I	6	2-Apr-04	Micco, FL
Combs, Chris	W	Clean Marina	Stormwater runoff	I	3	23-Apr-04	Micco, FL
Combs, Chris	W	Clean Marina walkthrough	Review all compliance needs	I	3	26-May-04	Micco, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Combs, Chris	W	Clean Marina	Follow-up visit	I	3	28-May-04	Titusville, FL
Comb, Chris	W, D	Clean Marina	BMP reviews	I	7	16-Jun-04	Melbourne, FL
		Clean Boating Partnership meeting	Report re. Rockledge High construction of Monofilament Recycling bins, & distribution of 60 bins				
Combs, Chris	W, D	Clean Boating Partnership meeting		S/P, A/O, I, F, G	20	25-Jun-04	Orlando, FL
Crane, Marella	W	Clean Marina/Boatyard Program	Clean Marina Program - Coastal Manager Approach	S/P	30	15-Jan-04	Miami, FL
Crane, Marella	W	Clean Marina/Boatyard Program	Florida Clean Marina Program A Partnership Approach	I	10	3-Mar-04	Miami, FL
Crane, Marella	P	Clean Marina Designation	Sea Grant's Role and Partnership	I, A/O, G	50	13-Feb-04	Miami, FL
Crane, Marella	W	Clean Marina/Boatyard Program	Clean Marina Program	I	4	38133	Miami, FL
Crane, Marella	E, D	Miami Marine Flea Market	Clean Marina Program	I, C,	400	12-13-Jun-04	Miami, FL
Crane, Marella	P	Marinas and Fishing Clubs	Fuel Spill Kits	I, C,	330	Sept - Oct	Miami, FL
Jackson, Don	W	Clean Boating Partnership	Visions Committee Report - chair	I	30	29-30-Jan-04	Orlando
Jackson, Don	W	ABBR Annual Conference	Boater Environmental Education - facilitator	I	66	5-Feb-04	Ft. Lauderdale
Jackson, Don	W	Clean Boating Partnership	Visions Committee Report - chair	I	29	15-16-Mar-04	Wakulla Springs
Sidman, Charles	P	Southwest Florida Manatee Research Conference	Recreational Boating Characterization	S/P	150	14-May-04	Ft. Myers, FL
Spranger, Mike	M	Clean Boating Partnership	Developing Education Exhibit and Materials	I, C,	26	15-16-Mar-04	Wakulla, FL
Spranger, Mike	P	Southern District Extension Workshop	Sustainability in Coastal Areas		55	13-Apr-04	Sarasota, FL
Spranger, Mike	P	Coastal Zone Management Graduate Class	SEACOOS and ocean observation systems		20	February, 2004	Gainesville, FL
Spranger, Mike	M	Clean Boating Partnership	Education and Marketing the CMP		25	26-Oct-04	Miami, FL
Swett, Robert	P	Southwest Florida Manatee Research Conference	Manatee Protection Decision Education Support System	S/P	150	14-May-04	Ft. Myers, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Swett, Robert	P	Centers for Ocean Science Education Excellence	Geoinformation technologies for educators	s/P	10	21-Jun-04	Cedar Key, FL
Swett, Robert	W	Lee County Noticed General Permit	Development of Noticed General Permit	S/P	12	7-Jul-04	Ft. Myers, FL
Swett, Robert	P	Tampa Bay Manatee Awareness Committee	Recreational Boating Characterization	S/P	20	13-Jul-04	St. Petersburg, FL
Swett, Robert	P	Office of Boating and Waterways	Florida Sea Grant Boating and Waterways Program	S/P	8	2-Sep-04	Tallahassee, FL
Swett, Robert	W	Lee County Noticed General Permit	Development of Noticed General Permit	S/P	12	22-Oct-04	Ft. Myers, FL
Swett, Robert	P	Spatial Aspects of Recreation, Parks and Tourism (LEI 6931C)	Boating and Waterway Management	S/P	8	30-Nov-04	Gainesville, FL
Swett, Robert	P	St. Augustine Port, Waterway and Beach District Commission	Education Guide to Boating/Anchoring	C	16	23-Nov-04	St. Augustine, FL
Swett, Robert	P	Bureau of Protected Species	Manatee Protection Decision Support System	S/P	1	7-Dec-04	Tallahassee, FL
Swett, Robert	P	Department of Community Affairs Waterfronts Florida Program Manager's Meeting	What Florida Sea Grant has to offer	S/P	12	9-Dec-04	Ft. Myers, FL
Swett, Robert	W	Lee County Noticed General Permit	Development of Noticed General Permit	S/P	10	21-Dec-04	Ft. Myers, FL
Swett, Robert	W	Lee County Noticed General Permit	Development of Noticed General Permit	S/P	12	16-Aug-04	Fort Myers, FL
Wasno, Bob	W	Clean Marina	Clean Marina review	I	7	24-Mar-04	Port Charlotte, FL
Wasno, Bob	D, Buoy	Replace Waterway Marker Buoys Post Storm Event	Waterfront Businesses, Emergency Workers	Waterfront businesses, Emergency Workers on Barrier Islands		1-Sep-04	Lee County Waterways
Wasno, Bob	Brochure	Production of County Boaters Destination Guide	Waterfront Business' amenities	local transient and rental boaters			Lee County

