

# **Florida Sea Grant College Program Program Report and Budget Request for 2007-08**

March 16, 2007  
Jim Cato, Director

## **Mission and Purpose**

### **Introduction**

The Florida Sea Grant College Program (FSG) is now in its 37<sup>th</sup> year. FSG is the only statewide university-based program that delivers research, education, extension/outreach and communication services focused on coastal and marine issues. One of 32 Sea Grant programs nationally, FSG is a partnership program among the National Oceanic and Atmospheric Administration (NOAA), Florida's universities and Florida's citizens, businesses and governments.

### **Mission**

Florida Sea Grant's mission is to enhance the practical use and conservation of coastal and marine resources to create a sustainable economy and environment. In a few words, it is "Science Serving Florida's Coast." FSG's strategic goals are summarized below with complete details about each goal available in the strategic plan for 2006-2009 [http://www.flseagrant.org/about\\_us/strategic/index.htm](http://www.flseagrant.org/about_us/strategic/index.htm).

#### **Providing Economic Leadership**

- **Biotechnology:** Using Marine Biotechnology to Create and Enhance Products and Processes from Florida's Coastal Resources
- **Fisheries:** Create and Teach Production and Management Techniques that make Fisheries Sustainable and Competitive
- **Aquaculture:** Develop the Food and Hobby Segments of the Marine Aquaculture Industry
- **Seafood Safety:** Improve the Quality and Safety of Florida's Seafood Products
- **Waterfront Communities:** Increase the Economic Competitiveness and Environmental Sustainability of Coastal Communities and Water-Dependent Businesses

#### **Enhancing Coastal Stewardship and Public Safety**

- **Ecosystem Health:** Protect, Restore and Enhance Coastal Ecosystems
- **Coastal Hazards:** Respond to Shoreline Change and Coastal Hazards

#### **Improve Scientific Literacy**

- **Graduate Education:** Produce a Highly Trained Workforce in Marine and Coastal Related Sciences
- **Marine Education:** Create Scientifically and Environmentally Informed Citizens

### **Institutional Setting**

FSG is a State of Florida Center within the university complex of the state. FSG ultimately reports to the Florida Board of Education, Division of Colleges and Universities, Vice Chancellor for Academic and Student Affairs. State of Florida Centers must: 1) achieve a statewide mission; 2) have a strong working relationship with two or more universities; and 3) be

successful in leveraging external funding support. Each State of Florida Center operates from a host campus (the University of Florida for FSG). The FSG director reports to the Senior Vice President for Academic Affairs/Provost and consults with the Senior Vice President for Agriculture and Natural Resources since some FSG programs (Extension/Communications) are linked to UF's Institute of Food and Agricultural Sciences (IFAS). Figure 1 gives an overview of FSG participants and locations.

FSG is not a traditional academic unit; it is not a department, school or college. Funded research and graduate student support is provided through research grants awarded to the faculty on a competitive basis. Faculty and staff hired for Extension and Communications are physically housed in academic departments or units based on their discipline or in county Extension offices. However, they plan together and function as a program. On the UF campus, faculty are located in the Departments of Fisheries and Aquatic Sciences, Food and Resource Economics and Food Science and Human Nutrition, and faculty are partially funded in the Department of Tourism, Recreation and Sport Management and the College of Law. Recent research projects have been funded by FSG in such diverse departments as Pharmacology and Therapeutics, Food Science and Human Nutrition, Fisheries and Aquatic Sciences, Florida Museum of Natural History, Zoology, Civil and Coastal Engineering and Environmental Horticulture. FSG core federal funding represents approximately 40-45 FTEs of activity spread across about 100 faculty on an annual basis. This does not include FTEs generated from national competitions and other revenue streams. When these are included, FSG probably accounts for approximately 100 FTEs of program activity, and all the activity is linked to key departments at UF and other universities statewide.

