IMPACTS & ACCOMPLISHMENTS

SCIENCE SERVING GEORGIA'S COAST

Marine Extension and Georgia Sea Grant
UNIVERSITY OF GEORGIA
Sea Grant

FROM THE DIRECTOR

Marine Extension and Georgia Sea Grant at the University of Georgia has accomplished much in the last year. As the National Sea Grant College Program celebrated its 50th anniversary, Georgia Sea Grant was well represented in stories of past accomplishments and significant milestones. More importantly, we have implemented a number of programs that situate us to continuing having impacts for the next 50 years. From establishing a blueprint to grow the oyster industry from 10 to 50 growers over the next five years to hiring our first public programs coordinator to engaging more coastal citizens in our education programs, we are trying to maximize the impacts of our federal, state, and private investments. Through our annual documentation of public service impacts, we know that our service programs have a direct economic impact of more than $112 million. A new report by Jeffrey Dorfman in the UGA Department of Agricultural and Applied Economics assessed the impacts of our research investments and determined that Georgia Sea Grant-funded projects produce an average estimated return on investment of 250 percent, meaning every one dollar of federal funding translates into nearly four dollars in economic impact in Georgia. With returns like these, I am confident that we will continue to receive support from the coastal communities and constituents we serve.

As director of Marine Extension and Georgia Sea Grant, I ensure that federal and state investments continue having significant impacts. This year we engaged citizens from across the state through our strategic planning efforts which will guide our programs for the next four years. This plan outlines our strategy to fulfill our mission to support research, education and outreach activities that promote environmental and economic health in coastal Georgia by helping improve public resource policy, encouraging far-sighted economic and fisheries decisions, anticipating vulnerabilities to change and educating citizens to be wise stewards of the coastal environment. With your continued support and our dedicated researchers, extension professionals and educators, I am confident that we can accomplish this agenda and keep Georgia's coast one of the best places to live, work and play.

