

We are pleased to showcase these achievements that contributed to a productive and positive year for Florida Sea Grant. They reflect work with our member institutions, and public and private partners to align our research, extension and education programs to address critical state and national priorities.

In summer 2008, we conducted a survey of program stakeholders and Florida residents to identify coastal and ocean issues, and in a two-day workshop developed comprehensive goals and strategies for the program.

The result is a new Strategic Plan that will guide Florida Sea Grant from 2009 to 2013. The plan identifies four major focus areas: Healthy Coastal and Marine Ecosystems; Sustainable and Hazard-Resilient Coastal Communities; Seafood Production and Safety; and Climate Change: Impacts and Adaptations.

In spring 2009, Florida Sea Grant held the first meeting of its Advisory Council, comprised of leaders from the public and private sector who are highly knowledgeable about issues within the four programmatic focus areas, and who are passionate about helping us maintain program excellence.

We invite you to learn more about our program in these pages. If you would like further information, please visit our Web site (www.flseagrant.org) or contact me directly (khavens@ufl.edu) for additional details.

Thank you,



Karl Havens

Karl Havens, Director
Florida Sea Grant



FLORIDA SEA GRANT

Artificial Reefs and Fisheries Conservation

Florida is responding to fisheries depletion and habitat degradation with one of the nation's most progressive artificial reef programs. Florida Sea Grant augments that effort by developing and disseminating science-based information about improvements to artificial reef technology for the state's coastal communities, as well as a worldwide audience.

For more than three decades, Florida Sea Grant has contributed to the evolution of Florida's artificial reef-building community. Most of Sea Grant's coastal county-based extension faculty are involved in some activity related to artificial reefs — planning, siting, deployment, or monitoring.

In addition, research at several of the state's universities has provided a better understanding of reef ecology, engineering and socioeconomics, in order to improve the state's reef deployment, design and evaluation process. With Sea Grant assistance, researchers have begun to evaluate how gag grouper might respond to conservation reefs to be deployed in the 100 square miles of the Steinhatchee Fisheries Management Area off the state's West coast.

Sea Grant's recent analysis of the economics of artificial reefs shows that artificial reefs provide significant financial benefit to Florida's coastal communities — benefits that exceed costs. These results and other new findings will be reviewed in the upcoming Florida Artificial Reef Summit coordinated by Sea Grant.

Member Institutions

University of Florida (Host)
Gainesville, FL

Florida A&M University
Tallahassee, FL

Florida Atlantic University
Boca Raton, FL

Florida Gulf Coast University
Ft. Myers, FL

Florida Institute of Technology
Melbourne, FL

Florida International University
Miami, FL

Florida State University
Tallahassee, FL

Harbor Branch Oceanographic Institute
Ft. Pierce, FL

Mote Marine Laboratory
Sarasota, FL

New College of Florida
Sarasota, FL

Nova Southeastern University
Dania Beach, FL

University of Central Florida
Orlando, FL

University of Miami
Miami, FL

University of North Florida
Jacksonville, FL

University of South Florida
St. Petersburg, FL

University of West Florida
Pensacola, FL

Spotlights



Doug Gregory, the marine extension agent in Key West, was honored with the Sustainable Fisheries Leadership Award presented annually by

NOAA. Gregory received the Public Education, Community Service, and Media Award for his long-term efforts promoting sustainable fishing practices within the Florida Keys commercial fishing industry, and increasing public understanding of the value of the industry to the community.



Arindam Chowdhury, director of Florida International University's wind engineering research lab, has been named one of Florida International

University's top scholars. Chowdhury is conducting research that tests the integrity of buildings when engulfed in simulated hurricane-force winds. His work is creating a scientific basis for developing risk-based and performance-based design criteria, and will ultimately help to create more sustainable coastal communities.



Laura Garrido, senior scientist in Florida Sea Grant's seafood technology program, recently earned a Superior Accomplishment Award at the University of

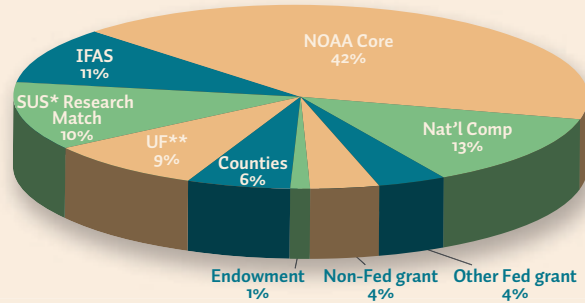
Florida. The award is given to recognize staff and faculty members who contribute outstanding and meritorious service, efficiency and/or economy to the quality of life for students and employees. Garrido is the organizational force behind the highly successful annual UF Shrimp School.



