



# Florida Sea Grant College Program

## 2011-2012 Progress Report

Florida Sea Grant College Program  
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## **CONTENTS**

Introduction .....	2
Program Management and Organization .....	4
Research.....	10
Extension.....	13
Marine Education.....	19
Communications .....	20
Accomplishments and Impacts .....	23
Summary .....	36

TP-196  
October 2012

This publication was supported by the National Sea Grant College Program of the U.S. Department of Commerce's National Oceanic and Atmospheric Administration under NOAA Grant No. NA10-OAR-4170079. The views expressed herein do not necessarily reflect the views of any of these organizations.



## INTRODUCTION

With more than 1,350 miles of coastline and nearly 80% of its 19 million residents living within 60 miles of either shore, Florida truly is a state whose future depends on how people interact with the coastal lands and sea. More than 78 million visitors come to Florida each year to enjoy our beautiful beaches, diverse fisheries, coral reefs, recreational boating opportunities, and the many other coastal and marine resources the state has to offer. People also exert considerable pressure on the coastal and marine resources. To help sustain our coasts, there is a need for objective information to guide people's actions and support resource managers.

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 University of Florida Institute of Food and Agricultural Sciences (IFAS) Extension, coastal communities, state agencies and NGO's. 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, 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. Every Florida Sea Grant activity and accomplishment satisfies three simple but tough criteria: it (1) is based on a strong rationale; (2) demonstrates scientific or educational merit; and (3) produces results that are clearly useful and applicable in industry, management or science. These activities are guided by priorities developed through a statewide strategic planning process that includes the input of hundreds of Floridians representing industry, academia, coastal communities and government.

Six core values allow Florida Sea Grant to deliver results based on these criteria:

- 1) Excellence. Research is funded on a competitive basis, with scientific merit and relevance as the two most important criteria. Extension programs and activities are based on reviewed faculty plans of work. Communications efforts use the latest technology to achieve maximum output, visibility and citizen receipt of our science-based information.
- 2) Participation. High value is placed on the involvement of a large number of participating institutions in each research, education and extension program. Graduate student involvement is also high. We require researchers to identify and work with end-users to develop projects that provide solutions to real-world coastal and ocean issues.
- 3) Accountability. Both external and internal processes are used to measure a wide range of achievements. These include tracking the scientific publication output of faculty and students, understanding the contribution to the society of scientific discovery, and determining the economic impact or level of new business activity resulting from a research project.
- 4) Connection with users. A strong advisory process is used to define research priorities, to plan extension programs, and to measure the impact of program activities. It is also used to build public and private support for Florida Sea Grant.

5) Partnerships. Faculty, students, and citizens all benefit from functioning in a partnership mode. Scientific results and education projects reach greater success levels and are more efficient when partners from agencies and businesses support an activity.

6) Impacts and accomplishments. Funded projects must demonstrate significant scientific, economic or social benefits.

These core values are advanced through coordinated research, education, and extension programming implemented to support strategic planning priorities and performance measures in: (a) seafood production and safety, (b) sustainable and hazard-resilient coastal communities, (c) healthy coastal and marine ecosystems, and (d) climate change: impacts and adaptations. The high degree of input from stakeholders, at all levels of the program, ensures that Florida Sea Grant activities, while also supporting National Sea Grant priorities, remain connected to the needs of Floridians.

During 2011-2012, Florida Sea Grant's 20 extension agents and seven university-based extension specialists in marine economics, aquaculture, fisheries management, marine spatial planning, coastal community planning, law and policy, and seafood safety implemented a wide array of solution-oriented programs. Florida Sea Grant does this by working closely with local governments, agencies, the private sector and non-governmental organizations, to ensure that we wisely use our funds to tackle the most pressing issues affecting residents, businesses, communities and ecosystems. Through a research grant program funded by NOAA, Florida Sea Grant supports faculty at Florida's universities who work with partners in the public and private sector to address pressing issues using cutting-edge research. Extension faculty members, located in Gainesville and in counties around the coast of Florida, provide guidance to their communities on issues ranging from recreational fishing and aquaculture to energy conservation, and they provide support during times of crisis caused by nature and man. Florida Sea Grant's scholarship programs, supported by NOAA and by generous private donations, allow more than 30 students a year to pursue undergraduate, masters and doctoral degrees in coastal and ocean fields, fostering the next generation of scientists, engineers, managers and decision-makers. Florida Sea Grant's work with youth builds awareness of how actions affect the coastal zone, while teaching important concepts and immersing kids in projects to enhance valuable habitats. In this report, Florida Sea Grant showcases examples of success from 2011-12, which are possible due to long-standing partnerships with the University of Florida, the State University System, NOAA, and coastal communities of our Sunshine State.

This 2011-2012 report of accomplishments highlights Sea Grant's unique capabilities in applied research, extension and education to assist coastal businesses, residents and communities; help sustain coastal and marine environments; create and sustain jobs and small businesses; support public and commercial access to coasts and waterways; enhance community resilience to hurricanes and other natural hazards; and save tax dollars.



## PROGRAM MANAGEMENT AND ORGANIZATION

The program management team of Florida Sea Grant operates a diverse and effective Sea Grant College in one of the nation's most complex settings in terms of number and diversity of stakeholders, universities, coastal resources, and coastal uses. Florida Sea Grant management provides national and international leadership to academic interests concerned with sustainable coastal marine economies and environments.

The management team's principal responsibilities include strategic planning and coordinating research, extension, and communications to meet benchmarks established in four priority Focus Areas. This is accomplished by working: internally with a stakeholder advisory council and with program specialists and agents; externally with campus coordinators affiliated with the 16 Florida academic institutions; and with collaborating governments, industries, and citizen groups.

At any given time, Florida Sea Grant manages over \$5M and more than 100 research, extension, education and communications projects, often with multiple investigators on each project. These include core program projects, graduate student fellowships, program development projects, SG national strategic initiatives, and a host of other extramurally funded projects that leverage NOAA's investment and advance the Florida Sea Grant mission as defined in its strategic plan.

The management team includes the director, associate director for research, associate director for extension and education, communications director and assistant director for fiscal operations. The work of this group is coordinated through monthly staff meetings, augmented by ongoing communication between individuals and in smaller groups of the team, depending on the issue.

### Management Team

- **Director** – provides overall program vision and leadership, explores new opportunities with partners, constituents, prospective sponsors and the advisory council, develops regional and inter-agency collaborations, leads development of the four-year program strategic plan, and ensures that the program addresses priorities of National Sea Grant and NOAA
- **Associate Director for Extension and Education** – provides vision and leadership for the statewide extension and education program, develops cooperative programs with extension and education partners at local, state, and national levels, and coordinates the activities of Florida Sea Grant Extension specialists and marine extension agents
- **Associate Director for Research** – coordinates the biennial call for research proposals, coordinates research development projects, tracks the outputs and impacts of funded research projects, and reports data and achievements toward program and national strategic planning metrics
- **Communications Director** – develops and maintains an effective multi-media program to meet the communications needs of researchers, extension experts, elected officials, resource managers and coastal residents
- **Assistant Director for Fiscal Operations** – coordinates all fiscal functions of Florida Sea Grant including administration of awards, tracking of expenditures by investigators, development and/or review of research budgets, and fiscal reporting to National Sea Grant, NOAA, the University of Florida and the State University System Board of Governors