Sincerely,

Mark Risse

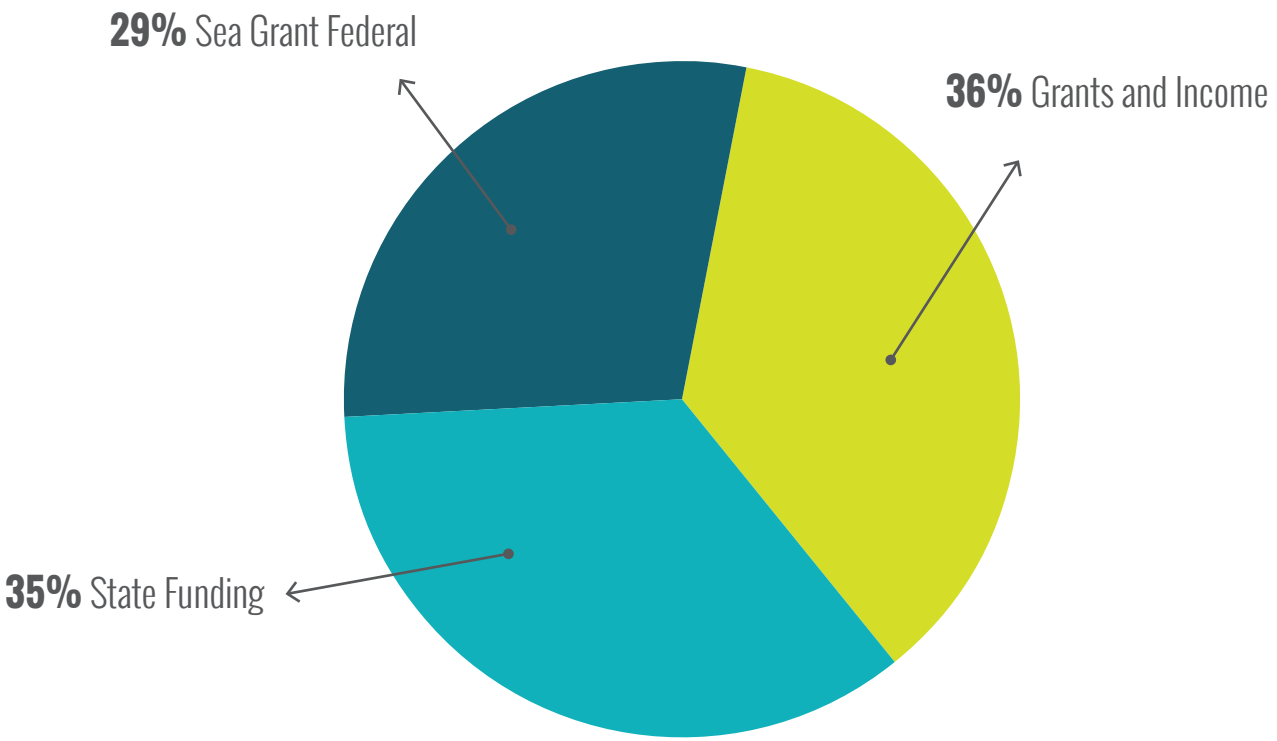
MARINE EXTENSION AND GEORGIA SEA GRANT

Marine Extension and Georgia Sea Grant unites the resources of the federal government, the state of Georgia and universities across the state to improve public resource policy, encourage far-sighted economic and fisheries decisions, anticipate vulnerabilities to change and educate citizens to be wise stewards of coastal ecosystems. Marine Extension and Georgia Sea Grant are units of Public Service and Outreach at the University of Georgia, supporting Georgia's short- and long-term prosperity.

Georgia Sea Grant is administered through the National Oceanic and Atmospheric Administration (NOAA) and is one of 33 university-based Sea Grant Programs around the country. Georgia Sea Grant activities began in 1971 under the leadership of Edward Chin. In 1980, the Department of Commerce, under section 207 of the National Sea Grant Program Act, designated UGA as the nation's fifteenth Sea Grant College Program.

Distribution of Funding FY2016

Total Amount Funded **$4.066 MILLION**



ECONOMIC DEVELOPMENT

Marine Extension and Georgia Sea Grant boosts economic impact in the state by fueling discoveries through research, providing learning opportunities to students and offering programs focused on workforce development. Every Sea Grant dollar invested in research returns nearly four dollars to Georgia's economy. Investments in education and outreach programs generate nearly $115 million in economic impact in 2015.

Saving money while saving lives in coastal Georgia

Marine Extension and Georgia Sea Grant worked with the City of Tybee Island and City of St. Marys to assist the communities in adapt to rising sea levels. The Tybee Island Sea Level Rise Adaptation Plan directly impacted the economy of Tybee Island by helping to improve the City's rating under FEMA's Community Rating System (CRS). During the planning process, Tybee Island went from a class 7 to 5 in CRS, enabling savings in flood insurance premiums of $3 million for property owners on the island. The City of St. Marys achieved a CRS of 7, resulting in an average savings of $107 per household in flood insurance premiums. This adds up to city-wide savings of $87,740 annually.

Reviving oyster production in Georgia by launching the state's first oyster hatchery

Marine Extension and Georgia Sea Grant is helping the state establish a competitive aquaculture industry by creating Georgia's first oyster hatchery in partnership with the Georgia Department of Natural Resources and Georgia Department of Agriculture. By 2018, the oyster hatchery is expected to produce between 5-6 million spat, or baby oysters, per year with an estimated harvest value of $1 million to $2.1 million. Marine Extension and Georgia Sea Grant is continuing to work with partner organizations to aggressively pursue grants and other external sources of funding. Additional investment in oyster research, training for shellfish growers, resource management and consumer safety is needed to sustain the hatchery's continued growth. In 2016, the the inaugural Oyster Roast for a Reason fundraising event was held to raise awareness about the hatchery. Over 200 guests attended the event, which raised over $17,000.

Building leaders and promoting workforce development

Marine Extension and Georgia Sea Grant administers a number of fellowships and internships offered to students and recent graduates. Through federal and state partnerships, these opportunities provide real-world experience, accelerate career development and increase available expertise related to these fields. The Dean John A. Knauss Marine Policy Fellowship matches current and recent graduate students from the nation's 33 regional Sea Grant offices with hosts in the legislative and executive branches of government. Three graduate students nominated by Georgia Sea Grant were selected for the 2016 John A. Knauss Marine Policy fellowship.

Advancing careers in STEM through internships and research opportunities

The Georgia Sea Grant Marine Education internship is designed for recent college graduates who would like teaching experience in marine science and coastal ecology. Since launching the Georgia Sea Grant Marine Education Internship in 1995, 80 graduate students have participated in the program.

