



# 2010-2011 FLORIDA SEA GRANT PROGRAM HIGHLIGHTS



Charles Mangio



Keith Mille

## BURIED TREASURE: STUDY FINDS ARTIFICIAL REEFS SPUR ECONOMY



Keith Mille

**F**or more than three decades, Florida Sea Grant has played a leadership role in the state's artificial reef program. These days, the reefs are luring a lot more than fish. The reefs, which provide habitat for popular sport fish and other marine life, pulled more than \$253 million into a six-county area of Southwest Florida in 2009, according to results of a recent Florida Sea Grant study.

Though it costs nothing more than a saltwater fishing license to fish the submerged structures, anglers and divers spent money on food, lodging, fuel, tackle and other necessities. Visitors accounted for almost half of the expenditures, bringing more than \$117 million in new money to the local economies.

The study showed extensive use of artificial reefs by many sectors, including residents, visitors, private boaters and for-hire clients. For example, on a daily basis, an average of more than 5,600 persons along the state's Southwest coast engaged in some artificial reef-related activity.

*Continued on back cover*

### MEMBER INSTITUTIONS

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Tallahassee, FL

Florida Atlantic University  
Boca Raton, FL

Florida Gulf Coast University  
Ft. Myers, FL

Florida Institute of Technology  
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Florida International University  
Miami, FL

Florida State University  
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University of South Florida  
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# A WORD FROM THE DIRECTOR:



In the 35 years since Florida Sea Grant was established as a partnership between the National Oceanographic and Atmospheric

Administration and the State University System of Florida, we have developed strong partnerships with the Florida Cooperative Extension Service, coastal counties, state agencies and NGOs.

Despite nearly flat federal funding, Florida Sea Grant has grown its overall budget and its faculty and staff diversity and expertise, and has created new funding opportunities for students. This is due to generous private donations and good success in obtaining additional federal, state and regional grant funding – and continued strong support by the University of Florida.

Our fundamental approach is conducting extension and outreach that provide solutions to high priority issues of coastal constituents, partnering with other organizations to achieve efficiency and effectiveness in tackling complex problems, and funding solution-oriented applied research.

Sea Grant's unique ability to create jobs and small businesses, and to develop tools that save tax dollars, can be seen in our cover article about how collaborative research, outreach and education on artificial reefs has resulted in more than 2,500 new jobs, over \$220 million in economic output, and more than \$250 million in annual expenditures.

Thank you for reading this report and please visit our website for more details about the contributions that Florida Sea Grant is making to coastal sustainability and economic recovery.

*Karl Havens*

Karl Havens, Director  
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## BAIT, THE NEXT BIG CATCH

Here's a business tip about farming fish in Florida that may surprise you.

The real opportunity in culturing saltwater fish may not be for a food fish at all. Instead, industry watchers think there's more to gain by growing baitfish – the pinfish, pigfish, killifish and other minnows that recreational anglers use to catch popular sport fish.

No one is counting profits just yet, but progress is being made. "There are some unknowns right now that are preventing the development of an established aquaculture industry in the state, but our research is working to answer those unknowns," says **Cortney Ohs**, a University of Florida fisheries researcher who is leading a NOAA-funded Florida Sea Grant study to develop the aquacultured baitfish industry as a profitable alternative to the wild-caught fishery that currently dominates the state's baitfish supply.

While Florida's recreational saltwater fishery is the largest in the nation, only a small fraction of the nation's baitfish farms are located in the state.

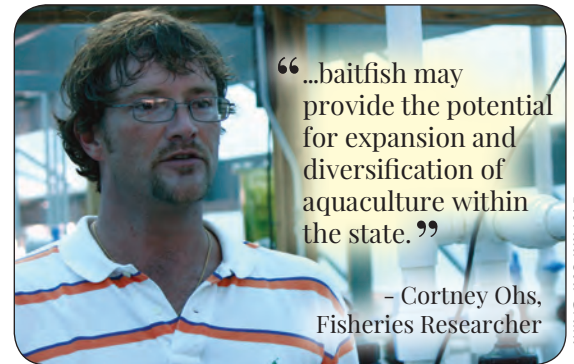
"The disparity clearly illustrates that baitfish may provide the potential for expansion and diversification of aquaculture within the state," he says.