**Organizational Chart**

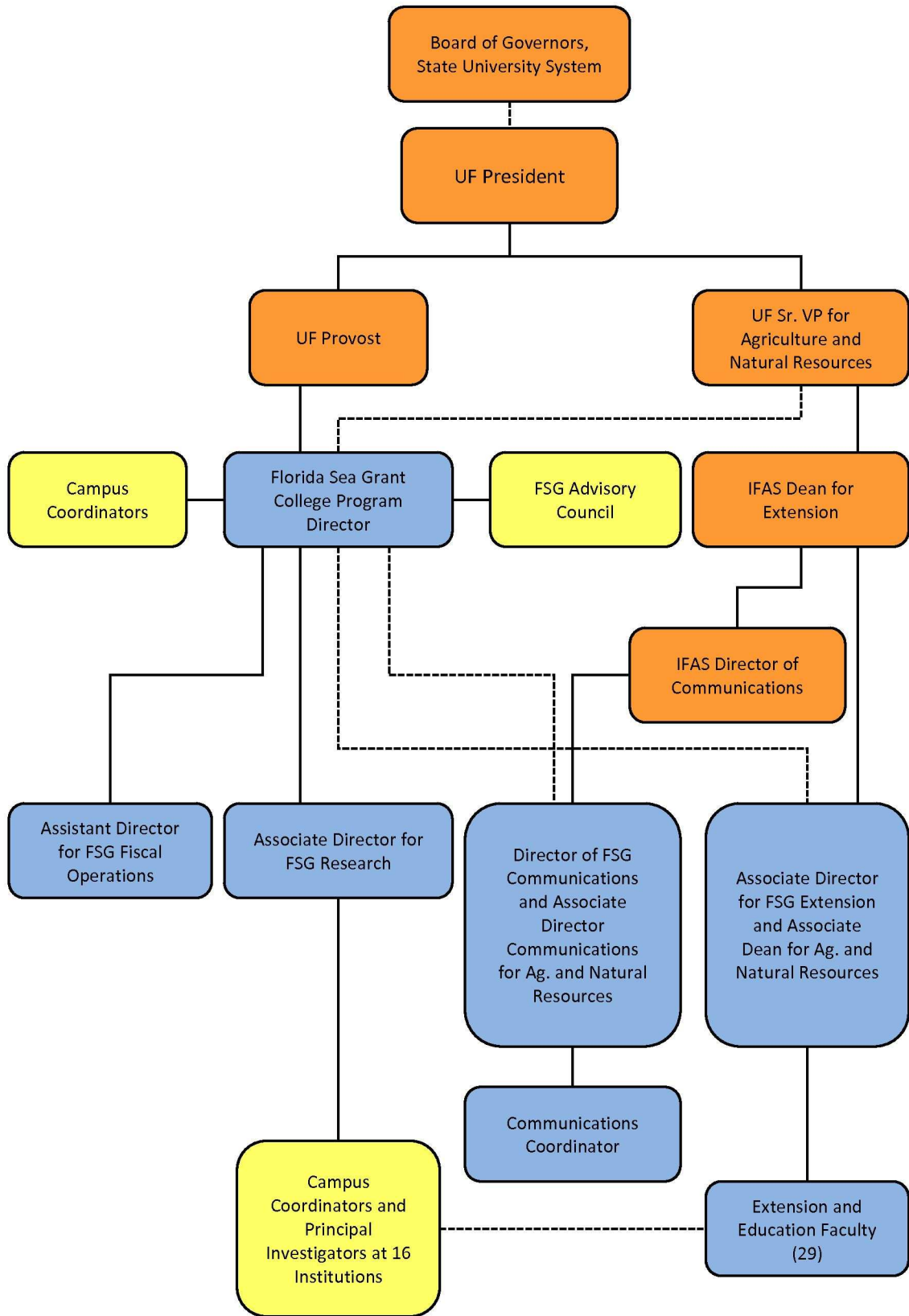


Figure 1. Florida Sea Grant Management Organization

## Staff

Table 1. Florida Sea Grant staff

Individual	Title	Extension	Education	FTE*
<b>Karl Havens</b>	Director			1.0
<b>Mike Spranger</b>	Associate director for extension and education	0.4	0.1	0.5
<b>Charles Sidman</b>	Associate director for research			1.0
<b>Dorothy Zimmerman</b>	Communications director			1.0
<b>Ed Harvey</b>	Assistant director for fiscal operations			1.0
<b>Staci Biondini</b>	Communications coordinator			1.0
<b>Jackie Whitehouse</b>	Executive secretary			1.0
<b>Sharon Cook</b>	Administrative assistant			1.0
<b>Treva Damron</b>	Senior secretary			1.0
<b>Dee Boyle</b>	Communications program assistant			1.0
<b>Thomas Ruppert</b>	Coastal planning specialist	1.00		1.0
<b>Charles Adams</b>	Extension specialist – marine economics	1.00		1.0
<b>Tom Ankersen</b>	Legal specialist – environmental law and policy	0.20		0.2
<b>William Lindberg</b>	Extension specialist – fisheries ecology	0.20		0.2
<b>Cortney Ohs</b>	Extension specialist – aquaculture	0.40		0.4
<b>Steven Otwell</b>	Extension specialist – seafood technology	1.00		1.0
<b>Robert Swett</b>	Extension specialist–coastal/marine spatial plng.	1.00		1.0
<b>Holly Abeels</b>	Extension agent – Brevard County	0.90	0.10	1.0
<b>LeRoy Creswell</b>	Extension agent – Southeast Florida	0.85	0.15	1.0
<b>Rick O'Connor</b>	Extension agent – Escambia County	0.50	0.50	1.0
<b>Pamela Fletcher</b>	Extension agent - Miami (joint with NOAA AOML)	0.95	0.05	1.0
<b>Bryan Fluech</b>	Extension agent – Collier County	0.85	0.15	1.0
<b>Jeffrey Gellerman</b>	Resiliency/Planning Specialist – Sarasota County	0.20	0.00	0.20
<b>Douglas Gregory</b>	Extension agent/CED –Monroe County	0.55	0.05	0.6
<b>Libby Carnahan</b>	Extension agent – Pinellas County	0.90	0.10	1.0
<b>Joy Hazell</b>	Extension agent – Lee County	0.90	0.10	1.0
<b>Scott Jackson</b>	Extension agent – Bay County	0.55	0.05	0.6
<b>Lisa Krinsky</b>	Extension agent – Miami/Dade County	0.90	0.10	1.0
<b>William Mahan</b>	Extension agent/CED – Franklin County	0.55	0.05	0.6
<b>Carlos Martinez</b>	Extension agent (UF Tropical Aquaculture Center)	0.15	0.05	0.2
<b>Maia McGuire</b>	Extension agent – St. Johns and Flagler counties	0.40	0.60	1.0
<b>Brooke Saari</b>	Extension agent – Walton and Okaloosa counties	0.75	0.25	1.0
<b>Betty Staugler</b>	Extension agent – Charlotte County	0.90	0.10	1.0
<b>John Stevely</b>	Extension agent – Manatee and Sarasota counties	0.95	0.05	1.0
<b>Leslie Sturmer</b>	Extension agent (statewide shellfish aquaculture)	0.95	0.05	1.0
<b>Chris Verlinde</b>	Extension agent – Santa Rosa County	0.50	0.50	1.0
<b>Fred Vose</b>	Extension agent –Taylor County	0.90	0.10	1.0
<b>Total</b>	<b>37 people</b>	<b>(19.3)</b>	<b>(3.2)</b>	<b>(31.5)</b>

\* Where extension and education FTEs are not listed, the total FTE is associated with program management, and in cases where the listed extension and education FTEs do not add up to 1.0, the remaining FTE of the individual is focused on research or management.

## Advisory Council

Table 2. Current members of the Florida Sea Grant Advisory Council

Name	Title	Affiliation
<b>Bob Aylesworth, Chair</b>	Owner	Aylesworth's Fish and Bait
<b>James Beever</b>	Principal Planner	Southwest Florida Planning Council
<b>Jim Cantonis</b>	President	Acme Sponge and Chamois
<b>Billy Causey</b>	Southeast Regional Director	NOAA NMSP
<b>Ernesto Lasso de la Vega</b>	Citizen Advisor	Charlotte Harbor NEP
<b>Kathleen Elliot</b>	Vice President	Mahogany Youth Corporation
<b>Ted Forsgren</b>	Executive Director	Coastal Conservation Assoc.
<b>Laura Geselbracht</b>	Senior Marine Scientist	The Nature Conservancy
<b>Amy Godsey</b>	State Meteorologist	Florida Division of Emergency Mgmt.
<b>Frank Hibbard</b>	Mayor	City of Clearwater
<b>Elliot Kampert</b>	Director, Growth Management	Okaloosa County
<b>Liz Longstreet</b>	Seafood Procurement	Darden Restaurants
<b>Chuck Listowski</b>	Executive Director	West Coast Inland Navigation District
<b>Gary Lytton</b>	Director	Rookery Bay NERR
<b>Gil McRae</b>	Director	FWC Fish and Wildlife Research Institute
<b>Gib Migliano</b>	President	Save on Seafood
<b>Ben Nelson</b>	Forecaster	NOAA National Weather Service
<b>Michael Poff</b>	Vice President	Coastal Engineering Consultants
<b>Richard Pruitt</b>	Assoc. Vice President	Royal Caribbean Cruises, Ltd.
<b>Jerry Sansom</b>	Executive Director	Organized Fishermen of Florida
<b>Dan Solano</b>	Owner	Cedar Key Aquaculture Farms
<b>John Sprague</b>	Director of Government Affairs	Marine Industries of Florida
<b>Jacqui Sulek</b>	Chapter Network Manager	Audubon of Florida

## Strategic Partnerships

Strategic partnerships include those that have been developed with external organizations to advance Florida Sea Grant's statewide, national, and international programming:

### Business/Industry

- Advanced Roofing, Inc.
- AG3, Inc.
- AIR Worldwide Corporation
- Aquaculture Center of the Florida Keys, Inc.
- Arch Aluminum and Glass Company
- BAMA Seafood Products, Inc.
- Beaver Street Fisheries
- Cedar Key Aquaculture Association
- Flagstone Reinsurance
- Florida Office of Insurance Regulation
- Guy Harvey Research Institute
- National Shellfisheries Association
- Oglesby Plants International, Inc.
- Pacific Coral Seafood
- Southfresh Aquaculture
- Vent Covers, Inc.
- Weather Predict Consulting, Inc.



## NGO

- American Medical Association
- Association of Food and Drug Officials
- Aylesworth Foundation
- Bio-Florida
- Blackwater River Watershed Foundation
- Florida Aquarium
- Florida Clean Marina Partnership Board
- Florida Institute of Oceanography
- Florida Ocean Alliance
- Florida Ocean and Coastal Resources Council
- Gulf of Mexico Coastal Ocean Observing System
- Interstate Shellfish Sanitation Conference
- National Fisheries Institute
- National Seafood HACCP Alliance
- St. Mary's River Management Committee
- Seafood Science and Technology Society of Americas
- The Gulf and South Atlantic Fisheries Foundation, Inc.
- Withlacoochee River Alliance

## Government

### *Local*

- Florida's Coastal Counties (20 of which support Florida Sea Grant Extension agents)
- Miami-Dade County Building Code Compliance Office
- West Coast Inland Navigation District

### *State*

- Apalachicola National Estuarine Research Reserve
- Florida Department of Agriculture and Consumer Services
- Florida Department of Economic Opportunity
- Florida Department of Environmental Protection
- Florida Fish and Wildlife Conservation Commission
- Florida Fish and Wildlife Research Institute
- Guana Tolomato Matanzas National Estuarine Research Reserve
- Northwest Florida Water Management District
- Rookery Bay National Estuarine Research Reserve
- St Johns River Water Management District
- South Florida Water Management District
- State University System of Florida
- Waterfronts Florida Program

### *Regional*

- Gulf and South Atlantic Fisheries Development Foundation
- Gulf of Mexico Regional Aquatic Nuisance Species Task Force
- Gulf of Mexico Regional Fishery Management Council
- NOAA Gulf of Mexico Regional Collaboration Team
- South Atlantic Regional Aquatic Nuisance Species Task Force
- Southeast Atlantic Coastal Ocean Observing System

### *Federal*

- Center for Watershed Excellence
- Centers for Ocean Sciences Education Excellence
- Federal Emergency Management Agency
- National Marine Fisheries Service
- NOAA Coastal Service Center
- NOAA International Program
- US Department of Agriculture
- US Environmental Protection Agency
- US Geological Survey

*International*

- Caribbean Regional Fisheries Mechanism, Belize
- Fisheries Division, Commonwealth of Dominica, West Indies
- Fisheries Division, St. Vincent and the Grenadines, West Indies
- International Association of Aquaculture Economics and Management

**Program Funding**

Research, extension, communication and management funds from the National Sea Grant Office also are matched at a rate of 50 cents on a dollar. Florida Sea Grant leadership has been successful in obtaining substantial additional grant support for extension and outreach projects, as well as increased support for student fellowships. As a result, with a \$2.16 million investment from the national omnibus award, Florida Sea Grant runs a program in excess of \$5.675 million a year.

Table 3. Florida Sea Grant 2011-2012 budget

Funding Area	Total (dollars)	% Total
<b>Research</b>	2,452,267	43
<b>Outreach and Education</b>	2,145,045	38
<b>Communications</b>	274,876	5
<b>Administration</b>	556,881	10
<b>Fellowships</b>	246,000	4
<b>Total</b>	5,675,069	100

## RESEARCH

Florida Sea Grant has for many years reported annually the accomplishments for research projects that are ongoing or completed during that year. That process continues with this 2011-2012 report, which additionally identifies project outcomes and realized or potential project impacts, and leveraged funding, where appropriate, within the context of strategic planning goals and performance measures. To aid in gathering this information principal investigators are required to report on: (1) project accomplishments; (2) new research directions; and (3) outcomes and impacts to society, the economy and/or the environment. This reporting is facilitated by Florida Sea Grant's Online Activity Reporting System.