Mahmood Shivji's Sea Grant-sponsored research in developing DNA analysis of sharks is featured in the inaugural exhibits of the newly

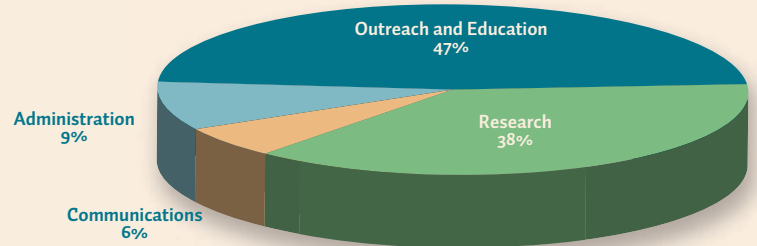
opened Smithsonian's Sant Ocean Hall in Washington D.C. Shivji, a professor at Nova Southeastern University, uses genetics to help NOAA determine the origin of harvested sharks and to sustainably manage the shark fishery. He developed a rapid and reliable method of DNA analysis that puts teeth in NOAA's efforts to prosecute U.S. fishing vessels suspected of trading protected shark species, and exonerate innocent traders.

Where Our Money Comes From . . .



* State University System
** University of Florida

... And How We Use It



Florida Sea Grant Budget 2008-2009

Funding area	Total	%Total
Research	\$1,854,085	38%
Education / Outreach	2,250,108	47%
Communications	276,449	6%
Administration	441,409	9%
Total	\$4,822,051	100%

Featured Publications at www.flseagrant.org



The Effects of Climate Change on Florida's Ocean & Coastal Resources



Florida's Marine Sponges: Exploring the Potential and Protecting the Resource



Navigational, Historical and Environmental Perspective of Charlotte County Waterways



Catch-and-Release: Things you can do to help saltwater fish survive

2008 Publications

Type	Number
Peer-Reviewed Journal Articles	29
Proceedings / Symposia	23
Brochures / Fact Sheets	36
Theses / Dissertations	8
Newsletters / Periodicals	37
Newspaper Articles	132
Websites Developed / Maintained	11
Nat'l Library Downloads of FSG Documents	155,027

DELIVERING RESULTS

Hazard Resilience for Gulf of Mexico Communities

Recognizing a common need for science-based information, tools, technologies and policies to deal with coastal hazards, the Sea Grant programs of Florida, Louisiana, Mississippi-Alabama and Texas are partnering with the U.S. Environmental Protection Agency Gulf of Mexico Alliance and the U.S. Geological Service to identify and fund regional research projects in 2010-2011. Priority is being placed on hazard resiliency research projects with outcomes that have practical applications for coastal communities and that include an outreach process to ensure that the link between science and implementation is realized.

Wall of Wind



ARINDAM CHOWDHURY

Hurricanes are the most devastating of all catastrophic natural hazards affecting the U.S. In economic terms alone, the average annual loss is \$35.8 billion.

A first-of-its-kind wind machine at Florida International

University, dubbed the Wall of Wind, is now enabling full-scale testing of entire structures engulfed by simulated hurricane-force winds, wind-driven rain and flying debris. The six-fan Wall of Wind can generate winds of up to 130 mph and of sufficient wind field size to engulf a single-story residence. A new 12-fan system is being developed to simulate up to Category 4 winds.

Researchers expect that the Wall of Wind will significantly reduce threats to safety and property by helping homeowners and the construction industry identify and remedy weakness in existing buildings. It could potentially be as effective for wind engineering as crash testing has been for the automobile industry.

To Speed or Not to Speed?



DON BEHRINGER

Imposing speed zones on congested waterways is often controversial, especially if shoreside communities and boaters can't agree where restricted speeds are needed to ensure safety.

In Florida, the state agency that regulates boating speeds, the Florida Fish and Wildlife Conservation Commission (FWC), needed a more uniform, defensible way to deal with ever-increasing speed zone complaints, and it turned to Florida Sea Grant researchers.