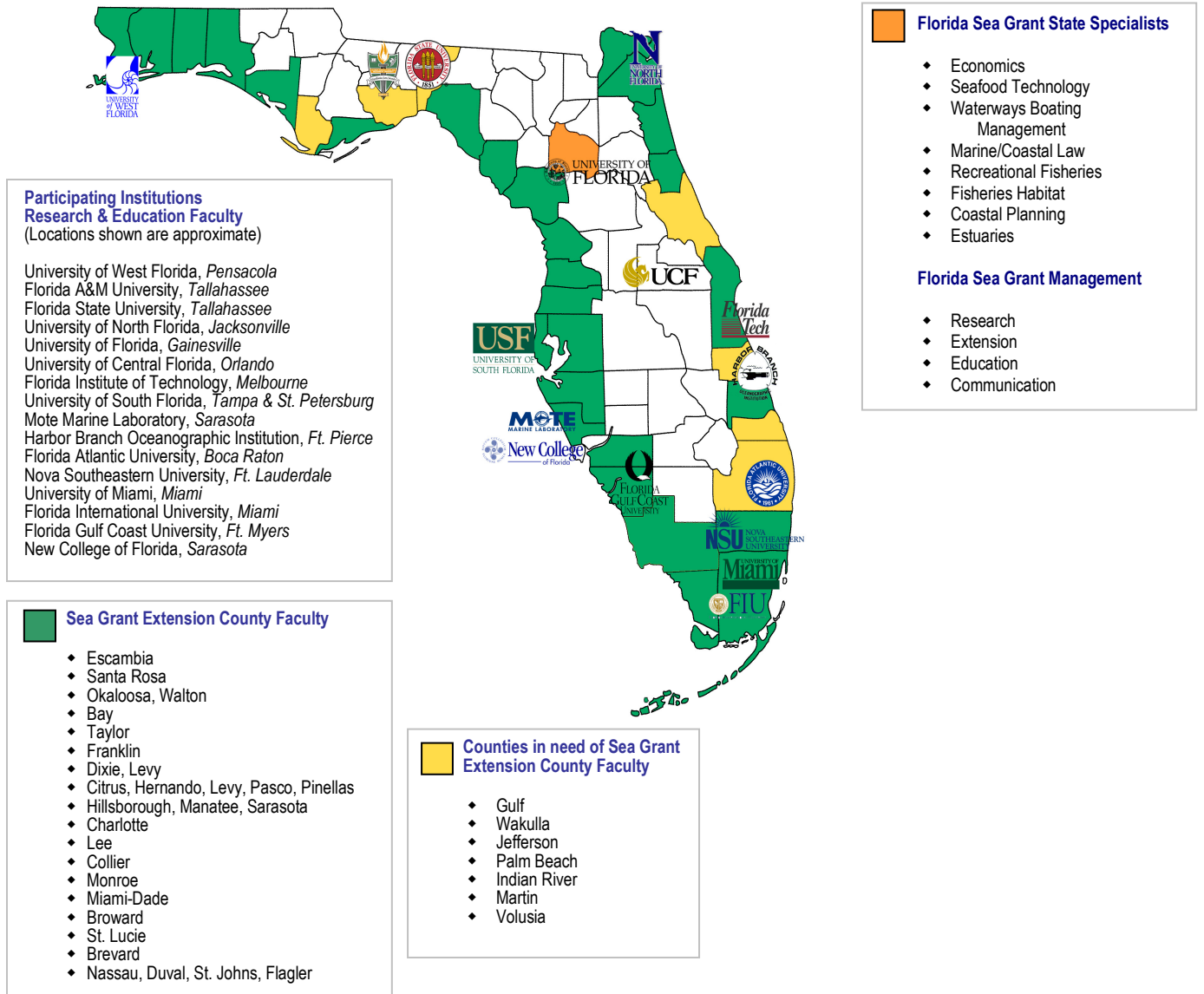
### **Goals and Expected Outcomes**

FSG sets high expectations for performance and accountability. Each year a work plan is prepared which outlines the tasks to be accomplished during that year. The work plan for 2006 can be found at [http://www.flseagrant.org/about\\_us/plan\\_of\\_work/index.htm](http://www.flseagrant.org/about_us/plan_of_work/index.htm) . The work plan includes not only programmatic goals in research and education but also management goals. For example, we set a management goal that at least 25% of our funding allocated to research be used as graduate student assistantships. For 2006-07, that percentage was 30%. During the spring of the following year (now during 2007) a "performance counts" document is prepared that reports our accomplishments against the previous year's work plan. Work is currently underway on that document which is normally completed during May. In addition, we are now required to submit an annual report to NOAA via the NOAA grants online system. Rather than repeat all these materials in this report, a copy of the work plan, performance measures, the recent online NOAA report and most recent performance counts report will be brought to the program review.

