

ACCESSING FLORIDA'S COAST

There are signs
the economy is
improving. But, will
coastal communities
soon feel the
squeeze?

Photo by: UF/IFAS

In Florida, competition for access to beaches and waterways is constant. Mom-and-pop marinas compete with bigger and better-financed operators for the state's most valuable real estate. Public beaches may also be private backyards. Crowded ramps disperse into even more crowded waterways.

These demands strain not only natural systems, but also many of the uses and activities that people have come to expect when they spend time at the coast. And the problem will only grow, due to rising seas, eroding shorelines and the nation's continuing love affair with Florida and its waters.

Tom Ankersen, Florida Sea Grant's legal specialist and a professor in the University of Florida Levin College of Law, provides applied legal research and outreach services to coastal communities caught in the squeeze.

As director of the law school's Conservation Clinic, he offers communities a variety of innovative policies and strategies that give community leaders more flexibility to respond to rapid changes, environmental stressors and economic shocks.

"Communities are often reluctant to act simply because they lack the human and technical resources when the use of these resources must be balanced against competing priorities," Ankersen said.

"We try to use relevant research that provides coastal communities with up-to-date and timely information, models, and tools to guide decision making, so they can be more resilient and sustainable," Ankersen says.

The clinic is also a training ground for legal students who aspire to work in public policy or conservation-related fields. Under Ankersen's supervision, the students do much of the research and writing that eventually develops into model ordinances or helpful "policy

toolkits" for community leaders.

One of these is Florida Sea Grant's Accessing Florida's Coast, (FloridaWaterAccess.org), a website that serves as a self-help resource for the people of Florida. It pulls together the legal and regulatory framework that will help communities more effectively address water access, understand their rights, reduce environmental impacts and even save tax dollars.

Materials available include model laws and ordinances specific to Florida's unique framework for state and local policy planning.

"People love to be on and in the water, and most want to do so responsibly. If residents and visitors understand the legal and policy basis for regulation and management—when it makes sense and when it doesn't—they are more likely to become partners in efforts to protect both the resource and their access to it," Ankersen said.



WATER ACCESS

BRINGING SCIENCE TO THE PEOPLE

EDUCATION



Maia McGuire is always thinking of new ways to teach science, reading and math by relating the subjects to trending marine science topics.

Take for example the third-grade manatee and fourth-grade right whale curricula she developed as a better way to incorporate science into everyday reading and math lessons. Each lesson is correlated to Florida education standards for science, language arts and math. She developed these programs to show school children that “science can be fun.”

“The feedback that I have received from teachers has been that I have achieved this goal,” said McGuire, the Florida Sea Grant agent with UF/IFAS Extension in St. Johns and Flagler counties. “The students enjoy learning about ‘charismatic megafauna’ like manatees or whales, and they are eager to complete the lessons even if they require reading, writing, math or science skills.”

Now McGuire is taking her attention away from charismatic megafauna and focusing it into a microscope, looking for tiny bits of plastic that litter the ocean.

McGuire was recently awarded a grant from the National Oceanic and Atmospheric Administration to create a statewide citizen science initiative that raises awareness about microplastics in the ocean.

Microplastics are small bits of plastic, 5 millimeters or less, that can come from a variety of sources, like degraded pieces of plastic water bottles. They include microbeads, a key component in face scrubs, toothpastes, shampoos, and many other personal care products.

As part of her Florida Microplastic Awareness Project, she will be training volunteers to sample Florida waters across the state hunting for signs of microplastics. The collected evidence will be mapped using Google maps online to help visually tell the story of microplastic contamination across the state.

McGuire hopes the campaign will teach Floridians ways to cut down on their personal contribution to microplastic pollution, and reduce amounts in the environment overall.

McGuire’s love for educating both teachers and citizens is crucial to Florida Sea Grant’s goal of enhancing literacy and stewardship of the oceans and coasts, and her efforts have been frequently recognized by her peers. In 2005, she was named the Florida Marine Science Educator of the Year, and



Photo by UF/IFAS

most recently, the 2015 Florida Wildlife Federation Educator of the Year. She also chairs the National Sea Grant Educators Network.

“Education is key to Sea Grant’s mission because environmental issues are long-term,” McGuire said. “The youth today are the decision makers of the future. Without understanding of these issues, they won’t be able to make decisions that protect our natural resources.”