Now, the agency is testing a data-driven approach that takes some of the guesswork out of the process of deciding where speed zones are most needed. One key aspect of the approach uses advanced mapping technology to help both regulators and boaters more quickly envision the relative safety risks on specific waterway segments.

Sea Grant and FWC tested the new method on the portion of the Intracoastal Waterway in Martin and Palm Beach counties. FWC may apply the approach to help guide the revision or establishment of speed zones on all waterways under its jurisdiction.

Improving Storm Surge Prediction

Much of the damage from hurricanes is associated with storm surges and coastal flooding. Researchers at the University of Florida are validating a new storm surge and coastal flooding model, which will be coupled with a model for shoreline erosion, with extensive hurricane data. This research will significantly advance our ability to predict coastal hazards. Output maps from the model already are being used by the state of Florida in its annual hurricane planning exercises.

Using DNA to Reverse Shark Decline



UF/IFAS FILE PHOTO

Many shark populations throughout the world face sharp decline, driven by the popularity of shark fin soup, which has created a highly lucrative but unsustainable market for shark fins. To counter the decline, shark conservation in the U.S. and worldwide requires comprehensive management and trade monitoring — previously impossible because little reliable information on the population structure of most shark species was available. With funding from Florida Sea Grant, scientists at Nova Southeastern University developed a DNA analysis method that pinpoints species and population from even the smallest bit of shark tissue. Now that resource managers can identify the source of shark meat and shark fins in worldwide markets, the U.S. can take a leadership role in population-specific shark management. In a surprising aside, researchers also discovered some sharks can resort to non-sexual reproduction when mates cannot be found, for instance as a population shrinks.

One Fish, Two Fish, Redfish...



FLORIDA SEA GRANT

Fish caught in Florida's popular redfish tournaments are often released in a new location at a weigh station miles from where they were caught, and often after much handling.

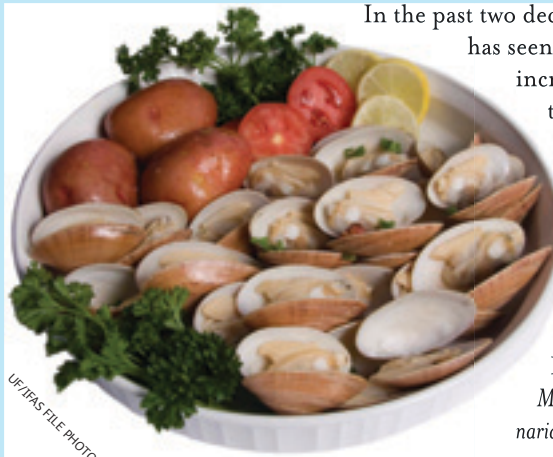
The Redfish Tracking Project

evaluates the fate of tournament fish caught by youth anglers at the annual WaterLife Kids Cup Redfish Tournament in Charlotte Harbor. The project is now in its third year. Each year, approximately 20 redfish are surgically implanted with acoustic tags and released. Minutes after, the acoustic tags begin showing up on underwater listening units installed throughout the harbor. For several weeks thereafter, the fish are tracked and results published online.

Tournament weighmaster Ralph Allen recalls the enthusiasm of participants. "Watching the kids view the procedures involved with the sedation, surgery, recovery, release and tracking of their own redfish was a revelation," he said. "I believe that there were probably at least a handful of future biologists created that very day."

Sea Grant's extension agent in Charlotte County, Betty Staugler, organizes both the research and education components of the redfish tracking project.

Coming Right Up! Sunray Venus Clams



UF/IFAS FILE PHOTO

In the past two decades, Florida has seen a dramatic increase in aquacultured shellfish production, but the industry is built largely on a single species, the familiar Cedar Key clam, *Mercenaria mercenaria*. Sea Grant researchers at Harbor

Branch Oceanographic and the University of Florida are examining the viability of culturing a second species, the sunray venus clam, to diversify the industry.

Sunray venus clams are a species native to Florida. When cooked, the shell turns a delicate pink.

Early research shows that the clams can be spawned and cultured using methods similar to those for hard clams. The question remains as to whether sufficient consumer demand exists for the clams, at a price that makes it worthwhile for growers.

The first crop of clams has been tested in a handful of restaurants around the state, and results are being evaluated. Information collected from consumers and chefs is helping to determine an appropriate market price. Soon, Florida aquaculture may bring this tasty treat back to a restaurant near you!