In addition, anglers' demand for baitfish is strong year-round, while supply varies almost daily. The ability to supply retailers year-round is one issue marine baitfish producers can overcome, says Ohs.

"Fishing for wild-caught stocks depends on weather, tides, water temperatures and more. Marine baitfish produced by aquaculture can provide a consistent supply of desirable bait, regardless of season," Ohs says.

Existing aquaculture producers have shown great interest in the project. Ohs is working with potential producers, as well as distributors, to help them learn about the multiple aspects required for a successful aquaculture operation, including marketing, economics, environmental sustainability and regulatory requirements.

The periodic workshops and trainings his project team holds are given at UF's aquaculture facility at the Indian River Research and Education Center in Fort Pierce.



"...baitfish may provide the potential for expansion and diversification of aquaculture within the state."

- Cortney Ohs,  
Fisheries Researcher

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## STUDY RAMPS UP A COASTAL COUNTY'S ECONOMY

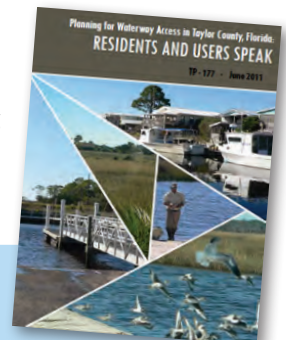
Taylor County—well-known to Floridians as home of Steinhatchee, a popular fishing and bay scalloping destination—recently received an economic boost thanks to a user survey led by **Charles Sidman** and **Garin Davidson**, Florida Sea Grant.

The 2010 study, *Planning for Waterway Access in Taylor County, Florida: Residents and Users Speak*, helped the county receive at least \$700,000 in funding to build or improve waterway access facilities. For a county whose economy thrives on nature-based recreation and tourism, access to safe, well-maintained boat ramps and parking facilities is critical.

Results of the study, conducted with Sea Grant's boating and waterway planning program and Taylor County Extension, show that public waterway access facilities sustain 158 jobs and contribute more than \$10 million to the local economy. The study helped the county receive funding from state and federal agencies, and boosted efforts to construct a new, three-lane boat ramp with a floating dock system near the mouth of the Steinhatchee River, giving users quick access to the Gulf of Mexico.

"The Florida Sea Grant study is timely. It confirms broad support from the public ... and also supports our plans to expand our County's economic base by developing the sectors that depend on outdoor recreation and tourism."

- Jack Brown, Taylor County Administrator



# SPOTLIGHTS



**Don Sweat** was honored with the national William Q. Wick Visionary Career Leadership Award in recognition of his career achievements in Sea Grant Extension. Sweat was the first extension agent hired by Florida Sea Grant's then-fledgling marine extension program in 1977. Before retiring

in 2010, he served as marine extension agent for Pinellas, Pasco, Hernando, Citrus and Levy counties. He is credited with helping found The Pier Aquarium in St. Petersburg, changing state regulations that govern the state's marine sponge industry, and playing a principal role in research efforts that resulted in the re-opening of the recreational scallop fishery off Citrus and Hernando counties.

A book edited by **Maia McGuire**, agent for Florida Sea Grant Extension in St. Johns and Flagler counties, recently won the Independent Book Publishers Association's Benjamin Franklin Award. *Explore the Southeast National Marine Sanctuaries* is the first in a four-book series introducing the National Marine Sanctuary system. The book was selected as a category winner from more than 1,300 entries. The book's publisher, Ocean Publishing, accepted the award.



**LeRoy Creswell**, regional extension agent, was elected president of the National Shellfisheries Association. Founded in 1908, the association is an international organization of scientists, management officials and members of industry concerned with the biology, ecology,

production, economics and management of shellfish resources.

**Staci Biondini** has joined Florida Sea Grant as the communications coordinator. Her responsibilities include developing information products that support Sea Grant's research and extension program. Biondini holds a B.S. in public relations and an M.S. in mass communications from the University of Florida.