### **Strategic Plan Fit**

FSG clearly responds to the Board of Governor's Strategic Plan. We place a high priority on supporting graduate students in our research programs which responds to the goal of creating access to and production of degrees. We focus on meeting statewide professional and workforce needs by producing graduates with backgrounds in coastal-related and marine sciences since Florida's ocean economy is second nationally only to California, and 77% of the states economic activity occurs in the coastal counties. We are helping build world-class academic programs and research capacity by focusing on strategic areas. Key examples are our efforts in marine biotechnology, seafood safety and quality and waterways management. We have been recognized as national leaders in these areas. Our mission also fills a unique institutional responsibility in that

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



our statewide program is consistent with UF's statewide (and beyond) reach in research and Extension education.

FSG's programs are also consistent where appropriate with the UF Strategic Work Plan. For example, we track our funded PIs to ensure a good mix from assistant to full professor and to ensure both male and female faculty participation. While the approach is slightly different, we also support shared governance by having a representative of each of the 16 universities serve as a member of our campus coordinators group. We engage them in program management decisions and solicit advice from them on a routine basis. We attempt to reach elite status as a Sea Grant program among all 32 programs by comparing ourselves to our peer programs (as UF would to its peer AAU universities). The National Sea Grant ranking and evaluation system places us in the "top 7" tier of all 32 programs and we compare ourselves to productivity measures where possible with other programs.

### Funding

FSG core funding is received from the annual federal appropriation provided to NOAA for Sea Grant. Federal SG dollars require matching funds of 2 federal; 1 non-federal. Core funding provides the basis for our ongoing research, extension, communications and management activities. This is enhanced by funding received from special national Sea Grant competitions. These two revenue streams are enhanced by six others: faculty match, other federal grants, non-federal grants, state appropriations, county governments and revenue from endowments. All these funding sources provided a "program effort" funding level of \$4.68 million in 2006-07 (see Figures 2-4). FSG has a track record of leveraging its state appropriations (which come from both E&G and IFAS) to expand its program areas. For 2006-07, FSG generated \$2.50 in extramural grant federal funds for each \$1.00 of state appropriations used by the program.

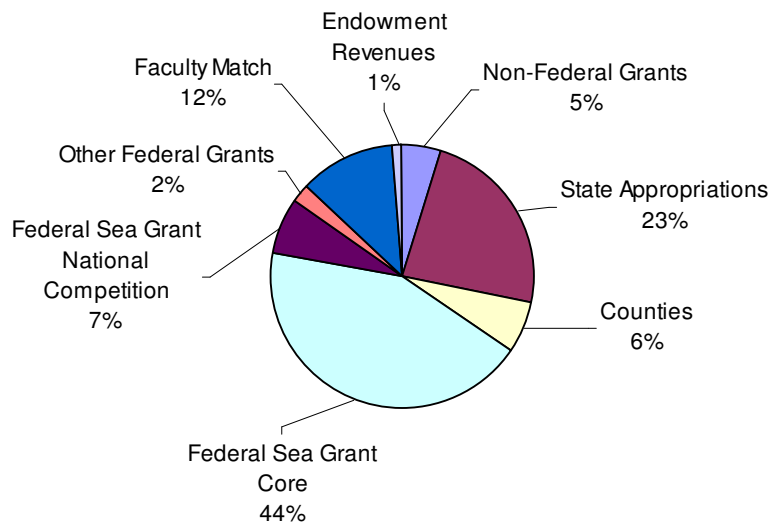


Figure 2. Florida Sea Grant program funding by source of funds, 2006-07 (\$4.68M in program effort).