### Current Research Projects

Table 4. Florida Sea Grant research projects active in 2011-2012.

Strategic Focus Area	Project Number	Project Title	Institution
<b>Seafood Production and Safety</b>	R/LR-Q-33	Grouper Forensics for Seafood Quality Control	University of South Florida
<b>Seafood Production and Safety</b>	R/LR-Q-34	Implementation of Vibrio Monitoring Methods Needed to Sustain Florida Coastal Communities	University of Florida
<b>Seafood Production and Safety</b>	R/LR-A-46	Eliminating Barriers to Commercial Production of Sunray Venus Clams in Florida: Enhanced Hatchery Production, Growout Site Selection and Definition of Wholesale Market Product Attributes	Harbor Branch Oceanographic Institute
<b>Seafood Production and Safety</b>	R/LR-A-47	Preparing for Climate Change: Increasing Hard Clam Production in the Southeastern United States Using Biomarkers of Thermal Tolerance	University of Florida
<b>Seafood Production and Safety</b>	R/LR-A-48	Evaluating Performance of Pilot and Commercial Wastewater Systems Associated with Inland Production of High-Value Marine Fish	Mote Marine Laboratory
<b>Seafood Production and Safety</b>	R/LR-A-49	Implementation of an Extension Program to Develop the Marine Baitfish Aquaculture Industry in Florida	University of Florida
<b>Healthy Coastal and Marine Ecosystems</b>	R/LR-B-62	Cryopreservation of Florida Sea Oats Germplasm: A Technology to Ensure Long-Term Commercial Availability of Site-Specific Genotypes for Dune Restoration	University of Florida
<b>Healthy Coastal and Marine Ecosystems</b>	R/LR-B-63	Environmental Controls on the Dynamics of Nursery Habitat Quality for Estuarine-Dependent Fishes	Florida State University

Strategic Focus Area	Project Number	Project Title	Institution
<b>Healthy Coastal and Marine Ecosystems</b>	R/LR-B-64	Ecosystem-Based Fishery Management: A Potential Interdisciplinary Approach to Evaluating Grouper Harvest Policies	University of Florida
<b>Healthy Coastal and Marine Ecosystems</b>	R/C-E-55	Projected Reorganization of Seagrass Communities in Response to Altered Freshwater Flow in Florida Bay	Florida International University
<b>Sustainable and Hazard-resilient Communities</b>	R/C-D-19	Development of Test-Based Data on Hurricane-Induced Building Interior, Utility, and Contents Damage for Improved Risk Prediction and Mapping	Florida International University
<b>Sustainable and Hazard-resilient Communities</b>	R/C-D-20	Design Guidelines for Retrofitting Wood Roof Sheathing Using Closed-Spray Applied Polyurethane Foams	University of Florida
<b>Sustainable and Hazard-resilient Communities</b>	R/C-P-31	State and Local Policy Innovation and Implementation for Coastal Access, Coastal Economic and Ecosystem Health, and Coastal Hazard Mitigation and Adaptation	University of Florida
<b>Sustainable and Hazard-resilient Communities</b>	R/C-P-32	Assisting Coastal Communities to Plan and Manage Their Waterfronts and Waterways	University of Florida
<b>Sustainable and Hazard-resilient Communities</b>	R/C-P-33	Mapping Florida Property Parcels for Sea Level Rise Using 10 Meter Digital Elevation Model	University of Florida
<b>Healthy Coastal and Marine Ecosystems</b>	R/C-P-35	Analyzing Offshore Recreational Boating in Three Northeast Florida Counties	University of Florida
<b>Healthy Coastal and Marine Ecosystems</b>	E/POPDYN-1	Development and Use of an Agent-Based Model to Evaluate the Effect of Effort Redistribution due to Fleet Heterogeneity and Policy Implementation on Estimating a Standardized Catch-Per-Unit Effort Index of Abundance	University of Miami
<b>Healthy Coastal and Marine Ecosystems</b>	E/POPDYN-2	An Atlantis Model to Inform Ecosystem-Based Management for the Gulf of Mexico	University of Miami
<b>Healthy Coastal and Marine Ecosystems</b>	E/POPDYN-3	Age Structured Fish Populations: A Comparative Study	University of Miami
<b>Healthy Coastal and Marine Ecosystems</b>	E/POPDYN-4	Development and Execution of an Ecosystem-Based Modeling Approach to Catchability Estimation and Fishing Capacity Optimization: The Eastern Pacific Sailfish Recreational Fishery as a Case Study	University of Miami
<b>Healthy Coastal and Marine Ecosystems</b>	E/NMFS-MRE-1	Economic and Biological Complexities in the Blue Crab Fishery	University of Wyoming



Strategic Focus Area	Project Number	Project Title	Institution
<b>Healthy Coastal and Marine Ecosystems</b>	E/NMFS-MRE-2	NMFS-Sea Grant Fellowship in Marine Economics: Analysis of Quota Trading in the Gulf of Mexico Commercial Red Snapper Fishery	University of Florida
<b>Climate Change: Impacts and Adaptations</b>	GOM/RP-2	A Parameterized Climate Change Projection Model for Hurricane Flooding, Wave Action, Economic Damages, and Population Dynamics	University of Florida
<b>Climate Change: Impacts and Adaptations</b>	GOM/RP-3	Implications of Takings Law on Innovative Planning for Sea-Level Rise in the GOM.	University of Florida
<b>Seafood Production and Safety</b>	GOM/RP-4	Framing Sustainability for our Nation's Fisheries: A Development Program for the Gulf of Mexico	University of Florida

### Current Program Development Projects

Table 5. Florida Sea Grant Program Development (PD) projects active in 2011-2012.

Strategic Focus Area	Project Number	Project Title	Institution
<b>Sustainable and Hazard-resilient Communities</b>	PD-10-7	Integrating Storm Surge and Inundation Prediction to Strengthen Resiliency of Coastal Communities and Infrastructures	University of Florida
<b>Oil Spill</b>	PD-10-8	Effects of Oiling on Oyster Resources in the Big Bend of Florida	University of Florida
<b>Oil Spill</b>	PD-10-11	Tracing the Intrusion of the GOM 2010 Oil Spill on Coastal Food Webs with Natural Abundance Radiocarbon	Florida State University
<b>Seafood Production and Safety</b>	PD-10-13	Updating Public Health Advisories Regarding Methylmercury in Seafood	University of Florida
<b>Climate Change: Impacts and Adaptations</b>	PD-10-14	Climate Change and Sea-Level Rise Effects on Natural Environment of South Florida	Florida Atlantic University
<b>Sustainable and Hazard-resilient Communities</b>	PD-10-16	Southeast Florida Regional Boating and Waterways Workshop	University of Florida
<b>Sustainable and Hazard-resilient Communities</b>	PD-10-18	Florida's Marine Infrastructure Decision Support Tool Enhancements, Training and Technical Support	University of Florida
<b>Healthy Coastal and Marine Ecosystems</b>	PD-10-19	Southwest Florida Bay Scallop Restoration and Monitoring Initiative	University of Florida
<b>Sustainable and Hazard-resilient Communities</b>	PD-10-20	Managing Florida's Coastal Rivers with Rising Ocean	University of North Florida

Strategic Focus Area	Project Number	Project Title	Institution
Healthy Coastal and Marine Ecosystems	PD-10-21	Assessing the Impacts of Catch and Release Fishing on Elasmobranch Fishes: Post-Release Mortality and Ecosystem Effects	University of Miami
Sustainable and Hazard-resilient Communities	PD-10-22	Introduction to Navigation Using GPS and GIS Tools	University of Florida
Healthy Coastal and Marine Ecosystems	PD-10-23	Developing Indicators to Quantify Oyster Reef Water Filtration Services along Florida's Gulf and Atlantic Coasts	Florida State University
Healthy Coastal and Marine Ecosystems	PD-11-3	Investigating the Effects of the DWH Oil Spill on the Trophic Ecology of Sharks and Teleost Fishes of the Florida Big Bend Using Stable Isotope Analysis	Florida State University
Healthy Coastal and Marine Ecosystems	PD-11-4	Design of a Planning Framework to Strengthen the Role of Fisherfolks Organizations in Promoting Cooperative Self-Governance of Caribbean Fishery Resources	University of Florida
Healthy Coastal and Marine Ecosystems	PD-11-5	Sea Grant Extension Fish Recompression Training Program	University of Florida

### Leveraged Funds

Florida Sea Grant sponsored researchers are required to obtain a 50% match in non-federal funds as a supplement to the program's core funding allocated for their projects. For 2011-2012 this translated to a combined research portfolio of \$2.5 million (core and match funding) and an additional \$3,341,677 in leveraged funding that was influenced by Florida Sea Grant-funded research during 2011-2012. This shows that many of the investigators supported by Florida Sea Grant are able to significantly leverage core and match funds by successfully competing for other extramural funding to enhance or continue existing projects, underscoring the importance and relevance of research funded by Florida Sea Grant.

### EXTENSION

A core element of the Florida Sea Grant mission is to extend new developments in marine science and knowledge to key program stakeholders and the public in general. This supports the principle that increased awareness and knowledge of coastal and ocean resources will provide the basis for citizens, industry, and communities to thrive economically, conserve natural resources and retain valued cultural and historic water-dependent traditions. In 2011-2012, the extension grant, which was leveraged by local funding, supported 20 extension agents located in coastal communities throughout Florida. Their collective and individual achievements are recognized in this report.

In 2011-2012 Florida Sea Grant's extension agents implemented programs that supported National Sea Grant goals and local stakeholder needs identified for:

- Marine Science Education: Florida Sea Grant's youth and adult education programming included instruction of the popular statewide Coastal Master Naturalist Program, which certifies participants as informal coastal habitat educators. Agents also developed a number of curricula aimed at (1) teaching

children of migrant workers marine ecology through dissection and other hands-on experiments, (2) supporting K-12 marine education curricula through “Reach out With Science” and “Propagules in Schools” programs, (3) conducting field-based ecological immersion programs that imparted field-sampling techniques using GPS and ocean literacy to kids, and (6) developing a tropical aquaculture curriculum that has been implemented in 13 Central Florida public middle schools and high schools.

