

Annual Report



Program Highlights from the Mississippi-Alabama Sea Grant Consortium

Strong federal-state partnership supports MASGC programs

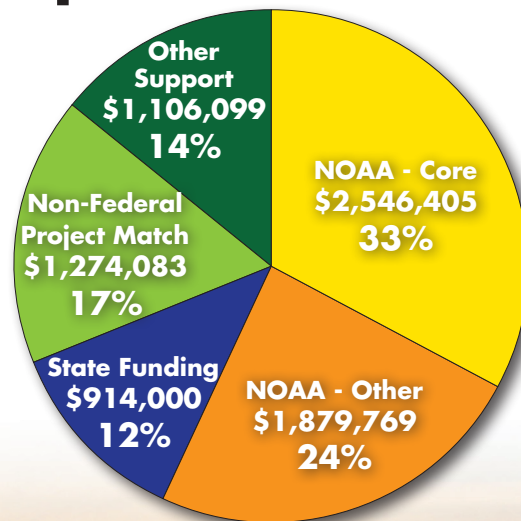
The National Sea Grant College Program engages citizens, scientists, organizations and governments to sustain and enhance the vitality, value and wise use of the nation's coastal resources. Administered and supported by the National Oceanic and Atmospheric Administration (NOAA) and implemented through leading universities in 32 coastal, Great Lakes and island states, Sea Grant provides unique access to research-based knowledge and expertise. This federal-state partnership supports research, extension, outreach and education programs that generate, translate and deliver cutting-edge, unbiased information to help address the most complex coastal issues and the most promising coastal opportunities.

The Mississippi-Alabama Sea Grant Consortium (MASGC) has nine members: Auburn University, Dauphin Island Sea Lab, Jackson State University, Mississippi State University, University of Alabama, University of Alabama at Birmingham, The University of Mississippi, The University of Southern Mississippi and University of South

Alabama. The University of Southern Mississippi is the fiscal host for the program, and MASGC's administrative office is located at USM's Gulf Coast Research Laboratory in Ocean Springs, Miss. Extension offices are located at the Auburn University Marine Extension and Research Center in Mobile, Ala., and at Mississippi State University's Coastal Research and Extension Center in Biloxi, Miss.

MASGC concentrates its efforts on its focus areas: hazard-resilient coastal communities; healthy coastal ecosystems; safe and sustainable seafood supply; and sustainable coastal development. Marine literacy is a cross-cutting theme that is a priority in all MASGC projects and programs.

MASGC funding comes from several main sources. NOAA provides the majority of support. MASGC receives core funding from NOAA through the National Sea Grant College Program. MASGC staff also secures other NOAA funding through additional grants. In 2008 and 2009, NOAA supplied 33



Sea Grant Funding

Total: \$7,720,356

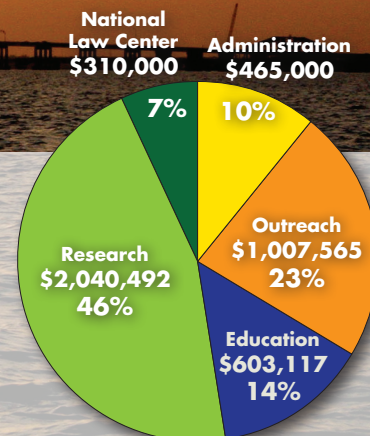
percent of the MASGC budget through core funding and 24 percent through other funding. State funding from Mississippi and Alabama provided 12 percent. Non-federal project matching funds made up 17 percent. And, other support, such as sponsorships, leveraged funds and non-NOAA grants, brought in 14 percent of the budget.

BUDGET SUMMARY

Mississippi-Alabama Sea Grant Consortium funding sources and spending priorities from Feb. 1, 2008, to Jan. 31, 2010.



2008-2009 Funding by Strategic Area



Breakdown of NOAA Funding
Total NOAA Funding: \$4,426,174



Scientists seine a pond for baitfish.

MISSISSIPPI-ALABAMA SEA GRANT works to solve real-world problems using the local expertise found in university systems. MASGC recently supported projects that had the following impacts on people, the economy and the environment.

Technology identifies oyster genes

Using genomic approaches, scientists identified almost 5,000 unique oyster genes, estimated to represent one-third of all the oyster genes. These expressed sequence tag resources are now widely used by the scientific community for the development of microarray technologies. The use of microarray technology for analysis of gene expression has saved tens of thousands of scientist hours. This project also identified a set of genes induced after Dermo infection, which should set the theoretical basis for marker-assisted selection.