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Goal 6: Protect and Enhance Coastal Water Quality and Safety							
Behringer, Dianne	Web article	Rip Currents	Rip Currents	G, C		24-May-04	Broward County Ft. Lauderdale, FL
Behringer, Dianne	E	Waterway Cleanup	Marine debris, water quality	C, Y	160	6-Mar-04	
Behringer, Dianne	E, P	Water Matters Day	Coral Reef Education	G, C	800	27-Mar-04	Davie, FL
Behringer, Dianne	P	Monofilament Recovery and Recycling Project	marine debris	I	11	17-Jun-04	Fort Lauderdale, FL
Combs, Chris	W	Planning meeting w. Swett, Sidman, Fletcher, Walter, Combs	Brevard Co. Blueways project	S/P, A/O, I, G	5	17-Feb-04	Cocoa, FL
Combs, Chris	P, D	Brevard Oil Spillage Committee	Invasive Exotic Marine Species in Ballast Water	I, A/O	15	18-Mar-04	Port Canaveral, FL
Combs, Chris	W	Public Hearing	Effects of Desal. Plant Salt Discharge on IRL	G, S/P, I, A/O	150	19-Mar-04	Titusville, FL
Combs, Chris	C	Artificial Reef Summit	Artificial Reef Public Outreach and Education	S/P, A/O, I, G	150	27-28-Apr-04	Sarasota, FL
Crane, Marella	E	Miami International Boat Show	Clean boating education to protect coastal waters and hurricane preparedness	G	500	12-13-Feb-04	Miami, FL
Crane, Marella	P	Diga Dive Club	Florida Marine Invaders	C	20	26-Aug-04	Miami, FL
Creswell, LeRoy	E	St. Lucie County Beach Clean up	Marine debris, water quality	C, Y	237	24-Apr-04	Ft. Pierce, FL
Creswell, LeRoy	E	St. Lucie County Beach Clean up	Promoting monofilament recycling	G, C	189	3-Apr-04	Ft. Pierce, FL
Creswell, LeRoy	R	Monofilament Recycling in SLC	Promoting monofilament recycling	C,G,Y	15000	24-Apr-04	Port St. Lucie, FL
Creswell, LeRoy	R	Clean Boating Habits	Clean Boating Practices, water quality	G,C	15000	17-Jul-04	Port St. Lucie, FL
Creswell, LeRoy	R	Clean Boating Habits II	Clean Boating Practices, water quality	G,C	15000	10-Aug-04	Port St. Lucie, FL
Creswell, LeRoy	E, D	Naturefest	Clean Marina/Clean Boating Program	G, C	2200	7-Feb-04	Ft. Pierce, FL
Creswell, LeRoy	C, D	Indian River Lagoon Conference	Clean Marina/Clean Boating Program	S/P, A/O, I, G	135	15-May-04	Melbourne, FL
Creswell, LeRoy	R	Nutrients and the Indian River Lagoon	Sources of nutrients to the IRL and its impact	G/C	15000	18-Oct-04	Port St. Lucie, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Dillon, K.S.; Chanton, J.P	P	2004 AGU Ocean Science Meeting	Investigating Nitrogen Sources and Sinks in an Urbanized Watershed Using Stable Nitrogen Isotopes				Portland, OR
Dillon, K.S.; Chanton, J.P.; Burnett, W.; Kim, G.; Smith, L.; Kump, L.	P	2004 AGU Ocean Science Meeting	The Use of Radioactive and Stable Isotopes to Evaluate the Fate of Nutrients in a Groundwater System Impacted by Advanced Treated Wastewater				Portland, OR
Gregory, Douglas	Meeting	FSG CERP Outreach Planning Meeting	CERP NOAA outreach efforts	agency partners	10	22-Jan	Marathon, FL
Gregory, Douglas	News article	Various local papers	Sea Bathers Eruption	general public		4-Mar	Florida Keys
Gregory, Douglas	C, D	Florida Keys National Marine Sanctuary Connectivity Conference	Power of Education to Effect Change	G	200	19-21-Aug-04	Key West, FL
Jackson, Don	E	Miami Boat Show	Clean Boater and Coastal Storms Initiative	G	8400	12-17-Feb-04	Miami
Jackson, Don	W	Rip Current Conference	Presentations facilitator - proceedings	S/P	75	6-7-Apr-04	Jacksonville
Jackson, Don	C	Int. Boating & Water Safety Summit	Model Clean Boating Program	A/O & I	55	20-Apr-04	Panama City
Jacoby, Charles	P	Save the Bays Water Quality Gala	Water quality and volunteer monitoring	C	15	24-Mar-04	
Jacoby, Charles	W	Florida Water Quality Monitoring Council Retreat	Water quality and volunteer monitoring	S/P, A/O, I, F	81	15-16-Jul-04	Cocoa Beach, FL
Jacoby, Charles	W,P	Watershed IST III	TMDLs and LAKEWATCH	S/P	15	16-18-Aug-04	Gainesville, FL
Kilpatrick, G.	P	Gasparilla Island Conservation and Improvement Assoc	Red Tide Update			12-Apr-04	Boca Grande, FL
Kilpatrick, G.	P	HAB-GCOOS Workshop	Utilizing Automated, Absorbance-Based Optical Discrimination to Map HAB Distribution			14-Apr-04	St. Petersburg, FL
Kilpatrick, G.	P	Oceans Day Reception for the Florida Legislature	Florida Red Tide Partnerships			20-Apr-04	Tallahassee, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Kilpatrick, G.	P	Bonita Springs/HABSOS Observatory Initiative Meeting	Red Tide Update			14-May-04	Bonita Springs, FL
McGuire, Maia	W	Teacher workshop	Educator collecting permit	F	14	16-Oct-04	Orlando, FL
McGuire, Maia	W	Teacher workshop	Educator collecting permit	F	3	4-Dec-04	St. Augustine, FL
Spranger, Mike	C	National USDA Water Quality Conference	Water Quality Education in Florida	S/P	175	12-14-Jan-04	Clearwater, FL
Spranger, Mike	W	COSEE Summer Teacher Institute	Gulf of Mexico, Watersheds & Sense of Place	F	15	20-Jun-04	Cedar Key, FL
Sturmer, Leslie	M	Monofilament Recovery & Recycling Project	Solicit and inform volunteers	Y, F	15	ongoing	Cedar Key, FL
Wasno, Bob	W	Hickey Creek Facility Safety Tour	Facility Safety	S/P	7	16-Jan-04	East Lee County
Wasno, Bob; Stevely, John; Jacoby, Chuck	W	Boca Grande Pass Clean Up	Invasive Species, Diver Safety, Debris removal	S/P, C, G	28	3-5-Mar-04	Port Charlotte, FL
Wasno, Bob; Stevely, John; Jacoby, Chuck	E	Boca Grande Pass Clean Up	Marine Clean-up, diver safety	S/P, C, G	126	29-30-Mar-04	Boca Grande Pass
Goal 7: Protect, Restore, and Enhance Coastal Ecosystem Habitats							
Behringer, Dianne	Brochure	World Ocean Day	Coral Reefs in southeast Florida	G, C	100	5-Jun-04	Fort Lauderdale, FL
Behringer, Dianne	P	Don't Splash Your Trash	marine debris	S/P	4	15-Jan-04	Pompano Beach, FL
Behringer, Dianne	E	Ocean Fest	coral reefs in southeast Florida	I, C	1500	16-18-Apr-04	Ft. Lauderdale, FL
Behringer, Dianne	E	Reef Sweep	marine debris	G, C	858	12-Jun-04	Broward County
Behringer, Dianne	P	Monofilament Recovery and Recycling Project	marine debris	I	11	17-Jun-04	Ft. Lauderdale, FL
Behringer, Dianne	D, E, N	Coastal Cleanup	Marine debris	G, C	55	18-Sep-04	Hollywood, FL
Behringer, Dianne	P, E	Royal Caribbean Cruises Volunteer Day	Sea Oat Planting	G, C	170	2-Oct-04	Hallandale Beach, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Behringer, Dianne	W,P	United States Coral Reef Task Force - Sustainable Dive Operators Workshop	Sustainable Diving	I, S/P, A/O	64	1-Dec-04	Miami, FL
Butler, M.; Mason, D.; Murie, D.; Parkyn, D.; Lindberg, W.	P	4th World Fisheries Congress	Adaptation of the electron transport system assay for in-situ estimation of metabolic rates of gag grouper	P		May, 2004	Vancouver, BC
Combs, Chris	W, D	Comm. Clammer Make-up Class	Make-up class	I	2	4-Aug-04	Palm Bay, FL
Combs, Chris	W, D	Comm. Clammer Make-up meeting	Make-up class	I	2	6-Oct-04	Palm Bay, FL
Combs, Chris	W, D	Comm. Clammer Environ. Training	Invasive Exotics and Impact on Clams	I	12	12-Nov-04	Cocoa, FL
Combs, Chris	W, D	Comm. Clammer Environ. Training	Invasive Exotics and Impact on Clams	I	15	12-Nov-04	Titusville, FL
Combs, Chris	W, D	Comm. Clammer Environ. Training	Invasive Exotics and Impact on Clams	I	6	13-Nov-04	Palm Bay, FL
Combs, Chris	W, D	Comm. Clammer Make-up meeting	Make-up class	I	1	1-Dec-04	Palm Bay, FL
Combs, Chris	W, D	Comm. Clammer Environ. Training	Invasive Exotics and Impact on Clams	I	3	12-Jun-04	Palm Bay, FL
Combs, Chris	W, D	Comm. Clammer Environ. Training	Green mussel vs. Hard Clams in IRL	I	12	14-May-04	Cocoa, FL
Combs, Chris	W, D	Comm. Clammer Environ. Training	Green mussel vs. Hard Clams in IRL	I	15	14-May-04	Titusville, FL
Combs, Chris	W, D	Comm. Clammer Environ. Training	Green mussel vs. Hard Clams in IRL	I	6	15-May-04	Palm Bay, FL
Combs, Chris	E	Dedication of FWC M/V Randall	Oculina Bank patrol boat dedication	A/O	200	8-Jan-04	Port Canaveral, FL
Combs, Chris	P, D	Citizens for Florida's Waterways mtg.	Sandy Island (spoils island) enhancement planning	C, A/O	100	28-Jan-04	Cocoa Beach, FL
Combs, Chris	W	Project Devel. Team mtg., USACE	Indian River Lagoon North, Feasibility Study	S/P	25	4-Feb-04	Palm Bay, FL
Combs, Chris	W	Ecological Subteam mtg. PDT, USACE	IRL/N, impacts on Comp. Everglades Rest.Proj.	S/P	20	5-Feb-04	Palm Bay, FL
Combs, Chris	C	Citizens for Florida's Waterways project	Sandy Island (spoils island) site-visit/photos	C, A/O, G	2	11-Feb-04	Sandy Island, MI, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Combs, Chris	W	Ecological Subteam mtg., PDT, USACE	IRLN, impacts on Comp. Everglades Rest.Proj.	S/P	18	31-Mar-04	Palm Bay, FL
Combs, Chris	W	Project Devel. Team mtg., USACE	Indian River Lagoon North, Feasibility Study	S/P	23	29-Apr-04	Palm Bay, FL
Combs, Chris	P, D	Fla. Sport Fishing Assoc. meeting	Oculina Bank HAPC description & regulations	C, Y, G	60	22-Jun-04	Merritt Island, FL
Combs, Chris	W	Oculina Bank SAFMC Outreach planning	Multi-agency planning for Oculina Bank outreach	S/P, A/O, I	20	29-Jun-04	Kennedy Space Center, FL
Combs, Chris	W	Oculina Bank SAFMC Outreach planning	Invited public officials re Oculina Bank program	C, A/O	25	30-Jun-04	Cape Canaveral, FL
Combs, Chris	W	Project Devel. Team mtg., USACE	Indian River Lagoon North, Feasibility Study	S/P	21	29-Jul-04	Palm Bay, FL
Combs, Chris	W	Ecological Subteam mtg., PDT, USACE	IRLN, impacts on Comp. Everglades Rest.Proj.	S/P	15	30-Jul-04	Palm Bay, FL
Combs, Chris	W	Brevard Co. Artificial Reef Program	Planning for strategies to re-establish program	S/P, C, A/O, I, Y, G	5	4-Aug-04	Viera, FL
Combs, Chris	W	Planning meeting for Sea Grant Extension	Brevard Co. Blueways project w. Sidman/Swett	S/P, C, A/O, I, Y, G	4	30-Aug-04	Cocoa, FL
Combs, Chris	W	Oculina Bank SAFMC Outreach planning	Oculina Deepwater Coral Workshops	S/P, C, A/O, I, Y, G	25	31-Aug-1-Sep-04	Cape Canaveral, FL
Combs, Chris	W, D	Brevard Co. Artificial Reef Program	Meet w. FWC officials to plan strategies	S/P, A/O, I, G	10	3-Sep-04	Viera, FL
Crane, Marella	P	Marine Science Education	Survival of Coral Reefs	F	192	27-28-Jan-04	Miami, FL
Crane, Marella	E	North Miami Beach Water Fest	Survival of Coral Reefs	Y	60	29-Apr--04	Miami, FL
Crane, Marella	E	Miami River Festival	Fishing Line Recovery and Recycling	G	2,000	10-Apr--04	Miami, FL
Crane, Marella	C, P	ANREP Conference	Fishing Line Recycling Program	F, S/P, A/O, Y	25	18-May-04	Wheeling, WV
Crane, Marella	W	Fishing Line Bin Recycling at Bill Baggs Park	Impacts of fishing line to marine life	Y, G, F	30	19-Jun-04	Miami, FL
Crane, Marella	P	Fishing Line Recycling Program	Underwater Fish Habitat	Y, F	30	27-Jul-04	Miami, FL
Crane, Marella	E	International Coastal Cleanup	Bear Cut Site Coordinator	G, C, Y	88	18-Sep-04	Miami, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Creswell, LeRoy	Brochure	Invasive marine algae along Florida's east coast	Invasive marine algae	G, C, I		15-Aug-04	Florida
Creswell, LeRoy	Fact sheet	"The Life and Times of the Giant Land Crab"	land crab education and outreach	C, G	50	24-Mar-04	Florida
Creswell, LeRoy	R	Mangrove Shoreline Restoration	Replanting mangroves in the IRL	G/C	15000	2-Aug-04	Port St. Lucie, FL
Diller, Andrew	W	BayScape 2004	Oyster gardening and water quality	G	200	6-Mar-04	Pensacola, FL
Diller, Andrew	E	Pensacola Boat Show	Clean Boating	G	322	19-21-Mar-04	Pensacola, FL
Diller, Andrew	E	Seagrass Awareness Celebration	Sea turtles and coastal dune habitat	GY	400	27-Mar-04	Gulf Breeze, FL
Gregory, Douglas	Clean marina survey of Yacht Harbor	Clean marina survey of Plantation Yacht Harbor	Clean marina survey of Plantation Yacht Harbor	marina staff, agency reps, marine assoc.	8	10-Feb-04	Plantation Key, FL
Gregory, Douglas	Radio Show	US 1 Radio Morning Magazine	Shallow water safe boating and seagrass protection	general public		9-Mar-04	Florida Keys
Gregory, Douglas	News Article	Various local papers	Consider living a more environmentally friendly lifestyle	general public		7-Apr-04	Florida Keys
Gregory, Douglas		Clean Marina	Clean Marina award ceremony of Plantation Yacht harbor	Marina staff, agency reps, marina assoc	16	22-Jul-04	Plantation Key, FL
Jacoby, Chuck	P	Florida Bay Program Management Committee	Extension activities in south Florida	A/O	15	12-Jan-04	
Jacoby, Chuck	P	Invasives species teacher workshop	Invasive species	F	30	16-Feb-04	
Jacoby, Chuck	P	Boca Grande Pass Cleanup	Invasive species	C	12	14-Mar-04	
Jacoby, Chuck	W,P	Invasivs species workshop for professionals	Invasive species	A/O	20	27-May-04	Crystal River, FL
Jacoby, Chuck	W,P	Invasive species workshop for the public	Invasive species	G	19	27-May-04	Crystal River, FL
Jacoby, Chuck	W, P	Central Gulf of Mexico COSEE Institute	Salt marsh physical and chemical conditions	F, S/P, A/O, Y	23	20-25-Jun-04	Cedar Key, FL
Jacoby, Chuck	W, P	Central Gulf of Mexico COSEE Institute	Invasive species	F	23	20-25-Jun-05	Cedar Key, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Jacoby, Chuck	W, P	Central Gulf of Mexico COSEE Institute	Deep-sea ecology	F		20-25-Jun-06	Cedar Key, FL
Jacoby, Chuck Lindberg, W.; Mason, D.; Murie, D.; Frazier, T.; Nagy, B.; Hart, M.; Butler, M.; Marcinek, D.	W,P	Florida Sea Grant Extension Meeting	Planning and SEACOOS	S/P	30	12-14-Oct-04	Ft. Lauderdale, FL
Lindberg, W.; Mason, D.; Murie, D.; Frazier, T.; Portier, K.; Nagy, B.; Hart, M.; Butler, M.; Marcinek, D.; Loffin, J.	P	Florida Artificial Reef Summit	Processes important to artificial reefs for conservation and fisheries management			April, 2004	Sarasota, FL
Luo, Joiangang	P	USFWS Estuarine Fish Workshop	Processes important to reef fish conservation and fisheries management: density-dependent habitat selection, trophic coupling and individual growth dynamics	P		May, 2004	Vancouver, BC
Mahan, William	P	Apalachicola Basin Invasives Workgroup	Methods and metrics for monitoring mangrove fish assemblages				Vero Beach, FL
Mahan, William	W	Subaru Leave No Trace Program	New Invasive Pine Beetle Discovered in Florida	A/O	25	21-Jan-04	Apalachicola, FL
Mason, D.M.; Nagy, B.; Butler, M.; Larsen, S.; Marcinek, D.; Murie, D.J.; Lindberg, W.J.	P	NOAA Atlantic Oceanographic and Meteorological Laboratory	Fish Venting, Catch and Release Techniques	A/O, G	30	14-May-04	Port St. Joe, FL
			Integration of technologies for understanding the functional relationship between reef habitat and fish performance			16-Mar-04	Miami, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Mason, D.M.; Lindberg, W.J.; Murie, D.J.; Nagy, B.; Butler, M.	P	134th Annual Meeting of the American Fisheries Society	Habitat-induced bioenergetics of reef fishes in the Gulf of Mexico			August, 2004	Madison, WI
McGuire, Maia	W	Stop the Invasives	Invasive Species	F	99	5-May-04	St. Augustine, FL
McGuire, Maia	P	Invasive species	Popcorn tree removal	Y	23	21-Oct-04	St. Augustine, FL
McGuire, Maia	P	Beach cleanup	Marine Debris	Y	3	28-Oct-04	Marineland, FL
Murie, D.; Debicella, J.; O'Day, P.; Lindberg, W.; Marcinek, D.; Butler, M.; Mason, D.	P	4th World Fisheries Congress	Comparison of gross energy consumption of gag grouper between patch reefs of contrasting size in the Gulf of Mexico	P		May, 2004	Vancouver, BC
Nagy, B.; Butler, M.; Marcinek, D.; Mason, D.; Murie, D.; Lindberg, W.	P	4th World Fisheries Congress	Comparison of gross energy consumption of gag grouper between patch reefs of contrasting size in the Gulf of Mexico	P		May, 2004	Vancouver, BC
Seaman, William	P	39th European Marine Biology Symposium	Artificial Habitats and the Restoration of Degraded Systems			July, 2004	Genoa, Italy
Seaman, William; Miller, M.W.	P	World Fisheries Congress	Fisheries Conservation and Habitat Improvement in Marine Ecosystems			May, 2004	Vancouver, Canada
Seaman, William	P	Florida Artificial Reef Summit	Science and Technology of Artificial Reefs in the World's Ocean			April, 2004	Sarasota, FL
Spranger, M.; Jacoby, C.	P	Family Field Day	Stop the Invasives			January, 2004	St. Augustine, FL
Spranger, M.; Jacoby, C.	P	Water Education Festival	Display on Invasives	D		February, 2004	Jacksonville, FL
Spranger, M.; Jacoby, C.	P	Coastal Master Naturalist Training	Stop the Invasives		35	February, 2004	Dauphin Island, AL
Spranger, M.; Jacoby, C.	P	Middle School Teacher In-Service	One day Inservice for Middle School Teachers		24	February, 2004	Miami, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Spranger, M; Jacoby, C.	P	Middle School Teacher In-Service	One day Inservice for Middle School Teachers		25	February, 2004	Tampa, FL
Spranger, M; Jacoby, C.	P	St. Johns County Invasive Training Session	A field based workshop		200	January, 2004	St. Augustine, FL
Stevely, John	W	Coat Guraad Parasailing Safety Workshop	Non-regulatory approach to parasailing safety	I	125	21-Jan-04	Tampa, FL
Stevely, John	C, P	World Fisheries Congress	Mapping Oyster Reefs	S/P	2000	5-May-04	Vancouver, BC
Stevely, John	W	Estuary Program Technical Advisory Committee	What's Happening in Cortez	S/P	25	28-May-04	Sarasota, FL
Stevely, John	P	Mote Marine Lab Volunteer Meeting	What's Happening in Cortez	G	50	10-Jun-04	Sarasota, FL
Stevely, John	P	4-H Summer Camp	Marine Science	Y	35	17-Jun-04	
Stevely, John	C, P	World Fisheries Congress	Mapping Oyster Reefs	S/P	2000	5-May-04	Vancouver, BC
Stevely, John	W	Estuary Program Technical Advisory Committee	What's Happening in Cortez	S/P	25	28-May-04	Sarasota, FL
Stevely, John	P	Mote Marine Lab Volunteer Meeting	What's Happening in Cortez	G	50	10-Jun-04	Sarasota, FL
Stevely, John	P	4-H Summer Camp	Marine Science	Y	35	17-Jun-04	
Stevely, John	P	Master Gardner Training	Coastal Plant Identification and Biology	S/P	50	5-Oct-04	Sarasota, FL
Sturmer, Leslie	P	Oyster & Clam Shell Recycle Project	Intro and soliciting community support	C	25	12-Jan-04	Cedar Key, FL
Sturmer, Leslie	N	Oyster & Clam Shell Recycle Project	Intro and soliciting community support	C		23-Sep-04	Cedar Key, FL
Sturmer, Leslie	D	Oyster & Clam Shell Recycle Project	Brochures and signage for facility	C		ongoing	Cedar Key, FL
Sturmer, Leslie	E	Oyster & Clam Shell Recycle Project	Display and posters	C	35,000	16-17-Oct-04	Cedar Key, FL
Sweat, Donald	presentation	eco-tourism workshop	scallop restoration - economic effect on Citrus County	tourism operators	38	11-May--04	Crystal River
Sweat, Donald	presentation	scallop restoration	economic impact of scallop recreation season on Citrus County	Citrus Ext. Adv. Committee	18	13-May-04	Inverness

