Florida Sea Grant
Extension Program Proposal
FY 2002-2005

About This Proposal

This four-year Florida Sea Grant Extension Program (FSGEP) Proposal covers the period from February 1, 2002 through January 31, 2006. The format of the proposal is significantly different from those of past years. It does not elaborate on past accomplishments, publications, workshops, papers and presentations, and external funding from grants and contracts. Program evaluation and effectiveness of these FSGEP activities are now carried out annually by Florida Sea Grant College Program (FSG) management through an annual work plan and progress report, and quadrennially by the National Sea Grant Program's Performance Assessment Team (PAT) reviews. For example, FSGEP activities and materials were documented in the 1997, 1998, 1999 and 2000 annual FSG progress reports submitted to the National Sea Grant Office (NSGO) and in the April 2000 Florida Sea Grant PAT review.

In this review FSGEP activities were highlighted in the producing significant results, organizing and managing for success, and connecting with Sea Grant user categories. In all categories, the overall Florida Sea Grant College Program received a rating of "Excellent" for its research, extension, communications and management performance over the preceding four years, thus demonstrating the high quality and impact in performance of FSGEP activities.

Since the National PAT review process will continue to be used to measure program impacts and accomplishments for the next funding cycle, this proposal takes a forward-looking approach to identify planned program activities for the next four-year funding period. In format, it will follow priorities established in the updated 2002-2005 Florida Sea Grant Strategic Plan *Science Serving Florida's Coast*. The success and impact of FSGEP program activities identified in this proposal will be evaluated in the next PAT Review scheduled for 2004, as well as in annual programmatic reviews conducted by FSGEP administration.

Introduction

Florida is a coastal state full of opportunities and challenges. Florida has a longer linear coastline (1,350 miles) than all the other Atlantic states combined from Georgia to Maine. Within its over 8,000 miles of tidal shoreline it has a wide diversity of living and non-living marine resources unmatched by any in the United States. It has both temperate and tropical ecosystems, and is the only state in North America with a shallow water marine ecosystem containing mangroves, sea grasses and coral reefs.

Because of the coast, its abundant resources and pleasant climate, Florida has one of the fastest growing populations in the United States. To give a perspective, Florida was ranked 27th in population in the 1940s. In 2000, Florida's population reached 15.9 million and now ranks fourth in population within the 50 United States. It experienced a 24% increase in population from 1990-2000, almost twice the population percent increase (13%) of the United States as whole. Rapid population growth has also changed the state from a largely rural state to one of the most highly urbanized states in the country. Most of this population lives in the "coastal corridor," the 35 counties that touch the coastline. These 12 million coastal residents represent about 75% of the state's population.

This population increase will continue. By the year 2010, it is estimated that an additional 1.7 million people will live in the coastal counties, the equivalent of adding a city the size of Orlando to Florida each year. The coastal counties are the drivers of Florida's economy. The 35 coastal counties (of 67 statewide) created 78% of the state's 1997 economic output, 77% of the state's jobs and 79% of the state's value-added income.

The state is also a major tourist destination that draws about 50 million annual visitors who are attracted by the coastal resources, climate and environment. These visitors contribute to the multi-billion dollar tourist industry. With its growing resident and tourist population, nowhere else in the United States are so many people so close to such an extensive and economically valuable coastline.

Florida's coastal and offshore marine resources are indeed valuable to the state, region and nation. A few examples illustrate the economic importance of fisheries, seafood processing, aquaculture, tourism and water commerce

Between 85-95% of sport and commercially harvested shellfish and finfish species in Florida depend on the estuaries for part of their life cycle. These estuaries produce billions of dollars worth of fish and wildlife resources; they also buffer coastal areas from storms, absorb pollutants, and provide amenities for trade and tourism. Florida is the number one state in terms of participation in marine recreational fishing and the economic value of fishing-related expenditures. The overall economic impact of the recreational fishery alone is over $5 billion.

Florida is second only to California in the number of seafood processing and wholesaling facilities. The annual economic impact of the value-added component of Florida seafood is $900 million plus $600 million in wages and salaries. Because of its strategic location, Florida annually imports over $400 million from Central and South American companies. Only automobiles and clothing surpass seafood imports into Florida. Restaurant seafood sales are estimated at over $1 billion.

Florida's aquaculture industry is ranked fourth in the United States with 1997 "farm-gate" sales of $102 million. The production of marine species actually is a small part of the industry, dominated by freshwater tropical fish farming. However, a recent success is the development and culture of hard clams that has grown from a farm gate of $5 million in 1995 to over $16 million in 2000.

Florida is a major tourism destination. It is the number one dive destination in the United States and one of the five most popular dive destinations in the world. Florida's beaches host about 23 million tourists annually with the annual economic impact over $19 billion. Recreational boating has doubled within the last 15 years. Today there are over 830,000 boats registered in Florida, one for

every 19 residents. Another 400,000 non-resident boats also traverse Florida's waterways. These 1.2 million boats also generate over $10 billion in economic activity annually.

Water commerce is a major part of Florida's import and export trade. Florida has 14 deepwater ports where $44 billion in customs value of international goods enters the state, two-thirds of the total value of all international goods entering Florida. Additionally, the Port of Miami, Port Everglades, and Port Canaveral are the world's three leading cruise ports, with Florida serving almost 80% of all North American homeport passenger movements.

The effective use and management of Florida's coastal and offshore marine resources is becoming more challenging in the face of the growing population and increasing demands and competition from a variety of users. Development and preservation pressures continue to mount. Also, with 16 of Florida's major metropolitan areas built around an estuary, or positioned at the mouth of a river that flows into the sea, water quality has also become a major concern of Florida's residents.

Sea Grant Mission

The diverse demands and conflicts over the State's rich marine and coastal resources will continue to increase as the population grows and economy continues to expand. This is the challenging working environment where FSGEP faculty operate. FSGEP faculty are committed to enhancing the practical use and conservation of the state's coastal and marine resources to create a sustainable economy and environment through their outreach, education and technology transfer activities. In simple terms, FSGEP faculty follow the Florida Sea Grant mission of "Science Serving Florida's Coast."

FSGEP program efforts involve interaction, communication and partnership with other educational institutions, industry, government and the public. In dealing with Florida's marine and coastal resource issues, FSGEP faculty provide university resources and technical information that are needed by resource users and managers. This helps them to make informed decisions and solve local, state, regional and national problems, while incorporating economic and social benefits in their solutions. FSGEP faculty serve multiple roles in their activities. They combine faculty and student research results into formats the public can use, serve as a clearinghouse for the latest scientific findings and act as a neutral broker on contentious marine issues. FSGEP faculty also serve as a conduit back to the research community, by identifying and providing stakeholders' research needs to faculty and students.

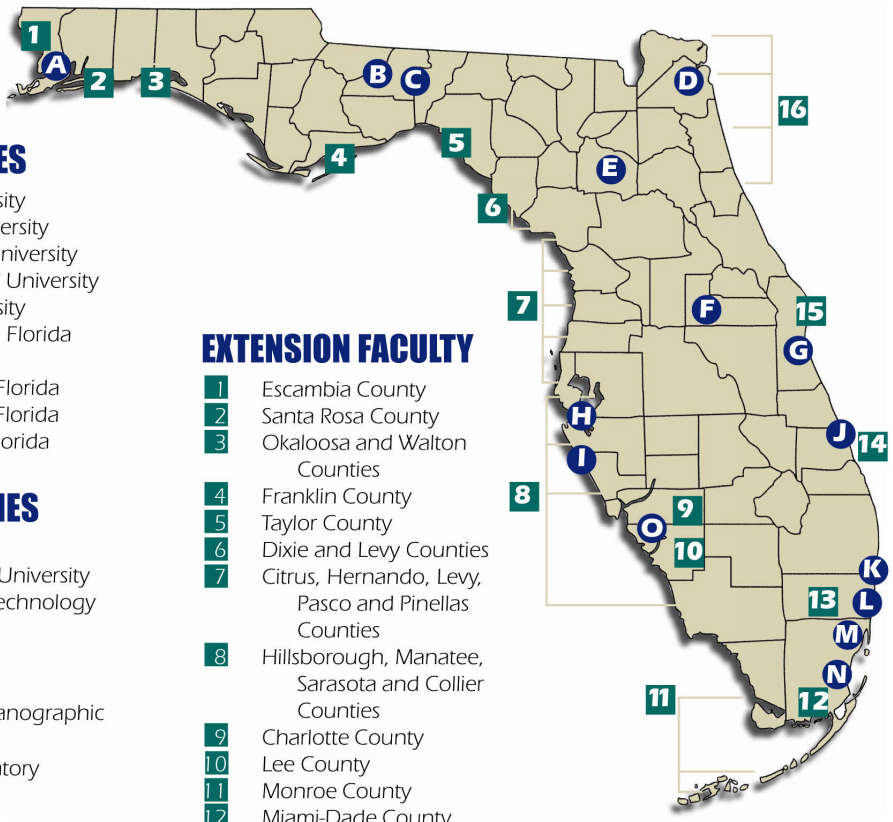
Organizational Structure and Administration

FSGEP is fully integrated operationally within the University of Florida Cooperative Extension system. Off-campus faculty are supervised through the District Extension Director (DED) and County Extension Director (CED) administrative structure of Florida Cooperative Extension. Sea Grant specialists are located on-campus, housed in academic departments, and supervised by the academic department chairs. The following map **(Figure 1)** indicates where FSGEP faculty are located.

Figure 1

PARTICIPATING INSTITUTIONS

Florida Sea Grant is a State University System Center with a statewide mandate. The University of Florida serves as the host campus for Florida Sea Grant, but fifteen core institutions actively participate in Florida Sea Grant programs and research, including public and private universities and research laboratories.



PUBLIC UNIVERSITIES

- B Florida A&M University
- K Florida Atlantic University
- O Florida Gulf Coast University
- N Florida International University
- C Florida State University
- F University of Central Florida
- E University of Florida
- D University of North Florida
- H University of South Florida
- A University of West Florida

PRIVATE UNIVERSITIES

- M University of Miami
- L Nova Southeastern University
- G Florida Institute of Technology

LABORATORIES

- J Harbor Branch Oceanographic Institution
- I Mote Marine Laboratory

EXTENSION FACULTY

1. Escambia County
2. Santa Rosa County
3. Okaloosa and Walton Counties
4. Franklin County
5. Taylor County
6. Dixie and Levy Counties
7. Citrus, Hernando, Levy, Pasco and Pinellas Counties
8. Hillsborough, Manatee, Sarasota and Collier Counties
9. Charlotte County
10. Lee County
11. Monroe County
12. Miami-Dade County
13. Broward County
14. St. Lucie
15. Brevard County
16. Nassau, Duval, St. Johns and Flagler Counties

HOUSED AT THE UNIVERSITY OF FLORIDA

Florida Sea Grant Offices
* Management
* Research
* Extension
* Communications

Florida Sea Grant Specialists
* Economics
* Seafood Technology
* Waterways Boating Management
* Estuaries

The Assistant Director for Florida Sea Grant Extension works in liaison with off-campus faculty and campus based faculty in matters of program planning and delivery. This includes participation with DEDs, CEDs, and Department Chairs in the supervision and evaluation of FSGEP faculty. This also includes management of FSGEP fiscal resources that are intertwined with state and county dollars that support FSGEP faculty. This arrangement has the advantage of allowing the Assistant Director to concentrate fully on programmatic direction and oversight; while daily staff administrative oversight responsibilities are carried out by respective CEDs and DEDs.

In 2000, the position was assigned new duties as Assistant Dean for Aquatic, Coastal and Aquaculture Programs within the Florida Cooperative Extension structure. These new duties provide more opportunity to fully link all of the University of Florida Cooperative Extension's staff and resources to focus on marine and coastal issues. This position is a state line position through the Office of the Dean of Extension. Thus, administratively, it reports to the Dean of Extension, as well as the Director of the Florida Sea Grant Program. An organizational chart **(Figure 2)** demonstrates the administrative structure.