## SUNRAY VENUS MAKES INTERNATIONAL DEBUT

The debut of Florida's sunray venus clam at the International Boston Seafood Show marks yet another milestone in the cooperative efforts between the state's clam growers and Florida Sea Grant researchers. Farming hard clams is now Florida's most lucrative marine aquaculture industry, supporting more



*Aquaculture specialist Leslie Sturmer, left, offers samples of sunray venus clams to buyers at the International Boston Seafood Show.*

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than 550 jobs in Cedar Key alone and producing a \$53 million annual statewide economic impact. But the industry is built on a single species, so clam growers have been participating in field trials coordinated by Sea Grant aquaculture specialist **Leslie Sturmer** to evaluate the potential of growing the sunray venus clam. Consumer acceptance of the sunray venus in test Florida markets has been strong; more than 250 international visitors who sampled the sunray venus in Boston seemed to agree. Researchers are now exploring distribution technologies and market gaps to enhance the industry's growth potential.

## BOATING WORKSHOPS PROMOTE BEST PRACTICES

The boating season never ends in Florida.

Neither does the balancing act that coastal communities perform to provide safe, open navigable waters while protecting their natural resources for all users. In a series of workshops around the state, Florida Sea Grant's boating and waterway planning program has been bringing together marina owners, resource managers and policy makers to promote sound management practices in the state's waterways.

Florida is the nation's No. 1 boating destination, with more than one million boats registered in the state. In 2010, the boating industry had an estimated \$16.8 billion economic impact on the state, and supported more than 200,000 jobs.

More than 200 individuals around the state will have attended one of the Sea Grant boating workshops when the series is completed. Among the issues prioritized for action in the coming months are boater education, derelict vessel removal, funding concerns, natural resource protection, and improved methods for economic valuation. Complete workshop summaries are available at the Florida Sea Grant website.



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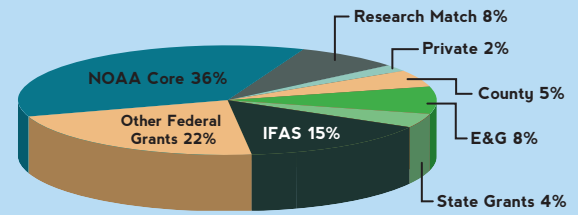
## BRINGING SEAFOOD INDUSTRY UP TO DATE

Florida Sea Grant's seafood specialist **Steve Otwell** and seafood research coordinator **Victor Garrido** led nationwide training to update the \$27 billion U.S. seafood industry and its 250,000 workers about revisions to mandatory seafood safety regulations. Otwell chairs the alliance of Sea Grant seafood experts, inspectors, industry officials and government authorities that organized the training. More than 330 individuals from the nation's top importers, distributors, processors and restaurants attended. The sessions coincided with the release of new editions of FDA's Guidance for Industry: *Fish and Fishery Products Hazards and Controls Guidance*, and the *HACCP Training Curriculum*. The two books, published by Florida Sea Grant, are the recognized curriculum manuals for the requirements outlined in FDA's Seafood HACCP regulations. HACCP (pronounced has-sip), stands for Hazard Analysis and Critical Control Point, and is the food safety management system used in all segments of the seafood industry.

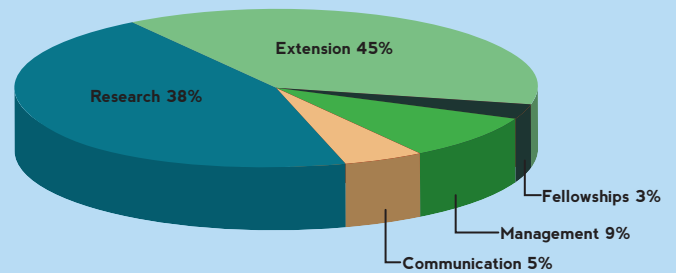


CUMULATIVE BUDGET 2010-2011		
Funding Area	Total	% Total
Research	\$2,165,000	38%
Extension	\$2,591,000	45%
Communication	\$269,000	5%
Management	\$536,000	9%
Fellowships	\$156,000	3%
<b>Total</b>	<b>\$5,719,000</b>	<b>100%</b>