- Sustainable Recreational Fishing: Florida Sea Grant agents implemented workshops and demonstrations with the objective of explaining fishing regulations and sustainable catch and release methods to youth and recreational fishers. These training events were typically organized to provide hands-on learning experiences. Examples include the Kid’s Cup Redfish Tournament, which taught youth methods that fisheries scientists use to tag and track the fish that they caught and released, and a Tarpon Genetics Workshop, which provided information to anglers about the biology and behavior of this popular sportfish. Florida Sea Grant agents are also partnering with fisheries scientists at the University of Florida to implement a new program that is working with commercial fishing guides to evaluate the effectiveness of commercially available products in reducing barotraumas-induced mortality in reef fish.
- Habitat Enhancement: The organization and implementation of volunteer-based habitat enhancement projects is a key element of Florida Sea Grant’s extension mission. During 2011-2012, most agents were involved in activities that enhanced oyster, dune, mangrove, or benthic habitats. Specifically, agents undertook activities to certify landscaping companies as habitat-friendly green industries, organized turtle friendly lighting efforts to help protect sea turtles and their habitats, implemented large-scale derelict crab and lobster trap clean-ups that enhanced an estimated 14,760 acres of benthic habitats in Pinellas, Charlotte, and Miami-Dade counties. Also, a number of agents partnered to implement oyster reef restoration events that focused on creating or stabilizing living shorelines and enhancing coastal habitats that had become aquatic “dead zones.” In addition, several Florida Sea Grant-supported researchers conducted environmental enhancement activities in conjunction with their research projects. Some of these activities were implemented in cooperation with Florida Sea Grant extension agents and several involved high school students who participated in dune and mangrove restoration projects. Other events involved local volunteers who participated in artificial reef and beach debris cleanups.
- Commercial Fisheries and Aquaculture: Since its inception Florida Sea Grant has supported extension programs that assist the commercial fisheries and aquaculture industries. During 2011-2012, extension activities centered on the provision of a US Department of Agriculture Trade Adjustment Assistance Program to sustain the incomes and jobs of participating commercial fishermen and shrimpers. It is estimated that this program has helped to sustain 500 jobs and increased the income of fishermen who participated in the program by a total of \$1.5M. Fisheries extension activities also involved participation in the Clean Marina Program, goliath grouper workshops, a seven part webinar series on seafood safety, and a fisheries management workshop that taught practitioners techniques for effectively communicating regulations with anglers. Florida Sea Grant’s aquaculture extension program focused on the commercial clam and oyster industries. Specific activities provided safety protocols for industry representatives and regulators through shrimp and oyster schools and formal HACCP trainings. Another area of focus blended research and outreach programming to help develop new products (e.g., sunray venus clams, pinfish, pigfish) and safety protocols (e.g., post harvest treatments and rapid testing devices for the identification, monitoring and eradication of harmful bacteria), in an effort to diversify, improve the profitability, and increase the safety of aquaculture and marine baitfish industries.
- Waterways planning: Sea Grant agents collaborated to organize four regional workshops, which were attended by more than 250 individuals affiliated with the marine industry, navigation districts, local governments, and state resource management agencies. These workshops provided a venue for information sharing, collaborative networking, and the identification of planning priorities through

facilitated focus group discussion. Topics ranged from public access, managed mooring fields, boating safety, signage, derelict vessels, facility and dock permitting, and economic analysis of management decisions.

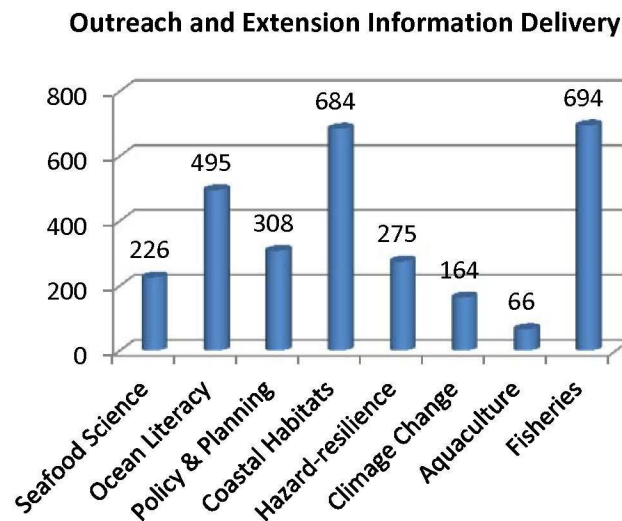


## Program Effort

Florida Sea Grant’s researchers, specialists and extension agents reported organizing or participating in 1,386 outreach and extension events that generated 2,912 topical information exchanges (Figure 2) and reached target audiences comprising an estimated 317,116 people (Table 7). This estimate considers the “General Public” audience type, which was estimated for events classified as “Large Event, Festival, Tournament,” “Radio,” and “Television.” Many of the activities reported reached multiple audiences, and were oriented toward the themes of fisheries (n = 694 information exchanges), coastal habitats (n =684 information exchanges) and ocean literacy (n = 495 information exchanges).

An evaluation of contact events indicates that extension outputs are reasonably consistent with planned programming efforts related to Climate Change (5% actual versus 10% planned), Sustainable and Hazard-resilient Communities (25% actual versus 30% planned), Healthy Coastal and Ecosystems (40% actual versus 40% planned), and Seafood Production and Safety (30% actual versus 20% planned).

A breakdown of Florida Sea Grant outreach and extension effort based on target audiences reached is presented in Figure 3. The pie chart indicates that the bulk of the program’s outreach and extension contacts were devoted to coastal habitats (31%), ocean literacy (24%) and fisheries (17%) themes. A similar amount of programmatic effort was distributed among aquaculture (7%), hazard resilience (6%), policy and planning (6%), seafood science (6%), and climate change (3%).



FSG researchers, extension agents, and specialists reported 1,386 outreach events that contained 2,912 topical information delivery exchanges, meaning that about 2-3 different topics of program focus were discussed/presented at each event.

Figure 2. Number of information exchanges

## Program Effort (based on target audiences reached)

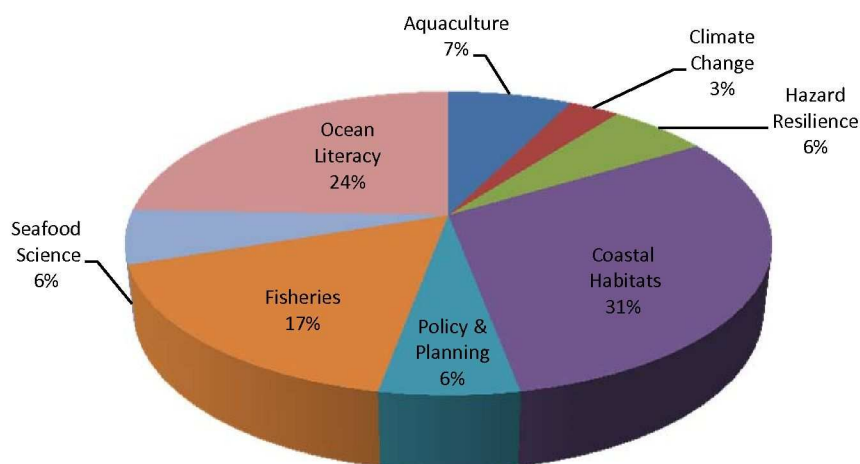


Figure 3. Program effort. Proportions are based on estimated numbers of people that comprise target audiences exposed to program topics. The audience classified as “general public” is not included in the calculation.

### Activities

Table 7. Florida Sea Grant outreach activities and estimated audiences reached during 2011-2012.

Activity Type	*Count	Audience Reached
Camps, Clubs	156	5,087
Class Trip	32	5,506
Conference	27	1,790
Consultation / Advisory	264	1,745
Formal Education (K-12)	47	5,621
Habitat Enhancement	37	1,147
Informal Education	194	8,041
Large Event / Festival / Tournament	64	236,215
Meeting	204	2,523
Meeting Facilitation	56	1,352
Professional Development	38	720
Public Presentation	78	2,960
Radio	29	40,000
Television	4	0 (N/A)
Webinar	30	874
Workshop	126	3,533
<b>TOTALS</b>	<b>1,386</b>	<b>317,116</b>

\* Counts reflect activities that Florida Sea Grant researchers and extension agents either helped to organize or participated in. Some audiences may be double-counted because multiple agents participated in or worked collaboratively to organize some events, thereby, increasing audience exposure to Sea Grant programming during those events.

## Target Audiences

Florida Sea Grant supported outreach and extension activities delivered by researchers, extension agents, and specialists, targeted a number of traditional audiences including the scientific community (28%); agency and resource managers (13%); boaters and fishers (3%); industry (7%); teachers and educators (4%); legal and local government (8%); and youth and adults through formal education (K-12; 18%), and non-formal learning programs (20%) (Figure 4; Table 8).

The general public is not a target audience for Florida Sea Grant activities, but a number of activities did reach general populations (e.g., TV, radio, large events and festivals). It is estimated that Florida Sea Grant outreach and extension programming reached 275,876 people classified as “general public.”

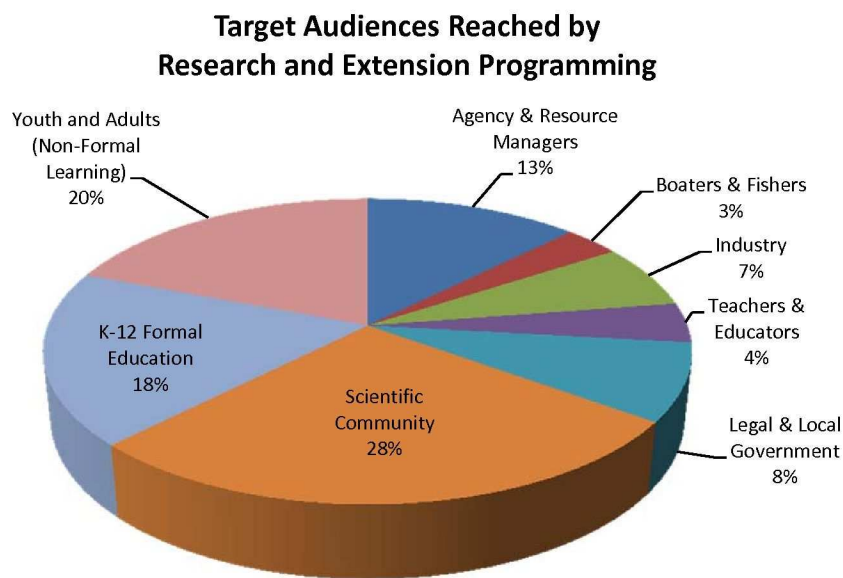


Figure 4. Target audiences reached. Proportions are based on reported audiences reached through outreach associated with Florida Sea Grant research and extension programs (Table 8).