Internal management is facilitated by daily contact with Florida Sea Grant and Florida Cooperative Extension administrators. In addition, the Assistant Director for FSGEP attends monthly Florida Sea Grant administrative meetings, as well as Florida Cooperative Extension Program Leaders and Administrative Supervisory meetings. External management with FSGEP faculty is facilitated by frequent communications through email and telephone calls, attendance at FSGEP sponsored activities, as well as at periodic program-wide planning meetings and visits to county faculty offices. An annual FSGEP meeting is held in October. In addition, FSGEP faculty provide a quarterly report of activities that are posted on the Florida Sea Grant web page (www.flseagrant.org).

FSGEP Faculty

The core FSGEP program currently consists of 16 off-campus county faculty, four on-campus specialists and eight support staff. The following list **(Table 1)** identifies FSGEP faculty, area of responsibility, and area of expertise.

The FSGEP faculty and staff have undergone substantial changes since the last proposal was written. This has come as a result of retirements, resignations, splitting of positions, and new positions. Since 1999, 12 new faculty have been hired or had their duties re-assigned. The faculty by category of "newness" are shown below.

Prior to 1999 Hires		New Hires (Existing Positions)	New (or redefined positions)
Adams	Mahan	Crane	Aubrey
Gregory	Novak	McGuire	Creswell
Swett	Stevely	S. Jackson	Diller
Sidman	Sturmer	Spranger	Engleby
Fann	Sweat		Tavares
Combs	Gregory		Verlinde
D. Jackson	Otwell		Wasno
			Jacoby

FIGURE 2

SEA GRANT EXTENSION PROGRAM ORGANIZATIONAL CHART

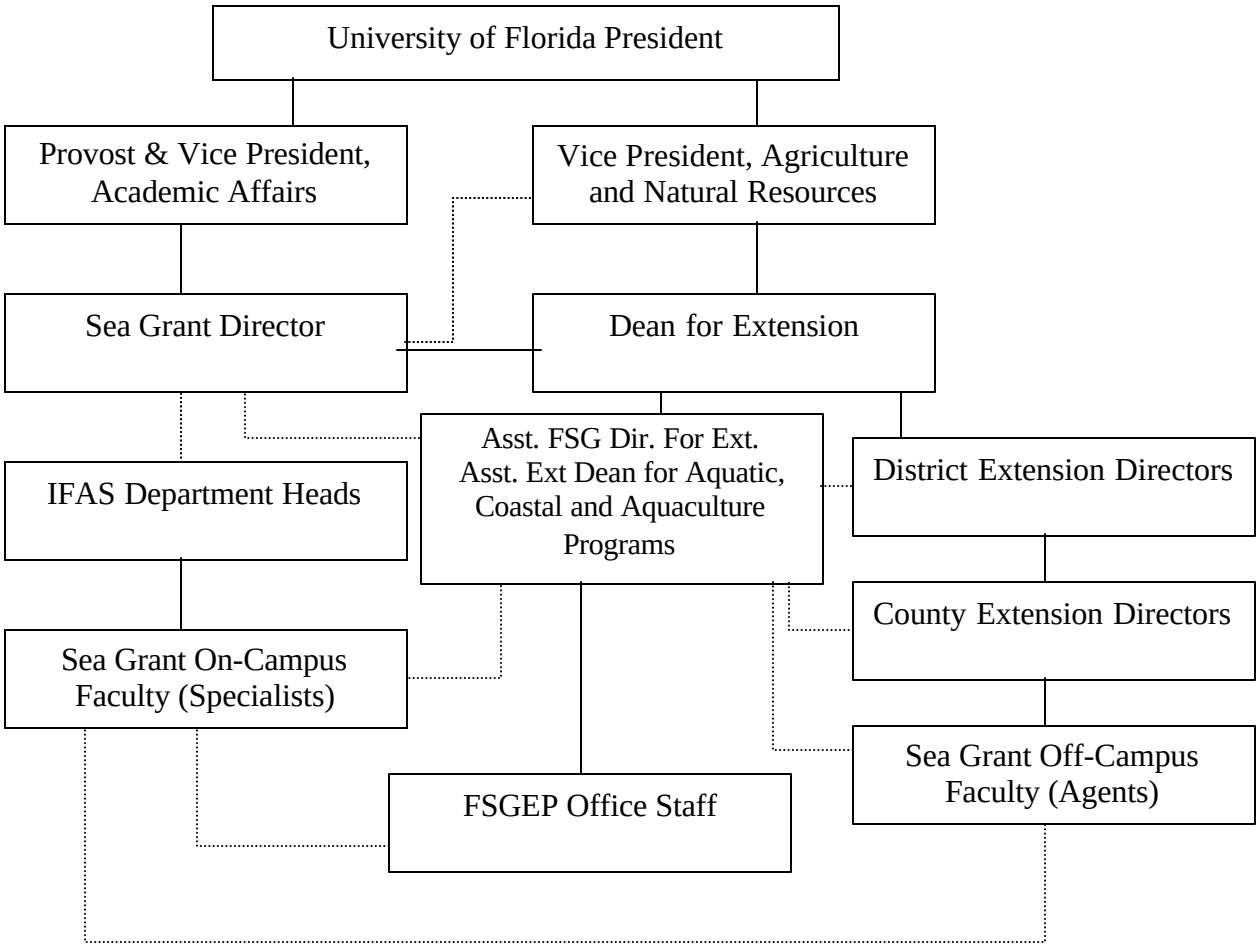


TABLE 1

FSGEP County Faculty Assignments

Name of Agent	Name of County(ies)
Craig Aubrey	Taylor
Chris Combs	Brevard
Marella Crane	Miami-Dade
LeRoy Creswell	St. Lucie
Andrew Diller	Escambia
Doug Gregory	Monroe
Scott Jackson	Okaloosa and Walton
Bill Mahan	Franklin
Maia McGuire	Nassau, Duval, St. Johns and Flagler
Rich Novak	Charlotte
John Stevely	Manatee, Sarasota, Hillsborough and Collier
Leslie Sturmer	Levy and Dixie, Coastal counties connected with aquaculture
Donald Sweat	Citrus, Hernando, Pasco and Pinellas
Sacheen Tavares	Broward
Christina Verlinde	Santa Rosa
Bob Wasno	Lee

On Campus Specialists	Area of Expertise
Chuck Adams	Coastal and Marine Economics, Aquaculture, Financial Planning, Fisheries Policy, Waterfront & Land Use Planning and Development
Steve Otwell	Seafood Technology, Quality, Safety and Nutrition, Aquaculture & HACCP
Chuck Jacoby	Estuarine Ecology, Water Quality and Fisheries

On-Campus Staff	Project
Bob Swett	Recreational Boating, Waterway Planning and Management, Resource Analysis, Geographic Information Systems (GIS)
David Fann	Urban Waterways Project
Charles Sidman	Urban Waterways Project
Don Jackson	Clean Marina Project

Off-Campus Staff	
Laura Engleby	Florida Bay Project

Leadership change also occurred at the administrative level in October 2000 with the hire of Dr. Mike Spranger as Assistant Director for the FSGEP Program. Dr. Marion Clarke, the previous Assistant Director retired, having served 22 years in the position.

The 16 off-campus FSGEP faculty cover 28 of Florida's 35 coastal counties. An off-campus team, located in Monroe County, Florida Keys has also focused on Florida Bay water quality management issues under alternative NOAA funding. This project will terminate in 2001 if additional funds are not secured. Three on-campus faculty focus on the subject matter areas of coastal estuarine water quality, marine economics and seafood technology. Additionally, an on-campus team of three professional staff focus on urban waterway management issues, and one individual focuses on marine industry concerns. FSGEP provides funds for seven support staff that are assigned to various on-campus and county faculty. FSGEP faculty also receive office space and fiscal and staff support from Florida Cooperative Extension County Offices. On-campus specialists receive similar office support from University of Florida academic departments.

FSGEP faculty and staff salary support are funded from five sources. These include federal Sea Grant funds, state funds from the University of Florida's Institute of Food and Agricultural Sciences (IFAS), state funds from the Florida legislature Education and Grant (E&G) Account, county funds, and other non-recurring grant funds. These five sources account for the 29 full-time equivalent (FTE) positions with FSGEP. This distribution of FTEs by funding source is shown in **Table 2.**

FSGEP Faculty Interactions

Local and State Interactions. FSGEP faculty interact daily with local, county, state, and federal agencies, marine-related industry representatives, researchers, marine resource organizations, other Sea Grant programs, educational institutions and professional associations. These interactions include such activities as information exchange, coordination of programs and priority setting, presentations at workshops, development of educational materials, applied research projects and one-on-one consultations with marine users. FSGEP faculty also have formal citizen advisory committees that assist in identifying local problems and issues that are addressed in FSGEP activities. A discussion of this planning process in the development of major County Plans of Work (CPOWs) is covered in a later section of this proposal (see Program Planning and Evaluation).

Regional and National Interactions. FSGEP faculty participate in program activities on a regional and national basis that have an impact on Florida resources. There is increasing recognition among Sea Grant Extension programs that marine and coastal issues are not restricted to political boundaries. Because of the size of its coastline that borders both the Gulf of Mexico and Atlantic Ocean, Florida has been involved in two formal regional Sea Grant planning activities in 2000. Because of past travel constraints, this was the first such regional meetings in ten years. In May, Sea Grant faculty from North Carolina, South Carolina, Georgia and Florida met to discuss present programming activities, as well as to explore future collaborative efforts in the South Atlantic Region. Similarly, Sea Grant faculty from Texas, Louisiana, Mississippi, Alabama and Florida met in October to discuss present programming activities, as well as to explore future collaborative efforts in the Gulf of Mexico region.

NOAA Interactions. FSGEP faculty frequently interact with various parts of NOAA. State and county faculty work with the NMFS Southwest Regional Fisheries Center in Miami and the NMFS Regional Laboratory in Panama City on fishery management issues. Faculty and staff work with the NOAA's Atlantic Oceanographic and Meteorology Laboratory (AOML) staff in Miami through the

Florida Bay Education Project. Also, the FSGEP county faculty member in Miami is located at the University of Miami's Rosenstiel School of Marine and Atmospheric Science campus, within walking distance of the AOML facility. This has resulted in several joint outreach activities with AOML and FSGEP.

County faculty work with scientists and outreach staff of NOAA's three National Estuarine Research Reserves (NERRs) found within the state of Florida. These include the Apalachicola Bay NERRS with headquarters in Naples, Florida; the newly established Guana Tolomata Matanzas NERRS with headquarters in St. Augustine; Florida; and the Rookery Bay NEERS with headquarters in Naples, Florida. Florida Bay Education Project staff and FSGEP County faculty located in Key West also interact closely with the Florida Keys National Marine Sanctuary.

In addition, several FSGEP faculty serve on scientific, statistical and management committees of both the Gulf of Mexico Regional Fishery Management Council and the South Atlantic Regional Fishery Management Council. The strength and diversity of FSGE faculty programs are enhanced with these interactions and collaborative efforts with NOAA scientists and outreach specialists.