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Verlinde, Chris	E/P	Seagrass Awareness Celebration	Seagrass functions /coordinator of event	G	600		Gulf Breeze, FL
Verlinde, Chris	W	Bay Scape	Oyster gardening	C	200		Pensacola, FL
Verlinde, Chris	P, Field Trip	Beach Ecology Field Trip	Seining, marine life	Y, F	54	10-May-04	Gulf Islands National Seashore
Verlinde, Chris	P	Milton HS Marine Biology class	Sea Turtles	F	28	14-May-04	Milton, FL
Verlinde, Chris	P	Navarre Beach Leaseholders Association	Drug restoration, sea turtle friendly beaches	C	32	15-May-04	Navarre Beach, FL
Verlinde, Chris	P	Beach Ecology Field Trip	Seining, marine life	Y	60	18-May-04	Gulf Islands National Seashore
Verlinde, Chris	P	Seagrass Boat Trip	Seining, snorkeling, marine life	Y	80	26-27-May-04	Camp Timpoochee, FL
Verlinde, Chris	Field Trip	Rivers Clean-up	Canoe safety, river ecosystem	Y	15	8-Jun-04	Milton, FL
Verlinde, Chris	P, Field Trip	Beach Ecology Field Trip	Seining, snorkeling, marine life, beach safety	Y	35	2-Jun-04	Gulf Islands National Seashore
Verlinde, Chris	W, P	Project Learning Tree Workshop	Project Learning Tree activities, invasive species	F	20	14-15-Jun-04	Milton, FL
Verlinde, Chris	P	Navarre Beach Leaseholders Association	Sea Turtle friendly beaches	G		19-Jun-04	Navarre Beach, FL
Verlinde, Chris	R	Radio Show	Sea Turtle Friendly beaches, rivers clean-up, beach safety	G		21-Jun-04	Milton, FL
Verlinde, Chris	F	Navarre Fun Fest	Beach Safety, marine life	G, C	59	26-Jun-04	Navarre, FL
Verlinde, Chris	P, Field Trip	Florida Master Naturalists Class	Blackwater River Ecology	G	11	2-Jun-04	Milton, FL
Verlinde, Chris	P	4H Marine Camp	Fishing Techniques, Marine Lab Activities	y	100	13-15-Jul-04	Camp Timpoochee, FL
Verlinde, Chris	P	National Marine Educators Conference	Resource Ranger Activities	A/O	15	22-Jul-04	St. Petersburg, FL
Wall, L.	P	Astronaut Trail Shell Club Annual Banquet	Ecology of the oyster <i>Crassostrea virginica</i> in the Indian River Lagoon			January, 2004	

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Wall, L.	P	Society of Intergrative and Comparative Biology	Recruitment and restoration protocols for the oyster <i>Crassostrea virginica</i> on intertidal reefs in areas with intense boating activity			January, 2004	
Walters, L.	P	Canaveral National Seashore's Brown-Bag Lunch Program	Boating Impacts on oyster reefs in Canaveral National Seashore			February, 2004	
Wasno, Bob	W	Restart Fish Stocking	Fisheries Enhancement	S/P, G	42	20-Jan-04	Sanibel Island, FL
Wasno, Bob	W	Restart Facility Tour-SFWMD	Fisheries Enhancement	S/P	8	23-Jan-04	Sanibel Island, FL
Wasno, Bob	C, P	Restoring America's Estuaries Conference	Estuary enhancement	local biologists	3	12-18-Sep-04	Seattle, WA
Wasno, Bob; Stevely, John; Sweat, Don	G	Sponge Inventory Research Project	Sponge Enhancement	General Public	3	20-23-Sep-04	Long Key, FL
Goal 8: Prepare and Respond to Coastal Storms							
Dianne Behringer	Web article	Hurricane Preparedness for Boaters	Hurricane Preparedness	G, C		24-May-04	Broward County Palm Bay, Micco, Sebastian, FL
Combs, Chris	E	Hurricane Frances Public Disaster Relief	Site Coordinator, Palm Bay "Comfort Station"	C, G		6-22-Sep-04	Sebastian, FL
Combs, Chris	C	Hurricane assistance via FEMA/SBA	Commercial fisherman, Sebastian	I	2	16-Sep-04	Sebastian, FL (phone)
Combs, Chris	C	Hurricane assistance via FEMA/SBA	Commercial fisherman, Sebastian	I	2	17-Sep-04	Sebastian, FL (phone)
Combs, Chris	E	Hurricane Jeanne Public Disaster Relief	Site Coordinator, Melbourne "Comfort Station"	C, G		Sep 27-Oct 5 2004	Melbourne, Palm Bay, Micco, Sebastian, FL
Combs, Chris	W	Hurricane Frances assistance efforts	Site-visits, marinas in Micco	I	6	18-Sep-04	Micco, FL
Combs, Chris	W	Hurricane Frances assistance efforts	Site-visits, marinas on Merritt Island	I	5	19-Sep-04	Merritt Island, FL
Combs, Chris	W	Hurricane Jeanne assistance efforts	Site-visits, marinas in Micco	I	6	9-Oct-04	Micco, FL
Combs, Chris	W	Hurricane Jeanne assistance efforts	Site-visits, marinas on Merritt Island	I	4	10-Oct-04	Merritt Island, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Combs, Chris	E	Sea Grant Extension Agents Annual meeting	Hurricanes and other issues	S/P, A/O, I	40	13-15-Oct-04	Ft Lauderdale, FL
Crane, Marella	P	Hurricane Preparedness for Boaters	LMS meeting Miami-Dade County Boating needs	A/O, I, G	60	15-Dec-04	Miami, FL
Crane, Marella	D	Hurricane Preparedness for Boaters	Hurricane Manual for Marine Interests	I	100	15-Jul-04	Miami, FL
Creswell, LeRoy	R	Hurricane Preparation for Boaters	Guidelines established by SLC Emergency	G,C	15000	15-Apr-04	Port St. Lucie, FL
Creswell, LeRoy	R	Hurricane Preparation for Boaters	Guidelines established by SLC Emergency	G,C	15000	19-May-05	Port St. Lucie, FL
Douglas Gregory Jr.	Class	Amateur Radio Emergency Communications Class	Emergency Radio Communications Procedures	Me	1	April	Florida Keys
Gregory, Douglas, Jr.	News Release	News Articles University of Western Ontario Department of Civil Engineering Graduate Seminar	Hurricane Preparedness for Boaters	General Public	1	June	Florida Keys
Gurley, K.; Reinhold, T.; Masters, F.;	P	Proceedings American Geophysical Union Meeting	Real-time full-scale observations of ground level hurricane winds			3-Feb-04	Ontario
Gutierrez, E.	P	National Hurricane Conference	A simple scaling for rip currents				Portland, OR
Masters, Gurley and Reinhold	P	Governors Hurricane Conference	Real-Time Measurement of Hurricane Isabel			April, 2004	Orlando, FL
Spranger, Mike	M	Gulf of Mexico Education Council	Real-Time Measurement of Hurricane Isabel	E, S/P	8	May, 2004	Tampa, FL
Spranger, Mike	W	Gulf of Mexico Education Council	Coordination of First GCOOS Ed. Council	E, S/P	30	20-Sep-04	
Spranger, Mike	C	Ocean Research Interactive Observatory Network	Formation of GCOOS Education Council	S/P	350	2-30-04	Biloxi, MS
Spranger, Mike	W	SEACOOS Outreach Committee	Developing Ocean Observation Education Program	S/P	20	3-8-Jan-04	San Juan, PR
Spranger, Mike	W	National Rip Current Workshop	Developing a Regional Outreach Agenda	S/P A/O	80	9-10-Feb-04	Raleigh, NC
			Logistics Coordinator and Sponsor			6-7-Apr-04	Jacksonville, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Spranger, Mike	W	SEACOOS Spring Workshop	Implementing the Regional Outreach Plan	S/P	120	17-19-May-04	Miami, FL
Spranger, Mike	C	National Marine Educators Assn	SEACOOS - Developing Education Programs	S/P, F	21	19-Jun-04	St. Petersburg, FL
Spranger, Mike	M	GCOOS Planning Meeting Discussion	Developing a Regional Outreach Agenda	S/P F	8	20-Sep-04	Gainesville
Spranger, Mike	M	Hurricane Recovery Task Force	Marine and Coastal Issues	S/P	9	23-Sep-04	Gainesville, FL
Spranger, Mike	C	SEACOOS Fall Workshop	Implementing the Regional Outreach Plan	S/P	60	10-12-Nov-04	Charleston, SC
Spranger, Mike	W	GCOOS Education Council Formation	Developing a Regional Outreach Program	S/P	25	29-30-Nov-04	Biloxi, MS
Spranger, Mike	W	COSEE Summer Teacher Institute	Ocean Obs and Coastal Storms	F	15	22-Jun-04	St. Petersburg, FL
Spranger, Mike	M	IFAS Hurricane Task Force	Participation in task force representing aquaculture	S/P		Oct-Nov-04	electronic and conference call
Sturmer, Leslie	W,P	Disaster Assistance Workshop for Aquaculture	Review of financial assistance programs available to industry	I	40	24-Sep-04	Ft. Myers, FL
Sturmer, Leslie	W,P	Disaster Assistance Workshop for Aquaculture	Review of financial assistance programs available to industry	I	75	6-Oct-04	Palm Bay, FL
Sturmer, Leslie	W,P	Disaster Assistance Workshop for Aquaculture	Review of financial assistance programs available to industry	I	125	7-Oct-04	Cedar Key, FL
Sturmer, Leslie	C,P	FL Aquaculture Association Annual Conference	Special Session on Disaster Assistance for Florida's Aquaculturists	I	120	6-Nov-04	Tampa, FL
Sturmer, Leslie	N	Florida Aquaculture Newsletter, Issue No. 34	USDA- NAP Reminders article	i	1200	15-Aug-04	Tallahassee, FL
Sturmer, Leslie	N	National Shellfisheries Newsletter, October issue	Florida's Clam Farms Get Hampered by Hurricanes article	I, S/P, A/O	1000	15-Oct-04	
Thieke, R	P	29th International Conference on Coastal Engineering	Observed wave conditions during rip current "outbreaks" in Florida			September, 2004	Lisbon, Portugal
Thieke, R	P	Rip Current Science: Coordinatig Engineering Research and Forecast Methodologies	Improving rip current prediction in Florida			April, 2004	Jacksonville, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Wasno, Bob	W	Envirothon Workshop	Envirothon recruiting and improving	S/P	17	1-Oct-04	Ft. Myers, FL
Wasno, Bob	G	Post-Hurricane Charlie waterway damage assessment	Waterway Marker System	Local citizens, WCIND, local newspaper staff	8	8/2-21,04 and 10/21-28, 04	Charlotte Harbor, FL
Goal 9: Produce a Highly Trained Workforce							
Behringer, Dianne	P	Broward County Commission Future Government Leaders Initiative	Sea Grant Extension	F, Y	24	12-14-May-04	Fort Lauderdale, FL
Behringer, Dianne	W	NOAA Professional Workshop	Managing Visitor Use in Coastal and Marine Areas	S/P, A/O	45	15-16-Jun-04	Miami, FL
Behringer, Dianne	N	Broward County Commission Future Government Leaders Initiative	Sea Grant Extension	G, C		3-Oct-04	Broward County
Behringer, Dianne	W, P	Florida Natural Resources Leadership Institute	Southeast Florida Coral Reef Initiative	S/P, A/O	25	22-Oct-04	Gainesville, FL
Behringer, Dianne	C	United States Coral Reef Task Force Conference	Coral Reef Conservation	S/P, A/O	500	1-4-Dec-04	Miami, FL
Combs, Chris	W	Planning session w. KSC rep.	Setup ROV training program for High Schools	S/P, C, A/O, Y, F	2	2-Aug-04	Cocoa, FL
Marella Crane	W	Educator Collecting Permit Workshop	FWCC Collecting Permit	F, A/O, S/P	21	31-Jan--04	Miami, FL
Marella Crane	W	Invasive Species Teacher Workshop	Invasive Species of South Florida	C, S/P	25	7-Feb-04	Miami, FL
Crane, Marella	W,P	Mangrove Maintenance Short Course	Biology and Ecology of Florida Mangroves	A/O, I	28	18-Jun-04	Miami, FL
Crane, Marella	W	NOAA's Professional Workshops	Managing Visitor Use In Coastal and Marine Areas	S/P, A/O	45	25-26-Jun-04	Miami, FL
Crane, Marella	W,P	Florida Master Naturalist Program	Environmental Interpretation	C, A/O, F, Y	13	4-May-04	Miami, FL
Crane, Marella	P	Teacher workshop	Coral Reef Survival Game	F	67	20-Nov-04	Miami, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Crane, Marella	P	UM RSMAS Orientation	Florida Sea Grant Opportunities	F	40	23-Aug-04	Miami, FL
McGuire, Maia	W	Stop the Invasives	Invasive species	A/O, C	26	5-May-04	St. Augustine, FL
McGuire, Maia	W	Duval 4-H summer camp	Beachcombing, fish, manatees	Y	14	10-Jun-04	Jacksonville, FL
McGuire, Maia	W	St. Johns Grammar summer camp	Beaches	Y	19	15-Jun-04	St. Augustine, FL
McGuire, Maia	W	St. Johns Grammar summer camp	Sea turtles	Y	21	16-Jun-04	St. Augustine, FL
McGuire, Maia	W	St. Johns Grammar summer camp	estuaries	Y	24	17-Jun-04	St. Augustine, FL
McGuire, Maia	W	St. Johns Grammar summer camp	manatees	Y	23	18-Jun-04	St. Augustine, FL
McGuire, Maia	W	COSEE	salt marshes, seagrasses, water quality	P	11	21-Jun-04	Cedar Key, FL
McGuire, Maia	W	COSEE	seining, trawls	P	11	22-Jun-04	Cedar Key, FL
McGuire, Maia	W	St. Johns 4-H summer camp	marine ecology	Y	24	28-Jun-04	Vilano Beach, FL
McGuire, Maia	W	4-H Marine Camp (seniors)	marine ecology	Y	5	5-8-Jul-04	St Pete, Sarasota
McGuire, Maia	W	Columbia County 4-H camp	marine ecology	Y	25	14-Jul-04	Anastasia State Park, St. Augustine, FL
McGuire, Maia	P	NMEA annual conference	Field studies	P	31	19-Jul-04	St. Petersburg, FL
McGuire, Maia	P	NMEA annual conference	Monofilament recycling	P	9	22-Jul-04	St. Petersburg, FL
McGuire, Maia	W	Nassau 4-H Marine Discovery Camp	Beaches, sharks	Y	13	26-Jul-04	Callahan, FL
McGuire, Maia	W	Nassau 4-H Marine Discovery Camp	Estuaries, fish	Y	12	27-Jul-04	Callahan, FL
McGuire, Maia	W	Nassau 4-H Marine Discovery Camp	Manatees, dolphins	Y	11	28-Jul-04	Callahan, FL
McGuire, Maia	W	4-H Congress	Beachcombing	Y	21	29-Jul-04	Gainesville, FL
McGuire, Maia	W	Teacher workshop	Estuaries	F	11	4-Aug-04	St. Augustine, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
McGuire, Maia	P	St. Johns Grammer summer camps	Manatees	Y	25	5-Aug-04	St. Augustine, FL
McGuire, Maia	W	Teacher workshop	SEACOOS	F	21	15-Oct-04	Orlando, FL
McGuire, Maia	W	Homeschool program	Estuaries	Y	30	22-Oct-04	St. Augustine, FL
Spranger, Mike	P	Extension Leadership Forum	Management and Leadership	S/P	22	2-Nov-04	Ellenton, FL
Spranger, Mike	L	Graduate Class - Coastal Zone Management	Florida Sea Grant Extension Activities in the Coast	F	12	19-Feb-04	Gainesville, FL
Spranger, Mike	W	FSG Faculty Program Planning	UF/IFAS New Strategic Plan and Reporting	S/P	24	11-12-Mar-04	Gainesville, FL
Spranger, Mike	W	Southwest District Extension Meeting	Supporting Sustainability Programs in Extension	S/P	60	13-Apr-04	Punta Gorda, FL
Spranger, Mike	C	Assembly of SG Extension Program Leaders	Establishing a National SG Academy	S/P	30	28-Apr-04	Jekyll Island, GA
Spranger, Mike	M	UF Office of Conference and Institutes	Advisory Committee Review and Oversight	S/P	7	9-Jun-04	Gainesville, FL
Spranger, Mike	W	COSEE Summer Teacher Institute	What is COSEE/ Role of Scientist/Educator	S/P, F	15	21-Jun-04	Cedar Key, FL
Spranger, Mike	M	National SGE Academy Planning Committee	Establishing a National SG Academy	S/P	7	6-Oct-04	Gainesville, FL
Spranger, Mike	C	FSGEP Annual Staff Meeting	History of SG, UF IFAS New Strategic Plan	S/P	60	13-Nov-04	Ft. Lauderdale, FL
Spranger, Mike	W	Extension Leadership Forum	Management vs. Leadership in Extension	S/P	24	2-Nov-04	Ellenton, FL
Spranger, Mike	M	NE UF IFAS Research/Education Center	Developing and Reporting Extension Programs	S/P	7	1-Dec-04	Milton, FL
Spranger, Mike	M	National SGE Academy Planning Committee	Developing Core Curricula and Competencies	S/P	4	6-7-Dec-04	Atlanta, GA
Stevely, John	TV	NBC Olympic Coverage	Commercial sponge industry	G		27-Aug-04	Tarpon Springs, FL
Stevely, John	P	High School Classes	Marine Careers	Y	60	14-May-04	Palmetto, FL
Stevely, John	P	Middle School Classes	Commercial Fishing	F	150	28-Oct-04	Palmetto, FL
Stevely, John	P	FISH Board of Directors	Farm City Week	C	25	16-Sep-04	