Table 8. Estimated target audiences reached during 2011-2012.

Target Audience	Audience Reached
Agency and Resource Managers	5,173
Boaters and Fishers	1,357
Industry	2,781
Teachers and Educators	1,737
Legal and Local Government	3,380
Scientific Community	11,321
K-12 (Formal Marine Education)	7,594
Youth & Adults (Non-Formal Education)	7,897
<b>TOTAL</b>	<b>41,240</b>

## Volunteers

During 2011-2012, citizens volunteered 7,308 hours of their time in support of Florida Sea Grant extension-related events. Six hundred and twenty-four of those hours were associated with extension activities related to Florida Sea Grant-funded research projects, which now are required to have outreach plans for stakeholder engagement. For the extension program, the majority of volunteers and volunteer hours can be attributed to a Florida Sea Grant-organized statewide ecosystem enhancement program in which agents organized oyster reef, dune, mangrove, and artificial reef enhancement projects that used hundreds of local volunteers. These projects enhanced an estimated 14,944 acres of coastal and marine habitats.

## MARINE EDUCATION

Florida Sea Grant's statewide marine education program works through partnerships with state, local governments, and industry to implement hands-on learning experiences and ecosystem enhancement projects.

### College Students Supported

Florida Sea Grant supports ocean and coastal education at all academic levels. At the college level, Florida Sea Grant offers scholarships and fellowships through university-based research grants, and scholarships and fellowships through private sources, such as the Aylesworth Foundation, the Guy Harvey Foundation, and Scott's Miracle Gro.

Table 8. Students who received scholarships and fellowships from different funding sources in 2011-2012

2011 Funding Source	Undergrad	Masters/JD	Ph.D.
<b>Research Grant Supported</b>	7	34	22
<b>Research Grant Graduated</b>	7	18	6
<b>Aylesworth Scholarship</b>			0
<b>Guy Harvey Scholarship</b>		4	
<b>Knauss Fellowship</b>		1	1
<b>Scott's Nutrient Dynamics Fellowship</b>			2
<b>NOAA Fisheries Population Dynamics Fellowship</b>			1
<b>Skoch Scholarship</b>	1		

### Target Audiences

Florida Sea Grant marine education programs complement the public school system's science curriculum, which in many communities lacks a comprehensive coastal and marine ecology component. During 2011-2012, FLORIDA SEA GRANT's marine education program reached 257 formal educators and 7,594 youth through formal (K-12) education programs.

Florida Sea Grant also responds to the needs expressed by local cooperative extension programs for more informal learning experiences that targets not only youth, but also adults. Florida Sea Grant extension agents reached 218 informal educators, and 7,897 youth and adults through a variety of coastal habitat enhancement programs (e.g., sea turtle ecology, beach clean-ups, monofilament line recycling, oyster, mangrove, and dune



restoration), camps and clubs, and by serving as instructors for coastal and wetlands modules of the popular University of Florida/IFAS Florida Master Naturalist adult education program.

## COMMUNICATIONS

### Publications

Florida Sea Grant issues *Publication and Communication Support Guidelines* to all Florida Sea Grant project collaborators, and has an organized process for printing and tracking publications. Documents published in-house include reports, extension publications, technical papers, thesis or dissertation abstracts, staff papers and other items such as extension newsletters. Each is numbered and tracked in an appropriate series. Books and journal articles are published elsewhere, but tracked for completion and credit by communications staff. All publications are distributed to the National Sea Grant Library, housed in the Pell Library at the University of Rhode Island.

Florida Sea Grant also contributes to the Electronic Data Information Source, which is the database of nearly 8,000 online titles maintained by the Institute of Food and Agricultural Sciences at the University of Florida. EDIS ([www.edis.ifas.ufl.edu](http://www.edis.ifas.ufl.edu)) provides a comprehensive single-source repository of all current UF/IFAS numbered and reviewed extension publications. EDIS content includes a collection of information on topics relevant to the environment and natural resources, agriculture, 4-H, Florida-friendly landscapes, and Florida communities. From the EDIS website, more than 10 million educational print and electronic products are viewed each year. Together, the streamlined publication process, universal access, and print-as-needed services not only reduce the cost but also expand the impact of UF/IFAS publications.

These are the number of publications identified through annual research and extension progress reports that were developed through collaboration with the Florida Sea Grant communications department and submitted to the Pell Library.

Table 9. Florida Sea Grant publications submitted to the National Sea Grant Library in 2011-2012.

Publication Type	Number
Technical Reports/Surveys	3
Brochures and Fact Sheets	5
Proceedings/Symposia	2
Program Management Reports	1
Newsletters/Periodicals	8
Theses/Dissertations	5
Journal Reprints	19
Websites Developed / Maintained	15
National Library Downloads of Florida Sea Grant Documents	189,409

In addition to publications that Florida Sea Grant’s program’s communications department helped to develop and submitted to the National Sea Grant Library, Florida Sea Grant researchers, agents, and specialists reported 731 communications products that supported or resulted from their 2011-2012 extension and outreach activities. Note, occasionally agents collaborated on activities and communications products. Thus, there may be some duplication in the reporting of communications products because each agent is required to report all products generated individually or through collaborations with other researchers, agents, or specialists.

Most program affiliates engaged their audiences through public presentations, which accounts for the development of 193 PowerPoint slide shows (some of which were collaborative efforts and reported by multiple agents). Other digital media generated by Florida Sea Grant researchers and agents include the development and maintenance of 39 web pages or websites that were used to advertise upcoming events and/or showcase the results and achievements of outreach activities. Most agents also reached wider audiences through printed media that included 93 newsletters, 68 fact sheets, and 68 newspaper articles. Florida Sea Grant engaged scientific and professional communities through conference presentations and posters, which were highlighted in 48 conference proceedings. Florida Sea Grant agents also helped to organize a number of large community-based festivals (e.g., Cedar Key Seafood Festival, Cortez Fishing Festival, Marine Industry Boat Shows), which accounted for the development of 35 large format displays and signs.

In short, Florida Sea Grant researchers and agents blended both traditional and more contemporary forms of communication strategies to reach a wide variety of audiences including youth, policy-makers, educators, and industry, which attests to the richness and diversity of our extension and outreach programs.

Table 10. Florida Sea Grant outreach and extension communication products in 2011-2012

Communications Products Type	Count
<b>Blog</b>	47
<b>Book, Monograph</b>	12
<b>Conference Proceedings</b>	48
<b>Curricula Developed</b>	8
<b>Display / Sign</b>	35
<b>Electronic Publication / Report</b>	16
<b>Extension Bulletin</b>	0
<b>Fact Sheet</b>	68
<b>Handbook Manual / Guidelines</b>	5
<b>Journal Article</b>	11
<b>Maps / Chart / Atlas</b>	5
<b>Newsletter</b>	93
<b>Newspaper Article</b>	68
<b>Periodical</b>	5
<b>Poster</b>	28
<b>PowerPoint</b>	193
<b>Press Release</b>	3
<b>Technical Paper</b>	25
<b>Video(CD, DVD)</b>	22
<b>Website</b>	39
<b>TOTAL PRODUCTS REPORTED</b>	<b>731</b>

## PERFORMANCE TOWARD STRATEGIC PLANNING OBJECTIVES AND METRICS

### Meeting Strategic Planning Objectives

The Florida Sea Grant 2009-2013 Strategic Plan identifies 23 broad planning objectives. During the first two years of the planning period, 20 of the objectives already have been met or are on target to be met. Three objectives will be met over the next two years.

Table 10. Florida Sea Grant planning metrics, four-year targets, and 2011-12 performance toward meeting targets

Strategic Planning Performance Metric	Four-Year Planning Target	2011-2012 Performance
Number of people informed about how their actions affect the health of coastal and ocean resources.	20,000	59,754
Decision-makers are informed about the value of coastal natural resources and how their decisions affect those resources.	50	412
Acres of coastal and marine habitats to be enhanced.	100	14,944
Information products, models, decision support tools or technologies for ecosystem-based fisheries management.	4	4
K-12 teachers, informal educators and youth who increase their ocean literacy.	100	9,630
Resource managers and policy-makers will receive guidance to support sustainable resilient communities.	300	2,366
Resource managers and policy-makers who implement practices and policies to support sustainable resilient communities.	30	6
New data sources, decision-support methods, standards, products, BMPs to increase community resilience and sustainability.	10	8
Economic benefits derived from sustainable coastal policies and practices implemented as a result of Sea Grant activities.	\$5M	\$1.25M
K-12 teachers, informal educators and youth who increase their literacy regarding sustainability and hazard resiliency.	100	673
Seafood processing operations and regulatory inspectors who participate in new HACCP Alliance training programs.	4,400	1,700
Seafood retail operations adopting information from Florida Sea Grant seafood safety educational materials.	200	5,000
Shrimp and oyster processing firms adopting safe methods for handling and processing seafood from Florida Sea Grant shrimp and oyster schools.	20	400
New native Florida aquaculture products commercially produced.	2	0
New aquaculture businesses sustained.	200	395
Economic and societal benefits derived from the discovery or application of new fishery production and management techniques.	\$100M Income 500 Jobs 5 Businesses	\$278M Income 100 Jobs 5 Businesses
Legal professionals and planners who learn about policy options to reduce sea-level rise impacts.	100	358
Local and regional decision makers who learn about sea-level rise adaptation strategies.	100	132
K-12 teachers, informal educators and youth who increase their climate literacy.	100	123
Resource managers will receive information regarding the effect of sea-level rise on the structure and function of coastal natural systems.	300	239

## ACCOMPLISHMENTS AND IMPACTS

### Accomplishments

Accomplishments as reported to the national program are specific actions, activities, or products that result from research, education or extension programming. Accomplishments may reflect ongoing activities or key results that lay the foundation for longer-term cumulative impacts.