Training students in law and policy

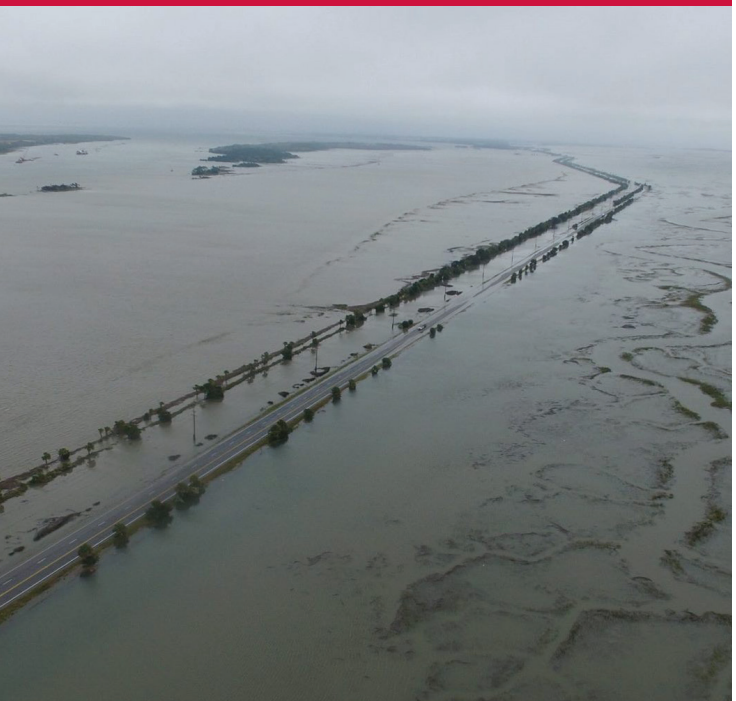
The Georgia Sea Grant Legal Program is a partnership between Georgia Sea Grant and the Carl Vinson Institute of Government at UGA. The legal fellowship allows students to gain practical experience in collaborating with local policymakers, scientists and business communities and in performing analyses to inform decision making. The legal fellowship is a unique opportunity to participate in an area of work that integrates law, policy, science and economics in a collaborative, problem-solving framework.

EDUCATION

Marine Extension and Georgia Sea Grant advances environmental literacy and workforce development by nurturing the next cadre of young investigators in research, scholarship and creative learning activities in marine related fields. The Marine Education Center and Aquarium in Savannah leads educational programming in marine sciences and provides marine environmental training to Pre-K–12, college and adult groups. The center offers opportunities to explore Georgia's unique coastal environment through field trips, summer camps, workshops, public programs and more.

RESEARCH

Georgia Sea Grant is built on the fundamental idea that a prosperous Georgia coast requires the full spectrum of basic, problem-oriented and applied research. The program supports a number of activities that enhance the link between research enterprise and economic outcomes, including technology transfer, technology assessment and valuation, access to capital, and creating workforce skilled in STEM. Early state identification of research discoveries and meaningful assistance with technology development enable commercialization process that leads to wealth generation, job creation and substantial economic impact on the state.



Investigating black gill in Georgia shrimp

In the Southeast United States, a microscopic parasite is infecting shrimp and presenting new challenges for an already struggling industry. With funding from Georgia Sea Grant, Marc Frischer, a professor of marine science at the UGA Skidaway Institute of Oceanography, has been collaborating with Marine Extension and Georgia Sea Grant and the Georgia Department of Natural Resources' Coastal Resources Division to explore possible causes and impacts of black gill. Researchers, shrimpers, extension agents and fishery managers are working collaboratively to gather baseline data on where, when, and how frequently black gill is occurring, as well as partnering to determine its epidemiology, dispersal and possible intervention strategies.

Generating results to help policymakers plan for sea level rise

Georgia Sea Grant-funded research by Matthew Hauer, a UGA doctoral candidate in Georgraphy, indicates 13 million Americans may be vulnerable to sea level rise by 2100. Based on population forecasts for the year 2100, a six-foot sea level rise would expose more than 13.1 million people to flooding and other hazards. Between 62,000 to 159,000 people living in coastal Georgia are projected to be at risk from 3.3.-6.6 feet of SLR. Research results were published in *Nature Climate Change*, and were cited in major national news outlets including *The New York Times*, NPR, and *USA Today*. Research results can help policymakers develop practical adaptation strategies for protecting land that is vulnerable to frequent and repeated inundation, thus helping them save lives and properties.