Table 2

FTEs of Support by Funding Source for FSGEP Personnel

Florida Sea Grant Extension
(On-campus)

	Federal SG Funds (NOAA)	Sea Grant (E&G) State Approps.	IFAS State Approps.	County Funds	Other Grant Funds (Non Sea Grant)	Total
Faculty						
C. Adams		1.00				
S. Otwell		.50	.50			
M. Spranger			1.00			
C. Jacoby (FAS)			1.00			
R. Swett (OPS)					1.00	
C. Sidman (OPS)					1.00	
D. Fann (OPS)					1.00	
						7.0
Staff						
T. Damron	1.00					
B. Spivey	1.00					
Z. Williams	.46				.54	
						3.00

Table 2 (continued)

Florida Sea Grant Extension
(Off-campus)

	Federal SG Funds (NOAA)	Sea Grant (E&G) State Approps	IFAS State Approps	County Funds	Other Grant Funds (Non Sea Grant)	Total
Faculty						
C. Aubrey			.60	.40		
C. Combs				1.00		
M. Crane	.60			.40		
L. Creswell	.60			.40		
L. Engleby					.50	
A. Diller	.60			.40		
D. Gregory	.60			.40		
S. Jackson			.50	.50		
W. Mahan			.80	.20		
M. McGuire	1.00					
R. Novak	.13			.87		
J. Stevely	1.00					
L. Sturmer				1.00		
D. Sweat	.43			.57		
S. Tavares	.60			.40		
C. Verlinde	.60			.40		
B. Wasno			.60	.40		
						16.5
Staff						
D. Berry	.50					
R. Doherty	.50					
M. Kimball	.50					
T. Walmsley	.50					
S. Welch	.50					2.5
TOTAL	**11.12**	**1.5**	**5.0**	**7.34**	**4.04**	**29.0**

Individually, FSGEP faculty provide leadership in a number of regional and national activities. A few examples follow. Florida is a leader in developing the Tropical and Subtropical Fisheries Technology Association (TSFTA). The FSGEP Seafood Technology Specialist chairs this conference. The Seafood Technology Specialist also continues to serve in the leadership role in the HACCP Seafood Alliance that continues to develop training programs and materials approved by the U.S. Food and Drug Administration for the nation's seafood industry. This program received a 1997 national performance "Hammer Award" from Vice-President Gore for innovations in government, and the Honor Award for Excellence from the U.S. Secretary of Agriculture in 1999. Current activities have transitioned to teaching sanitation requirements for processing plants.

FSGEP faculty have been appointed by the Conference Chairman of the Interstate Shellfish Sanitation Conference (ISSC) to the 2001 Biotoxin Committee. This committee evaluates biotoxin issues relative to the national shellfish industry and public health and makes recommendations on projects and regulations to the ISSC Executive Board. FSGEP faculty have also participated in ISSC's *Vibrio vulnificus* (*Vv*) Education Subcommittee to develop a national *Vv* education plan with the goal of reducing the number of *Vv* related illnesses in the United States.

FSGEP faculty assisted a team of researchers from Stanford University, Duke University and the Monterey Bay Aquarium in a bluefin tuna tagging project. The effort was part of ongoing research to learn more about bluefin tuna, including migration patterns and spawning. This project was highlighted in a National Geographic Explorer special "In Pursuit of the Giant Bluefin Tuna" which was aired in January 2000 on CNBC.

FSGEP faculty were invited to participate in a Maryland Cooperative Extension Sea Grant Workshop on Alternative Management for Chesapeake Bay Fisheries to discuss FSGEP's role in providing assistance to industry and management on the lobster trap certificate program and how it may be a model for the Maryland blue crab fishery.

FSGEP faculty provided leadership in the planning, development and implementation of MarinaNet, a Sea Grant sponsored program that serves marine industries. As an outgrowth of MarinaNet, the national marine industry and several Sea Grant programs have established the Marina Education and Research Committee (MERC) to address future needs of the marina industry. Sea Grant staff are actively involved in MERC.

FSGEP faculty play a key role in applied research and educational projects that focus on local and national concerns with the sponge fishery. It is anticipated that results of this research will be presented at an international sponge conference in Naples, Italy in 2002.

Several FSGEP faculty participate as experts on scientific and statistical committees of the Gulf of Mexico Regional Fishery Management Council and the South Atlantic Regional Fishery Management Council. FSGEP faculty are also involved in regional and national marine and ocean science educational committees and organizations.

International Interactions. Because of its location, Florida is one of the leading states that faces both the threats and opportunities from globalization. Its coastal industries and marine environment are greatly influenced by both economic and political activities in other countries. This ranges from the high levels of seafood imported into Florida for further processing to the potential impact on the coastal environment from aquatic non-indigenous species that enter the state and affect Florida

waters. FSGEP places a priority on international activities when Florida industries and its coastal environment is impacted by activities outside state boundaries, and when the work can have an impact on other regions that will ultimately benefit Florida citizens.

For example, FSGEP faculty have been involved in applied research projects on the fisheries of Cuba and other Caribbean countries. The collective seafood industry in the Caribbean basin is a major player in the world seafood market. This industry has an impact on the competitiveness of the U. S. seafood market, and Florida seafood imports and exports. FSGEP faculty also participate in a USAID sponsored project that focuses on research and outreach activities on the economic feasibility of shrimp culture techniques to minimize virus contamination and maximize seafood safety in Nicaragua. This project also involves Michigan and Puerto Rico Sea Grant Programs.

FSGEP faculty serve on planning committees for major international conferences and workshops. These include the World Aquaculture Society Conference held January 2000 in Orlando, Florida; the 25th Annual National Marine Educators Association Conference held July 2001 in Victoria, British Columbia; the 2nd International Marine Ornamentals Conference scheduled for November 2001 in Orlando, Florida; the International Seafood Science and Technology Society of the America's annual meeting in Nassau, Bahamas scheduled for Spring, 2002; International Shrimp Schools scheduled for 2001 in Nicaragua and 2002 in Vietnam; and the 14th International Pectinid Conference scheduled for 2003 in St. Petersburg, Florida.

Research Interactions. Relationships with the scientific community are important. FSGEP faculty work with researchers to establish industry and coastal communities' needs, to identify potential industry cooperators, to conduct cooperative research, and to help transfer research information to marine and coastal audiences.

FSGEP faculty are provided opportunity to review potential Sea Grant funded research projects. During the beginning of the funding cycle, the Assistant Director for Extension assigns proposed research statements of interest (SIs) to individual FSGEP faculty for review and comment. These SIs are distributed, based on the subject matter expertise of the faculty member, as well as on the geographical location of where the research will be conducted. Faculty reviews are presented and discussed during the Florida Sea Grant Technical Review Panel meetings where these SIs are ranked. Not only does this provide input into the funding process, but it also allows FSGEP faculty the opportunity to see what the current thinking is of the marine and coastal research community.

FSGEP faculty also conduct applied research. A few examples follow. Two FSGEP faculty have been involved in a field survey of commercial sponge species in Florida Bay for the past 10 years. This project is the first-ever long-term evaluation of sponge population recovery from a widespread mortality. Results have been used in management decisions affecting the sponge resource.

FSGEP continues to provide science-based assistance and applied research results to both agencies and citizens in promoting a self-regulatory system for boating management in Florida. FSGEP developed a standardized regional waterway management system that includes GIS data (boats, depths, moorings facilities, signs), analytical techniques and policy recommendations to assist in waterway management decisions. In 1998, the State of Florida adopted these protocols, leading to enactment of the Inland Waterway Management Law. In 2000, FSGEP's Urban Waterways Bay Management Program received the Leadership Award from the Council of Sustainable Florida and recognition from Governor Jeb Bush and the Florida Cabinet for their innovative work in this area.

A number of economic analysis studies have been undertaken by FSGEP faculty to assist marine-related economic sectors. This has included economic analysis studies on the culturing of hard clams, bay scallops, sturgeon, shrimp, mudminnows and tilapia. Results have been presented at extension and industry workshops and published in various professional and extension publications. In 2000, the FSGEP Marine Economist made a presentation on economic issues to be addressed in a "Feasibility of Offshore Aquaculture in the Gulf of Mexico" conference. He also analyzed the status of the Cuban fisheries management structure, with implications to the Florida economy when trade with Cuba resumes in the future.

Program Planning and Evaluation

Planning and evaluation of programs is an ongoing activity within the FSGEP. It is based on strong principles found both within the Florida Sea Grant Program and the Florida Cooperative Extension. Florida Cooperative Extension program planning and evaluation efforts of FSGEP are tied closely to the extension plan of work (POW) and report of accomplishments (ROA). The FSGEP planning activities are also integrated into the overall Florida Sea Grant Program activities through its strategic plan, proposal development and reporting processes. The coordination of these dual systems is the responsibility of the Assistant Director for FSGEP. Each system will be briefly explained and related to FSGEP activities. The final section will discuss how FSGEP measures success and evaluates program activities.

Florida Sea Grant Program Planning Process. Florida Sea Grant has always recognized that planning and performance counts. In 1991, a "measures of performance plan" was developed by Florida Sea Grant Administration to assess performance of all research, education and extension programs. This plan has been revised and used annually to describe the achievements of Florida Sea Grant, in terms of the efforts projected for the year in its annual plan, and is intended also to serve the needs of the University of Florida in generally furthering its evaluation of academic programs.

An **Annual Work Plan** is developed that outlines research, extension, communication and administrative tasks to be completed for that year. Activities are listed by specific categories identified in Florida's long-range strategic plan. Individuals are listed and target dates established for each task identified in the work plan to ensure accountability. For FSGEP faculty, these activities are generated in the extension plan of work process that is discussed in the next section.

Subsequently, an **Annual Progress Report** is developed the following year to document the status, accomplishments and benefits from tasks identified in the implementation plan. It is also used to determine future program directions. For FSGEP faculty, activities are also reported in the extension report of accomplishment process discussed in the next section. The Annual Progress Report is distributed to all individuals that participate in FSG, the current administration, and to the NSGO.

The Florida long-range **Strategic Plan** is the over-arching document that ties FSG activities together. This plan addresses issues that are important both nationally and in Florida, and reflects the final product from the input of hundreds of Floridians representing industry, government, academia, and citizens. This plan defines Florida's strategic issues within the context of a number of strategic planning activities that have occurred over the past number of years.

The plan builds on seven FSG sponsored workshops held in 1996 that involved hundreds of faculty, agency, industry, and citizen participants to identify priority areas in research, extension and communication. These priority areas were reviewed within the context of the National Sea Grant

Network Plan, *Coastal and Marine Resources for a Sustainable Economy and Environment, 1995-2005.* This plan reflects overall Sea Grant issues at the national level within the context of *NOAA's Strategic Plan: A Vision for 2005.*

With this input, the Florida Sea Grant Strategic Plan,1998-2001 was created. In 2001, the plan was updated, and a new Florida Sea Grant Strategic Plan, 2002-2005, *Science Serving Florida's Coast* was written. In addition to input from stakeholders who participated in development of the first plan, the new plan considered Florida Sea Grant's role through participation in the development of Florida's Ocean Strategies, a 1999 planning process completed by the Florida Governor's Ocean Committee, and follow-up Florida ocean research priority agenda developed in 2000-2001. Finally, the new plan considered FSG's role in research, education and extension through participation in the Florida FIRST (Focusing IFAS Resources on Solutions for Tomorrw) strategic planning process of the Institute of Food and Agricultural Sciences (IFAS) at the University of Florida. The Florida Cooperative Extension is housed within and reports to IFAS. The initial Florida FIRST meeting was held in June, 2000; a second Florida FIRST meeting was held in June, 2001.

The Florida Sea Grant Strategic Plan, 2002-2005, *Science Serving Florida's Coast* focuses on three strategic issues. These include providing economic leadership for marine biotechnology, fisheries, aquaculture, seafood safety and water-dependent businesses; enhancing coastal ecosystem health and public safety related to water quality, coastal habitat and hazards; and education and human resources, related to highly trained workforce and scientifically and environmentally informed citizenry. These categories are utilized to organize the work plan elements of this proposal.

Florida Cooperative Extension Program Planning Process. Long-term planning of Florida Cooperative Extension (FCE) is also carried out in a four-year plan of work. Every four years, this process defines the future needs of FCE. The four-year plan is updated through an annual plan of work. In the fourth year, a new Four-Year Plan of Work is developed.

The basis for development of these plans of work resides at the local level. FSGEP relies heavily on local county and regional advisory committees to identify program needs, strategic planning, and priority setting. Direction of program activities, in recent years, has been set by the Florida FIRST conferences, where stake-holders representing all extension program areas gather to review, discuss and identify priority issues. FSGEP combines this process with the FSG strategic planning process.

Each off-campus FSGEP faculty member has an established advisory committee made up of key marine and coastal resource users in the community. These committees are used to guide the development of FSGEP's annual individual faculty (county or multi-county) Plan of Work (CPOW). Individual CPOWs are then combined into County Major Program Plans of Work. These CPOWs are then aggregated on a statewide level to identify State Major Programs (SMPs).