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Stevely, John	C	World Fisheries Congress	Mapping Oyster Reefs	S/P	2,000	5-May-04	Vancouver, BC
Stevely, John	W	Estuary Program Technical Advisory Committee	What's Happening in Cortez	S/P	25	28-May-04	Sarasota, FL
Stevely, John	P	Mote Marine Lab Volunteer Meeting	What's Happening in Cortez	G	50	10-Jun-04	Sarasota, FL
Stevely, John	P	4-H Summer Camp	Marine Science	Y	35	17-Jun-04	
Stevely, John	P	Master Gardner Training	Coastal Plant Identification and Biology	S/P	50	5-Oct-04	Sarasota, FL
Stevely, John	C	National Ecosystem Restoration Conference	Mapping Oyster Reefs	S/P	80	9-Dec-04	Orlando, FL
Stevely, John	C	National Ecosystem Restoration Conference	Evaluating Sponge Population Restoration	S/P	80	9-Dec-04	Orlando, FL
Sweat, Donald	P	Scallop Workshop Update	Economical Impact of Recreational Scalloping on Citrus County	Dive Shop Operators	6	8-Aug-04	Homosassa, FL
Sweat, Donald	P	Hernando County Overall Advisory Committee meeting	The Florida Sea Grant Program	Committee Members	18	17-Aug-04	Brooksville, FL
Wasno, Bob	W	4H Sportfishing Camp	Casting Skills, tackle, fish ID	A/O, G	25	30-31-Jan-04	Ocala, FL
Wasno, Bob	P	Lee County Professional Guides Association	Fisheries Enhancement	S/P, G	23	11-Feb-04	Ft. Myers, FL
Wasno, Bob	W	Envirothon Workshop	Envirothon recruiting and improving	S/P	12	26-Feb-04	Ft. Myers, FL
Wasno, Bob	W	Oyster Restoration Workshop	Oyster Gardening	S/P, C, G, Y	32	27-Mar-04	Matlacha Pass, FL
Wasno, Bob	W	4H Sportfishing Camp	Casting	A/O, G	57	3-9-Sep-04	Rock Eagle, GA
Wasno, Bob	P	Lee County Professional	Fisheries	S/P, G	23		Ft. Myers, FL
Goal 10: Create a Scientifically and Environmentally Informed Citizenry							
An, Edgar	P	A Submarine Design and Testing Workshop	How to design, build and test model submarines		25	May, 2004	Boca Raton, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Behringer, Dianne	P	Florida Coral Reef Initiative - Fishing, Diving, Other Uses Workshop	Coral reef education in southeast Florida	A/O, S/P	33	2-Aug-04	Key Biscayne, FL
Behringer, Dianne	P	Southeast Florida Coral Reef Initiative - Land Based Sources of Pollution Workshop	Coral reef education in southeast Florida	A/O, S/P	26	4-Aug-04	Fort Lauderdale, FL
Behringer, Dianne	W	Southeast Florida Coral Reef Initiative - Awareness and Appreciation Focus Team Workshop	Coral reef education in southeast Florida	A/O, S/P	16	9-Aug-04	Davie, FL
Behringer, Dianne	W	Southeast Florida Coral Reef Initiative - Awareness and Appreciation Focus Team Workshop	Graphic design projects for coral reef education	A/O	8	7-Sep-04	Davie, FL
Behringer, Dianne	W	Southeast Florida Coral Reef Initiative - Awareness and Appreciation Focus Team Workshop	Needs Assessment for coral reef education	A/O	14	30-Sep-04	Davie, FL
Behringer, Dianne	P	Southeast Florida Coral Reef Initiative - All Teams Workshop	Coral reef education in southeast Florida	A/O, S/P	80	5-Oct-04	Dania, FL
Behringer, Dianne	W	Southeast Florida Coral Reef Initiative - Awareness and Appreciation Focus Team Workshop	Needs Assessment for coral reef education	A/O	8	11-Oct-04	Miami, FL
Behringer, Dianne	P	Regional Ocean Conservation Club Workshop	Volunteer opportunities with Sea Grant	F	53	9-Oct-04	Dania, FL
Behringer, Dianne	W	Marine Explorations	Marine ecology	F	45	27-Oct-04	Hollywood, FL
Behringer, Dianne	P	4H Water Wise Guys Camp	coral reefs and water quality	Y	22	9-Apr-04	Davie, FL
Behringer, Dianne	N	Manatee Awareness and Boater Safety Poster Contest	manatee awareness	G		19-Nov-04	Deerfield Beach, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Behringer, Dianne	P	Manatee Mania and Poster Contest	manatee education and outreach	F	26	14-May-04	Cooper City, FL
Behringer, Dianne	P	Manatee Mania and Poster Contest	manatee education and outreach	F	23	17-May-04	Miramar, FL
Behringer, Dianne	P	Plantation High School Summer Science Series	coral reefs	F	95	14-Jul-04	Plantation, FL
Behringer, Dianne	P	IGFA Summer Marine Science Camp	coral reefs	Y	46	15-16-Jul-04	Dania Beach, FL
Behringer, Dianne	P	Leadership Broward Broward County Community College Environmental Series	coral reef conservation and management	S/P, A/O	32	9-Nov-04	Ft. Lauderdale, FL
Behringer, Dianne	P	United States Coral Reef Task Force - Sustainable Dive Operators Workshop	coral reefs in southeast Florida and MPA's	F	26	16-Nov-04	Davie, FL
Behringer, Dianne	W, P		Teacher Participation in the SEFCRI	F	50	20-Nov-04	Miami, FL
Carrier, J.	P	Grice Marine Laboratory	Fort Johnson Lecture Series				Charleston, SC
Carrier, J.	P	Mote Marine Laboratory	Fort Johnson Lecture Series				Sarasota, FL
Combs, Chris	P, D	Rockledge High School Environmental Sciences class	Clean Marina/Monofilament Recycling collection bins - distribution & function	Y, F	45	23-Jan-04	Rockledge, FL
Combs, Chris	E, D	Florida State Fair	Build and set up Brevard Co. exhibit	C, Y, G		2-16-Feb-04	Tampa, FL
Combs, Chris	E	Brevard Intracoastal Regional Science Fair	Judging, Junior and Senior divisions, Zoology	F, C, G	26	13-Feb-04	Merritt Island, FL
Combs, Chris	E	Brevard Mainland Regional Science Fair	Judging, Senior Environmental Sciences	F, C, G	18	21-Feb-04	Merritt Island, FL
Combs, Chris	TV	Space Coast Govt. TV presentation	Brevard Extension Clean Marina training info.	C, Y, G		25-Feb-04	Viera, FL
Combs, Chris	W, D	4-H Marine Ecology Contest training	Marine invertebrates	F, Y	8	26-Feb-04	Palm Bay, FL
Combs, Chris	E, D	Grant Seafood Festival	Clean Marina, Invasive Exotic Marine Species	C, Y, G		27-29-Feb-04	Grant, FL
Combs, Chris	W, D	4-H Marine Ecology Contest training	Orientation and Marine Fishes	F, Y	12	9-Mar-04	Titusville, FL
Combs, Chris	P, D	Marine Industries Assoc. Brevard meeting	Effects of Discarded Monofilament in Environ.	I, C	20	10-Mar-04	Cocoa Beach, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Combs, Chris	W	Brevard Extension Overall Advisory mtg.	Program planning - all programs	C, Y, G	20	18-Mar-04	Cocoa, FL
Combs, Chris	W, D	4-H Marine Ecology Contest training	Marsh grasses	Y, F	6	25-Mar-04	Palm Bay, FL
Combs, Chris	W, D	4-H Marine Ecology Contest training	Marine fishes	Y, F	10	29-Mar-04	Titusville, FL
Combs, Chris	P, D	Public Seminar	"Green Mussels; Tiny Terrorists"	C, Y, G	16	2-Apr-04	Grant, FL
Combs, Chris	E	Brevard Co. Extension Annual Ag. Tour	Agriculture in Brevard Co.	G, A/O, S/P, C	45	9-Apr-04	So. Brevard Co., FL
Combs, Chris	W, D	4-H Marine Ecology Contest training	Review fishes	Y, F	8	13-Apr-04	Titusville, FL
Combs, Chris	P, D	Public Seminar	"Invasive Marine Species Imported by Ships"	C, Y, G	8	30-Apr-04	Canaveral Natl. Seashore, FL
Combs, Chris	E, D	Rusty's Dodge Deep Sea Fishing Tournament	Multi-species deepsea fishing tournament	C, Y, G	2,500	7-8-May-04	Port Canaveral, FL
Combs, Chris	P, D	Public Seminar	"Green Mussels in Indian River Lagoon"	C, Y, G	12	12-May-04	Titusville, FL
Combs, Chris	C, D	State of the Indian River Lagoon Conf.	Clean Marina Program display board and handouts	S/P, C, A/O, I, Y, G	200	15-May-04	Melbourne, FL
Combs, Chris	W, D	4-H Marine Ecology Contest training	Marsh grasses	Y, F	10	24-May-04	Titusville, FL
Combs, Chris	W, D	4-H Marine Ecology Contest training	Marine invertebrates	Y, F	3	27-May-04	Palm Bay, FL
Combs, Chris	P, D	Public Seminar	"Potential Impact on Recreational Fishing in the IRL by Invasive Exotic Marine Species"	C, Y, G	25	2-Jun-04	Cocoa Beach, FL
Combs, Chris	W, D	Palm Bay Bassmasters Club	Planning for Sea Grant/Fair Bass Tournament	C, A/O, Y, G	2	2-Jun-04	Melbourne, FL
Combs, Chris	E, D	Registration and Captains Meeting	Fla. Sport Fish Assoc. Offshore Fishing Tournament	C, I, Y, G	400	4-Jun-04	Satellite Beach, FL
Combs, Chris	E, D	FSFA Deep Sea Fishing Tournament	Offshore Tournament	C, I, Y, G	500	5-Jun-04	Port Canaveral, FL
Combs, Chris	E, D	4-H Marine Summer Day Camp #1	Seining, Dip-netting, Critter ID, Fish House ops.	Y, F	20	8-10-Jun-04	Titusville, Port Canaveral, Cocoa, FL
Combs, Chris	P, D	Brevard Comm. Coll. Montessori School	"Life Under the Sea"	F	30	11-Jun-04	Palm Bay, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Combs, Chris	E, D	4-H Marine Summer Day Camp #2	Seining, Dip-netting, Critter ID, Fish House ops.	Y, F	20	15-17-Jun-04	Titusville, Port Canaveral, Cocoa, FL
Combs, Chris	W, D	4-H Marine Ecology Contest training	Wading birds	Y, F	6	24-Jun-04	Palm Bay, FL
Combs, Chris	W, D	Brevard Sea Grant Marine Advisory Committee meeting	Program reviews and comment	C, Y, G	10	8-Jul-04	Cocoa, FL
Combs, Chris	E, D	Natl. Assoc. Co. Ag. Agents Convention	Host for spouses-tour of Kennedy Space Ctr.	S/P, A/O, I, Y, G	30	12-Jul-04	Kennedy Space Ctr, FL
Combs, Chris	P, D	La Petite Academy	"Ocean Odyssey - Life Under the Sea"	Y, F	20	16-Jul-04	Palm Bay, FL
Combs, Chris	P, D	Child Devel. Ctr, Brev. Comm. College	"Beach and Sea Life"	Y, F	25	27-Jul-04	Melbourne, FL
Combs, Chris	W, D	Palm Bay Bassmasters Club	Planning for Sea Grant/Fair Bass Tournament	C, A/O, Y, G	2	26-Aug-04	Melbourne, FL
Combs, Chris	W, D	Public Seminar	"Oculina Bank Habitat Area of Particular Concern"	C, Y, G	18	27-Oct-04	Titusville, FL
Combs, Chris	W	Brevard Extension Overall Advisory mtg.	Program planning/review - all programs	C, Y, G	20	28-Oct-04	Cocoa, FL
Combs, Chris	W, D	Public Seminar	"Oculina Bank Habitat Area of Particular Concern"	C, Y, G	25	19-Nov-04	Grant, FL
Crane, Marella	P	Boy Scout Meeting	Fishing Line Recovery and Recycling Program	Y	22	24-Feb-04	Miami, FL
Crane, Marella	W	Environmental Immersion Day	Marine Science Career Day	F	20	18-Mar-04	Miami, FL
Crane, Marella	E	Miami-Dade County Youth Fair	Judged Environmental Science Projects	Y	400	13-Mar-04	Miami, FL
Crane, Marella	P	Coral Ridge Career Day	Marine Science Career Day	F	150	17-Mar-04	Miami, FL
Crane, Marella	P	Coastal Master Naturalist Class	Marine Estuary (Nearshore Fieldtrip)	G	14	20-Apr-04	Miami, FL
Crane, Marella	P	Coastal Master Naturalist Class	Marine Fish	G	13	27-Apr-04	Miami, FL
Crane, Marella	P	Lillie C. Evans Elementary School	Coral Reefs and Marine Critters	Y	190	28-Apr-04	Miami, FL
Crane, Marella	P	West Laboratory Elementary School	Marine Science Career Day	F	100	21-Apr-04	Miami, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Crane, Marella	P	Biscayne Bay Poster Workshop	Poster/Cleanedar for Biscayne Bay	Y, F, G	6	10-May-04	Miami, FL