Catching on to Catch-and-Release Fishing

One principal focus of Florida Sea Grant's fisheries research and extension efforts has been teaching recreational anglers how to reduce mortality of fish caught and released.

In 2008, new Florida and federal regulations required fishermen angling for reef species in the Gulf of Mexico to carry new gear that would reduce mortality of fish. This created an urgent need to educate an estimated 3.3 million anglers in Florida and across the Gulf on proper sustainable handling techniques.

Sea Grant's extension faculty mobilized a catch-and-release education program at strategic locations around the state to provide training on sustainable fishing methods, and serve as a forum to discuss the implementation of the new rules.

Faculty used an eye-catching "toolkit" tackle box, filled with samples of the specified fishing gear — circle hooks, dehooking tools, and venting tools — to stimulate interaction with audience members.

Evaluation data suggest that attendees feel confident in their ability to correctly use the tools, and either already use them or are very likely to do so in the future. In addition, the educational materials developed by the effort have already been requested and used by other Gulf-region Sea Grant programs.



UF/IFAS FILE PHOTO

Provide highly relevant research, extension and significant impacts for the oceans and coasts.

Thanks from a Florida Teacher Participant

Centers for Ocean Sciences Education Excellence, or COSEE, is a national initiative in ocean science education funded by the National Science Foundation to provide professional development opportunities for both formal and non-formal educators. Florida Sea Grant coordinated a 2008 summer COSEE workshop in Cedar Key, FL.

Hi, I just wanted to show what I did with my students this year, and how I applied my newly learned skills from cedar Key into my classroom. Students had a lot of fun learning about the Everglades National Park through hands-on activities and field trips. We are concluding our project with a field trip to the International Game Fish Association museum in Dania Beach.

The workshop in cedar Key gave me many ideas and resources to make this project happen. Please take a look at my students' webpage. Let me know what you think.

Ms. Maggie Swider,
Florida Teacher and COSEE participant

2008 Education/ Outreach Activities

Education	Undergrad	MS	Ph.D
College Students Supported	22	40	30
Students Graduated	10	19	5

Outreach	# Attendees
K-16 Teacher Training	701
Seminars / Workshops / Symposia	7894
Public Presentations	11311
Professional Development Sessions	569
Programs for Children and Families	4508
Hours Volunteered by FSG Staff	2320

Fellowship Recipients



Steven Saul is a doctoral student in marine biology and fisheries at the University of Miami Rosenstiel School of Marine and Atmospheric Science. He was one of five national awardees of the joint NOAA Fisheries-Sea Grant Population Dynamics Graduate Fellowship, which provides three years of funding for Ph.D. students to carry out dissertation research in the study of the growth, recruitment and mortality of fish populations.



Melanie King is a recent graduate of the University of Florida Levin College of Law with a specialty in environmental land use law. She earned a Knauss Marine Policy Fellowship, which matches graduate students with hosts in the legislative and executive branch of federal government in the Washington, D.C. area, for a one-year paid fellowship.



Jennifer DuPont, also a Knauss Fellow, is a Ph.D. candidate at the University of South Florida College of Marine Science. She is working as a program analyst of international activities in NOAA, and recently traveled to the Unmanned Vehicle Systems Conference in Paris, where she delivered a presentation on NOAA's environmental applications of unmanned aircraft systems in the Arctic.



Brian Badgley is the 2008 recipient of the Aylesworth Foundation scholarship and the Old Salt scholarship, awards given to students pursuing academic interests with direct application in marine science. Badgley is a Ph.D. candidate in the biology department at the University of South Florida.

Safe Eats



For the second straight year, buyers from key retailers in the U.S. seafood industry headed back to school for Florida Sea Grant training on marketing Gulf of Mexico oysters and clams from harvest to table.

"Shellfish School" provides practical and comprehensive training to seafood wholesalers, distributors and processors on a wide range of topics including safety, sustainable harvest, market preference and product quality. The curriculum was developed by the University of Florida/Sea Grant Aquatic Food Products team in cooperation with state and federal regulators and shellfish processors in Apalachicola.

Shellfish School is patterned after another joint UF/Sea Grant seafood technology program, the annual Shrimp School. Since its creation in 1995, Shrimp School has become the leading academically based domestic and international training program for shrimp processors and regulators worldwide.