State Program Leaders identify SMPs in collaboration with faculty, appropriate Departmental Chairs and Extension Administration; they are based on county programs. In general, for a program to be identified as a SMP, several county programs in the state must be focusing on the same problem or issue. Once a program has been labeled a SMP, a Design Team (DT) is established for it.

The DT consists of Extension Specialists within the program area and main supporting discipline. The appropriate State Program Leader in collaboration with Departmental Chairs and Extension Administration identifies team members, composed of interested state specialists and county faculty. In most cases, a specialist from the primary program area is designated the team leader.

DTs help county faculty with planning of county major programs that make up SPMs. DTs identify, develop and/or help obtain educational materials needed to support county programs. DTs give leadership to the implementation of SMP activities and support the implementation of the county major program throughout the program term. Finally, DTs give leadership to SMP evaluation efforts, and facilitate and support individual county major program evaluation activities.

Measuring Success and Evaluating Performance – Accountability of program activities is very important to the Florida Sea Grant Program on both an individual and organizational basis.

Organizational accountability provides stakeholders an understanding of what is being achieved with public funds that are being spent on program activities. Stakeholders want to know what is the return on the public investment in Florida Sea Grant. Florida Sea Grant provides an annual program report entitled *Florida Sea Grant: Performance Counts* that provides the stakeholder with this information. The report provides an overview of the program, project accomplishments and benefits, program funding from all sources, awards and recognitions received by faculty and staff, outreach activities, self-evaluation efforts, and a description of our advisory process. The report is distributed widely throughout the state of Florida.

Individual accountability is accomplished through the extensive planning and reporting requirements of individual faculty. Faculty prepare annual reports of successful activities and accomplishments; performance is then evaluated on what they stated they were planning on conducting during the calendar year. Individual faculty accountability thus rests with the results of their planned activities.

County and state faculty develop annual action activities based on Sea Grant and Cooperative Extension Long-Range Plans and input from their respective advisory committees. Throughout the year, each FSGEP faculty records their activities, accomplishments and impacts on the computerized Extension's Faculty Accountability System (FAS). FAS is used to describe the scope, content, and outcomes of county major programs (CMPs) for which faculty are responsible; to report counts of educational contacts; to identify linkages between CMPs and State Major Programs (SMPs); and to report activities which are integrated with research or involve multi-state partnerships.

Each county faculty member uses the FAS to prepare an annual report on accomplishments (ROA) as part of their annual performance review. The faculty member's respective County Extension Director (CED), District Extension Director (DED) and the Sea Grant Extension Assistant Director (AD) review these written reports. The individual faculty member then discusses program impacts and accomplishments face-to-face with their CED and DED. The DED and AD separately review and discuss the programmatic impacts. Verbal and written feedback is then provided to each faculty member as part of the annual performance appraisal process.

State faculty follow a similar process. They individually prepare an annual ROA. Only in their case, their ROA is provided to their respective Departmental Chair and State Program Leader. The Departmental Chair and Program Leader review the ROA. Verbal and written feedback is then provided to them as part of the annual performance appraisal process.

In measuring success and evaluating performance, FSGEP uses several program performance measurements and indicators. These include processes utilized (collaborations), outputs of faculty efforts (products and services), outcomes of individuals or organizations that faculty may have worked with (participant changes), and impacts as a result of faculty activity (change in economic,

environmental, and social conditions) in future plans of work. The bottom line in all activities is that FSGEP faculty can demonstrate and document that they "have made a difference" as a result of their educational and outreach activities.

Project activity evaluations are conducted on both a formal and informal basis. At FSGEP sponsored workshops there usually is an evaluation questionnaire for participants. A good workshop generally results in a "thank you" from participants, and from telephone calls and email notes of appreciation following the meeting. Continuing requests, or the necessity of reprinting FSGEP publications, are other informal indicators of the utility of an activity.

Major programs are reviewed in a variety of ways and may include some of these methods: a) Mail, interview, and post-meeting surveys measuring changes in behavior and increased knowledge gained of participants; b) Personal observation of changes resulting from clientele participation in FSGEP activities (e.g. reduced user group conflicts; use of new skill; adoption of new policy or technology; change in management decision or structure); c) qualitative evaluations through informal interviews and observations.

Two examples from our work with the aquaculture industry demonstrates how we document success and evaluate performance. For background, hard shell clam production is the fastest growing segment of Florida's aquaculture industry. From 1995 to present, this industry has tripled clam sales from $5.4 million to over $16 million. Over 430 aquatic farmers are now involved in this industy, with many others interested in becoming involved.

A major program goal is "to improve the product quality and safety of Florida's seafood products." In 2001, a planned action was to "have 100% of new shellfish producers in Levy County implement HACCP (seafood quality control standards) plans in their operations and to have existing shellfish producers continue to update their record-keeping requirements.

During 2001, FSGEP staff worked with the Florida's shellfish industry and several state regulatory agencies (collaborations) to conduct four sanitation workshops for twenty-eight shellfish processing plant owners and staff on new seafood HACCP regulations (products and services). In reporting results from a workshop surveys, 90% of land-based nursery operators in the Big Bend area adopted appropriate Best Management Practices (BMPs) that pertained to their facilities (participant change). In addition, 80% of the shellfish processing plants in the Big Bend area (28) received certificates from the Seafood HACCP Alliance in sanitation BMPs (participant change)

Another major program goal is "to increase the economic competitiveness and environmental sustainability of coastal water-dependent businesses." In 2000, Florida became a pilot project that would allow clam aquaculturalists to become eligible to purchase federally subsidized crop insurance at reasonable rates. Acting proactively, FSGEP coordinated a Florida Clam Crop Insurance School (product and services) cosponsored by the National Crop Insurance Services (collaboration). At the workshop, both insurance adjusters and shellfish growers received information and new knowledge about the changes to the crop insurance program that made shellfish growers eligible to apply (practice change). Subsequently, due to poor growing conditions from a La Nina weather phenomenon and hurricane damage in late 2002, over 100 shellfish growers filed claims (participant change) with over $1,020,000 in indemnity (loss) payments made to growers in Dixie and Levy counties (change in economic conditions). Without FSGEP's work in developing the Crop Insurance School, the industry would not have applied for these funds.

To summarize, the planning, reporting and evaluating process for FSGEP faculty is the following:

- Sea Grant County or Regional Advisory Committees provide needs evaluation.
- Sea Grant County Plans of Work (CPOW) are developed.
- Sea Grant CPOWs are integrated into Sea Grant State Major Programs (SMP).
- Sea Grant SMPs are coordinated by Sea Grant Program Design Teams.
- Sea Grant SMPs integrated into overall FSG Work Plan.
- Quarterly reports of accomplishments are reported by county and state faculty.
- Quarterly reports are compiled by SMPs, and placed on FSG web site.
- Annual Report of Accomplishments (ROAs) are prepared by FSGEP faculty.
- ROAs are reviewed by FSG and FCE administrators
- State Major Program Reports are developed for FSG and FCE administration.
- Reports are integrated into overall FSG annual program report.
- Sea Grant advisory committees provide feedback on stated accomplishments.

2002-2005 State Major Programs (SMPs). FSGEP faculty will work in six SMPs in 2002-2005. These SMP planned activities are evaluated, updated and annual objectives planned by State Design Teams at the annual FSGEP faculty meeting in October. Each design team also meets at least one other time during the year to work on projects and educational products and to fine-tune planning efforts. The six SMPs and Sea Grant Design Team faculty contacts are listed in **Table 3**.

Table 3

Sea Grant State Major Program Areas

Program Number	Title	Leader
FL312	Seafood and Aquaculture Product Quality and Safety in Florida	Dr. W. Steven Otwell
FL315	Coastal and Marine Recreation/Tourism and Waterway Management	Dr. Robert Swett
FL316	Florida's Coastal Environment and Water Quality	Dr. Charles Jacoby
FL317a	Sustainable Marine Fisheries	Dr. Charles Adams
FL317b	Marine Aquaculture	Dr. Charles Adams
FL214/714	Environmental Education	Dr. Jerry Culen

Approximately 65% of FSGEP faculty time is planned. Each faculty member is encouraged to concentrate on three to four major program areas during the year. These program areas are identified in their individual POW. The remaining 35 % of FSGEP faculty time is set aside for unanticipated issues and opportunities needing immediate responses that appear throughout the year.

This dual system of planning and reporting appears complicated and cumbersome. However, the basis for both systems is the POW and ROA. Once the Assistant Director for FSGEP receives these reports from FSGEP faculty, they are used to develop administrative reports for both Florida Sea Grant and Florida Cooperative Extension systems. Integration of the planning efforts of these two systems can be seen in the following matrix (**Table 4).**

Florida Sea Grant Extension
Planned 2002-2005 Program Activities

FSGEP Work Plan Activities for 2002-2005 are focused within the three identified strategic program areas of the Florida Sea Grant Strategic Plan, 2002-2005, *Science Serving Florida's Coast.* These are Economic Leadership, Coastal Ecosystem Health and Public Safety, and Education and Human Resources. Under these areas, ten major goals are established for the next proposal cycle. These activities correspond to the Florida Cooperative Extension State Major Program areas. A matrix showing the integration of these two planning processes is found in Table 4.

In this proposal format, each major program goal where FSGEP will be conducting outreach activity is listed. Following each FSG program goal, the corresponding Florida Cooperative Extension State Major Program is identified, as well as FSGEP faculty that will participate under these planned activities. Specific work plan activities for each objectives under these major program goals are then identified, along with responsible FSGEP faculty who will be carrying out the work activities.

TABLE 4
Integration of Florida Sea Grant
and Florida Cooperative Extension Planning Efforts

	Florida Cooperative Extension State Major Program Areas					
Florida Sea Grant Strategic Planning Issues and Goals	**FL312** **Seafood Safety**	**FL315** **Water-way and Boating**	**FL316** **Habitat and Water Quality**	**FL317a** **Marine Fisheries**	**FL317b** **Marine Aqua-culture**	**FL214/714** **Environ-mental Education**
Economic Leadership						
1. Create and Enhance Marine Biotechnology Products						
2. Determine Techniques to Make Fisheries Sustainable/Competitive.				**X**		
3. Develop Food/Hobby Segments of Marine Aquaculture Industry.					**X**	
4. Improve the Product Quality and Safety of Seafood.	**X**					
5.Increase Competitiveness Sustainability of Coastal Water-Dependent Businesses.		**X**				
Coastal Ecosystem Health & Public Safety						
6. Protect and Enhance Coastal Water Quality and Safety			**X**			
7. Protect, Restore and Enhance Coastal Habitats.			**X**			
8. Prepare for and Respond to Coastal Storms.						
Education and Human Resources						
9. Produce a Highly Trained Workforce.						**X**
10. Create Environmentally Informed Citizens.						**X**

I. Economic Development

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

Corresponding State Major Program: FL317a Florida's Sustainable Marine Fisheries

FSGEP Faculty Involved: Chuck Adams, (Design Team Leader) Craig Aubrey, Chris Combs, Doug Gregory, S. Jackson, Maia McGuire, Rich Novak, John Stevely, Don Sweat, Sacheen Tavares, Bob Wasno.

Background Statement: Recreational and commercial fisheries represent a multi-billion dollar industry in Florida. High diversity of finfish and shellfish species and habitats characterize the complexity of Florida Fisheries management. Rising demand for fish has increased pressure on Florida's limited fishery resources and interrelated natural resources, with adverse impacts on user groups, and has spurred the need for improved management. Past focus has been on the allocation of fishes between recreational and commercial users. Of growing significance is the distribution of fishery resources between consumptive and non-consumptive users. Effective management will require more complete knowledge about the biological, economic and social dynamics among resource user groups and managers. It will also require better assessment of resource abundance, stock health and habitat quality. It will also require new and innovative ways to maintain critical habitats, manage resources, and evaluate the effectiveness of management decisions on resources and user groups.

Objective A: Develop Models and Related Information to Improve Management and Fishery Forecasts.