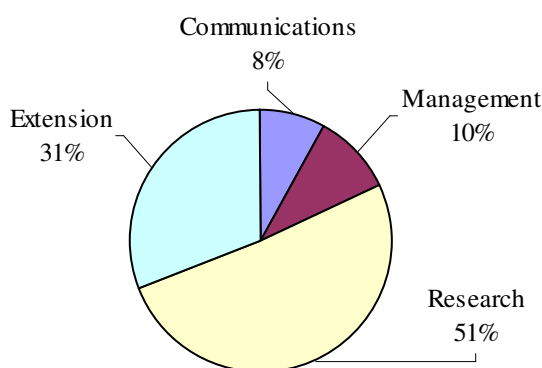


Figure 3. Allocation of Florida Sea Grant federal Sea Grant core program funds by program function, 2006-07.

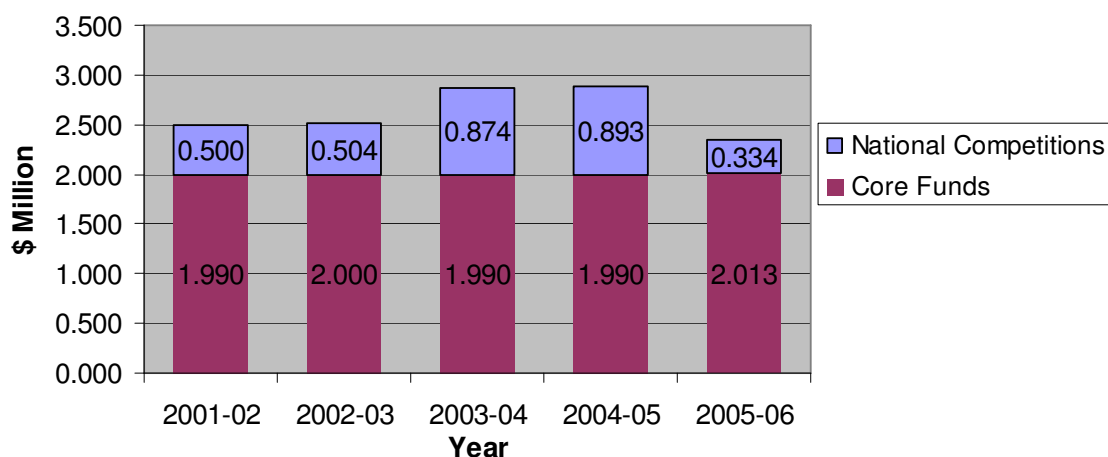


Figure 4. Florida Sea Grant federal funding, 2001-06

### Core Achievements

As noted earlier, FSG sets annual work tasks and performance measures for use in tracking achievements and accomplishments. The achievements noted below are examples of the types of achievements we made during 2006. They represent both programmatic achievements as well as quantitative program-wide assessments.

#### Marine Biotechnology

In contrast to many other subjects addressed by university outreach and extension efforts, in which the established audiences and client groups are large, widespread, and established, marine biotechnology is relatively small and young. But its promise to contribute socially and economically significant health and industry-related products and processes from living ocean resources is great. Thus, Florida Sea Grant has found itself in a unique role of educating decision-makers with focused needs, including business executives, legislators and their staffs, and

scientists -- in contrast to broad and general public audiences. A principal effort in 2006 was organization by FSG of the Florida Marine Biotechnology Summit V held concurrently with the annual BioFlorida conference. This affords an outstanding and unique opportunity to deliver science-based information directly to executives in industry, who may be considering “the buzz” about marine biotechnology and whether to get involved. In fact, one business executive responded to the panel on future marine biotechnology opportunities by indicating his interest to expand into this field. The summit sessions attracted the largest attendance (up to 85) of any of the concurrent sessions of the BioFlorida event. Governor Jeb Bush participated in the Florida Sea Grant Marine Biotechnology Student Awards presentations. The associate director also presented a briefing on marine biotechnology to the U.S. State Department. Development of a national website on marine biotechnology was completed. The FSG associate director participated on the national Sea Grant network “theme team” for marine biotechnology to develop greater coordination and resources among leading Sea Grant programs in the U.S., participated on the board of directors of BioFlorida, the statewide trade association for this field, and maintained liaison with Scripps Florida as well as Tequesta Marine Biosciences, the start-up company based in part on FSG research.