Using innovative technology to study the relationship between oyster and salt marsh habitat

Georgia Sea Grant is funding a study by researchers at UGA's Odum School of Ecology that is using a combination of unmanned aerial vehicle remote sensing, field and lab manipulative experiments and surveys to study spatial relationships and interactions between salt marsh and oyster reefs. The research will be used to inform oyster reef restoration, living shoreline design and predictive modeling used to understand the impacts of long-term sea level rise on wetlands and shorelines.

Developing new markets to capitalize on the local foods movement

Georgia Sea Grant-funded research by Tracy Yandle, associate professor of environmental policy at Emory University, has led to informed citizenry and policy changes at local farmers markets to accommodate the sale of Georgia seafood. Education efforts as part of the study led to increased consumer knowledge about the benefits of eating local, sustainably harvested seafood. Documented consumer interest resulted in policy changes at local farmers markets in Georgia to accommodate the sale of seafood. Georgia seafood has been added to farmers market rosters in Athens, Grant Park and East Atlanta Village. Investigators have also provided to several small entrepreneurs for business enhancement.

EXTENSION

Marine Extension and Georgia Sea Grant addresses marine related problems and opportunities by acting as a bridge between scientists, government officials, industrial and commercial firms and civic groups. Extension specialists in Brunswick, Skidaway, Athens and Atlanta have long, trusted relationships with the communities they serve. They connect university resources and knowledge with local needs by partnering with marine industries, local governments, students, teachers and other groups to sustain healthy ecosystems and marine resources and maximize the economic vitality of coastal communities.

Minimizing risks and avoiding costs of *Vibrio* related infections

Marine extension and Georgia Sea Grant is educating coastal communities about the prevention of infections caused by consumption of raw shellfish or marine-related wounds. The estimated cost of one case of *Vibrio vulnificus* bacteria infection in humans exceeds $3 million. *Vibrio* education and outreach efforts included dissemination of 1,050 fishermen rack cards requested by the Louisiana Office of Public health and the National Seafood Inspection Lab in Mississippi.

Addressing shrimp trawl bycatch and helping shrimpers avoid costly fines

Since 1971, Georgia Sea Grant has collaborated with fishermen to protect coastal resources and sustain local livelihoods. One key success includes its long-term partnership with shrimpers in the development of bycatch reduction technology such as turtle excluder devices. Dozens of shrimpers voluntarily choose TEDs for use on their commercial vessels. They also learn about new conservation gear options to ensure compliance with mandates and help with fuel efficiency. These interactions help shrimpers avoid costly fines and improve their operations.

Training Georgia's seafood industry

Georigia's commercial seafood industry generates nearly $1.9 billion in economic impact. Marine Extension and Georgia Sea Grant provides Hazard Analysis Critical Control Point Seafood Safety Training that is required for any seafood operation to remain in business. In FY 2015, Marine Extension and Georgia Sea Grant provided training for 40 people from 21 Georgia-based companies that employ over 12,000 people.

MARINE EXTENSION AND GEORGIA SEA GRANT

IMPACTS AND ACCOMPLISHMENTS

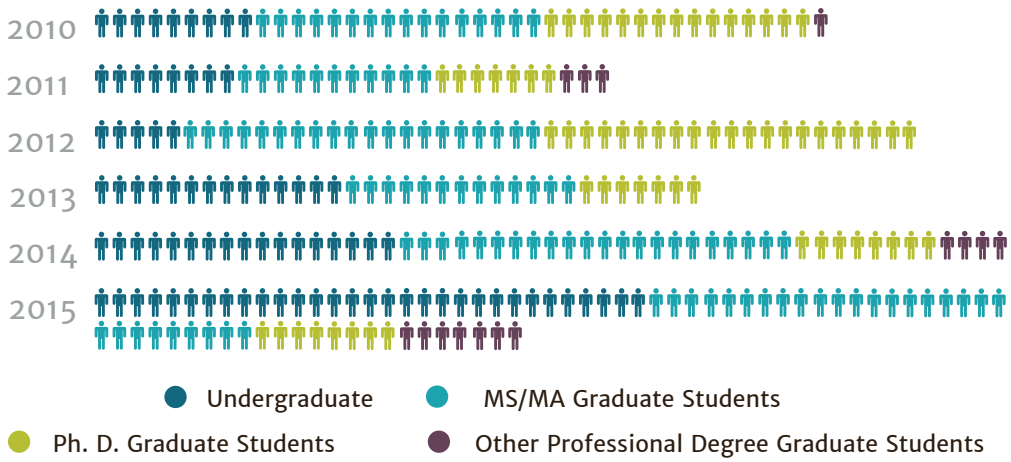
Generated **$115 million**
in economic impact through
education and outreach programs

In 2015, volunteers dedicated a total of

5,320 volunteer hours

to furthering the mission of
Marine Extension and Georgia Sea Grant
by supporting our research,
education and outreach activities.