## WHERE OUR MONEY COMES FROM...



## ...AND HOW WE USE IT



2010 PUBLICATIONS	
Type	Number
Peer-Reviewed Journal Articles	30
Proceedings/Symposia	1
Brochures/Fact Sheets	21
Theses/Dissertations	13
Newsletters/Periodicals	8
Newspaper Articles	222
Websites Developed/Maintained	13
National Library Downloads of FSG Documents	201,389

## 2010 EDUCATION/OUTREACH ACTIVITIES

	EDUCATION		
	Undergrad	MS	Ph.D.
College Students Supported	10	35	22
Students Graduated	10	24	6

Outreach	# Attendees
K-12 Teacher Trainings	812
Meetings/Workshops/Conferences	3,239
Public/Professional Presentations	10,868
K-12 Students Reached	22,554
Citizen Volunteer Hours	6,114

## ANCHORING AWAY: GOVERNMENT REGULATIONS AND THE RIGHTS OF NAVIGATION IN FLORIDA



The third edition of *Anchoring Away*, an analysis of anchoring laws for the state of Florida, was published in 2011. While there has been little change in the federal law since the first edition in 1999, Florida law has undergone two significant revisions. **Thomas Ankersen**, Sea Grant legal specialist and lead author, says the new edition describes the current state of the law in Florida, offers a brief taxonomy of vessels, and a review of "rights of navigation" under international law as they apply to anchoring.



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## SCHOLARSHIP AND FELLOWSHIP RECIPIENTS



**Lisa Gardner Chambers**, a Ph.D. student in the Department of Soil and Water Sciences at the University of Florida, and **Michael Gil**, a Ph.D. student in the Department of Biology at the University of Florida, earned \$19,000 Nutrient Dynamics Fellowships for 2011 through 2013. Chambers' research will investigate how fluctuations in salinity and increased nutrient inputs may affect the activity of soil microbial communities

in coastal wetlands, making wetlands more prone to disturbance by sea-level rise. Gil's research will examine the mechanisms behind nutrient-induced grazer responses in coral reefs and how those responses may be mediated by both the nature of enrichment and spatial habitat characteristics.



**Becky Blanchard** and **Katrina Phillips** earned Knauss Marine Policy fellowships for 2011. Blanchard is pursuing a Ph.D. in anthropology at the University of Florida. Her dissertation explores the links between management of the highly contested Apalachicola-Chattahoochee-Flint river system and the health of the Apalachicola Bay

oyster fishery. Phillips is pursuing an M.S. in marine affairs and policy at the University of Miami. Considerable field work has given her first-hand experience with issues such as marine debris in the Caribbean and impacts to foraging habitat of loggerhead turtle, and increased her passion for working to find solutions to these and other global marine issues.



**Mark Fitchett**, a Ph.D. candidate in marine biology and fisheries at the University of Miami Rosenstiel School for Marine and Atmospheric Studies, is one of six national awardees of the joint NOAA Fisheries-Sea Grant Population Dynamics Graduate Fellowship for 2010 through 2013. The program provides up to 3 years of funding to carry out research on fisheries populations. His research pertains to the Eastern Pacific sailfish recreational fishery.



**Chelsea Bennice**, **Cheston Peterson**, **Mark Squitieri** and **Christina Walker** are the recipients of the 2011 Guy Harvey Scholarship. Each student is researching the effects of the Deepwater Horizon oil spill on pelagic fishes, and in support of that work, each received a \$5,000 award. Bennice, an M.S.

student in the Department of Biological Sciences at Florida Atlantic University, is examining habitat selection among fishes and shrimp in the pelagic Sargassum



community and the impacts of the spill. Peterson, an M.S. student in the Biology Department at Florida State University, is investigating the effects of the spill on the trophic ecology of sharks and teleost fishes of the Florida Big Bend using



stable isotope analyses. Squitieri, an M.S. student in the College of Marine Sciences at the University of South Florida, is detecting fish oil spill exposure using elemental crude oil markers recorded on otoliths. Walker, an M.S. student in the Department of Biology at the University of North Florida, is examining the effects of the oil spill on four species of sharks.



**Matt DiMaggio**, a Ph.D. candidate in the Program for Fisheries and Aquatic Sciences at the University of Florida, received an Aylesworth Scholarship in 2010. His aquaculture research has a special focus on the physiological effects of salinity on marine baitfish aquaculture.