Table 11. Florida Sea Grant 2011-2012 research and extension programming accomplishments

Project	Investigators / Institution	Description
PD-10-7	Peter Sheng – UF	This project responded to the need for better forecasting tools for coastal inundation modeling and mapping and for educating the public about the effects of storm surge and inundation through the development of a prototype web-based interactive Storm Surge Education Virtual Appliance (EVA). Using this system simulations can be performed using several different sea level rise scenarios.
PD-10-8	Bill Pine – UF	New high-resolution maps of existing oyster reefs were validated by a novel local monitoring and sampling framework to help resource managers assess the impact of the Deepwater Horizon oil spill on oyster reefs in Florida’s “Big Bend” area, and to identify localities that offer the best conditions for the remediation of degraded oyster reefs.
PD-10-11	Jeff Chanton - FSU	Radiocarbon analysis indicates that the tissues of some organisms collected from coastal areas of the Gulf of Mexico, particularly those in Louisiana and Mississippi, showed characteristics consistent with the intrusion of petro-carbon, indicating that food webs were impacted by the Deepwater Horizon spill. Plankton in offshore Gulf Waters also showed impact.
PD-10-12	Alan Kane - UF	The 2011 Aquatic Animal Health Symposium, attended by 300 experts, offered a unique forum for information sharing among diverse groups of aquatic animal health researchers and practitioners about topics including infectious diseases in cultured fish, emergency response for aquatic animal health emergencies, environmental stressors, and habitat alteration.
PD-10-13	Steve Otwell - UF	An expert panel of stakeholders who influence policy, public health advice, and seafood safety education worked collaboratively to develop an action plan to address current and future methylmercury risk advisories for fish.
PD-10-14	Leonard Berry - UNF	A workshop helps water managers establish a common understanding of the changes expected to occur in coastal natural systems in response to sea-level rise, and develop guidelines for incorporating current and potential sea-level rise into the models.



<b>Project</b>	<b>Investigators / Institution</b>	<b>Description</b>
<b>PD-10-17</b>	Lisa Krinsky, Brooke Saari – UF Extension	Citizen-based focus groups in the Panhandle and South Florida regions were held to address concerns regarding Gulf seafood, and inform educational efforts to boost the reputation of Gulf seafood products among Floridians.
<b>PD-10-18</b>	Kevin Sharbaugh, Gaye Esperson - UF	Florida's Maritime Infrastructure Planning Tool, developed by Florida Sea Grant researchers, was enhanced with added functionality that allows for the integration, visualization, and analysis of marine infrastructure data (e.g., ramps, marinas, and boatyards), collected and maintained by the Florida Fish and Wildlife Conservation Commission, in a Google Maps environment.
<b>PD-10-19</b>	Betty Staugler – UF Extension	A workshop helps resource managers to develop a strategic plan for managing bay scallop restoration and monitoring efforts using local volunteers.
<b>PD-10-20</b>	Courtney Hackney - UNF	A workshop helps inform staff from water management agencies about how sea-level rise will affect water and coastal resources in future years.
<b>PD-10-21</b>	Neil Hammerschlag - UM	Research on stress in sharks induced by recreational fishing provides key evidence to state policy makers to require catch-and release tactics for tiger sharks and three species of hammerheads in state waters.
<b>PD-10-22</b>	Fred Vose – UF Extension	A new spatial technology course teaches 280 elementary students (5 <sup>th</sup> graders) and their instructors the basic operation and application of GPS for navigation and natural resource management.
<b>R/C-E-55</b>	Darrell Herbert – FIU	A new modeling tool helps the Southwest Florida Water Management District develop monitoring strategies for water flow and quality to sustain seagrass communities in Florida Bay, in support of the Comprehensive Everglades Restoration Plan.
<b>R/LR-B-62</b>	Mike Kane – UF	New and cost-effective cryogenic procedures were developed to preserve and store sea oats genetic material, and to reestablish degraded dune systems, thus, enhancing the long-term genetic diversity and ecological function of dune environments.
<b>R/LR-B-63</b>	Jeffrey Chanton - FSU	A new bioenergetics growth model quantifies how juvenile estuary-dependent fish (spot) are affected by upstream pollution and variations in water flow, temperature, and salinity to Apalachicola Bay to help address this complex regional water-use issue.
<b>R/LR-B-64</b>	Sherry Larkin - UF	New econometric modeling tool helps fisheries managers evaluate the impact of different grouper harvesting policies, including seasonal closures, fishing quotas and length limits.

Project	Investigators / Institution	Description
<b>R/C-P-31</b>	Tom Ankersen – UF	New “Florida Friendly Conditions and Covenants” adopted by the Florida Department of Environmental Protection as “Best Management Practices,” are now being incorporated into Home Owner Association covenants to begin to address factors, such as pest control, irrigation, fertilizer use, and maintenance that can combine to negatively impact coastal environments.
<b>R/C-P-32</b>	Robert Swett, Garin Davidson, Corina Guevara – UF	Four regional boating and waterway management workshops provided a professional development and networking venue for more than 400 practitioners.
<b>R/C-P-33-B</b>	Paul Zwick and Thomas Ruppert- UF	A new “Atlas of Potential Sea-Level Rise Impacts” integrates geo-spatial property appraiser parcel data and digital elevation information to estimate the value of Florida’s coastal properties that could be impacted by sea-level rise to support local hazard mitigation planning.
<b>R/GOM-RP-3</b>	Thomas Ruppert - UF	Legal analysis of common policy tools supports planning and zoning actions that can mitigate risk from coastal inundation due to sea level rise and withstand takings claims.
<b>M/PD-12</b>	Karl Havens – UF	Newell Seminar Series provides faculty and students at Florida Universities with the latest information on coastal and marine science and technologies. In 2011, FSG supported three seminars.
<b>E/NMFS-MRE-1</b>	Chris Kennedy – University of Wyoming	New economic analysis aids in developing strategies to sustain the Georgia blue crab fishery by evaluating the effectiveness of harvesting strategies (catch quotas, effort quotas, and landing taxes) that can best prevent a “trophic cascade” leading to permanently degraded coastal marsh systems.
<b>Extension Programming</b>	Holly Abeels – UF, Statewide Extension Program	New Boating Ecotourism course helps local fishing guides expand their businesses during the off-season by catering to tourists seeking water-based nature experiences.
<b>Extension Programming</b>	Libby Carnahan – Pinellas County	Derelict crab trap cleanup uses volunteers and 34 boats to removes 249 traps. The effort enhanced about 9,000 acres of benthic habitat, by decreasing ghost fishing and removing navigation hazards.
<b>Extension Programming</b>	Libby Carnahan – Pinellas County	Exotic plant removal at the popular Shell Key Preserve enhances 18 acres of beach, dune, and mangrove habitat.
<b>Extension Programming</b>	LeRoy Creswell – Statewide Restoration Specialist	Oyster habitat restoration program stabilizes spoil island shorelines and protects marine infrastructure sites (boat ramps and marinas) in the St. Lucie Estuary and Indian River Lagoon.
<b>Extension Programming</b>	Pamela Fletcher – Florida Sea Grant South Florida Marine Ecosystem Education Coordinator	Consensus-seeking process aids in the design of an ecosystem model that is now supporting efforts to manage Florida Keys and Dry Tortugas marine environments.
<b>Extension Programming</b>	Bryan Fluech – Collier County Joy Hazell – Lee County	Marine Fisheries Management Workshop teaches practitioners techniques for effectively communicating regulations with anglers.

<b>Project</b>	<b>Investigators / Institution</b>	<b>Description</b>
<b>Extension Programming</b>	Bryan Fluech – Collier County Chris Verlinde – Santa Rosa County	Aquatic Educator Collection Permit Workshops teach educators about the regulations that govern the acquisition, transport, storage, and release aquatic species for education programs.
<b>Extension Programming</b>	Bryan Fluech – Collier County	Underwater clean-up events remove hundreds of pounds of fishing line, cast nets, anchors and other marine debris off of popular artificial reefs.
<b>Extension Programming</b>	Bryan Fluech – Collier County Lisa Krimsky – Miami-Dade County	Seven-part webinar series informs 215 practitioners about fish biology, ecology, management, and safe practices for handling and consuming seafood.
<b>Extension Programming</b>	Doug Gregory – Monroe County	Florida Sea Grant agent helps to organize a seafood festival, which nets \$100K to support the Florida Keys Commercial Fisherman’s Association.
<b>Extension Programming</b>	Doug Gregory – Monroe County	Roadside trap storage program helps commercial fishermen retain access to land used to store their gear.
<b>Extension Programming</b>	Doug Gregory – Monroe County	Climate and Energy Literacy Training Program teaches 60 people the basics of applying solar energy technologies.
<b>Extension Programming</b>	Joy Hazell – Lee County	Green Industries Best Management Practice class certifies 80 companies to conduct business in Lee County. Since 2006 when the program began, 550 businesses have received occupational licenses as a result of this training.
<b>Extension Programming</b>	Scott Jackson – Bay County	Green Industries Best Management Practice class assists 24 small businesses in managing the application of fertilizer and pesticides to create Florida Friendly Landscapes.
<b>Extension Programming</b>	Bill Mahan – Franklin County Scott Jackson – Bay County	Oyster Relay Program supports the aquaculture industry by allowing oysters to be moved from undesignated areas and re-established in locations that are approved for harvesting.
<b>Extension Programming</b>	Lisa Krimsky – Miami-Dade County	Mangrove Restoration Program plants 3,600 mangrove seedlings to enhance 2.5 acres of degraded coastal habitat in Miami-Dade County.
<b>Extension Programming</b>	Lisa Krimsky – Miami-Dade County	Ghost trap clean-up program uses 70 volunteers to remove 345 derelict crab traps in Biscayne Bay.
<b>Extension Programming</b>	Maia McGuire – St. Johns and Flagler counties	Exploring our Environment Program teaches residents, visitors and land managers about non-native plants and animals and provides solutions for reducing the introduction, spread and impact of invasive species.
<b>Extension Programming</b>	Maia McGuire – St. Johns and Flagler counties	Aquaculture development program teaches 26 prospective entrepreneurs the regulations that govern this industry in the state, potential products, and zoning and permitting requirements. Five individuals have pursued new aquaculture ventures as a result.
<b>Extension Programming</b>	Brooke Saari – Okaloosa County, Chris Verlinde – Santa Rosa County	Reach out with Science Program imparts K-12 youth with knowledge of coastal ecosystems through hands-on learning exercises that reestablished oyster habitat along 1,000 square feet of Choctawhatchee Bay shoreline.