Crane, Marella	P	Marine Career Day	Marine Animals - Fish, Corals, Inverts	F	30	11-May-04	Miami, FL
Crane, Marella	E	4-H District Events	Judged Science Events	Y	25	8-May-04	Miami, FL
Crane, Marella	N	Marine Newsletter June - August	At the Waters Edge	S/P, C, A/O, I, Y, F	500	7-Jun-04	Miami, FL
Crane, Marella	W, P	Environmental Emmerision Day	Marine Life - Snorkeling Adventure	Y	15	22-Jun-04	Miami, FL
Crane, Marella	P	American Meteorological Society Education	Florida Sea Turtles	Y, F	80	21-Jun-04	Miami, FL
Crane, Marella	TV	Miami-Dade DERM TV series Down to	Nutrient Run-off Effect on Marine Life	G		28-Jun-04	Miami, FL
Crane, Marella	P	FNRLI Practicum	Poster/Cleanedar for Biscayne Bay	S/P, A/O	30	22-Oct-04	Gainesville, FL
Crane, Marella	C	National Marine Educator's Assoc. Conference	Coral Reef Survival Game	S/P, F	15	22-Jul-04	St. Petersburg, FL
Crane, Marella	P	Florida Sea Grant Annual Meeting	Miami Dade County Sea Grant Program	S/P, A/O	30	13-Oct-04	Ft. Lauderdale, FL
Crane, Marella	N	Marine Newsletter August-October, October-December	At the Waters Edge	S/P, C, A/O, I, Y, F	500	Aug/Oct	Miami, FL
Crane, Marella	P	MAST Academy High School - Environmental Club	Water Quality - Fuel Spills	F	20	1-Oct-04	Miami, FL
Crane, Marella	P	4-H Marine Beach Collection Study	Marine Critters of Biscayne Bay	Y	25	15-Oct-04	Miami, FL
Crane, Marella	P	Michael Kropp High School	Marine Critters of Biscayne Bay	Y	60	10-Nov-04	Miami, FL
Crane, Marella	D	RAMBLE Event	Sea Grant Program overview	G	1,000	21-Nov-04	Miami, FL
Crane, Marella	P	Gulliver Academy High School - Environ. Club	Water Quality - Fuel Spills	Y	8	1-Dec-04	Miami, FL
Crane, Marella	P	TREC research Center Presentation	Sea Grant Program overview	S/P	20	3-Nov-04	Homestead, FL
Creswell, LeRoy	P	Motion in the Ocean	form and function in marine organisms	Y, F	164	14-Jan-04	Ft. Pierce, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Creswell, LeRoy	P	Motion in the Ocean	form and function in marine organisms	Y,F	132	13-Feb-04	Port St. Lucie, FL
Creswell, LeRoy	P	Motion in the Ocean	form and function in marine organisms	Y,F	138	13-Apr-04	Ft. Pierce, FL
Creswell, LeRoy	P	Motion in the Ocean	form and function in marine organisms	Y,F	147	13-May-04	Ft. Pierce, FL
Creswell, LeRoy	P	Motion in the Ocean	form and function in marine organisms	Y,F	129	20-Apr-04	Port St. Lucie, FL
Creswell, LeRoy	P	Ecosystem Explorers	understanding marine ecosystems and the IRL	Y,F	61	12-Feb-04	Ft. Pierce, FL
Creswell, LeRoy	P	Ecosystem Explorers	understanding marine ecosystems and the IRL	Y,F	63	11-Mar-04	Ft. Pierce, FL
Creswell, LeRoy	P	Ecosystem Explorers	understanding marine ecosystems and the IRL	Y,F	57	19-Feb-04	Ft. Pierce, FL
Creswell, LeRoy	P	Ecosystem Explorers	understanding marine ecosystems and the IRL	Y,F	58	20-Feb-04	Ft. Pierce, FL
Creswell, LeRoy	P	Ecosystem Explorers	understanding marine ecosystems and the IRL	Y,F	61	25-Mar-04	Ft. Pierce, FL
Creswell, LeRoy	P	Ecosystem Explorers	understanding marine ecosystems and the IRL	Y,F	54	7-Apr-04	Ft. Pierce, FL
Creswell, LeRoy	P	Ecosystem Explorers	understanding marine ecosystems and the IRL	Y,F	52	8-Apr-04	Ft. Pierce, FL
Creswell, LeRoy	P	Ecosystem Explorers	understanding marine ecosystems and the IRL	Y,F	58	9-Apr-04	Ft. Pierce, FL
Creswell, LeRoy	P	Ecosystem Explorers	understanding marine ecosystems and the IRL	Y,F	52	19-May-04	Ft. Pierce, FL
Creswell, LeRoy	P	Ecosystem Explorers	understanding marine ecosystems and the IRL	Y,F	56	20-May-04	Ft. Pierce, FL
Creswell, LeRoy	P	Ecosystem Explorers	understanding marine ecosystems and the IRL	Y,F	61	21-May-04	Ft. Pierce, FL
Creswell, LeRoy	P	Lagoon days	Ecology of the Indian River Lagoon	Y,F	119	19-Apr-04	Wabasso, FL
Creswell, LeRoy	P	Lagoon days	Ecology of the Indian River Lagoon	Y,F	123	20-Apr-04	Wabasso, FL
Creswell, LeRoy	P	Lagoon days	Ecology of the Indian River Lagoon	Y,F	127	21-Apr-04	Wabasso, FL
Creswell, LeRoy	P	Lagoon days	Ecology of the Indian River Lagoon	Y,F	118	26-Apr-04	Wabasso, FL
Creswell, LeRoy	P	Lagoon days	Ecology of the Indian River Lagoon	Y,F	109	28-Apr-04	Wabasso, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Creswell, LeRoy	P	Lagoon days	Ecology of the Indian River Lagoon	Y,F	113	29-Apr-04	Wabasso, FL
Creswell, LeRoy	P	Biodiversity in the Indian River Lagoon	Marine Resource Council Seminar	G,C	17	3-Apr-04	Ft. Pierce, FL
Creswell, LeRoy	P	Our Coastal Environment	Homeowner's Guide to Marine Stewardship	G,C	15	2-Feb-04	Ft. Pierce, FL
Creswell, LeRoy	P	Our Coastal Environment	Homeowner's Guide to Marine Stewardship	G,C	16	9-Feb-04	Ft. Pierce, FL
Creswell, LeRoy	P	Our Coastal Environment	Homeowner's Guide to Marine Stewardship	G,C	15	16-Feb-04	Ft. Pierce, FL
Creswell, LeRoy	P	Our Coastal Environment	Homeowner's Guide to Marine Stewardship	G,C	17	23-Feb-04	Ft. Pierce, FL
Creswell, LeRoy	P	Our Coastal Environment	Homeowner's Guide to Marine Stewardship	G,A/O	38	14-Apr-04	Ft. Pierce, FL
Creswell, LeRoy	Summer Camp	Indian River Lagoon Coastal Explorers	Summer marine 4-H camp	Y	16	21-25-Jun-04	Ft. Pierce, FL
Creswell, LeRoy	R	Saving our Beaches	Beach processes erosion	G/C	15000	18-Aug-04	Port St. Lucie, FL
Creswell, LeRoy	R	Reefs at Risk	Caribbean Coral Reef decline	G/C	15000	24-Nov-04	Port St. Lucie, FL
Creswell, LeRoy	R	Seagrasses of the Indian River Lagoon	Diversity and damage of seagrasses in the IRL	G/C	15000	19-Oct-04	Port St. Lucie, FL
Creswell, LeRoy	R	"A Successful Science Fair Project"	science fair instruction	Y	84	28-Sep-04	Vero Beach, FL
Diller, Andrew	W	Escambia Co. Teachers Inservice	Marine Invasives	F	30	6-Jan-04	Pensacola, FL
Diller, Andrew	P	Marine Science at Pine Forest High School	Sea turtles and coastal dune habitat	Y	111	16-Jan-04	Pensacola, FL
Diller, Andrew	P	Student Envir. Action Society - UWF	Sea Grant, sea turtles, and marine careers	G	18	21-Jan-04	Pensacola, FL
Diller, Andrew	P	FL Master Naturalist Coastal Module	Marine/coastal amphibians, reptiles, mammals	C	21	2/ 5,10,24/2004	Milton, FL
Diller, Andrew	P	Perdido Bay Power Squadron	Sea turtles and coastal dune habitat	G	52	2-Mar-04	Lillian, AL
Diller, Andrew	P	Escambia Co. 4-H Leaders Meeting	Sea Grant, educational, and volunteer activities	Y	40	8-Mar-04	Pensacola, FL
Diller, Andrew	P	Pensacola STAKE Camp	Seining, fish ecology, shark conservation	Y	39	17-Mar-04	Niceville, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Diller, Andrew	P	Resource Rangers Ecology Field Trips	Sea turtles and coastal dune habitat	YF	304	4/2,7, 20, 23/2004	Gulf Breeze, FL
Diller, Andrew	P	Escambia High School Science Club	Seining, fish ecology, water quality, sea turtles	Y	30	14-Apr-04	Pensacola, FL
Diller, Andrew	TV	Resource Rangers tv show	Watershed, stormwater, seagrass, water cycle	G		3 days/wk April 2004	Escambia and Santa Rosa Counties, FL
Diller, Andrew	P	Escambia High School Marine Science	Sea turtles and coastal dune habitat	Y	90	4-May-04	Pensacola, FL
Diller, Andrew	P	Helen Caro Elementary Science	Sea turtles and coastal dune habitat	Y	22	17-May-04	Pensacola, FL
Diller, Andrew	P	4-H & Home-school Beach Ecology	Sea turtles and coastal dune habitat	Y	65	18-May-04	Pensacola Beach, FL
Diller, Andrew	P	Lakeview Center Youth Day Camp	Florida's marine mammals	Y	25	16-Jun-04	Pensacola, FL
Diller, Andrew	P	Tryon Branch Library Kid's Programs	Northwest Florida's marine fish & shorebirds	Y	60	24-Jun-04	Pensacola, FL
Diller, Andrew	P	Jr. Ranger Day Camp	Seining, fish ecology, sea turtles, seagrass	Y	28	22&29-Jun-04	Pensacola Beach, FL
Diller, Andrew	P	Pensacola Library Youth Programs	Florida's marine mammals	Y	58	30-Jun-04	Pensacola, FL
Diller, Andrew	P	Jr. Ranger Day Camp	Seining, fish ecology, sea turtles, seagrass	Y	20	6-Jul-04	Pensacola Beach, FL
Diller, Andrew	P	4-H State Marine Camp (Timpoochee)	Sea turtles, dune habitat, fish ecology	Y	60	13-Jul-04	Okaloosa Island, FL
Diller, Andrew	C	National Marine Educator's Assoc. Conference	Resource Rangers: Environmental Education for Youth Audiences	F, S/P	16	22-Jul-04	St. Petersburg, FL
Diller, Andrew	P	Lakeview Center Youth Day Camp	Northwest Florida's marine fish & shorebirds	Y	22	28-Jul-04	Pensacola, FL
Diller, Andrew	TV	Resource Rangers tv show	Watershed, stormwater, seagrass, water cycle, wetlands	Y,G		3 days each week	Escambia and Santa Rosa Counties, FL
Diller, Andrew	E	Resource Rangers at Pensacola Pelicans baseball games	Recycling and environmental education	Y,G	800	8-Aug-04	Pensacola, FL
Diller, Andrew	W	Escambia County Safety and Wellness Fair	Beach and boating safety, seafood safety, environmental health and water quality	A/O	36	2-Sep-04	Pensacola, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Diller, Andrew	P	"5th-H" Home School Program	Florida's marine mammals	Y	30	7-Sep-04	Milton, FL
Diller, Andrew	E	Operation: Military Kids	Seining, fish ecology, sea turtles, seagrass, coastal habitats	Y	98	11-Sep-04	Pensacola Beach, FL
Diller, Andrew	P	Lakeview Center Hurricane Day Camp	Sea turtles, hurricanes, and endangered species	Y	47	6-Oct-04	Pensacola, FL
Diller, Andrew	D	Pensacola Interstate Fair	Composting and recycling	G		21-31-Oct-04	Pensacola, FL
Diller, Andrew	TV	Resource Rangers tv show	Watershed, stormwater, seagrass, water cycle, wetlands	Y,G		3 days each week	Escambia and Santa Rosa Counties, FL
Heithaus, M.	P	Miami Area High School Students	Upward bound program				Miami, FL
Heithaus, M.	P	North Carolina Museum of Natural Sciences Reptile and Amphibian Day					North Carolina
Heithaus, M.	P	Dallas Museum of Natural History Natural and Lecture Series					Dallas, Texas
Heithaus, M.	P	Degolyer Afterschool Program					Dallas, Texas
Heithaus, M.	P	Blair Elementary School					Dallas, Texas
Heithaus, M.	P	IGFA Student Ocean Conference for the gifted students					Broward and Dade County
Heithaus, M.	P	Albion College Public Lecture					Albion, MI
Heithaus, M.	P	Duke University Marine Laboratory Seminar Series					
Mahan, Bill	P	Board of County Commissioner Update	County & State Marine Issues	Elected & C	34	6-Jan-04	Apalachicola
Mahan, Bill	P	Board of County Commissioner Update	County & State Marine Issues	Elected & C	45	14-Jan-04	Apalachicola
Mahan, Bill	E	Apalachicola Mid. & HS Science Fair	Judged A Variety of Science Fair Projects	F	15	22-Jan-04	Apalachicola
Mahan, Bill	P	Board of County Commissioner Update	County & State Marine Issues	Elected & C	38	3-Feb-04	Apalachicola