Chuck Skoch
Scholar
Quinn Zacharias
DELAND HIGH SCHOOL



**Florida Coastal Office/
Florida Sea Grant Fellow**
Kayleigh Michaelides
M.S., MARINE AFFAIRS/POLICY
UM RSMAS

John A. Knauss Marine Policy Fellows



Erica Towle
PH.D., BIOLOGY
FSU



Alex Harper
PH.D., CHEMICAL
OCEANOGRAPHY, FSU



Anna Normand
PH.D., SOIL AND
WATER SCIENCE, UF

Scholarship and Fellowship Recipients

\$365,000 in scholarships and fellowships awarded and 76 students supported through research grants

FOWA Outdoor Communicators



Jennifer Adler
PH.D.,
INTERDISCIPLINARY
ECOLOGY, UF



Carrie Schuman
PH.D.,
INTERDISCIPLINARY
ECOLOGY, UF



Jordan Skaggs
M.A., FISHERIES
UF

NOAA Fisheries/Sea Grant Graduate Fellow, Population Dynamics



Matthew Nuttall
PH.D., MARINE BIO/FISHERIES,
UM RSMAS



Nicholas Ducharme-Barth
PH.D., FISHERIES AND AQUATIC
SCIENCE, UF

Guy Harvey Scholars



Ross Boucek
PH.D., BIOLOGY
FIU



Mary Cockrell
PH.D., MARINE
SCIENCE, USF



Chris Malinowski
PH.D., BIOLOGICAL
SCIENCE, FSU



Luke McEachron
PH.D., INTERDISCIPLINARY
ECOLOGY, UF

Aylesworth Foundation Scholars



Stephanie Garvis
PH.D., CONSERVATION BIOLOGY
UCF



Mary Kate Swenarton
M.A., COASTAL
BIOLOGY
UNF



Brendan Talwar
M.A., ECOLOGY AND
EVOLUTION
FSU



Sara Thomas
B.S.
MARINE BIOLOGY
FAU



Erica Ross
PH.D., FISHERIES AND
AQUATIC SCIENCE
UF



Megan Conkling
M.A., BIOLOGY
FAU

CONTROLLING THE INVASIVE LIONFISH

Since its first spotting in the Atlantic Ocean in the mid-1980s, the invasive lionfish has spread in alarming numbers throughout the Caribbean and all the way north to Rhode Island.

Though native to the warm, tropical waters of the Indian and Pacific oceans, lionfish have proliferated quickly in the Atlantic Ocean, taking over reefs and harming native reef fish populations. Florida Sea Grant has research underway to test lionfish removal methods and management strategies.

Chris Stallings of the University of South Florida, Mark Albins of Auburn University, and Craig Layman of Florida International University, are attempting to identify the most efficient and cost-effective methods to fish down lionfish numbers so native fish populations can recover and stabilize.

The team used volunteer spear divers to capture lionfish at different frequency rates from five selected areas off southeast Florida, while monitoring changes in the numbers of prey-sized native fishes. The results are set to be released by the end of 2015.

Richard Appeldoorn from the University of Puerto Rico, and Matthew Craig, director of San Diego-based MTC Associates, are evaluating the effectiveness of using divers and snorkelers competing in fishing derbies and rodeos to reduce lionfish numbers in Puerto Rico. Lionfish derbies have become popular social events across the Caribbean and South Florida to raise public awareness about the lionfish problem, but there are no precise results that help resource managers determine if they are effective for small-scale control under a variety of conditions.

A third project is trying to determine which is the most

effective of three removal techniques – derbies, traps, or continuous removal. The Reef Environmental Education Foundation, known as REEF, is comparing results of the three on coral reefs in selected locations in South Florida and the U.S. Virgin Islands.

Researchers hope the results will help managers prioritize removal techniques that are the most useful and economic for their specific location.

One of Florida Sea Grant's student fellows, Mary Kate Swenarton, is using her Guy Harvey scholarship award to investigate the market demand for lionfish in Jacksonville. Swenarton is a master's student in coastal biology at the University of North Florida.

“This market could reduce lionfish densities and, as a result, the impacts of lionfish in the long term,” she said.



Photo submitted by Mary Kate Swenarton

UNF graduate student, Mary Kate Swenarton is studying the growth rate of lionfish to help managers more accurately determine the removal effort needed to keep lionfish densities under control.

2014-2015

FLORIDA SEA GRANT CUMULATIVE BUDGET



620 water-dependent businesses sustained

5 coastal communities adopt policies to protect waterfront and waterway access

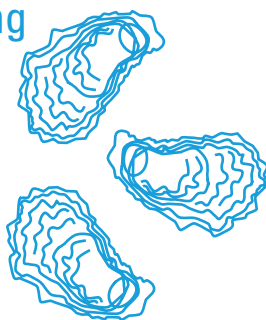


\$365,000 awarded in scholarships and **76** students supported on research grants