### **Waterfront Communities**

Due to the rapid increase in population in our coastal areas, there is increased pressure along the land/water interface resulting in the loss of public access for water users, as well as a loss of recreational and working waterfronts. As such, planning for the management of waterways and for the protection of working waterfronts have become major policy initiatives in the state of Florida. The Florida legislature has passed important legislation requiring local governments to address these issues in their comprehensive plans, the basic instrument that regulates growth in Florida. To assist local government, Florida Sea Grant, under the direction of Tom Ankersen and Richard Hamann and students and faculty associated with the University of Florida Law Conservation Clinic developed an online resource entitled “Waterways and Waterfronts: A Community Guide and Policy Tools.” This website addresses the legal and policy issues facing Florida waterways and waterfronts and offers a variety of tools for state and local entities to consider in planning for the sustainable management of Florida’s waterways and the preservation of its working waterfronts. For more information on this project, see <http://www.law.ufl.edu/conservation/waterways>

In addition, in the fall of 2006, Florida Sea Grant, the Florida Fish and Wildlife Conservation Commission and University of Florida Levin College of Law sponsored a major state conference “From Stem to Stern: Boating and Waterways Management in Florida” that addressed boating and waterway planning and management issues. Bob Swett, Charles Sidman and Tom Ankersen provided key leadership roles in the development of this conference. More than 180 local governmental officials, planners, agency staff, boating industry representatives and interested public attended this program. Not only did the program provide up-to-date information on current issues, but also the meeting served, through a facilitated process to identify and prioritize needs and strategies to address boating and waterway issues in the future. Florida Sea Grant, Florida Fish and Wildlife Conservation Commission, Florida Department of Environmental Protection, and Florida Department of Community Affairs are using this information to develop joint educational and outreach programs and projects that will be developed in the 2007-08 time frame.

## Workshops and Conferences

During 2006, a total of 791 educational events were conducted by Florida Sea Grant Extension faculty and funded researchers and graduate students.. These range across the following examples of activities.

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

The number of examples is quite varied, but the activity has been organized by Florida Sea Grant goal area as shown in Figure 5. The three leading areas are marine education (41.3%), fisheries (13.9%), and ecosystem health (11.8%). Audience type has also been documented as shown in Figure 6. Community and general education is the leading audience type (33.6%). Finally, Figure 7 shows that 90.4% of all activity has occurred within Florida.

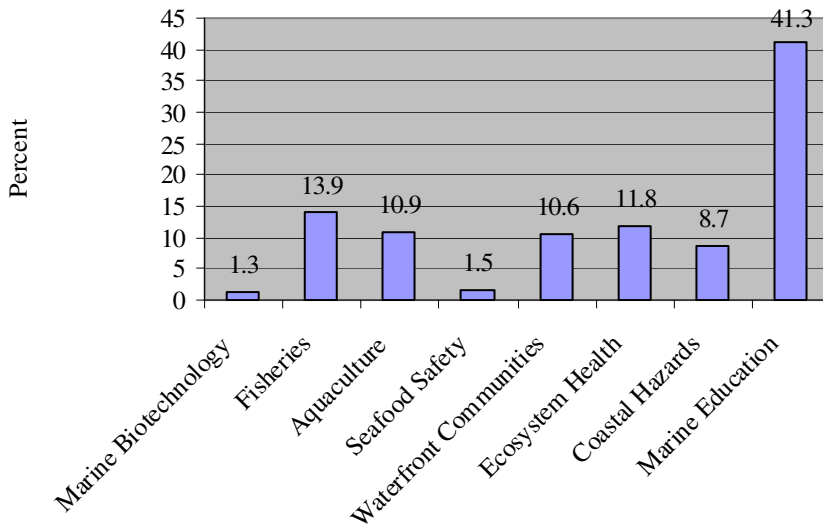


Figure 5. -- Percent of educational events by Florida Sea Grant goal area, 2006.