Work Plan Activities:

1) Solicit funds from agencies to continue ongoing survey of commercial sponge species. Findings will be used by federal and state officials to evaluate the impact and recovery of sponge populations affected by major sponge die-off and will use this analysis in making management decisions about harvesting this fishery resource. (Stevely, Sweat: 2002-2005)
2) Provide results of longitudinal sponge survey in Florida Keys at International Sponge Conference in Italy. (Stevely, Sweat: 2002)
3) An applied research project on the effectiveness of the Western Sambos Marine Reserve for enhancing spiny lobster sizes , abundance and adjacent fisher yields will be used to change fishermen and regulator attitudes in using marine reserves as a management tool. (Gregory: 2002)

Objective B: Determine Social and Economic Impacts of Fishery Management Strategies.

Work Plan Activities:

1) Ten federal and Fishery Council managers will better understand the economic consequences of proposed fishery regulations through economic analysis activities and reports provided through serving on the Scientific and Statistical Committees of the Gulf of Mexico and South Atlantic Regional Fishery Management Councils. (Adams: 2002-2005)
2) At least five state resource management staff will have a better understanding of how the South Florida commercial fishing industry will be impacted by enacted and proposed restricted access management regimes for spiny lobster, stone crab, reef fish and coastal pelagics. (Adams: 2002)
3) At least 20 vessel operators will have a better understanding of the financial characteristics of the pelagic longline fleet by vessel size and trip category. (Adams: 2002)
4) At least 10 federal managers will become more aware of the economic/diversification characteristics of the pelagic longline fleet (Adams: 2002).
5) Estimate the economic impact of artificial reefs in Taylor County be conducting a boater's use survey (Aubrey: 2002-2003)
6) At least 10 local fishermen in Monroe County will better understand fishery regulations, policies and procedures and will learn how to effectively communicate with regulatory agencies. (Gregory: 2002)
7) The Monroe County Sea Grant Extension Agent will serve on the Scientific and Statistical Committees of Gulf of Mexico and South Atlantic Fishery Management Councils. Four meetings are anticipated that will involve review and recommendations related to fishery management policy. Membership will also continue on the Coastal Pelagics Stock Assessment Panel. The Panel's report will be presented to the advisory committees and panels. (Gregory: 2002-2005)

Objective C: Minimize Bycatch

Work Plan Activities:

1) Distribute at least 500 fish venting tools annually that have been shown to reduce fish mortality in catch-and-release fisheries and used by off-shore anglers. (Stevely, Novak, Wasno, Sweat, Tavares; 2002-2005)
2) Increase knowledge and use of the fish venting technique of off-shore anglers by disseminating information at various fishing tournaments in the state. (Combs, Gregory, Novak, Stevely, Sweat, Tavares, Wasno: 2002-2005)
3) Enlist the assistance of at least three bait and tackle stores to distribute fish venting tools and an evaluative instrument to measure their use. (Stevely: 2002)
4) Educate at least 1,000 members of the general public on the principle of fish venting practices through newspaper and magazine articles written by outdoor writers. (Novak, Stevely: 2002-2003)
5) Continue to conduct fish venting training programs for Florida and Southeast U.S. Sea Grant Agents. These agents will, in turn provide training to off-shore anglers in their areas (Novak, Stevely: 2002-2003).
6) Attend at least two meetings a year with the Destin Charter boat Association and present informational materials designed to increase awareness of angling ethics and reduce bycatch mortality (S. Jackson: 2002-05).

Object D: Define the Role of Essential Fish Habitat (EFH) in Ecosystems and Their Management.

Work Plan Activities:

1) Conduct annual artificial reef coordinator conference for the ten county region of South Florida (Citrus through Collier Counties) where 40 coordinators and staff will increase their ability to properly plan, build and monitor artificial reefs. (Stevely, Sweat, Novak, Wasno: 2002-2005)
2) Assist Manatee County in developing a $25,000 reef construction grant (Stevely: 2002)
3) Assist the Taylor County Reef Research Dive Team (TCRRDT) in securing grants for monitoring existing artificial reefs, as well as in the construction of new artificial reefs in the county (Aubrey: 2002-05).
4) Maintain an effective Artificial Reef Program in Okaloosa and Walton Counties (S. Jackson: 2002-05).
5) Organize an annual Artificial Reef Workshop that will increase marine users understanding of current regulations and policies on maintenance and establishment of artificial reefs. (S. Jackson: 2002-2005)
6) Establish two new artificial reefs for Charlotte County. (Novak: 2002)
7) A volunteer reef dive team will increase their knowledge on the essential elements of reef and water quality monitoring. (Novak: 2002-2005)

Objective E: Measure the Effects of Fishery Stock Enhancement Practices.

Work Plan Activities:

1) Establish a grow-out and hatchery operation in Lee County where the feasibility of using redfish and snook in fish enhancement efforts will be evaluated. (Novak, Wasno: 2002-2005)

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

Corresponding State Major Program: FL317b Marine Aquaculture

FSGEP Faculty Involved: Chuck Adams, (Design Team Leader), Chris Combs, LeRoy Creswell, Bill Mahan, Rich Novak, Leslie Sturmer, Don Sweat, Bob Wasno

Background Statement: Florida aquaculture ranks third in the country, although most of its commercial value (over $100 million sales in 1997) derives from freshwater species. Culture of marine species is limited for both stock enhancement and seafood production. Coastal land and labor costs generally precluded culture of certain species for which rearing practices existed. Viable current efforts include rearing and release of recreational species including red fish and snook, and commercial production of soft shell crabs, oysters and hard clams. Numerous species are under study to resolve bottlenecks that may be biological, economic, technological or regulatory constraints (e.g., scallops, snapper, and sturgeon). The burgeoning national and worldwide demand for seafood/protein and the U.S. $7 billion annual seafood trade deficit, as well as Florida's high biodiversity and favorable geographic setting warrant that it provide leadership in marine aquaculture, both on-shore and off-shore. Its existing freshwater ornamental industry, the nation's

largest, clearly positions it to develop a marine species ornamental trade, which would have both economic and environmental benefits.

Objective A: Foster Sustainable Ornamental Aquarium Species Culture, Collection and Conservation.

FSG will evaluate extension outreach needs of the marine ornamental industry. Following the 2nd International Marine Ornamental Conference, held in November 2001 in Miami. (Spranger: 2002)

Objective B: Enhance Bivalve Molluscan Shellfish Production.

Work Plan Activities:

1) Maintain a shellfish extension network utilized to expand clam aquaculture operations in Brevard, Indian River, Charlotte, Lee and Apalachicola counties. (Sturmer, Combs, Creswell, Mahan, Novak, Wasno: 2002-2005)
2) Maintain a multi-county shellfish aquaculture advisory committee to assist in needs assessment and identification of educational programs and materials. (Sturmer: 2002-2005)
3) Have seventy-five percent of shellfish growers in eligible counties (Brevard, Dixie, Indian River, and Levy) continue participation in a USDA pilot crop insurance program. (Sturmer: 2002)
4) Implement the Clam Lease Assessment, Management, and Modeling using Remote Sensing (CLAMMRS) project. This four year, $860,000 project funded by the U.S. Department of Agriculture established remote water quality monitoring systems in various Florida locations to gather real-time data important for shellfish production. (Sturmer: 2002-2004)
5) Conduct annual Hard Clam Growers Conference where growers will increase their knowledge on the latest regulations, research findings, production and harvest techniques. (Sturmer: 2002-2005)
6) Continue to publish and distribute the quarterly Shellfish Aquaculture newsletter distributed to over 600 industry members with businesses in nine counties. (Sturmer: 2002-05).
7) At least 10 new hard clam growers holding leases in Indian River Lagoon will implement up-to-date culture practices and demonstrate knowledge of state regulations through their compliance. (Creswell: 2002-2005)
8) At least 20 individuals will establish hard clam growing operations in Franklin County. (Mahan: 2002-03)

Objective C: Promote Industry Development by Eliminating Technical and Non-technical Barriers Using Sustainable, Environmentally Responsible Practices.

Work Plan Activities:

1) Fifty hard clam growers and 10 state and agency staff will become aware of the economic contributions of the hard clam industry to the state of Florida. (Adams: 2002-2005)
2) Fifty hard clam growers will utilize better record-keeping systems by adopting data archiving software being used for USDA-funded aquaculture crop insurance program. (Adams, Sturmer: 2002)

3) Potential sturgeon permit holders will become more aware of the profit potential for growing hybrid sturgeon commercially in Florida through publications and workshops that provide the economic analysis of outdoor pond sturgeon culture. (Adams: 2002-2003)
4) Three hundred hard clam growers will become aware of the economic advantages and disadvantages in utilizing the remote setting process to obtain clam seed for growout. (Adams, Sturmer: 2002-2003)
5) Coordinate annual Franklin County Oyster Industry Workshop for oyster growers to increase knowledge in business operations, seafood safety and agency regulations. (Mahan: 2002-2005)
6) Participate in an applied research and demonstration project to develop open-water aquaculture for the bay scallop. Project will involve culturing, restoration, harvesting, taste-testing and marketing of this new product. (Sweat: 2002-2004)

Objective D: Provide Education and Technical Assistance.

Work Plan Activities:

1) Increase knowledge of Franklin County youth and adult volunteers in proper handling and safety of seafood through annual programs. (Mahan: 2002-2005)

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

Corresponding State Major Program: FL312 Seafood and Aquaculture Product Quality and Safety in Florida

FSGEP Faculty Involved: Steve Otwell (Design Team Leader), Chris Combs, Bill Mahan, Leslie Sturmer, Don Sweat

Background Statement: Florida's seafood industry, consumer demands, demographics and related environmental concerns are typical of the challenges facing the nation's seafood and aquaculture industry, particularly in semi-tropical and tropical regions. The state's aquatic food products industries and agencies are experiencing the most dramatic changes in production, processing, trade, regulation and public perception than in any previous decade. Florida's tropical waters and production areas create significant and recurring aquatic food product safety and quality concerns. Florida also plays a leading international role in satisfying emerging markets and elevating worldwide standards.

Objective A: Develop and Enhance Production and Processing of Seafood

Work Plan Activities:

1) Conduct annual domestic Shrimp School where 25 firms will increase their knowledge in business operations, seafood safety and agency regulations. (Otwell: 2002-2005)
2) Conduct international annual Shrimp School where 25 domestic processors will increase their knowledge in business operations, seafood safety and agency regulations. (Otwell: 2002-2005)
3) Conduct annual Clam Processing School where domestic processors will increase their knowledge in business operations, seafood safety and agency regulations. (Otwell: 2002-2005)

4) Develop and conduct Smoked Fish Processing School where processors will increase their knowledge in business operations, seafood safety and agency regulations. (Otwell: 2002)
5) In conjunction with the Seafood Science and Technology Society of the Americas, conduct International Spiny Lobster Processing and Commerce School and International Conch Processing and Commerce School in Nassau, Bahamas. (Otwell: 2002)
6) Continue periodic training schools for HACCP and Sanitation Control Procedures for seafood processing and regulatory inspectors. It is anticipated these schools will be held every six months. (Otwell: 2002-2005)
7) Continue leadership activities as National Coordinator of the Seafood HACCP Alliance. (Otwell: 2002-2003)
8) Continue leadership activities as Executive Director of Seafood Science and Technology Society of the America's and U. S. Representative to International Association of Fish Inspectors. (Otwell: 2002-2005)
9) Coordinate annual Franklin County Oyster Industry Workshop for oyster growers to increase knowledge in business operations, seafood safety and agency regulations. (Otwell, Mahan: 2002-2005)
10) Conduct annual Sanitation Training Workshop for seafood dealers and workers in Franklin County. (Otwell, Mahan: 2002-2005)
11) Continue as a member of the Interstate Shellfish Sanitation Conference Education Subcommittee in the development of a national education plan to reduce the incidence of *Vv* oyster-related illnesses (Mahan: 2002-2003)
12) Continue as member of Florida's *Vibrio vulnificus (Vv)* Risk Management Work Group to develop and implement a statewide plan to reduce *Vv* oyster related illnesses in Florida. (Mahan: 2002-2003)
13) Write two newspaper columns and/or press releases annually to educate seafood industry members on new regulations. (Mahan: 2002-2005)
14) Work with Franklin County Airport Manager and seafood processors to establish a seafood processing/freezer operation at the airport. (Mahan: 2002-2003)

Objective B: Enhance Trade

Work Plan Activities:

1) Provide economic analysis on the potential impact on the Florida's seafood economy if renewed trade with Cuba occurs. (Adams: 2002)

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

Corresponding State Major Program: FL315 Coastal and Marine Recreation/Tourism and Waterway Management

FSGEP Faculty Involved: Bob Swett (Design Team Leader), Craig Aubrey, David Fann, Charles Sidman, John Stevely

Background Statement: The present and future economic well-being of Florida is inextricably linked to our coastal and marine resources. Florida's coastal communities face a difficult, yet critical management challenge: how to balance development with the maintenance, and enhancement, of coastal environmental quality? Strong population growth, declining natural environments, and

coastal and marine resources that are, in many cases, overburdened complicate the task. These factors create a compelling need to foster coastal business growth and community development strategies that are compatible and sustainable. Water-dependent enterprises, traditionally small businesses engaged in tourism and the marine trades are at risk and need to increase their productivity and efficiency by adopting new technologies, adapting to changes in the regulatory environment, and maintaining access to coastal waters. Coastal communities are experiencing greater competition for limited near-shore resources and a corresponding increase in the number and intensity of conflicts over waterside and waterfront use patterns. For sustainable local development to succeed, all stakeholders, including users, decision makers, regulators, and resource managers, need new methods and information sources with which to assess the individual and cumulative links between industries and communities and their physical, economic, and environmental impacts.