815 volunteers help enhance 429 acres of coastal habitats

1,251 seafood industry workers trained in safe seafood handling

2,118 shellfish harvesters maintain licenses through outreach programs



17 new Clean Marinas established in Florida



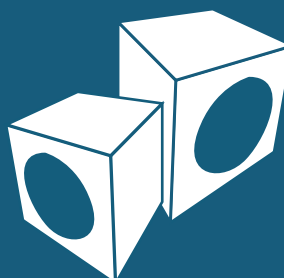
4070 K-12 students and **626** educators learn from marine education programs

84 supported students found jobs in their field

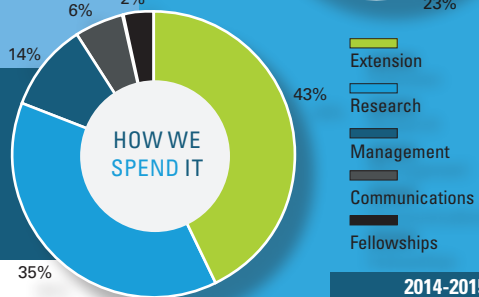
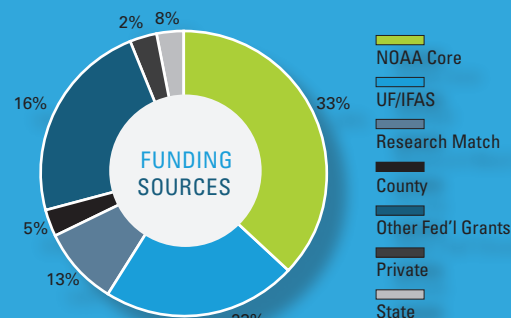


2,595 jobs in southwest Florida supported through artificial reef programs

27 coastal communities learn adaptation strategies for sea-level rise



\$3.93 million generated from artificial reef deployment in Bay County



2014-2015 EXPENDITURES	
FUNDING AREA	TOTAL
Research	\$ 2,280,519
Extension	\$ 2,802,060
Communications	\$ 436,537
Management	\$ 923,987
Fellowships	\$ 127,500
Total	\$ 6,570,603



At the same time that researchers are evaluating how to do large-scale shelling of oyster reefs, displaced oyster fishermen are conducting smaller-scale shell deployment with disaster assistance funds provided by Congress as a result of the declaration of a Federal Fishery Disaster. (Florida Sea Grant photo by Erik Lovestrand)

REBUILDING A COLLAPSED FISHERY

After a historic collapse of the Apalachicola Bay oyster fishery, Florida Sea Grant is partnering in a five-year project to test techniques that will optimize oyster reef restoration and management.

Apalachicola, a heritage fishing community in the Big Bend region off the northwest coast of Florida, is the state's center for production of oysters prized for their outstanding quality and taste.

In 2012, after two years of historic low river inflow and high salinity in Apalachicola Bay, the oyster population crashed. Florida Sea Grant and the University of Florida Institute of Food and Agricultural Sciences joined forces to help bring back the bay's oysters.

Research indicated that to achieve recovery in less than five years, it would require reshelling at least 1,000 acres of oyster bars where the habitat had been degraded, and a reduction in the amount of harvesting for a period of time to allow oysters to reach a healthy density on the new bars.

With funding from the National Fish and Wildlife Foundation, a project is being conducted by Florida Sea Grant, the University of Florida and state agencies to evaluate the efficacy of different densities of planted oyster shells in three areas of the bay where oysters are traditionally harvested in the summer and winter months.

Each of the areas has five 2-acre experimental plots planted with varying amounts of oyster shell per acre to identify optimal and cost-effective shell substrate density for future large-scale restoration projects. A component of this project is experimental harvesting, which is being done to determine the amount of oysters that can be removed while sustaining the population for future years.

The project has a large community outreach component. Karl Havens, director of Florida Sea Grant and leader of the oyster recovery team noted that "results of this work will help to support the concept of co-management, where the best science is used to inform decisions about the resource, and where input from community members also plays a real role in guiding those decisions."

FLORIDA SEA GRANT NETWORK MEMBER INSTITUTIONS

University of Florida (Host) Gainesville, FL

Florida Atlantic University/
FAU at Harbor Branch Oceanographic
Boca Raton/Ft. Pierce, FL

Florida Gulf Coast University
Ft. Myers, FL

Florida A&M University
Tallahassee, FL

Florida Institute of Technology
Melbourne, FL

Florida International University
Miami, FL

Florida State University
Tallahassee, FL

Jacksonville University
Jacksonville, FL

Mote Marine Laboratory
Sarasota, FL

New College of Florida
Sarasota, FL

Nova Southeastern University
Dania Beach, FL

University of Central Florida
Orlando, FL

University of Miami
Miami, FL

University of North Florida
Jacksonville, FL

University of South Florida
St. Petersburg, FL

University of West Florida
Pensacola, FL



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