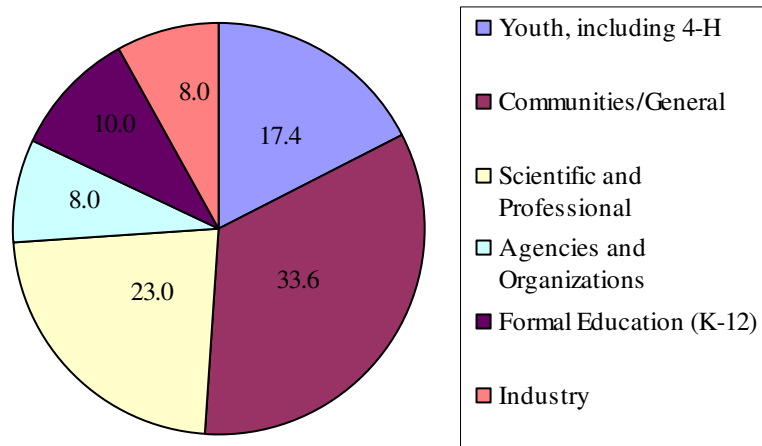


Figure 6. -- Percent of educational events by Florida Sea Grant audience type, 2006.

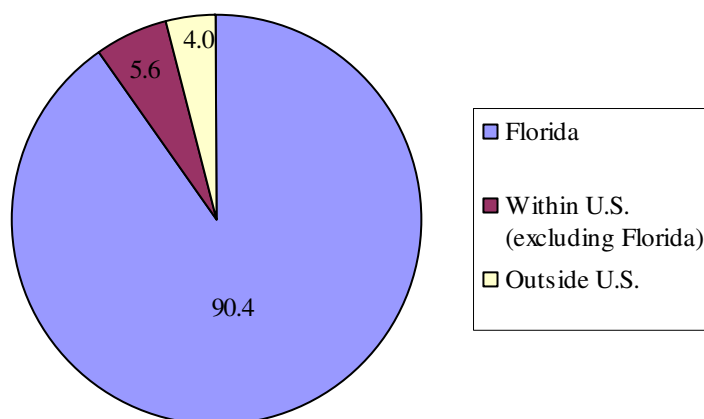


Figure 7. -- Percent of educational events by Florida Sea Grant geographic area of delivery, 2006.

### Protecting Coastal Structures

The vulnerability of man-made coastal structures to hurricane wind damage was evaluated along with reductions in risk through the use of retrofits and new construction methods, and a cost-benefit analysis of these mitigation measures was conducted. The work led to a mitigation component being incorporated into the Florida Public Hurricane Loss Projection model. In particular, the effect of various mitigation measures on the building vulnerabilities, including roof membrane, higher quality shingles, opening protections, improved roof to wall and wall to foundation connections have been modeled and evaluated. The effect on the damages for typical homes in different regions of Florida on an annual basis was evaluated. The cost effectiveness of the different mitigation packages was mapped for the entire state. A new prototype for wireless sensing of pressure and wind speeds during hurricane landfall was also developed. The comparison of full-scale and wind-tunnel model loads on residential housing is a significant contribution to wind engineering, providing for the first time the ability to validate the American Society of Civil Engineers wind load provisions that were based on wind tunnel tests.



## **Fisheries Science Application**

Streamlined DNA techniques and forensic markers were used to accurately and rapidly identify shark species and body parts for 30+ shark species found in US Atlantic and Pacific fisheries and global trade. The technology developed was used by NOAA's Office of Law Enforcement to enforce fishery management regulations. The results of this (and previous FSG funded) research continue to be used by NOAA's Office of Law Enforcement (OLE) to identify shark body parts confiscated from fishers and seafood dealers suspected of fishery regulation violations. By early 2006 assistance had been provided to NOAA OLE (SE Division, NE Division and Guam) on 12 cases so far, with seven of these demonstrating prohibited species. One especially large and ongoing investigation has found fins from several, high profile prohibited species (white sharks, basking sharks, sand tiger sharks) in the possession of a U.S. east coast seafood dealer. The forensic results from this case pertaining to white sharks have been published in the journal Conservation Genetics, with the NOAA OLE agent in charge as a co-author.

## **Publications Productivity**

All Sea Grant programs must submit all SG produced publications to the Sea Grant Pell Depository at the University of Rhode Island. Florida ranks about 6<sup>th</sup> or 7<sup>th</sup> in federal funding levels among the Sea Grant programs. But, during 2006, we ranked first among all programs in number of PDF downloads (of FSG publications) from the Pell Depository (in fact, we had 40% of the downloads for the 10 largest programs). FSG ranked third in number of publications submitted to Pell, second in thesis and dissertations submitted and second in electronic documents submitted.