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Mahan, Bill	P	Marine Update & Seafood Safety	Marine Industry Update & Seafood Safety	G	13	11-Feb-04	Carrabelle
Mahan, Bill	P	Board of County Commissioner Update	County & State Marine Issues	Elected & C	42	17-Feb-04	Apalachicola
Mahan, Bill	P	Board of County Commissioner Update	County & State Marine Issues	Elected & C	47	2-Mar-04	Apalachicola
Mahan, Bill	P	Board of County Commissioner Update	County & State Marine Issues	Elected & C	44	16-Mar-04	Apalachicola
Mahan, Bill	P	Board of County Commissioner Update	County & State Marine Issues	Elected & C	40	6-Apr-04	Apalachicola
Mahan, Bill	P	Board of County Commissioner Update	County & State Marine Issues	Elected & C	40	6-Apr-04	Apalachicola
Mahan, Bill	P	Board of County Commissioner Update	County & State Marine Issues	Elected & C	47	20-Apr-04	Apalachicola
Mahan, Bill	13-N	Apalachicola & Carrabelle Time Newspaper	Topics included; e-navigation charts, new fishing regulations, weather satellites, oyster PHT, coast hazards, horseshoe crab survey, marine biotoxins, regional weather patterns, etc.	C & GP		Jan - Apr-04	Apalachicola & Carrabelle
Mahan, Bill	P	Butterfly Development Program	Ecology & Biology of Butterflies	F	34	7-May-04	Apalachicola, FL
Mahan, Bill	P	Board of County Commissioners Report	Extension Activities Update	Officials, G, C	47	18-May-04	Apalachicola, FL
Mahan, Bill	P	Board of County Commissioners Report	Extension Activities Update	Officials, G, C	37	1-Jun-04	Apalachicola, FL
Mahan, Bill	4-H Camp	4-H County Camp	Environmental Education	Y	64	5-9-Jul-04	Camp Timpoochee, FL
Mahan, Bill	P	Board of County Commissioners Report	Extension Activities Update	Officials, G, C	40	20-Jul-04	Apalachicola, FL
McGuire, Maia	P	Salt Marsh tour	Salt marsh ecology	G	11	3-May-04	Anastasia State Park (St. Augustine, FL)
McGuire, Maia	W	Coastal Master Naturalist Class	Estuaries (field trip)	G	25	7-May-04	New Smyrna Beach, FL
McGuire, Maia	D	Whitney Lab Open House	Invasive species, Clean boating	G	400	8-May-04	Marineland, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
McGuire, Maia	P	First Coast Birding and Nature Festival	Beach, salt marsh, coastal hammock tour	G	6	14-May-04	Anastasia State Park (St. Augustine, FL)
McGuire, Maia	P	First Coast Birding and Nature Festival	Beach, salt marsh, coastal hammock tour	G	11	15-May-04	Anastasia State Park (St. Augustine, FL)
McGuire, Maia	P	Friends of Anastasia Luncheon	Beachcombing	G	30	22-May-04	Anastasia State Park (St. Augustine, FL)
McGuire, Maia	W	Coastal Master Naturalist Class	Beaches	G	14	4-Jun-04	Marineland, FL
McGuire, Maia	P	First Coast Freethought Society	There's an Estuary Living Next Door	G	26	12-Jul-04	Jacksonville, FL
McGuire, Maia	E	Splash into Science	Estuaries	Y, G	500	16-Sep-04	Hastings, FL
McGuire, Maia	E	Make a Splash	Estuaries	Y	200	24-Sep-04	Fernandina Beach, FL
McGuire, Maia	E	Clay County Ag-ventures	Aquaculture	Y	600	5-Oct-04	Green Cove Springs, FL
McGuire, Maia	P	Master Gardener Training	Water and Watersheds	C	17	20-Oct-04	Bunnell, FL
McGuire, Maia	P	Master Gardener Training	Water and Watersheds	C	106	27-Oct-04	Green Cove Springs, FL
McGuire, Maia	P	Rotary Club talk	Estuaries	G	19	28-Oct-04	Jacksonville, FL
McGuire, Maia	W	Homeschool program	Beaches	Y	25	7-Dec-04	St. Augustine, FL
Spranger, Mike	P	FSGEP/ Campus Coordinator Meeting	What is Sea Grant Extension	S/P	60	13-Oct-04	Ft. Lauderdale, FL
Spranger, Mike	P	State Marine Ecology Contest	Importance of Marine Education	y	82	30-Oct-04	Camp Ocala, FL
Spranger, Mike	P	School of Forestry Advisory Committee	UF/IFAS Extension Natural Resource Workshop	I, S/P	22	4-Nov-04	
Spranger, Mike	P	Manatee County Farm-City Celebration	UF/IFAS Extension - UF Working for You	C	100	16-Nov-04	Bradenton, FL
Simoniello, Chris	C	Industry IOOS meeting	Industry's role in ocean observing systems	I, S/P, A/O	75	1-4 Mar-04	Houston, TX
Simoniello, Chris	W	ONR MTS Buoy Workshop	Ocean observing systems technology	S/P, I	100	8-10 Mar-04	St. Petersburg, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Simoniello, Chris	W	OMPL Alliance for Coastal Technologies	Surface current radar technology	S/P, I	30	14-16 Mar-04	St. Petersburg, FL
Simoniello, Chris	W	IOOS Education Workshop	Integrated Ocean Observing Systems	S/P, A/O, F	60	22-24 Mar-04	Charleston, SC
Simoniello, Chris	P	Marine Ecology (Frontier elementary school)	Oceanography and the environment	Y	40	1-Apr-04	Palm Harbor, Florida
Simoniello, Chris	Field Trip	Ecology of Tampa Bay (John Hopkins MS)	Estuaries, coastal habitats, water quality	Y	60	5-Apr-04	Tampa Bay, Florida
Simoniello, Chris	W	Project Wild	Marine Ecosystems	F	20	17-Apr-04	St. Petersburg, FL
Simoniello, Chris	D	Florida Ocean's Day	Ocean Observing Systems	S/P, A/O		20-21-Apr-04	Tallahassee, FL
Simoniello, Chris	D, P	All Sea Grant National Meeting	Overview of national Sea Grant Extension progress, SEACCOOS update	S/P	75	26-27-Apr-04	Jekyll Island, GA
Simoniello, Chris	P	Using COOS for Education (John Hopkins Middle School)	Technology, designing ocean sensors	F	180	5-May-04	St. Petersburg, FL
Simoniello, Chris	C	ONR Progress Review Southeast Region	Status of ONR-funded oceanography projects	S/P	75	10-13-May-04	St. Petersburg, FL
Simoniello, Chris	P	Marine Jeopardy (John Hopkins M.S.)	Marine Conservation	F	180	13-May-04	St. Petersburg, FL
Simoniello, Chris	W, D	SEACCOOS Semiannual Meeting	SEACCOOS progress and updates, plan future OOS activities	S/P, A/O, I	80	17-19-May-04	Miami, FL
Simoniello, Chris	W	Oceans GK-12 Training Day (field trip)	Biological & chemical oceanography	S/P	25	26-May-04	Pinellas County, Florida
Stevely, John	P	High School Classes	Marine Careers	Y	60	14-May-04	Palmetto, FL
Stevely, John	P	Pier Aquarium Board of Directors Meeting	Scallop Restoration	Board Members	15	20-Jul-04	St. Petersburg, FL
Stevely, John	TV	NBC Olympic Coverage	Commercial sponge industry	G		27-Aug-04	Tarpon Springs, FL
Stevely, John	P	High School Classes	Marine Careers	Y	60	14-May-04	Palmetto, FL
Stevely, John	P	Middle School Classes	Commercial Fishing	F	150	28-Oct-04	Palmetto, FL
Stevely, John	P	FISH Board of Directors	Farm City Week	C	25	16-Sep-04	Cortez, FL
Sturmer, Leslie	W	Gulf Awareness Seminar Series	NWR's relationship with our coastal communities	G, C	23	9-Feb-04	Cedar Key, FL
Sturmer, Leslie	W, P	Gulf Awareness Seminar Series	Clamlot: Clam farming along our coast	G, C	13	23-Feb-04	Cedar Key, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
Sturmer, Leslie	W	Gulf Awareness Seminar Series	Groupers Tales	G, C	38	8-Mar-04	Cedar Key, FL
Sturmer, Leslie	W	Gulf Awareness Seminar Series	Seahorse Key Marine Lab	G, C	7	22-Mar-04	Cedar Key, FL
Sturmer, Leslie	W	Gulf Awareness Seminar Series	Monitoring fish communities along our coast	G, C	31	12-Apr-04	Cedar Key, FL
Sturmer, Leslie	W	Gulf Awareness Seminar Series	Bay scallops in your backyard	G, C	10	26-Apr-04	Cedar Key, FL
Don Sweat	P	Canning Center Open House	Fla. Sea Grant	general	62	9-Jan-04	Lecanto
Don Sweat	P	Citrus County Overall Advisory	Fla. Sea Grant	advisory committee	15	23-Jan-04	Inverness
Verlinde, Chris; Diller, Andrew	P	Esc. Teacher wksp.	Aquatic Nuisance Species	F	16		Pensacola, FL
Verlinde, Chris	P	Fl. Master Naturalist Coastal Module (40 contact hours)	Ecology, flora, fauna, interpretation of coastal systems, environmental ethics	C	21		Milton, FL
Verlinde, Chris	P	Shark!	coastal sharks and beach safety	Y	176		Navarre, FL
Verlinde, Chris	W	Pensacola Bay Watershed Communities in growth Workshop	Environmental Education	A/O	35		Pensacola, FL
Verlinde, Chris	R	radio show	Marine opportunities	C	3500		Pace, FL
Verlinde, Chris	P	Resource Ranger field trip	touch tank/ fish ID	Y	50		Pensacola, FL
Verlinde, Chris	P	Library coastal issues program series	(4) Sea Turtle presentations	G	169		Gulf Breeze, Jay, Milton, Navarre, FL
Verlinde, Chris	E	Earth Day at the Zoo	Earth Day bracelets, Fl. Sea Grant	G	200		Gulf Breeze, FL
Verlinde, Chris	P	Resource Ranger field trips (3)	Eat a seagrass bed, fish id	Y	240		Gulf Breeze, FL
Verlinde, Chris	TV	Resource Ranger Seagrass Program	Seagrass functions	Y			Escambia and Snata Rosa Counties
Verlinde, Chris	E	Earth Day at US AF Hurlburt Field	Fish ID/Touch tank	Y	400		Mary Esther, Navarre, FL