Objective A: Foster Economically and Environmentally Sustainable Business and Community Growth.

Work Plan Activities:

1) Develop and distribute at least 2,500 boater's guides in Taylor County. (Aubrey: 2002)
2) Educate and assist the development of nature-based tourism activities that sustain the natural and marine environments in Taylor County. (Aubrey: 2002-2005)
3) Increase the ability of 50 resource managers and elected officials to more effectively manage anchorage resources through participation in the Sarasota Bay Regional Harbor Board. (Stevely: 2002-2003)
4) Provide technical assistance and expert advise at monthly meetings of the Southwest Florida Harbor Board in order to address regional anchorage management issues (Swett: 2002-2005)
5) Update the Boater's Navigation Guide that is distributed by the West Coast Inland Navigation District. The new guide will be based on input derived from local workshops and a survey of volunteer boaters. (Swett, Fann, Sidman: 2002)

Objective B: Develop Decision Support Systems, Planning Models, and Visualization Techniques to Manage Natural Resources and People.

Work Plan Activities:

1) Increase understanding and encourage use of GIS and GPS technology to address coastal management issues by FSGEP faculty and federal, state, and local governmental staff through their attendance an annual in-service training. (Swett, Fann, Sidman: 2002-2005)
2) Enhance accessibility and information content of FSGEP's anchorage web page using current map server technology. (Swett, Fann, Sidman: 2002-2005)
3) Develop a regional dredge-and-fill data base system for Manatee and Charlotte Counties. (Swett, Fann, Sidman: 2002)
4) Develop a model that assesses recreational boating-waterway valuation (Swett: 2002)
5) Assist the Florida Marine Research Institute (FMRI) to develop a conceptual and analytical framework of the human use component of the Florida Blueways Initiative. (Swett, Fann, Sidman: 2002-2004)
6) Complete remaining phases of the Regional Management Waterway System (RMWS) for the West Coast Inland Navigation District (WCIND) in Charlotte and Manatee Counties. (Swett, Fann, Sidman: 2002-2003)

7) Synthesize GIS data themes and regionalize results from discrete Regional Management Waterway System projects conducted in Lee, Manatee, Sarasota, and Charlotte Counties; provide an ArcView GIS application that provides these data themes, regionalized management alternatives and policy recommendations to the West Coast Inland Navigation District. (Swett, Fann, Sidman: 2004-2005)
8) Develop a prototype GIS-based boating simulation model to estimate how boating patterns might change given hypothetical alterations in coastal land use patterns. (Swett, Fann, Sidman: 2002-2004)

Objective C: Create a Regulatory and Non-Regulatory Framework for Sustainable Community Development and Business Growth.

Work Plan Activities:

1) Organize a symposium on Waterway and Anchorage Management Issues that will be attended by representatives from regional inland navigation districts, harbor boards, scientists, policy-makers, FSGEP faculty resource managers and interested public. (Swett, Fann, Sidman: 2002)
2) Collaborate with local, regional and state governmental agencies and marine industries to enhance the content of and linkage between existing databases, such as the Florida Vessel Title Registration System for use in inventory, management and planning activities. (Swett, Fann, Sidman: 2002-2005)
3) Quantify point and non-point sediment sources that contribute to canal and waterway shoaling, in order to develop an economic model for cost sharing of channel maintenance among contributing entities. (Swett, Fann, Sidman: 2003-2004)

II. Coastal Ecosystem Health and Public Safety

Goal 6: Protect, Restore and Enhance Coastal Water Quality

Corresponding State Major Program: FL316 Florida's Coastal Environment and Water Quality

FSGEP Faculty Involved: Chuck Jacoby (Design Team Leader), Craig Aubrey, Chris Combs, Marella Crane, LeRoy Creswell, Andrew Diller, Don Jackson, Scott Jackson, Bill Mahan, Maia McGuire, Rich Novak, Mike Spranger, John Stevely, Don Sweat, Sacheen Tavares, Christina Verlinde, Bob Wasno

Background Statement: Florida estuaries are characterized by enormous ecological, social and economic diversity. Most of the species that support Florida's multi-billion dollar fisheries depend on estuaries to complete their life cycle. Meanwhile, most of Florida's urbanization is taking place alongside estuaries and placing stress on the quality and quantity of these valuable ecosystems. In 1998, about 40% of the U.S. streams, lakes and estuaries that were assessed were deemed not clean enough to support uses such as fishing and swimming, due to a variety of contaminants. One of the major influences upon coastal ecosystem processes is the level of nutrients introduced from upland watersheds and the atmosphere. Excess nutrients introduced to estuaries are linked to problems such as harmful algal blooms, loss of sea grasses and marine benthic "dead zones." In seeking to protect and enhance coastal water quality, it is important to recognize the linkages of Florida estuarine functions to the broader hydrological system and be aware of the variability of these systems,

cyclical and otherwise. In a survey of public concerns, Floridians ranked water quality as their second most important issue. Florida Sea Grant criteria to guide its work in this area are: research must be at the site of existing management-based research being conducted by a partnering agency; non-point source contamination must be the focus; the way that the scientific results will be utilized must be specified; and, the work must be multi-disciplinary. Florida Sea Grant's role in water quality is to complement existing state and federal agency programs. Its strategy is to create greater faculty interest in management-oriented research, and build upon its academic strengths through emphasis on testing of hypotheses, innovative analysis of datasets, multi-disciplinary approaches, designed extension and communication programs and student training.

Objective A: Develop Science-Based Management Practices for Coastal Water Quality.

Work Plan Activities:

1) Update, print and distribute the popular "*What is an Estuary?"* Sea Grant publication that will be used as a primer for basic professional competency skills in Extension In-service training programs, as well as primer for Sea Grant county-based programs dealing with estuarine water quality issues. (Jacoby, Aubrey, Combs, Crane, Creswell, Diller, D. Jackson, S. Jackson, Mahan, McGuire, Novak, Stevely, Sweat, Spranger Tavares, Verlinde, Wasno: 2002-2005)
2) Maintain active functioning of Sarasota Bay National Estuary Program Technical Advisory Committee by coordinating three meetings a year. (Stevely: 2002-2003)
3) Provide technical assistance to the Greater Fort Lauderdale Marine Protected Area Committee in their long-term efforts to establish a marine protected area within Broward County waters. (Tavares: 2002)
4) Develop a "Business Plan" for Estuarine Extension Program (Jacoby: 2003)
5) Organize an international conference that explores the application of social science to natural resource and water quality issues. (Jacoby: 2003)

Objective B: Promote Informed Decision-Making Focusing on Coastal Water Quality.

Work Plan Activities:

1) Thirty 4-H youth and adults will participate in the UF/IFAS Project Coast project. Through volunteer monitoring efforts, they will gain a better understanding and knowledge of Taylor county's coastal water quality. (Aubrey: 2002)
2) Over 500 anglers of Brevard, Broward, Lee, Miami-Dade, and St. Johns counties will reduce the amount of marine debris they generate by participating in a monofiliament recovery and recycling program. (Combs, Crane, McGuire, Tavares, Wasno: 2002-2003)
3) Over 1,000 citizens in Brevard, Broward, Escambia, Lee, Miami-Dade, Santa Rosa and St. Johns counties will reduce marine debris along their shorelines and water embayments through their participation in local beach clean-up activities. (Combs, Crane, Diller, McGuire, Tavares, Wasno: 2002-2003)
4) At least 15 Gulf-front homeowners will be trained to plant dune vegetation that will increase the dune height between their home and the Gulf of Mexico waters. (Diller: 2002-2004)
5) Coordinate and provide presentations on water quality and habitat problems and solutions at a minimum of two workshops per year (S. Jackson: 2002-05).
6) Assist in establishing a water quality-monitoring program for the 15 coastal dune lakes in Walton County. (S. Jackson: 2002)

7) Work with at least 15 landowners to restore wetland vegetation and to plant native plants to restore dune beaches. (S. Jackson: 2002)
8) Assist in coordination of annual Cortez Commercial Fishing Festival where thousands of festival attendees increase their awareness of issues affecting the ecological health of bay waters. (Stevely: 2002-2005)
9) One hundred boat owners will learn about and adopt environmentally friendly boating practices that lead to healthy sea grass communities and improved coastal water quality. (Tavares: 2002-2005)
10) Reduce marine debris within Broward County through a "Don't Splash Your Trash" campaign, community beach cleanups and educational displays at local community meetings, fishing rodeos, and school events. (Tavares: 2002-2003)

Goal 7: Protect, Restore and Enhance Coastal Habitats

Corresponding State Major Program: FL316 Florida's Coastal Environment and Water Quality

FSGEP Faculty Involved: Chuck Jacoby (Design Team Leader), Craig Aubrey, Chris Combs, Marella Crane, LeRoy Creswell, Andrew Diller, Don Jackson, Scott Jackson, Bill Mahan, Maia McGuire, Rich Novak, John Stevely, Don Sweat, Sacheen Tavares, Christina Verlinde, Bob Wasno

Background Statement: The appeal of Florida's increasingly urbanized shoreline is reflected in the concentration of nearly 80% of the state's population in its 35 coastal counties. There is strong demand for recreational, business and residential developments near the water. Communities must balance economic and environmental values, manage the impacts of nutrient runoff and waste disposal, and consider needs for transportation, recreation and commerce – while maintaining the integrity of coastal ecosystems that provide critical habitat and nursery areas for countless species. Such crucial decisions must be based on solid scientific data. In Florida, the outright destruction of aquatic habitat by physically dredging and filling coastal wetlands in earlier decades has given way to impairment of structure and function due to deteriorated water quality. Nutrient over enrichment is linked to harmful algal blooms and shifts in submerged vegetation species diversity. Another threat to estuaries is invasive (nonindigenous, exotic) species. Complementary to efforts that protect coastal habitats are their restoration and enhancement. Protection of the marine environment is the ninth leading concern of Floridians, as surveyed for public issues.

Objective A: Develop Science-Based Practices for Management of Coastal Habitats.