Committee helps get barrier islands restored

The MASGC director chaired the Mississippi Marine Resources Committee for Recovery after Hurricane Katrina. The committee recommended that Mississippi's barrier islands be restored to reduce impacts from future storms. The Mississippi Coastal Improvement Program has devoted \$400 million for this effort based on input from this committee and others.

MASGC cultivates networks for baitfish industry

Sea Grant researchers have established networks between two growers, two management agencies, four wild-catchers, four distributors and 38 bait dealers to ascertain supply-chain business practices, identify opportunities and address constraints that confront a sustainable farm-raised marine baitfish industry. Researchers helped a private company secure second-phase funding of \$300,000 from the U.S. Department of Agriculture Small Business Innovation Research program to pursue commercialization of marine baitfish.

Gulf of Mexico Research Plan prioritizes needs

Thirteen state and regional groups used the Gulf of Mexico Research Plan to develop their strategic plans or requests for proposals. NASA's Research Opportunities in Space and Earth Sciences program used the plan to help guide priorities for \$4 million in research funding. NASA personnel indicated the plan saved \$100,000. The NOAA Northern Gulf Institute incorporated the plan's priorities into its most recent \$4.5



Peter Nguyen, left, a fisheries technologist, shows shrimpers a more fuel-efficient net material.

Impact

million request for proposals. The four Gulf of Mexico Sea Grant programs, the Northern Gulf Institute and the U.S. EPA Gulf of Mexico Program used the Gulf of Mexico Research Plan and the Gulf of Mexico Alliance priorities to develop a \$1.2 million regional climate and resilience request for proposals. The plan is available at <http://www.masgc.org/gmrp/report.htm>.

26-mile restoration based on MASGC research

A successful 3-acre pilot restoration project funded by MASGC resulted in a large-scale beach restoration project funded by U.S. Army Corps of Engineers and involved 700 volunteer hours and 10,500 plants. The Center for Sustainable Design at Mississippi State University received \$100,000 from the U.S. Army Corps of Engineers to provide landscape design and vegetation for restoring 26 miles of hurricane-damaged coastal beach in Mississippi.

MASGC reduces costs for shrimpers

Research and technology transfer regarding the use of Sapphire trawl webbing has shown that shrimpers can reduce fuel consumption between 1 and 2 gallons per hour by switching to the new webbing. In 2008, 11 boats adopted the practice leading to conservative estimates of over \$75 per day savings per boat. Assuming that each boat is working 200 days per year, this equates to a savings of \$165,000 per year. As diesel fuel prices increase, the savings increase proportionately. The Gulf and South Atlantic Fisheries Foundation, Inc., and Texas Sea Grant collaborated on this project.

Campaign helps drive traffic to online marine debris maps

After hurricanes Katrina and Rita hit the Gulf Coast in 2005, a public awareness campaign resulted in 45,588 hits to the <http://gulfofmexicomarinedebris.noaa.gov> Web site, which offered maps of underwater debris that could be hazardous to boaters. Printed materials, radio announcements and Internet and magazine ads were included in the campaign. MASGC partnered with Louisiana Sea Grant, the NOAA Office of Response and Restoration and many others in this effort.

Legal research results in new marine reserve

The National Sea Grant Law Center funded an investigation into whether a community in Oregon could develop a community-based fishery management system. The project team recommended four options the community could pursue, and the project team submitted a local proposal for a marine reserve/marine protected area. The Oregon Ocean Policy Advisory Council recommended the proposed area move forward as a pilot marine reserve. The 2009-2011 governor's budget included funds to support initial implementation of the reserve.



Network connects environmental educators in Gulf

A new network of informal and formal educators around the five U.S. Gulf Coast states was organized. The network facilitated the development, transfer, sharing and implementation of various environmental-education-related actions. About 300 people participated in the network-related communications and activities, and many fostered partnerships.

Tour operators learn sustainable dolphin viewing

The Nature Tourism Initiative, in partnership with NOAA's Office of National Marine Sanctuaries, NOAA Fisheries, the Whale and Dolphin Conservation Society and the Dolphin Ecology Project, trained 21 dolphin-tour operators to promote responsible stewardship of wild dolphins in through the Dolphin SMART program. Alabama is one of only two states to implement the program. One recognized Dolphin SMART tour operator has reported teaching 15,000 tourists sustainable viewing practices.

Web site serves as aquaculture hub

The Aquaculture Network Information Center (AquaNIC) continues to be the most widely used aquaculture Web site in the world (<http://aquanic.org>) and is currently ranked in the top 14 percent of all Web sites.

MASGC improves science skills in adults, students and children



Adults taking the Mississippi Master Naturalist course explore a marsh.