## **Strategy for Future Achievements**

We believe that our current strategic planning and project and program selection process which determines how we invest our funding for research, education and communications is the best among the 32 Sea Grant programs. This has been proven by the comments of external review teams and by the achievements and successes we have made. We intend to keep the same processes and procedures in place.

## **Top Challenges**

Our biggest challenge is funding. NOAA funding is dismal at the federal level. NOAA is both a service agency and a science agency and is in the Department of Commerce. It competes for science appropriations against NSF and NASA, and does not do well in the competition due to level budget allocations in the House and Senate Appropriations Committees. NOAA has a different OMB budget examiner (who handles Commerce and focuses on economic competitiveness and business opportunities) in contrast to NSF and NASA whose OMB budget examiner understands science. The result is reduced administration appropriations recommendations for NOAA. Sea Grant has been level funded for a number of years, and actually had a federal appropriation of \$55M (down from \$62M) in 2006-07, a lower appropriation than either the Senate or House mark. Most parts of NOAA had the same fate. The likely appropriation for this year (still in limbo) is \$55M and the president's recommendation for 2008-09 is \$55M. This represents about a 10% cut. We have terminated several positions and will keep recent openings unfilled.

The Sea Grant Association is making a substantial effort to restore funding using tactics to target the Department of Commerce, OMB and the Congress. For example, FSG visited 22 Florida House offices last week and one Senate office. Other Sea Grant programs are doing the same. We are also organizing stakeholder and business support for the Sea Grant Program.

Another impediment to success at the state level is lack of Board of Governors support for State of Florida Centers. Each Center is located at a host institution and must seek host institution support and priority for LBR's and other funding increases through that institution. The local institution is not willing to use this as a priority when the funds are used partially in other institutions. Until the Board of Governors is willing to make Centers a statewide priority and fund them differently, this situation is unlikely to change.

### **Unit Improvement Strategies**

See the section on Goals and Outcomes. The way we measure our progress is stated in that section and documents brought to the review will be used as illustrations.

### **Culture of the Unit**

The Sea Grant faculty and staff are an amazing group. They are dedicated to the cause, the program and in serving the people of the state. They take pride in what they have accomplished. The biggest problem we have at this time, particularly for staff, is that they are overworked. We have terminated one full-time and four half-time support staff about the state due to budget reasons; this of course makes people uneasy about their future. The remaining staff are doing more, but at the same rate of pay.

We believe in partnerships. For 2006-07, we are partnering with seven regional organizations (multi-state), five state agencies, 37 Florida counties, six international organizations, four companies, 21 universities and 11 different SG programs in various educational activities and projects. A large number of academic disciplines are involved.

FSG is actively involved with the Sea Grant Association and a number of disciplinary or subject matter focused organizations. A list is available in one of the documents that will be provided during the review. FSG funded faculty published in seven different academic journals during 2006.

### **Budget Requests for New Funding in 2007-08**

The greatest need within our management office is funding to hire a TEAMS Office Assistant. This is a new position, but in fact replaces a long-time position terminated during the last year that was paid from federal funds. The termination was the result of federal budget cuts and mandated pay raises over the years with a level federal budget. We have investigated hiring temp-force people or half-time people on soft money. Neither has been a successful effort. This is a critical position due to the number of grants and contracts we handle. The former position was dedicated solely to handling fiscal transactions. The addition of a permanent person from recurring state funds would drastically relieve the work overload in our office and improve employee moral. The cost would be \$39,395 including fringes.

We are also advancing a Legislative Budget Request for 2008-09 through the IFAS system. This Coastal Extension Initiative would enhance our FSG statewide Extension Program

which is conducted in partnership through IFAS. The total ask is \$1.298M with \$1.173M in recurring funds and \$0.125M in non-recurring. The LBR will fund faculty positions in:

- Marine Biotechnology
- Marine Aquaculture
- Coastal Management and Planning
- Coastal Law
- Coastal Engineering
- Boating and Marine Industries
- Marine Education

It would also fund eight positions in Florida counties without FSG Extension coverage. The LBR would fund 60% of each position; the counties the other 40% of each. Finally, three technicians would be hired; bi-lingual communication specialist, coastal Extension communicator and a lab technician for the Apalachicola oyster lab. A copy of the LBR will be provided during the review.