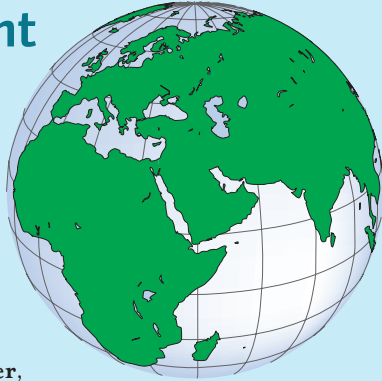
Both schools provide hands-on experience for buyers to learn about the harvest and processing of seafood, according to organizer Steve Otwell, Sea Grant's seafood technology specialist.

Otwell is also active on the international front. With assistance from the National Fisheries Institute, he is working to ensure safe seafood imports by developing sanitation standards for Chinese processors exporting fish to U.S. seafood firms. He is also helping Florida oyster producers open markets in China, based on Chinese demand for safe seafood products from the U.S.

Florida Sea Grant is International

Indonesia

Mike Spranger, Florida Sea Grant Associate Director of Extension, led a UF team in 2008 that participated in the 4th annual NOAA-MMAF Capacity Building Workshop. **Betty Staugler**, Charlotte County Marine Agent was also a member of the team. These workshops bring U.S. and Indonesian government officials and researchers together to share applications of science to local decision making. The team also met with representatives of three Indonesian universities and established formal cooperative agreements to facilitate academic development and collaboration among the institutions. Spranger was also an invited member of the NOAA delegation and speaker at the World Ocean Conference in Indonesia in 2009. More than 3,000 individuals from 80 countries attended the event.



Thailand and Vietnam

At the invitation of Kasetsart University in Bangkok, marine extension economist **Chuck Adams** spoke to marketing students on recent trends in world seafood supplies, emphasizing talks between the U.S. and Thailand over seafood trade disputes and recently imposed tariffs, and also the growing dependence of the U.S. market on seafood culture in Southeast Asia.

Ireland

Bill Mahan, Franklin County marine extension agent, visited marine aquaculture and research facilities in Ireland's coastal communities. He also spent time with members of the Donegal Community Development group who had visited Florida and the town of Apalachicola in 2006 to study a community's transition from a commercial seafood-based economy to a more tourism/real estate-based economy.

New Zealand

John Stevely worked with scientists at the New Zealand National Institute for Water and Atmosphere Research to analyze 15 years of data on sponge population recovery in the Florida Keys following an extensive sponge mortality. The team documented that the impacts of the mortalities are long-lasting — over 15 years was required for sponges to recover to prior abundance levels. In contrast to other studies, the team found that the abundance of some species of Keys sponge populations change from year to year, and that sponges can be resistant to the impacts of hurricanes, but particularly susceptible to harmful algae blooms.

Moving Forward



Florida Sea Grant is moving forward with a number of initiatives under our new Strategic Plan. In 2009, Florida Sea Grant-affiliated environmental law faculty will implement a multi-faceted program to assist coastal communities in incorporating sea-level rise into their land-use policies and actions.

Law faculty also will work with selected coastal communities as 'climate test beds' for implementation of adaptation strategies for sea-level rise.

In a related effort, Sea Grant's director will facilitate dialogue among resource professionals and planners in coastal communities so that they collectively can become better prepared for impacts of climate change. He will also provide assistance to rural coastal communities with the visioning and decision-making necessary to preserve cultural heritage, natural resources, and water-based recreational opportunities.

Florida Sea Grant also will develop a statewide program to inform residents and visitors of actions they can take to help protect and sustain ocean and coastal resources. The fundamental principles — become informed and take action, volunteer, spread the word, and participate in local decision processes — will be tailored to specific audiences (boaters, fishers, waterfront business owners, tourists, residents) and delivered in a comprehensive multimedia program.

Building on a successful collaboration related to catch-and-release fishing, Florida Sea Grant is partnering with the Florida Fish and Wildlife Conservation Commission in the upcoming year to develop a protocol for volunteer groups to conduct derelict crab and lobster trap removal events.

Finally, following the success of Gulf of Mexico regional collaborations, the Sea Grant programs of North Carolina, South Carolina, Georgia and Florida will identify issues of common concern that also are a priority of the South Atlantic Governor's Alliance, and develop plans for cooperative research and outreach.



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