Project	Investigators / Institution	Description
<b>Extension Programming</b>	Brooke Saari – Okaloosa County	9,000 square feet of coastal dune systems were enhanced in Okaloosa and Walton counties by 332 K-12 students planting sea oats as part of a school marine science curriculum.
<b>Extension Programming</b>	Betty Staugler- Charlotte County, Joy Hazell – Lee County, Bryan Fluech – Collier County, John Stevely – Manatee County, Fred Vose – Taylor County	Florida Sea Grant agents mobilize "Citizen Science" network consisting of more than local 300 volunteers to assist the Florida Fish and Wildlife Conservation Commission with efforts to monitor goliath grouper and scallops in the southwest and Big Bend areas of Florida.
<b>Extension Programming</b>	Betty Staugler – Charlotte County	Side-scanning sonar technology aids efforts to remove underwater derelict crab traps and fishing gear from 100 acres in the Peace River.
<b>Extension Programming</b>	John Stevely – Manatee County; Betty Staugler – Charlotte County; Joy Hazell – Lee County; Bryan Fluech, Collier County; Libby Carnahan – Pinellas County; Holly Abeels, Brevard County; Lisa Krinsky – Miami-Dade County; Chris Verlinde – Santa Rosa County	More than 400 attend regional workshops aimed at disseminating the latest management and planning tools, technologies and information to Florida's state and local government waterways planning practitioners. See also R/C-P-32 above.
<b>Extension Programming</b>	John Stevely – Manatee County	Cortez Fishing Festival helps raise \$90K to support the local commercial fishing industry.
<b>Extension Programming</b>	Carlos Martinez – Marine Ornamentals Specialist	Florida Sea Grant affiliated specialist implements a K-12 aquaculture technology program that has been implemented in 13 central Florida schools.
<b>Extension Programming</b>	Leslie Sturmer – Levy County	A new web-based water quality monitoring system aids clam farmers with continuous real-time information on water temperature, salinity, dissolved oxygen and turbidity, thereby, helping to sustain 360 businesses.
<b>Extension Programming</b>	Leslie Sturmer – Levy County	Enhancement program reclaims 35K bushels of discarded oyster and clam shells to reestablish 5 acres of clam and oyster reefs in Florida's Big Bend region.
<b>Extension Programming</b>	Leslie Sturmer – Levy County	Hard clam biology curriculum teaches 50 middle-school youth about clam aquaculture through hands-on experiments.
<b>Extension Programming</b>	Chris Verlinde – Santa Rosa County	"I Love Science" curriculum delivers hands-on marine science learning opportunities to hundreds of K-12 youth.
<b>Extension Programming</b>	Fred Vose – Taylor County	Reef Team deploys artificial reefs to stimulate recreational fishing and nature-based economic development in Taylor County.
<b>Extension Programming</b>	All agents	Statewide fisheries extension program teaches sustainable angling and fishing practices to youth and helps Florida's commercial fishing industry to comply with new fishing regulations.
<b>Extension Programming</b>	Most agents involved	Florida Sea Grant agents partner to teach coastal and wetlands modules of the popular UF/IFAS Florida Master Naturalist Program.



## Economic Benefits

Table 12. Florida Sea Grant 2011-2012 research and extension programming economic benefits

Description	Economic Benefit	Businesses Created / Sustained	Jobs Created / Sustained	Patents
Florida Sea Grant aquaculture research and extension program sustains Florida's clam and oyster farmers by participating in cultural events, such as the annual Cedar Key Seafood Festival, to create support and awareness for the towns' clam farming industry and retail businesses that sell locally harvested clam and oyster products.	\$267,000,000		995	
Florida Sea Grant organizes a workshop on aquaculture operations management, regulations, and financial feasibility to 26 entrepreneurs, five of whom are "definitely planning to pursue" new aquaculture businesses in northeast Florida.		5	5	
A new boating ecotourism course helps charter boat captains to supplement their income, by offering nature-based excursions through the creation of a new business called "Space Coast Ecotours." The agent assisted with connecting charter boat captains with local hotels to promote the business, taught them about local ecology, and trained them in basic business management principles.		1	1	
A sustainable angling program implemented by Florida Sea Grant in Miami-Dade County, pairs fishers with participating charter boat captains, increasing their income by \$16,350.	\$16,350			
Florida Sea Grant's Regional Waterway Management System implemented in southwest Florida streamlines waterway maintenance permitting and saves taxpayers an estimated \$1.25M each year.	\$1,250,000			
The Florida Sea Grant partnership with the Florida Keys Commercial Fisherman's Association raises \$100K, from the 2011 Florida Keys Seafood Festival, to support the association and college-bound Keys students.	\$100,000		95	
New Green Industries Best Management Program certifies 80 landscaping companies to conduct business in Lee County.		80		
Florida Sea Grant continued its leadership role in supporting Florida's artificial reef program, which contributes \$226M and 2,500 jobs annually to southwest Florida's economy.	\$226,000,000		2,500	
Florida Sea Grant's seafood specialist implemented HACCP seafood safety trainings that supported the commercial viability of 5,400 seafood firms in the US and US territories.		5,400		
Florida Sea Grant assists the Apalachicola oyster industry to respond to new harvest and product safety regulations, helping to sustain 15 businesses and 300 jobs in Franklin and Wakulla counties.		15	300	

Description	Economic Benefit	Businesses Created / Sustained	Jobs Created / Sustained	Patents
Florida Sea Grant Oyster Relay Program responds to new regulations by hiring local oyster fishermen to transport live oysters from non-harvestable to harvestable areas, helping sustain 5 businesses and 75 jobs in Apalachicola.	\$440,000	5	75	
Florida Sea Grant-funded water access study helps Taylor County improve a popular boat ramp, resulting in a doubling of ramp permit decals and an increase of \$283K to the local economy.	\$283,000			
Sea Grant coordinates USDA's Trade Adjustment Assistance program, which improves the profitability and productivity of 150 commercial fishing businesses in Florida, retains 500 jobs, and generates \$1.5 million in income.	\$1,500,000	150	500	
Florida Sea Grant facilitates new negotiations with Florida Department of Transportation and the Monroe County Commission to allow local fishers to use waterfront land that was to be repurposed for trap storage, helping to sustain 35 jobs.	\$1,050,000		35	
<b>Benefit Totals</b>	<b>497,639,350</b>	<b>5,656</b>	<b>4,505</b>	<b>0</b>

**Impacts**

Impacts as reported to the national program are cumulative economic, societal and/or environmental benefits that result from research, education or extension programming.

Table 13. Florida Sea Grant 2011-2012 research and extension programming impacts

Project / Investigators	Title	Relevance, Response, Results
<p><b>R/C-P-32 Swett - UF</b></p>	<p>New spatial planning tools help local governments to manage mooring fields, maintain waterways and economically justify local artificial reef programs.</p>	<p>Relevance: The project supported marine spatial planning initiatives being implemented by the Florida Sea Grant Boating and Waterway Planning Program. This project is well leveraged through numerous grants and contracts, underscoring the widespread need at local, regional, and state levels for waterway management and planning, and the high value placed by partnering organizations and agencies, such as the Florida Fish and Wildlife Conservation Commission, the NOAA Right Whale Recovery Program, the West Coast Inland Navigation District, the Florida Department of Environmental Protection, and a number of coastal counties, on the program’s GIS-based analytical products.</p> <p>Response: 2011-2012 project objectives were met through (1) a mooring field siting analysis for Brevard County and (2) a coastal and waterway access study for Taylor County. Ongoing activities include (3) a characterization of boating patterns in relation to right whales offshore of three NE Florida counties, (4) the Charlotte County Regional Waterway Management System, (5) a marine siting analysis for Charlotte County, (6) consultation/advisory services for Brevard and Collier counties, and work related to (7) the Southeast Florida Coral Reef Initiative.</p> <p>Results: This project has had significant impacts to Florida taxpayers, citizens, and to agencies charged with planning for and managing coastal resources. For example, a Regional Waterway Management System developed to streamline permitting for waterway maintenance and navigation has resulted in a taxpayer savings of \$1.25M per year. In addition, the program has developed a number of planning tools that are now being used by local governments to help manage mooring fields, maintain waterways, and economically justify local artificial reef programs.</p>
<p><b>Extension Programming: Staugler, Hazell, Carnahan, Krimsky – UF Florida Sea Grant</b></p>	<p>Florida Sea Grant extension agents implement volunteer-based program for statewide crab trap removal to safeguard navigation and to enhance benthic habitats.</p>	<p>Relevance: Lost and abandoned crab traps litter Florida's shallow estuarine submerged habitats, posing a threat to navigation and impacting recreational and commercial fishing industries, by continuing to trap fish and crustaceans.</p> <p>Response: In partnership with commercial crabbers, the Florida Fish and Wildlife Conservation Commission and the Ocean Conservancy, Florida Sea Grant Extension agents organized and implemented a series of volunteer-based crab trap removal events and disseminated this information through web-based forums and hands-on, on-site, trainings.</p> <p>Results: During 2011-2012, these efforts removed more than 600 derelict crab and lobster traps from shallow water, seagrass and mangrove environments, which enhanced approximately 14,760 acres of benthic habitat in Pinellas, Charlotte, and Miami-Dade counties.</p>

Project / Investigators	Title	Relevance, Response, Results
<p><b>EX-TAAP-1</b> <b>Adams - UF</b></p>	<p>Florida Sea Grant coordination of trade adjustment program sustains jobs and income for 150 shrimp fishermen.</p>	<p>Relevance: Commercial shrimpers and fishermen whose commodities have been certified as being adversely affected by import competition are now eligible for business training and trade adjustment compensation through the U.S. Department of Agriculture’s Trade Adjustment Assistance program. The program provides training to farmers and commercial fishermen and then encourages them to apply the new skills and benefits received to improve the productivity and profitability of their businesses.</p> <p>Response: Florida Sea Grant’s marine economist is coordinating the TAAF initiative under a cooperative agreement with the U.S. Department of Agriculture – Farm Service Agency, and the University of Minnesota Cooperative Extension Program. The Florida program conducted 20 workshops throughout the state providing approximately 300 commercial fishermen with training on (1) the current status of the domestic shrimp market, (2) innovative marketing methods, (3) techniques for making their vessels more fuel efficient, and (4) effective business planning.</p> <p>Results: Approximately 150 commercial fishermen have been trained and have received either the complete or initial TAA benefits payments. It is estimated that this project has helped to sustain 500 jobs and increased the income of fishermen who participated in the program by a total of \$1.5M. This amount will be potentially doubled when the program is completed in 2013.</p>