MASGC emphasizes application of scientific research and marine literacy. MASGC supports students who are working toward their undergraduate and graduate degrees. It also supports K-12 programs for students and teachers, workforce training and adult education programs.

In 2008, MASGC's K-12 education program included support for the Environmental Studies Center in Mobile, Ala., the Dauphin Island Sea Lab on Dauphin Island, Ala., and the J.L. Scott Marine Education Center in Ocean Springs, Miss.

MASGC's outreach program included a diverse extension program, a communications program and the Mississippi-Alabama Sea Grant Legal Program.

MASGC extension, outreach and education programs helped benefit coastal communities:

- The Alabama-Mississippi Clean Marina Program helped marinas implement best practices for improved water quality.
- The NOAA Coastal Storms Program developed resilience tools including the Community Resilience Index and the StormSmart Coasts online network.
- Mobile Bay Oyster Gardening Program volunteers grew 59,000 oysters for restoration.
- The Mississippi-Alabama Sea Grant Legal Program and the National Sea Grant Law Center provided analysis of environmental policy.
- Extension agents trained seafood processing employees and seafood regulators to become certified in Hazard Analysis and Critical Control Points.
- A nature-tourism specialist provided training and resources to improve business for tour operators.
- Adults volunteered at least 40 hours and attended more than 40 hours of training to become Master Naturalists.
- Sixteen teams and 184 participants took part in the Hurricane Bowl, an annual quiz competition about ocean science and stewardship.

2008 EDUCATION ACTIVITIES

	Number		Number
College level			
Undergraduate students supported	19		
Master's/Juris Doctor students supported	30		
Ph.D. students supported	9		
K-12 Training program			
	Number of Trainings	Number of Participants	
K-12 teacher training	30		278
Adult Training program			
	Number of Trainings/Presentations	Number of Participants	
Sea Grant-sponsored seminars, workshops and symposia	17		1,739
Public presentations	278		22,439
Professional development			471

2008 PUBLICATIONS

Type of publication	Number
Peer-reviewed journal articles, book chapters	23
Newsletters/periodicals	26
Web sites	17
Technical reports	20
Brochures, fact sheets, etc.	18
Proceedings/symposia	1
Handbooks/manuals/guides	3
Electronic publications	15
Media placements	143

Scientists compete for MASGC research funding

Research and its application support many of MASGC's efforts. Every two years, MASGC releases a request for proposals and receives project ideas from researchers. Scientists, technical review panels and the MASGC Advisory Council put research proposals through a rigorous technical and relevancy review before grants are awarded.

Some funding also is available to meet immediate research needs throughout the two-year funding cycle. In addition, MASGC joins with the Florida, Louisiana and Texas Sea Grant College Programs to fund regional research efforts. And, MASGC runs other grant competitions.

PROJECTS

This table shows ongoing multiyear projects and new projects that began in January 2010. The information includes names of project leaders, their affiliations and total funding amounts, including matching funds. Project funding totals include two years of funding unless otherwise noted.

Sustainable Coastal Development

Decreasing nitrate loads to coastal ecosystems with innovative drainage management strategies in agricultural landscapes.

Robert Kröger, Mississippi State University; Matthew T. Moore, USDA – Agricultural Research Service; and Jerry L. Farris, Arkansas State University.

\$141,280

Identifying flood generating areas in 8-Mile Creek watershed through a novel approach.

Latif Kalin, Puneet Srivastava and Charlene LeBleu, Auburn University.

\$269,705

Characterizing stormwater nitrogen inputs to Mississippi's coastal waters: A landscape approach.

Kevin S. Dillon, The University of Southern Mississippi.

\$151,529

D'Olive Creek and Tiawasse Creek Watershed Management Plan.

Roberta Arena Swann, Mobile Bay National Estuary Program.

\$25,875 (one year)

Charter fishing customer profile survey – Phase I.

Colette Boehm, Alabama Gulf Coast Convention and Visitors Bureau.

\$8,500 (one year)

Regional

Planning, prioritizing and implementing Gulf of Mexico regional marine research and information needs: 2006-2011.

LaDon Swann, MASGC; Jim Cato, Florida Sea Grant; Chuck Wilson, Louisiana Sea Grant; and Bob Stickney, Texas Sea Grant.

\$600,000 (five years)

Hazard-Resilient Coastal Communities

Implications of takings law on innovative planning for sea-level rise in the Gulf of Mexico.