Work Plan Activities:

1) At least 40 marinas and boatyards annually will achieve "clean marina/boatyard designations", indicating they are utilizing "best management practices" in their daily operations. (Combs, Crane, Creswell, Diller, D. Jackson, S. Jackson, McGuire, Tavares, Verlinde: 2002-2005)
2) A National Conference on Clean Marinas will be held that highlights Florida's Clean Marina Program. The conference will be used to extend the Clean Marina model to at least five other states in the U.S. (D. Jackson: 2002)
3) FSGEP will continue to be active in marina education and training activities connected with Florida's Clean Boating Partnership, a coalition of marine industries, state government and academia dedicated to voluntary compliance to federal/state water quality standards and best management practices. (Jackson: 2002-2005)

Objective B: Promote Informed Decision-Making Among Managers and Concerned Citizens.

Work Plan Activities:

1) Hundreds of Brevard County residents will gain a better understanding on the role and impact of aquatic nuisance species in coastal areas through public workshops and displays at public events. (Combs: 2002-2005)
2) Increase knowledge of at least 50 Master Gardeners in Hillsborough, Manatee, and Sarasota counties in water quality, aquatic plant identification and coastal ecology. (Stevely: 2002-2005)
3) Increase residents' awareness and knowledge of the unique resources of the New River watershed that will lead to its restoration and preservation. (Tavares: 2002-2003)
4) One hundred homeowners will increase their knowledge and utilize recycling, environmental safe practices and reduce their household chemical wastes through their participation in "coastal living seminars." (Verlinde, 2002-2005)
5) Two hundred and fifty residents will increase their knowledge about local watersheds, issues, restoration and protection measures through attendance at annual Santa Rosa Rivers Symposium. (Verlinde: 2002-2005)
6) One hundred and fifty residents and tourists will participate in river and coastal cleanup events in Santa Rosa County, leading to a reduction in marine debris. (Verlinde: 2002-2005)

III. Education and Human Resources

Goal 9: Produce a Highly Trained Workforce

Corresponding State Major Program: FL 214/714 Environmental Education

FSGEP Faculty Involved: Jerry Culen (Design Team Leader), Craig Aubrey, Chris Combs, Marella Crane, LeRoy Creswell, Andrew Diller, David Fann, Doug Gregory, Don Jackson, Scott Jackson, Bill Mahan, Maia McGuire, Rich Novak, Charles Sidman, John Stevely, Bob Swett, Don Sweat, Sacheen Tavares, Christina Verlinde, Bob Wasno

Background Statement: 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 also will 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.

Objective A: Train Future Decision-makers and Scientists

Work Plan Activities:

1) Serve on at least one student thesis committee annually. (Adams, Jacoby: 2002-2005)
2) Provide internship opportunities for graduate students to work on FSGEP Urban Bay Waterway Management Projects. (Swett: 2002-2005)

Objective B: Faculty and Staff Development

Work Plan Activities:

1) At least 10 FSGEP faculty will have a better understanding of recreational and commercial fishery regulations in federal and state waters that may impact user groups in their areas. FSGEP agents will use information to develop individual workshops and educational materials in their home counties. (Adams: 2002-2005)
2) Twenty-five FSGEP faculty and staff will increase their understanding of Sea Grant policies and procedures, learn about the latest Sea Grant funded research, share educational resources and explore future collaborative efforts through attendance at annual Sea Grant Faculty In-Service Workshop. (Spranger, 2002-2005)
3) Twenty FSGEP faculty and staff will increase their understanding of regional issues, share educational resources and explore future collaborative efforts through attendance at biennial Regional Sea Grant Workshops for the South Atlantic and Gulf of Mexico Sea Grant Programs. (Spranger: 2003-2005)
4) Each FSGEP faculty and staff member will annually increase their content knowledge and extension methods skills through attendance in at least eight days of formal in-service training workshops. (All FSGEP Faculty/Staff: 2002-2005)
5) FSGEP faculty will be encouraged to attend at least one professional association meeting annually. (All FSGEP faculty).

Goal 10: Create Scientifically and Environmentally Informed Citizens

Corresponding State Major Program: FL 214/714 Environmental Education

FSGEP Faculty Involved: Jerry Culen (Design Team Leader), Craig Aubrey, Chris Combs, Marella Crane, LeRoy Creswell, Andrew Diller, David Fann, Doug Gregory, Don Jackson, Scott Jackson, Bill Mahan, Maia McGuire, Rich Novak, Charles Sidman, John Stevely, Bob Swett, Don Sweat, Sacheen Tavares, Christina Verlinde, Bob Wasno

Background Statement: Virtually every serious study of national goals for the new millennium underscores the critical importance of education to national prosperity. In order to sustain a growing economy, we must also be stewards of the natural environment upon which all life depends. To that end, having a scientifically literate, environmentally responsible population is necessary for Florida to remain competitive in the national and world economy while conserving our coastal resources.

Educating the 21st century workforce toward literacy in the marine and aquatic sciences is integral to both the educational and scientific missions of Florida Sea Grant. Florida Sea Grant education efforts will contribute to improving marine and aquatic science literacy by enhancing education

among formal K-12, informal public, post-secondary, and adult audiences. As educators, our challenge is to ensure an educational process that impacts knowledge to support development of values in an environmentally literate citizenry and to foster an environment wherein the Florida public as being integral to national security recognizes ocean sciences and education, economic development, and the overall quality of life.

Objective A: Provide Formal and Informal Education Opportunities in Marine Sciences.

Work Plan Activities:

1) Increase the knowledge and skills of at least 50 Taylor County youth in boating safety by providing the "National Association of Safe Boating Administrators Boating Safety Class". (Aubrey: 2002)
2) Fifty Taylor County youth will develop a better understanding of coastal ecosystems and human impact on these systems through 4-H programs. (Aubrey: 2002)
3) Over 300 4-H youth will increase their knowledge of marine science through their attendance at annual 4-H Marine Camps. (Culen, Diller, S. Jackson, Mahan, Verlinde: 2002-2005)
4) Over 100 minority youth in Brevard County will increase their knowledge of the marine and coastal environment. (Combs: 2002-2005)
5) 4-H youth in the state will increase their knowledge of marine and coastal science through their participation in the annual 4-H Marine Ecology State Event. (Culen: 2002-2005)
6) Over 300 high school students will increase their knowledge on marine science, and the importance of the Indian River Lagoon through participation in outreach educational programs conducted at the new Smithsonian Ecosystem Exhibit. (Creswell: 2002-2005)
7) Two hundred 4-H youth will improve their knowledge on endangered species utilizing local beaches in Escambia County and will develop ways to protect them. (Diller: 2002-2005)
8) Organize a "Take A Kid Fishing" program aimed at increasing the angling ethics of at least 100 Youth. (S. Jackson: 2002-2005)
9) Serve as a resource for at least 10 public/private school educators, providing them with age appropriate educational materials on marine science that they can use in their classrooms. (S. Jackson: 2002)
10) Have at least 10 Franklin County youth involved annually in an environmental community service projects. (Mahan: 2002-2005)
11) Increase knowledge and participation of teachers and youth in the Franklin County High School Aquaculture Program. (Mahan: 2002-2005)
12) Increase 250 youth and their adult sponsors' awareness and understanding of conservation and fishing ethics through their participation at an annual Kid's Day Fishing Tournament. (Sweat: 2002-2005)
13) Two hundred 4-H youth and school children will increase their knowledge about marine resources, their value and sustainable use through environmental fairs and workshops. (Tavares: 2002-2005)
14) One hundred K-12 classroom teachers, 60 informal educators and 10,000 youth will increase their awareness of aquatic nuisance species through attendance at teacher training workshops and in classroom presentations following the workshops (funding pending). (Spranger: 2002-2004)
15) Four hundred formal and informal educators from North and South America, as well as Caribbean will gain awareness of Florida resources, and learn new content and methods skills by attending National Marine Educator Association conference that will be co-hosted by FSGEP. (Spranger: 2004)

Objective B: Provide Educational Opportunities in Marine Sciences for the General Citizenry

Work Plan Activities:

1) Increase public awareness of the impact of red tide episodes on the coastal economy of Florida. (Adams: 2002)
2) Develop classes in fish identification and reef research diving for 10 members of the Taylor County Reef Research Dive Team that will enable them to better monitor artificial reefs. (Aubrey: 2002)
3) At least 100 boaters will have a better understanding about pollution prevention and will adopt alternatives to using non-toxic boat cleaning products. (Crane: 2002)
4) At least 100 public awareness signs on "Don't Splash Your Trash" will be posted at public and private docks and marinas to increase citizen's awareness to the dangers of marine debris. (Crane: 2002)
5) Thirty percent of beach residents that live in a neighborhood that borders the Gulf of Mexico in Escambia County will turn their beachfront lights off during sea turtle nesting and hatching season after attending educational workshops and receiving informational literature. (Diller: 2002-2005)
6) Collaborate with other FSGEP faculty in Florida's Panhandle to develop a joint quarterly newsletter that will be targeted to beach renters, landlords, condominium managers and tourist bureaus. Focus of the newsletter will be on increasing the reader's awareness and understanding of the marine and coastal environment. (Diller, S. Jackson, Verlinde: 2002-2005)
7) Write a series of newspaper columns on topics of food safety and fisheries management that will increase the Franklin County citizens' knowledge about these areas. (Mahan: 2002-2005)
8) Increase knowledge of boating safety and good environmental practices of Charlotte County boat owners by updating, printing and distributing a new Boaters Guide to Charlotte Harbor. (Novak: 2002)
9) Have 300 boat owners increase their knowledge of environmental stewardship and commit toward good boating practices by signing a "boaters and anglers pledge." (Sweat: 2002)
10) Have 200 home seafood consumers increase their understanding of seafood preparation, safety and handling. (Sweat: 2002-2005)

Planned Program Effort

Based on a 1999 survey of Self-Identified Educational Needs of Florida Citizens, FSGEP is focused in the appropriate programmatic areas. This survey contains the following information regarding the percentage of Floridians highly ranking certain areas as priority educational needs. (Jacob, Summerhill and Arrington, 1999).

- Among the top ten educational needs (of 45 possibilities), prevention of water pollution (#2; 72.4%) and protection of the marine environment (#9; 63.7%) are highly ranked.
- Among educational needs in health, nutrition and food safety (of 6), restaurant and commercial safe food handling (#1; 59.15) is the highest ranked.
- Among environmental education needs (of 8), prevention of water pollution (#1; 72.4%), protecting the marine environment (#2; 63.7%) and water recreation and safety (#4; 53.5%) are highly ranked.

FSGEP's six State Major Program areas clearly target these educational needs. FSGEP's six SMPs are Seafood and Aquaculture Product Quality and Safety in Florida; Florida's Sustainable Marine Fisheries; Florida's Coastal Environment and Water Quality; Marine Aquaculture; Coastal and Marine Recreation/Tourism and Waterway Management; and Environmental Education. **Table 5** provides a summary of FSGEP planned time in each of these areas during the 2002-2005 period. This time represents 65% of FSGEP's faculty time, based on planned activities that have been identified in the proposal. The remaining 35% is unplanned time to deal with unanticipated problems and issues that present themselves.

Table 5

FSGEP Planned Program Effort by State Major Program
2002-2005

State Major Program	Percentage Planned by Year				
	Avg 1998-2001	**2002**	**2003**	**2004**	**2005**
Seafood and Aquaculture Product Quality and Safety in Florida	20	10	10	10	10
Florida's Sustainable Marine Fisheries	6	15	15	15	15
Coastal Environment and Water Quality	49	35	35	35	35
Marine Aquaculture	9	12	12	12	12
Coastal and Marine Recreation/Tourism and Waterway Management	11	16	16	18	18
Marine Education	5	12	12	10	10

Present & Future Staffing Needs

Off-Campus Staffing Needs

The sixteen off-campus FSGEP faculty currently cover 28 of Florida's 35 coastal counties. Of these faculty, eleven agents have responsibility for one county, two agents have responsibility for two counties, and three agents have responsibilities for four counties. Thus, seven counties are without any FSGEP coverage. These counties have expressed interest in a FSGEP presence, but there are currently no federal funds available to expand efforts. Additionally, three FSGEP off-campus faculty have multi-county responsibilities in three of the major metropolitan areas in Florida (Jacksonville, St. Petersburg, Tampa) that have special needs of their own.