**Austin Gallagher**, a Ph.D. candidate at the Abess Center for Ecosystem Science and Policy at the University of Miami, received the \$1,000 Florida Outdoor Writers Association scholarship for outdoor communicators. He is working with the angling community in southern Florida to promote sustainable catch-and-release shark fishing.



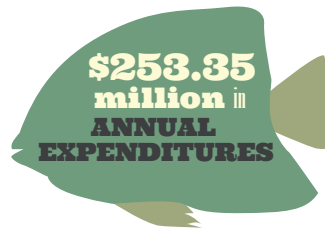
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Expenditures on reef-related activities also helped generate more than \$16 million in business tax revenues, and supported more than 2,500 full- and part-time jobs.

The six counties involved in the study – Pinellas, Hillsborough, Manatee, Sarasota, Charlotte and Lee – indicated they invest as little as \$20,000 to \$60,000 a year on the reefs – with some years requiring little to no spending.

“That shows me that there’s a lot of bang for the buck in terms of what the counties get out of the artificial reef programs,” says Florida Sea Grant boating and waterway specialist **Bob Swett**, who led the study.

The results also showed that while artificial reef users were more likely to support public spending on artificial reefs, a large percentage of non-users were also supportive. Respondents were asked if they supported, opposed or were neutral on the use of public funds to provide and maintain artificial reefs for recreation in Florida’s waters.



The support among non-users ranged from 61 to 71 percent.

While the study was limited to approximately one-third of the artificial reefs in Florida, there are more than 2,500 artificial reefs in the state’s coastal waters, meaning the statewide economic benefit is likely even greater.

Many of Florida Sea Grant’s coastal county-based extension faculty are involved in some activity related to artificial reefs. Sea Grant Extension has also organized recent statewide artificial reef conferences as well as regional workshops. These events play a critical role in reinforcing collaborative ties among stakeholders and developing future planning initiatives.

To review all of the study’s findings, check out Florida Sea Grant publication TP-178, *Economic Impacts of Artificial Reefs for Six Southwest Florida Counties*. Individual economic analysis fact sheets are also available for each of the counties included in the study.

*Mickie Anderson, UF/IFAS News Director, contributed to this story.*

## FLORIDA SEA GRANT IS INTERNATIONAL

Florida Sea Grant is helping Caribbean nations provide effective fisheries management. In partnership with the Caribbean Regional Fisheries Mechanism, Sea Grant will lend technical assistance to local fisher folk organizations so they can promote the sustainable use of fishery resources. **Riviere Sebastien**, a senior fisheries management officer from the **Commonwealth of Dominica, West Indies**, designed the outreach project on a NOAA-funded international capacity building grant at the University of Florida, in coordination with **Charles Sidman**, Sea Grant’s associate director for research, and **Mike Spranger**, associate director for extension and education.

**Thomas Ruppert**, coastal planning specialist, travelled to **Colombia** through the Climate Change Fellows program of Partners of the Americas. He visited the nation’s Caribbean coast to learn about sea-level rise vulnerabilities and actions, understand local needs and identify potential partners for cooperative projects related to climate change and sea-level rise. The fellowship was funded by the U.S. Department of State.



Sea Grant extension agents **Bryan Fluech**, Collier County, and **Betty Staugler**, Charlotte County, presented at the World Recreational Fishing Conference in **Berlin, Germany**. Fluech spoke about a program developed with **Joy Hazell**, Lee County and the Florida Fish and Wildlife Conservation Commission to offer fisheries regulations training for those who routinely interact with anglers. Staugler spoke on a tagging study and economic impact analysis she conducted through a youth fishing tournament. The tagging project provided new insights into post-tournament fish dispersal, and enhanced young anglers’ interest in conservation.

Florida Sea Grant Director **Karl Havens** chaired a scientific review in **Delft, Netherlands** that the Dutch government convened to address a decline in migratory bird populations. Reviewers evaluated an ongoing multi-million-dollar research program that seeks to explain a 20-year decline in the number of migratory birds in large Dutch lakes. Havens, a professor of aquatic ecology at the University of Florida, was tapped to chair the review based on his expertise in the management and restoration of shallow lakes and wetlands, and his familiarity with those ecosystems in northwestern Europe.



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