Stephanie Showalter, The University of Mississippi; Timothy M. Mulvaney, Texas Wesleyan University School of Law; Richard J. McLaughlin, Texas A&M University-Corpus Christi; James G. Wilkins, Louisiana State University; Thomas K. Ruppert, Thomas T. Ankersen and Michael A. Wolf, University of Florida College of Law.

\$605,204 (regional project)

A parameterized climate-change projection model for hurricane flooding, wave action, economic damages and population dynamics.

Jennifer L. Irish, James M. Kaihatu and Francisco Olivera, Zachry Department of Civil Engineering, Texas A&M University; Dawn Jourdan, Department of Urban and Regional Planning, University of Florida; Zhong-Ren Peng, Department of Urban and Regional Planning, University of Florida.

\$600,000 (regional project)

2009 Community Hurricane Preparedness Fair.

Kimberlyn Prentice and Johnnie Bernhard, City of Ocean Springs.

\$11,470 (one year)

NOAA Gulf of Mexico Coastal Storms Program.

LaDon Swann, Auburn University and Tracie Sempier, The University of Southern Mississippi

\$1.2 million (three years)

Safe, Sustainable Seafood Supply

Oyster farming in Alabama: Identifying most viable practices.

William C. Walton, F. Scott Rikard and Terrill R. Hanson, Auburn University Department of Fisheries and Allied Aquacultures.

\$97,366

Healthy Coastal Ecosystems

Habitat suitability index for submerged aquatic vegetation of the Mississippi Coast.

Hyun Jung Cho, Jackson State University, and Patrick Biber, The University of Southern Mississippi.

\$70,984 (one year)

Residence time as a factor controlling HABs and fecal coliform bacteria in Little Lagoon, Alabama.

Hugh L. MacIntyre, Dauphin Island Sea Lab, and Alice C. Ortmann and Kyeong Park, University of South Alabama.

\$441,549

Nitrogen removal via denitrification in Weeks Bay, Alabama.

Behzad Mortazavi, University of Alabama.

\$15,436 (one year)

Marine Literacy

Mississippi-Alabama Sea Grant Outreach Program.

Stephanie Showalter, The University of Mississippi; Dave Burrage, Mississippi State University; and Melissa Schneider, The University of Southern Mississippi.

\$3.15 million (four years)

MASGC Educational efforts at the J.L. Scott Marine Education Center, the Dauphin Island Sea Lab and the Environmental Studies Center.

Sharon H. Walker, The University of Southern Mississippi; David L. Scott, Environmental Studies Center; and Tina Miller-Way, Dauphin Island Sea Lab.

\$751,741 (four years)

BWET - Shifting Baselines: Watershed connections to landscape changes.

Jessica Kastler, The University of Southern Mississippi.

\$362,177 (three years)

Sixteen projects from the 2008-09 funding cycle were still open as of Jan. 31, 2010.

Science serving
America's coasts

www.masgc.org

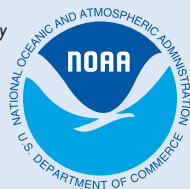
MASGC's nine member institutions

The Mississippi-Alabama Sea Grant Consortium covers two states and has several members. Consortium members include the following institutions:

- Auburn University
- Dauphin Island Sea Lab
- Jackson State University
- Mississippi State University
- The University of Alabama
- The University of Alabama at Birmingham
- The University of Mississippi
- The University of Southern Mississippi
- University of South Alabama

MASGP-10-012

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Network activities

Members of the MASGC team place an emphasis on working with NOAA partners at the local, regional and national levels. MASGC staff has played several collaborative roles, including the following:

- Sea Grant Hazards Resilience in Coastal Communities Focus Team, vice chair and member
- Sea Grant Sustainable Coastal Development Focus Team, member
- National Sea Grant College Program Communications Network, Gulf of Mexico regional representative
- NOAA Gulf of Mexico Regional Team, lead for extension, outreach and education

MASGC receives recognition in

- Sharon Walker, a principal investigator for "Educational Efforts at the J.L. Scott Marine Education Center, the Dauphin Island Sea Lab and the Environmental Studies Center," was awarded the Southern Association of Marine Educators Outstanding Resource Award.
- The Gulf of Mexico Alliance Environmental Education Network shared, as a partner, in the Coastal America Partnership Award, which was awarded to The Florida Department of Environmental Protection, Office of Environmental Protection for the Learning in Florida's Environments (LIFE) Program. MASGC sponsored the start-up of the GOMA Environmental Education Network.
- The MASGC-funded project "Sea Urchins are Improved Candidates for Aquaculture and Biomedical/Ecotoxicological Models" was nominated as one of 20 semifinalists for the Alabama Launchpad, an Alabama Governor's Office business plan competition.