Strong consideration should be given to hiring additional agents in these areas. Experience has shown that even having a single agent covering only one major metropolitan county, as FSGEP does in both Broward and Miami-Dade Counties, is not sufficient. Ideally, an off-campus FSGEP faculty member should be based in each of the 35 coastal counties, with some responsibility toward the inland counties, since one can argue that the entire state is connected to its coastal and marine areas. Since major metropolitan areas also have unique problems and large populations, a case can be made to have more than one faculty member per county in these large metropolitan areas (Miami, Ft. Lauderdale, St. Petersburg, Jacksonville, Tampa).

On-Campus Staffing Needs

Three on-campus faculty focus on the subject matter areas of coastal estuarine water quality, marine economics and seafood technology. Additionally, an on-campus professional staff member has taken the lead in focusing efforts in the urban bay waterway management area with the retirement of a long-time FSGEP faculty member. These specialists are not nearly enough to provide support services to off-campus faculty. There are some major subject matter gaps that need to be filled if FSGEP is to effectively deal with the wide range of Florida's marine and coastal resource issues. Several of these gaps are identified below.

Waterways/Boating Management Specialist - Since 1988, FSE has conducted urban waterways management research and extension activities. This project has grown from a $25,000 research project to over $300,000 annual budget coordinated by an Urban Waterways Management Specialist. A state major program area has been created, largely funded on "soft" money. The specialist (Dr. Gustavo Antonini) retired on December 31, 2000. Three team members remain at work and are committed to the program. One (Dr. Bob Swett) is now supervising the project on soft dollars. In the fall 2001, it is anticipated we will receive $50,000 in new funds from the Community Economic Development Initiative to provide half-time support for this position. We have been notified that these funds will become permanent funds. Nevertheless, it will only fund this position for 50%; the remaining 50% will need to be garnered from other sources. With over 800,000 registered resident boats and over 400,000 non-resident boats in the state, a critical need exists to continue these urban waterway management projects.

Florida Bay Education Specialist - For the past four years, a joint federal/state extension and research project, funding two marine agents and one staff person, focused on Florida Bay issues. This was originally a five year funded effort, but NOAA NOS cut its funding in year four. The

program will terminate in November, 2001 if no other funds are found. There is a need to continue these educational efforts. Florida Bay is a critical nursery for many commercial and recreational fish species and it supports numerous endangered, threatened and protected marine species. The Congressionally approved $7 billion Greater Everglades Ecosystem Restoration (GEER) Project that will occur over the next 30 years will also need extension activities that focus on this unique ecosystem that includes Florida Bay. Yet the agencies charged with implementing this effort, fail to see the connection to on-going FSGEP efforts.

Marine and Coastal Tourism Specialist - Florida's tourism industry is a multi-billion dollar business. Over 50 million people from other states and nations visit Florida annually. There are increasing demands for materials and programs that focus on the development and maintenance of marine tourism businesses, and how communities plan and implement coastal tourism economic development activities. A FSGEP Marine and Coastal Tourism Specialist could provide educational leadership in this area.

Coastal Hazards Specialist - There are increasing demands and conflicts in the development of Florida's coastal communities. Local elected officials need advice and guidance in the planning, development and resolution of conflict between economic development and environmental conservation pressures. Communities also need assistance in emergency preparedness for such major events as hurricanes. These events can have tremendous economic impacts. For example, in 1992 Hurricane Andrew caused over $25 billion in damages to South Florida. A FSGEP Coastal Engineer/Coastal Hazard Specialist could provide educational leadership in this area.

Marine Education Specialist - National assessments reveal a general decline in K-12 student competency in science and mathematics over the past 30 years. If this trend continues, it will erode the nation's long-term competitive advantage in this area. Educating the 21st century workforce (and students) toward literacy in marine and aquatic sciences supports both the educational and scientific missions of the National Sea Grant College Program, as well as national educational standards. FSG support to education to date is based primarily on support to graduate students, not to the development of K-12 materials. A Marine Education Specialist could provide support in this area. Position was requested in the last legislative request, but was not funded.

Conclusion

This proposal covers the 2002-2005 period. The wide range of goals, objectives, and work plan activities described will be conducted locally in Florida, regionally through cooperative efforts in the South Atlantic and Gulf of Mexico, and nationally and internationally through National Sea Grant talent-sharing and other occasional special projects.

In terms of miles of coastline, growing coastal population, multi-billion dollar resources, and year-round use of the coastal and marine environment, an argument can be made that an off-campus FSGEP agent should be located in every Florida coastal county, and additional on-campus faculty should be added. Even with a doubling of agents (16) and on-campus based specialists (4), this still would not meet all the critical coastal and marine needs of the state.

However, expansion of FSGEP is not anticipated during the 2002-2005 period; in fact, it will be difficult to maintain the status quo. Fiscal resources over the next four years to cover existing salaries and operational expenses will be extremely tight. State budget cuts in higher education and

county budget cuts in local operations have occurred in 2001; it is anticipated this trend will continue for the next several years.

FSGEP faculty will concentrate their efforts in the areas where needs and opportunities match their capabilities and resources, as outlined in this 2002-2005 program work plan. In this way, FSGEP will maximize its resources and expertise to provide valuable technical assistance, programs and support to our various clientele groups, while also addressing the larger goals that are outlined in the various strategic plans of FSG, the National Sea Grant Office, and NOAA.

Budget History and Analysis

According to a Draft Business Plan for the National Sea Grant College Program, "federal appropriations have increased every year since FY 1993 from $44 million to $59.2 million in FY 2000, an increase of 35%, or 5 % a year. Other federal and state revenues have also increased"(Baird, 2000). However, in looking at the last four years and the projected FSGEP budget for the next two years, this type of needed growth has not occurred at the local level (Table 6).

Table 6

Project Year	1998	1999	2000	2001	2002	2003
Sea Grant Funds	$580,800	$580,800	$585,491	$605,277	$620,000	$620,000

Over the past four years, federal Sea Grant funds provided to FSGEP have been stable, with a slight increase in 2001, reflecting only a 4% increase over this 1998-2001 period. The federal increases discussed in the Draft National Sea Grant Business Plan have, for the most part, gone to fund new national initiative projects that have been granted on a competitive basis and have not been provided to Sea Grant core budgets. Level or declining funds in Sea Grant Extension budgets have become a national trend and major concern among Sea Grant Extension Program Leaders. Even modest increases in recent years cannot compensate for the inflation and salary increases that each program has had to absorb. This trend cannot continue if Sea Grant Programs are to remain as successful or as comprehensive as they have been in the past.

Additionally it should be noted that the $605,277 allotted to the FSGEP for 2001 was actually 5 % less than the full cost of operation that was $636,656 for 2001. FSGEP managed to survive over the past several years with good fiscal management, having several senior faculty members retire or resign allowing for salary savings while positions remained vacant, having the state and several counties providing some modest support, and having current FSGEP faculty secure extramural funding that augmented existing FSGEP funds. This is the standard mode of operations and fiscal survival strategies for most Sea Grant Extension Programs.

The Sea Grant Director has determined that Florida Sea Grant Extension will receive funding of $620,000 for February 1, 2002 to January 31, 2003 (FY02); this represents a 2.4% increase over the

2001 budget that was less than the 2001 full cost of operations. Level funding of $620,000 is also anticipated for February 1, 2003 to January 31, 2004 (FY03). These funds will not be sufficient to cover the full cost of operations estimated to be $$692,862 for FY02 and $708,260 for FY03.

FSGEP will attempt to survive over the next several years with good fiscal management, being judicious in the use of travel funds and operational expenses, use of carry-over grant funds, and having current FSGEP faculty secure extramural funding to augment existing FSGEP funds. If extramural funds are not secured, program and staff reductions may need to take place in FY03. There is no expected relief from state funds since the Florida economy is in a downswing and the state legislature will be downsizing operations and budgets in the next two years.

Due to these funding constraints and ever-increasing demands among the marine and coastal resource users in the state of Florida, FSGEP faculty will continue to be selective in the projects they conduct. They will also identify and work with other federal, state and local partners to leverage their activities. Finally, FSGEP faculty will seek outside funding that will augment existing funds to meet some of their planned program goals.

These budget costs will be explained in the following "Budget Justification" section that follows.

Budget Justification

A. **Salary and Wages**. Funds requested for professional and career service personnel are $335,508 from February 1, 2002 to January 31, 2003 and $335,508 from February 1, 2003 to January 31, 2004. No salary increase is anticipated for FY03. Total two-year personnel costs are $671,016. These salaries and wages are for 16 faculty and 6 clerical staff. The 16 faculty members provide both on and off-campus marine extension outreach activities throughout the state of Florida, regionally, nationally, and occasionally internationally. Two clerical staff provide administrative assistance at FSGEP headquarters located on the University of Florida; one clerical staff provides part-time assistance to the on-campus seafood technology specialist. Three clerical staff also provide part-time assistance to county offices located in St. Augustine, Palm Bay, and Palmetto county offices.

   Projected salaries and wages represent 84% of funds needed for full operations of professional staff. If other extramural support is not obtained in FY02 or FY03, reductions in program or staff may be needed to balance the budget.

   Matching funds are provided and cost-shared by FSGEP faculty from state and county contributions. Principal Investigator Spranger (4.8 MM) and Waddill (2.4 MM) state salaries are cost-shared at a combined 7.2 man-months per year. On-campus specialists Drs. Adams (6.0 MM) and Otwell (6.0 MM) state salaries are also cost-shared at a combined 12.0 man-months per year. For FY02 and FY03, all off-campus faculty state salary dollars are cost-shared, on a 50% basis.

B. **Fringe Benefits and Overhead.** The cost of fringe benefits associated with the associated 2002-2004 personnel request is 22% of salaries plus annual health insurance premiums (at

$2,643 for single employee, $5,404 per family) that are assessed by the University for all personnel. FY02 and FY03 fringe benefits costs for FSGEP personnel are $124,291 per annum. Two year total is $248,582.

University of Florida indirect costs rates (overhead) are 20% for on campus operations and 17% for off campus operations. Total indirect FSGEP costs are $93,344 for FY02 and $93,344 for FY03. Total indirect two-year indirect costs are $186,688.

C. Permanent Equipment. No permanent equipment is requested. Permanent equipment may be acquired from other funds during the 2002-2004 grant years.

D. Expendable Supplies. Computer repair, software and peripherals such as zip drives and CD-ROMs are obtained on an as-needed basis. This category includes the traditional office supplies (pens, paper, paperclips, and other expendable materials) that are needed by all FSGEP personnel. It is anticipated that several printers and scanners costing less than $1,000 may be purchased over the next two years. Currently 16 FSGEP county-based faculty, 3 on-campus specialists, and one administrator are furnished office supplies from this category. It is estimated that $5,000 will be needed for FY02 and $5,000 for FY03.

E. Travel. $22,098 is requested for travel for FY02 and FY03. Two year total is $44,196. This travel budget covers 3 on-campus specialists, 16 county-based faculty, and the Assistant Director when they are working on FSGEP state educational activities. FSGEP also provides travel funds for faculty with multi-based assignments. Single county-based faculty have in-county travel paid by their respective counties. This is a sparse travel budget for the number of people that need to depend on it; it is not sufficient for FSGEP faculty to cover the nearly 8,000 miles of Florida's tidal shoreline in their educational program efforts. In the past, FSGEP faculty, with extramural funding they obtained, have been able to maintain essential travel levels to handle program delivery. It is the hope that FSGEP faculty will be successful in FY02 and FY03 to secure extramural funds to augment their travel.

F. Publications and Documentation Costs. Due to scarcity of funds, no funds are requested for publication costs.

G. Other Costs. For FY02 and FY03 telecommunication costs for multi-county faculty are requested in the amount of $2,000 annually. This covers long-distance service for these faculty. Two sub-contracts, one with the University of Miami for $13,000 and the other with the University of South Florida for $19,910 provide staff support for FSGEP faculty who are located at these university campuses. Mandatory unemployment insurance premiums in the amount of $4,850 annually are included in this request. Total FY02 and FY03 "other costs" requested are $89,520.

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