FSG Faculty/PI	Event Type	Name of Event	Topic	Audience Type	Attendance	Date	Location
N = Newspaper Article			F = Formal Education (K-12)				
D = Display/Signage			G = General Public				
E = Large Events, Festivals, Tournaments							

10.0 SELF EVALUATION

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.

The following sections include self-evaluation criteria for 2004 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. The next FSG Program Assessment Team review will be in May 2005.

- 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 2004 and 2005.

Number of proposals submitted and funded in National Strategic Investment (NSI)
Competitions for aquaculture, GOM oysters, fish extension and ANS Research and Outreach in 2003 and 2004.

Competition	National Level					Florida Level				
	Proposals Received	Invited	%	Funded	%	Proposals Received	Invited	%	Funded	%
--- 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) ^a	56	18	32.0	18	100.0	3	2	66.7	2	100.0
Total	212	51	24.1	30	58.8	16	4	25.0	3	75.0
--- 2004 Competition --- 2005 Funding ---										
ANW Research and Outreach	175	73	41.7	17	23.3	9	1	11.1	0	0
GOM Oysters	31	21	67.7	12	57.1	5	4	80.0	2	50.0

^a Preproposals not used for fish extension competition.

TBD - To be determined.

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 ^a	
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 ^b	331	99	NA	23	3	2	NA	NA

^a 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).

^b 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 ^a	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%.	

^a Does not include ANS Research and Outreach Competitions for 2004.

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

During 2004 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, aquaculture and aquatic nuisance species, 2003-04.

	Preproposals Submitted	Invited	Full Proposals Received	Funded
FSU	.66			
FIT	4.0			
MML	1.5			
HBOI	.33			
UM	.33	1	1	1
UF	6.09			
Other	10.09	2		
Total	23	3	2	1 (1 pending)

Fractions indicate joint proposals from two or more institutions.

Recent success rates for national Fellows competitions.

Year (Class of Service)	<u>National Level</u>		<u>From Florida</u>	
	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 ^a
2003	NC	NC	0	0
2004	8	5	1	1
2005	5	3	1	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
2005	15	6	1	0
<i>Knauss Fellows^b</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
2005	73	(45) 40	(7) 5	3
<i>NOAA Coastal Services Center Fellows^c</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
2005	34	(12) 6	(6) 3	0

^a 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.

^b Number in parenthesis indicate those semi-finalists invited for interview.

^c 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
TOTAL	85.0	34.0	36.0	14.0

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 2004 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. (Seaman) 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. (Seaman)
- Invited co-investigatorship in the Florida Atlantic University Center of Excellence for Biomedical and Marine Biotechnology project on outreach to teachers and executives. (Seaman)

Florida Sea Grant was also an invited participant in the Florida Ocean Sciences Work Group, a committee of about 50 individuals representing marine and ocean academic and agency interests in Florida. The goal of the group is to advance legislation in Florida in response to the Commission on Ocean Policy report issued in 2004. (Cato)

4. Fully engage in regional and national projects.

A. During 2004, Florida Sea Grant was an active participant in at least seven different regional 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 2004.

	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 the two-year Florida Sea Grant research proposal competition for 2004-05 projects and for Extension/Education, Communications and Management. A new 2006-09 Strategic Plan was developed during summer/fall 2004 and built upon the structure and process began with FSG's first strategic plan in 1996. The plan is FSG's third four-year strategic plan. Strategic planning developed issues in nine goal areas. The process involved over 300 individuals from universities, agencies, companies and the public. A number of planning techniques were used including web-based surveys, mail surveys, workshops, position papers and analysis of existing programs and their impacts. The goals and objectives in the plan directly guide FSG's research, extension and communications programs within each of nine goal areas.
 - B. Florida Sea Grant also continued its noted annual work plan for 2004. This is the seventh year of this process. The program accomplishments and benefits section of this 2004 Annual Progress Report is based on the 2004 work plan. Specific objectives scheduled for completion in 2004 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 Board of Education, Division of Colleges and Universities, 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 3rd International Conference for the Marine Ornamental Community 2004, 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. 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, St. Petersburg, Florida (Spranger)
10. Fellow, American Institute of Fishery Research Biologists. (Seaman)
11. Member, Seafood Education Committee, Association of Food and Drug Officials. (Otwell)
12. Member, Technical Advisory Committee, National Fisheries Institute. (Otwell)
13. Member, Technical Advisory Committee, National Shrimp Processors Association. (Otwell)
14. Member, Committee to Assess Current Performance Standards for Food Safety in the U.S., National Science Foundation. (Otwell)
15. Coordinator, Seafood HACCP Alliance. (Otwell)
16. Member, National Academy of Science panel to study the balance of risks and benefits in consuming seafood (Otwell)

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) 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. Beginning in 2004-05 preproposal (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.

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. 2004. Cleaner coastal waters with science and education. *Water Resources Impact*. Vol. 6. No. 6. UW-Stevens Point: Stevens Point, Wisconsin. Pp. 17-20.
- Cato, James C. and S. Subasingh. 2004. An overview of the Bangladesh shrimp industry with emphasis on the safety and quality of exported projects. Final report for the World Bank. Washington, D.C. 37 pp.
- Adams, C.M., E. Hernandez and J. Cato. 2004. The economic significance of the Gulf of Mexico related to population, income, employment, minerals, fishes and shipping. *Ocean and Coastal Management, Integrated Coastal Management in the Gulf of Mexico Large Marine Ecosystem*, Volume 47, Issues 11-12, pp. 565-580. doi:10.1016/j.ocecoaman.2004.12.002.

Seaman

- Seaman, W. 2004 Artificial reef monitoring in Florida counties. *Florida Sea Grant Extension Bulletin SGEB-58*. Gainesville, Florida: University of Florida.
- Schrope, M. and W. Seaman. 2004. The promise of marine biotechnology in Florida. *Florida Sea Grant Technical Paper 132*. Gainesville, Florida: University of Florida.
- Seaman, W. World Fisheries Congress. Session organizer (and keynote speaker). *Achieving the Reconciliation of Fisheries with Conservation through Habitat Improvement in Marine Ecosystems*. Vancouver, Canada. 2-6 May 2004.
- Seaman, W. “*Artificial Habitats and the Restoration of Degraded Systems.*” 39th European Marine Biology Symposium, Genoa, Italy. 21-24 July 2004. (Keynote.)
- Seaman, W. and M.W. Miller. “*Fisheries Conservation and Habitat Improvement in Marine Ecosystems.*” World Fisheries Congress, Session on marine fisheries restoration. Vancouver, Canada. 2-6 May 2004. (Session keynote.)
- Seaman, W. “*Science and Technology of Artificial Reefs in the World’s Ocean.*” Florida Artificial Reef Summit. Florida Fish and Wildlife Commission. Sarasota, Florida. 27-28 April 2004.

Spranger

- Spranger, M. 2004. UF IFAS Extension’s Water Programs” Welcome to CSREES National Water Quality Coordinator’s annual meeting. January 12, 2004, Clearwater, FL.
- Spranger, M. 2004. “Florida Sea Grant: Smart Growth Initiative.” Southwest District Extension Meeting. April 13, 2004, Punta Gorda, FL
- Spranger, M. 2004. “Development and Status of the National Sea Grant Extension Academy:” Assembly of Sea Grant Extension Program Leaders, Biennial Conference. April 28, 2004. Jekyll Island, GA.
- Spranger, M. 2004. “Gulf of Mexico: Developing a Senses of Place.” Central Gulf of Mexico Center for Ocean Education Excellence Teacher Summer Institute. June 21, 2004. Cedar Key, FL.
- Spranger, M. and Chris Simoniello. “SEACOOS: Opportunities and Challenges for Formal and Nonformal Educators.” National Marine Educators Association Annual Conference. July 19, 2004. St. Petersburg, FL.
- Spranger, M. and Chris Simoniello. “SEACOOS: An Example of Regional Cooperation and Collaboration.” Abstract in Proceedings of Florida Association of Extension Professionals annual meeting. September 15, 2004. Cocoa Beach, FL.
- Spranger, M. “Sea Grant Extension: A Brief History.” Joint meeting of Florida Sea Grant Extension Faculty and Florida Sea Grant Campus Coordinators. October 13, 2004. Ft. Lauderdale, FL.

Spranger, M. “Ocean Observation Systems: What’s in It for Florida’s Marina Industries.” Florida Clean Boating Partnership Quarterly Meeting, October 26, 2004, Miami, FL.

Spranger, M. “Environmental Stewardship: Facing the HIPPO Dilemma.” State 4H Youth Marine Ecology Contest. October 30, 2004. Camp Ocala, FL.

Spranger, M. “Management versus Leadership: Challenges for New County Extension Directors.” Extension Leadership Forum, November 2, 2004. Ellenton, FL.

Spranger, M. “Gulf of Mexico Ocean Observing System Education and Outreach Formation Meeting,” Workshop Organizer, November 29-30, 2004. Biloxi, MS.