STUDENTS SUPPORTED BY MARINE EXTENSION AND GEORGIA SEA GRANT



Educated **28,010** members of the general
public and **14,398** Pre-K-12 students

PROTECTED, ENHANCED OR RESTORED

2,000 acres

OF COASTAL HABITAT

The Tybee Island Sea Level Rise Adaptation Plan enabled savings of **$3 million** in flood control benefits and helped property owners **save on $725,639** in flood insurance

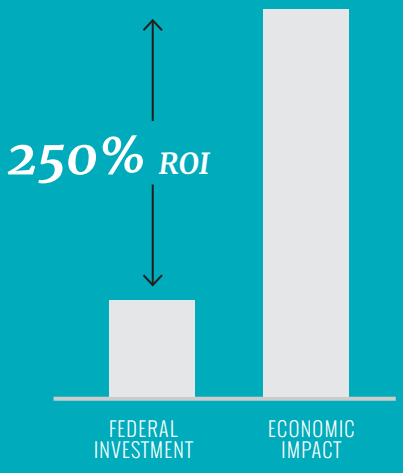
By 2018, **the UGA oyster hatchery** is expected to produce between **5-6 million spat,** or baby oysters, with an estimated harvest value of

$1 million to $2.1 million

St. Marys received a CRS rating of 7, resulting in average **savings of $107 per household** and city-wide savings of

$87,740 annually

250 percent return on federal investment in research projects from 2005-2015



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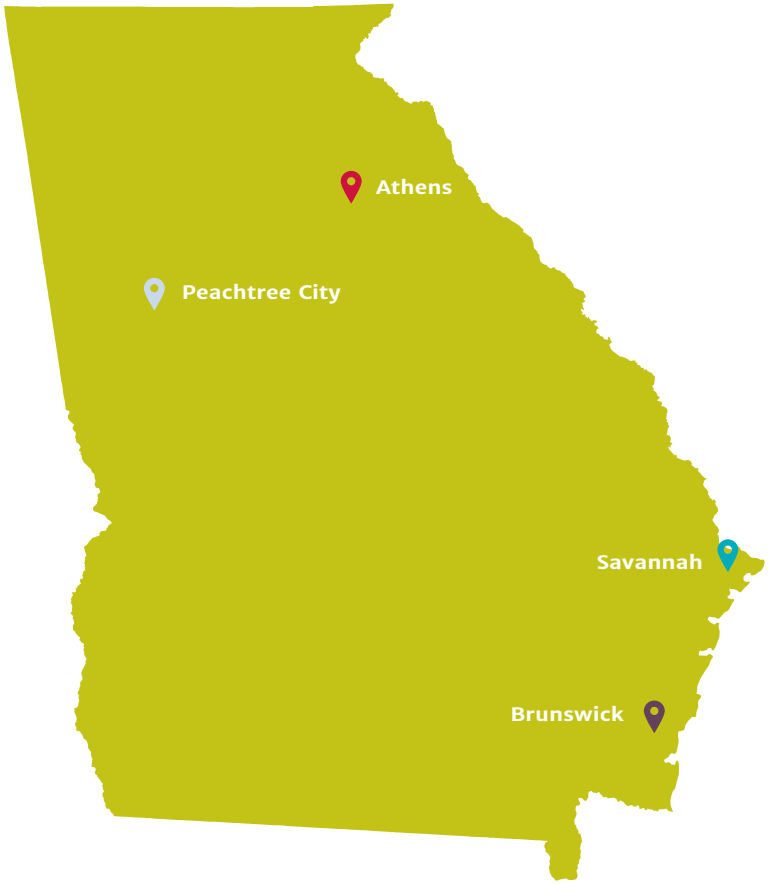

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(F): 770-460-2507

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Brunswick, GA 31520

(P): 912-264-7268
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Marine Education Center and Aquarium

30 Ocean Science Circle
Savannah, GA 31411

(P): 912-598-2496
(F): 912-598-2302

Shellfish Research Laboratory

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