Project / Investigators	Title	Relevance, Response, Results
<p><b>R/CP-31</b> <b>Ankersen - UF</b></p>	<p>Florida Sea Grant supports innovative policy solutions that sustain working waterways and waterfronts.</p>	<p>Relevance: Florida’s water-dependent coastal communities often lack resources to develop planning guidelines that help protect working waterfronts, preserve critical environmental and cultural resources, and maintain adequate public access to coasts and waterways for navigation and recreation. Florida Sea Grant provides legal extension to state and local policy professionals across a range of waterway and waterfront issues confronting coastal communities.</p> <p>Response: Florida Sea Grant sources expertise from the University of Florida’s College of Law to develop and apply innovative policy-based solutions that support local government coastal management and waterway planning efforts. Much of this work is accomplished through the Conservation Clinic, a unique learning environment where law students apply their knowledge, with mentoring from legal skills professors, to develop creative policy solutions for sustainably managing coastal resources.</p> <p>Results: During 2011-2012, Florida Sea Grant's legal extension program generated a number of accomplishments and impacts, which furthered efforts to sustain critical coastal environments and help communities plan for their waterfronts and waterways. For example, a new model comprehensive planning framework including land development regulations and a model rolling conservation easement is now helping coastal communities adapt to anticipated sea-level rise. Elements of this new planning framework were adopted by the City of Punta Gorda, which recently was recognized by the EPA as a National Estuary “Climate Ready” community. Project PI’s and affiliated law students also created a planning tool for the State Department of Economic Opportunity to evaluate and protect regionally important maritime infrastructure.</p> <p>The tool has shown that future land use designations and/or current zoning for some of the identified infrastructure is at odds with its current use, presenting the possibility of future conversion from public access in the absence of regulatory oversight. (See program development project PD-10-18). Florida Sea Grant's legal specialists also worked directly with the Waterfronts Florida Program to identify policy and planning options to protect the cultural heritage of working waterfront communities (e.g., Milville, Panacea, and Cortez), address waterfront blight, and to sustain the commercial and public access that waterfront properties provide. These efforts have resulted in a conservation proposal for a 100-acre coastal property that the community of Cortez recently acquired to protect habitat. Finally, a policy analysis on the Blue Water Initiative facilitated the acquisition of permits to remove "rogue tires" from a 1970s-era artificial reef program that dumped 2 million used tires offshore. The debris caused an ever-expanding zone of waste material that is damaging nearby natural coral reefs off the coast of Ft. Lauderdale. The cleanup is enhancing 100 acres of benthic habitat.</p>

Project / Investigators	Title	Relevance, Response, Results
R/C-D-19 Chowdhury - FIU	Florida Sea Grant research leads to updates in the Florida Building Code increasing the resilience of coastal communities to storms and hurricanes.	<p>Relevance: The value of Florida’s residential structures vulnerable to hurricane damage is estimated at \$1.5 trillion. Approximately 50% of the cost to repair structures affected by hurricanes is associated with the refurbishment of interior components (i.e., walls, flooring, ceilings, and utilities) that have been damaged due to wind-driven water intrusion.</p> <p>Response: Currently, insurance companies rely on judgment-based models to predict building interior damage. This project developed new science-based guidelines to improve the accuracy of the “Florida Public Hurricane Loss Model.” The new guidelines were based on full-scale recreations of up to Category 5 hurricane conditions on residential structures using a new “Wall of Wind” simulation facility at Florida International University.</p> <p>Results: This research has directly affected updates to the Florida Building Code aimed at decreasing the vulnerability of roofs and interior contents to hurricanes. The fast pace of this research-to-application endeavor underscores Florida Sea Grant’s approach to applied research that partners researchers with end-users.</p>
PD-10-18 Sharbaugh – UF	Visualization tool helps local governments value and retain traditional maritime infrastructure.	<p>Relevance: Recreational and commercial boaters use Florida’s coastal communities are linked by an informal network of natural and constructed maritime transportation infrastructure that enables. The enjoyment of this resource provides great economic benefit to Florida as a whole. Escalating values for waterfront properties in Florida has led to the conversion of many traditional water-dependent businesses to private residential uses. This has resulted in a situation where coastal communities have lost the vital maritime infrastructure that supports commercial activities and public access to coasts and marine services for recreation.</p> <p>Response: In a response to these changing conditions, Florida Sea Grant researchers developed a visualization tool for local governments to help evaluate the importance of specific marine infrastructure components (e.g., ramps, marinas, boatyards) in both local and regional contexts. The tool allows for the integration, analysis, and visualization of marine infrastructure data in a Google Maps environment. The creators of the tool implemented a series of workshops with Florida Sea Grant to train extension agents and local government planners on how to apply this new visualization tool in support of coastal and waterways planning and property acquisition decisions.</p> <p>Results: The new planning tool for identifying and valuing significant maritime infrastructure is being used in Charlotte County to evaluate marinas, boat ramps and boat yards, as factors in developing policies to retain critical maritime infrastructure components.</p>

Project / Investigators	Title	Relevance, Response, Results
<b>PD-10-21 Hammerschlag - UM</b>	Florida Sea Grant research informs decision to protect tiger and hammerhead sharks in Florida waters.	<p>Relevance: Sharks are highly threatened worldwide due to overfishing, a trend largely driven to fuel the shark fin trade as well as from accidental by-catch from commercial fishing operations. Populations of hammerhead sharks in the northwest Atlantic have declined more than 80 percent over the last two decades. DNA analysis of great hammerhead fins sold in the Asian shark fin market has shown that a large majority of the sharks came from Atlantic waters. The great hammerhead shark is listed as endangered in the northwest Atlantic and Gulf of Mexico by the International Union for Conservation of Nature.</p> <p>Response: The research team used satellite tags to track large and environmentally threatened sharks in Florida and the Bahamas, including great hammerhead, bull and tiger sharks. The research focused on identifying hotspots (areas that are important for feeding, mating, and pupping), and it documented their largely unknown migration routes. The research indicated that Florida waters are important pupping and feeding grounds for sharks, providing them with the critical habitat required for these slow-to-mature ocean animals to survive.</p> <p>Results: The results of this research provided evidence that was used by the Florida Fish and Wildlife Conservation Commission to require catch-and-release fishing of tiger sharks and three species of hammerheads in state waters.</p>
<b>Extension Programming Otwell – UF</b>	Florida Sea Grant's seafood specialist Implements HACCP seafood safety trainings that support the commercial viability of 5,400 seafood firms in the US and US territories.	<p>Relevance: Seafood, including shellfish, is among the most perishable of foods. That is due to the kind of enzymes and bacteria found on fish and the effects of oxygen, which can cause the "fishy smell" that is one sign of spoilage. HACCP, the Hazard Analysis Critical Control Protocol, is a process control system that identifies where hazards might occur in the food production process and puts into place stringent actions to prevent contamination and resulting food poisoning.</p> <p>Response: The Florida Sea Grant affiliated seafood safety specialist, Dr. Steve Otwell, led the seafood HACCP alliance which trained almost 1,500 individuals from seafood processing, retail operations, and government agencies on new seafood safety regulations.</p> <p>Results: It is estimated that new HACCP certifications obtained by participating seafood processing and retailer firms has sustained an estimated 70 businesses and 5,000 jobs in the industry.</p>



Project / Investigators	Title	Relevance, Response, Results
<b>Most Florida Sea Grant agents</b>	Florida Sea Grant's statewide marine education and extension program harnesses the power of the scientific community, industry, citizen volunteers, and teachers and youth, to provide hands-on formal and informal learning opportunities.	<p>Relevance: Florida Sea Grant's marine education programs complement the public school system's science curriculum, which in many communities lacks a comprehensive coastal and marine ecology component. In addition, Florida Sea Grant responds to the need expressed by local cooperative Extension programs for more informal learning experiences through a blending of education and Extension that targets not only youth, but also adults who want to learn more about coastal and marine systems through hands-on immersion programs.</p> <p>Response: To meet a growing demand for hands-on formal and informal marine science learning experiences, Florida Sea Grant's network of 20 marine agents develop their respective marine education and extension programs with input from local advisory committees. These programs are further coordinated through a Florida Sea Grant supported Work Action Group, and through an annual Florida Sea Grant Extension meeting that identifies areas of common interest, such as habitat enhancement, responsible angling, monofilament recycling, and Coastal Master Naturalist Certification programs, which become integrated into annual work plans. The success of Florida Sea Grant's marine education program is due to adherence to four overarching principles: First, educational activities are conducted through partnerships with state agencies, the Cooperative Extension Service, the school system, local citizen groups, and/or industry. Second, activities harness and benefit from local volunteer involvement. Third, activities must impart knowledge of coastal and marine systems by providing interactive learning experiences. And last, activities, where possible, are organized in a way that supports local, small-scale, coastal-dependent businesses, such as commercial fishing enterprises.</p> <p>Results: In 2011-2012, Florida Sea Grant agents coordinated learning programs that involved sustainable angling and habitat enhancement, seamlessly blending environmental education with volunteer-based community service. Some of the activities, such as the Kid's Let's Go Fishing Program and a Statewide Crab Trap Removal Program were planned to involve and supplement the income of commercial fishing captains during the off-season. Agents also helped to organize large annual festivals aimed at boosting the incomes of commercial fishermen and sustaining small water-dependent communities.</p> <p>In short, during 2011-2012, Florida Sea Grant's marine education and outreach program provided learning experiences for 1,737 teachers and informal educators, 7,594 youth, and 7,897 citizens; supported water-dependent businesses and communities and was responsible for enhancing an estimated 14,944 acres of critical coastal habitats in communities throughout the state.</p>



Project / Investigators	Title	Relevance, Response, Results
<b>Most Florida Sea Grant agents</b>	Florida Sea Grant partners with the UF-based Florida Master Naturalist Program to help teach a recently developed Coastal Systems module as an interactive learning experience.	<p>Relevance: The popular Florida Master Naturalist Program was designed by UF professor Marty Main to address the need to promote awareness, understanding, and respect of Florida's natural resources through interactive, hands-on learning experiences. The program includes a Coastal Systems module, which complements the mission of Florida Sea Grant's Extension program, and the skill set of Florida Sea Grant's extension agents.</p> <p>Response: The developer of the Florida Master Naturalist Program sourced expertise within the Florida Sea Grant Extension network to help instruct the Coastal Systems and Wetlands modules. In 2011-12, most Florida Sea Grant agents served as instructors for the program.</p> <p>Results: A recent statewide survey of hundreds of Florida Master Naturalist program graduates shows that the courses helped them acquire new jobs (7%), new volunteer positions (13%), a pay raise or promotion (3%), increased job responsibilities (30%), and increased information to share with others (97%).</p>

**SUMMARY**

Florida Sea Grant is pleased to showcase these achievements for the 2011-2012 period which demonstrate productive and positive efforts to address critical state and national priorities. These achievements also attest to the richness and diversity of Florida Sea Grant’s research and extension programs which are based on partnerships with the University of Florida/IFAS Extension Program, and with universities and local governments throughout Florida. These partnerships ensure that Florida Sea Grant research, extension and education programs will continue to address the critical needs of Florida’s coastal communities, industries, and state agencies. Please visit the Florida Sea Grant website ([www.flseagrant.org](http://www.flseagrant.org)) to learn more about how Florida Sea Grant is making a difference through “Science Serving Florida’s Coast.”