Spranger, M. “SEACOOS: An Example in Development of a GCOOS Education and Outreach Organizational Structure.” GCOOS Education and Outreach Formation Workshop. November 29, 2004, Biloxi, MS.

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 ^a Not Receiving Funding in the Previous Two-Year Core Program	32	73	20	65	26	63
Investigator ^a Profile						
Male	35	80	25	81	33	89
Female	9	20	6	19	4	11
Investigator ^a 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 ^b	10	23	6	26	12	32

^a Includes Principal Investigators, Co-Principal and Associate Investigators.

^b 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%)

11.0 ADVISORY PROCESS

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 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 at two year intervals based on the input of leaders of the overall strategic planning process, until it is time to repeat the in-depth process once again.

The 2006-09 Strategic Plan was developed during summer/fall 2004 and built upon the structure and process that began with FSG's first strategic plan in 1996. The plan is FSG's third four-year strategic plan. Strategic planning developed issues in nine goal areas. The process involved over 300 individuals from universities, agencies, companies and the public. A number of planning techniques were used including web-based surveys, mail surveys, workshops, position papers and analysis of existing programs and their impacts. The goals and objectives in the plan directly guide FSG's research, extension and communications programs within each of nine goal areas. FSG's plan considered both the National Sea Grant Plan for 2003-08 and the NOAA plan for 2005-10. In fact, the plan demonstrates how FSG's nine goal areas directly link with the other two national plans, and apply those priorities to Florida. The plan contains the key elements of a strategic plan: setting (partners, institutional framework, strengths, weaknesses, opportunities, threats); values; implementation (including how FSG will respond to priorities, the role of management and products, programs and markets); strategic goal areas; and additional resources needed to carry out the plan. Each strategic goal is described, its forces of change highlighted, the overall measurable goal is defined, the audience and products and activities that will be developed for the audience are defined, performance indicators are outlined, the process used to develop the objectives within the goal area is summarized and specific resources needed within the goal area are enumerated.

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 2004 is given below.

Florida A&M University - Larry Robinson
Florida Atlantic University - Russell Kerr
Florida Gulf Coast University - Greg Tolley
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

Advisory Committees

FSG 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 direction, function and process. Advisors and stakeholders are heavily involved in strategic planning. Statewide stakeholder advisory committees include stakeholders on marine biotechnology, marine ornamental fish and aquatic food products, and an advisory committee at the county or regional level exists for each off-campus extension faculty. All advising committees have been active during 2000-04 and are listed below.

Sea Grant Subject Matter Advisory Committee (State Level)

Marine Biotechnology

Cynthia Barnett, Associate Editor, Florida Trend Magazine, St. Petersburg, FL
William Brown, President, ABC Research Corporation, Gainesville, FL
Debbie Mason, President, Strategists Inc., Perry and Ft. Lauderdale, FL
Jeanie McGuire, Director, Office of Technology Transfer, Boca Raton, FL
Gregory Nelson, Attorney, Akerman Senterfitt, West Palm Beach, FL
Diana Robinson, President, BIOFlorida, West Palm Beach, FL
John B. Rogers, President, EcoArray, Inc., Alachua, FL

Marine Ornamental Fish

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, College of Veterinary Medicine, University of Florida, Gainesville, FL
Marty Tanner, President, Aquatica Tropicals, Inc., Plant City, FL
Jeff Turner, President, Oceans, Reefs and Aquariums, Inc., Ft. Pierce, FL

Aquatic Food Products

Jim Obrien/Carlos Sanchez - Beaver Street Fisheries, Jacksonville, FL
Tommy Ward --Buddy Ward and Sons Seafood, Apalachicola, FL
Steve Cox - Cox's Seafood, Tampa, FL
Tom Chestnut - Darden's Restaurants, Orlando, FL
Gary Graves - Key's Fisheries, Marathon, FL
Grady Levins - Levins' Seafood, Apalachicola, FL
Jim Craig - Marine Harvest, Pompano Beach, FL
Bob Collette - National Fisheries Institute, McLean, VA
Ted Suor/Randy Graham - Outback Restaurants, Tampa, FL
Guy Pizzuti - Publix Supermarkets, Lakeland, FL
Gib Migliano/Rick Hazelwood - Save On Seafood, St. Petersburg, FL
Howard Shaw - Shaw's Southern Belle Frozen Foods, Jacksonville, FL
Jess Gonzalez/Mike Hayes/Nina Burt - Singleton Seafood, Tampa, FL
Bob Jones - Southeastern Fisheries Assn., Tallahassee, FL
Tony Downs/Ed Keisel/Frank Russo/Paul Schwartz - Syscol (Florida)
Ken Justice - WalMart Supercenters, Bentonville, AK
Rick Armstrong/Terry Levee - Winn-Dixie Stores, Jacksonville, FL

Sea Grant Extension Advisory Committees (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)

Kenneth Banks - Broward County Environmental Protection Department
Carol Fretwell - Nova Southeastern University Oceanographic Center
Frank Herhold - Marine Industries Association of South Florida
Peg McPherson - South Florida Water Management District
Steven Weinsier - Allstate Resource Management
Jeff Torode - South Florida Diving Headquarters
Jason Schratwieser - International Game Fish Association

Brian Cameron (Bay County) (New hire February, 2005)

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 Blitch, 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

Justin Sapp (Taylor County) (New hire February, 2005)

Betty Staugler (Charlotte County)--hired in late 2004 (This committee for former agent Novak)

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 Hommema – 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 1st 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

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 Waldock, 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

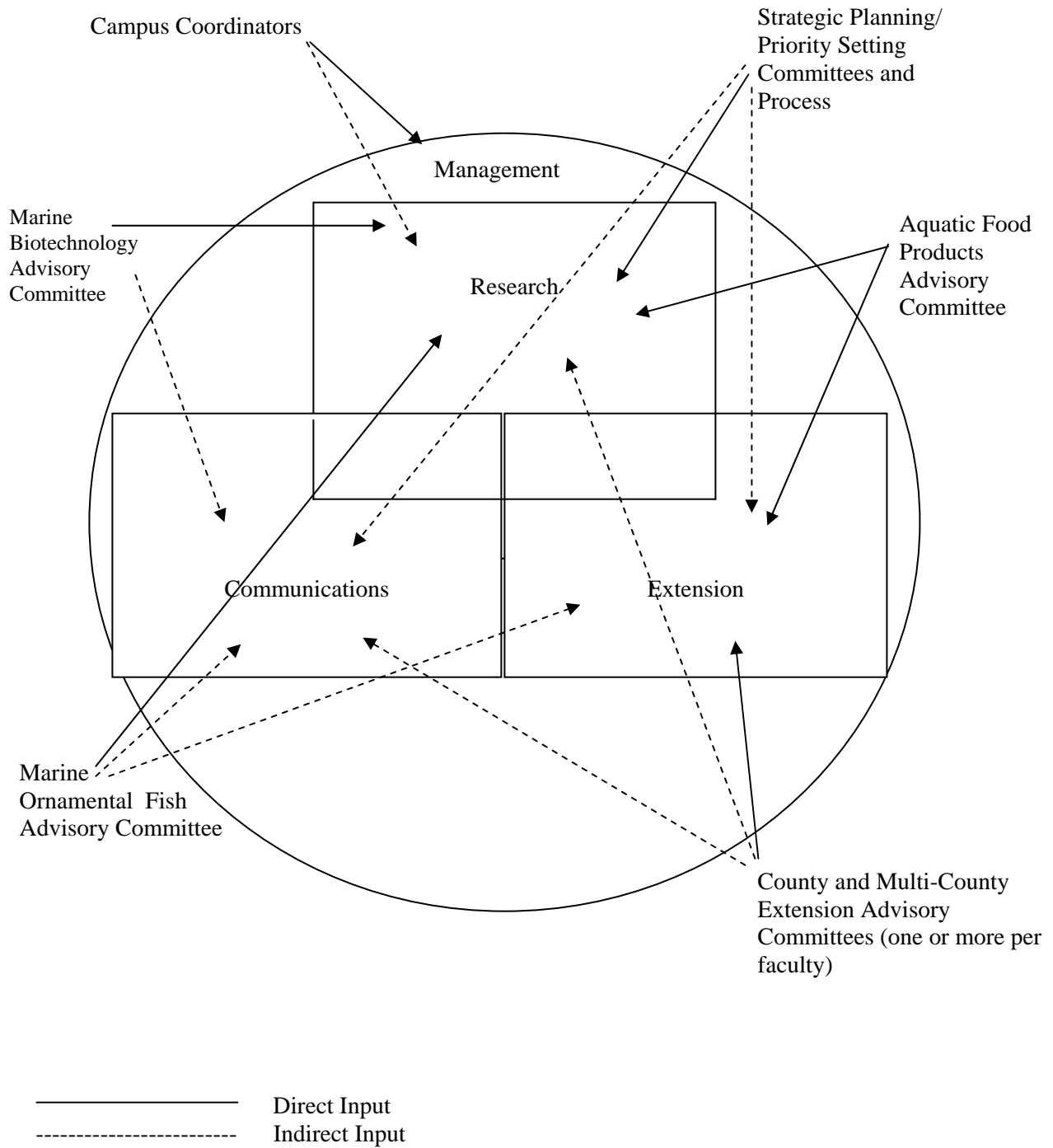


Figure 1. The input of advisory committees into research, extension and communications functions of Florida Sea Grant.

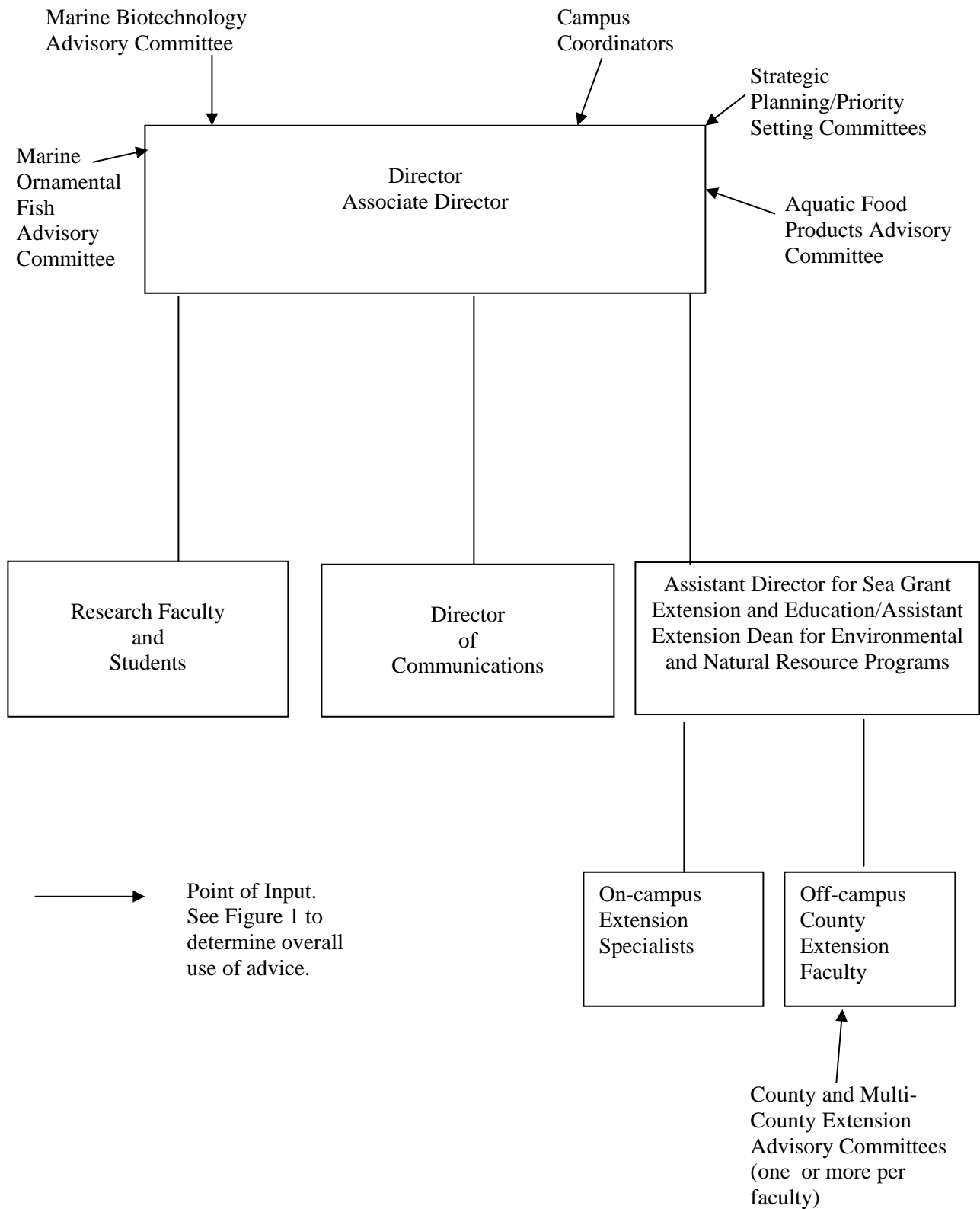


Figure 2. The point of first contact or direct input of advisory committees into the administrative structure of Florida Sea Grant.