



An Educators Guide to Gray's Reef National Marine Sanctuary, marine science news, reviews, opportunities and inspiration from the South Atlantic Bight.

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## Featured Web Resources:

[SC Marine Invertebrates](#)

[Alert Diver Gallery](#)

[The Water Cycle Poster](#)

[Marine Mammals](#)

[Speak Up For Blue](#)

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## Southeast Regional MATE ROV Competition

Gray's Reef along with 13 other sanctuary sites located in waters surrounding the continental USA, Hawai'i and American Samoa operate under the umbrella of NOAA [Office of National Marine Sanctuaries](#). Each of these national underwater treasures employs various technologies to explore and research their aquatic resources. One of the most commonly used technologies is remotely operated vehicles, or ROVs.

Beginning in 2004, Gray's Reef partnered with the Marine Advanced Technology Education Center (or [MATE Center](#)) and the [Georgia Aquarium](#) to offer underwater robotics as a vehicle to teach science, technology, engineering, and math (STEM), which

prepares students for technical careers through experiential learning. Ocean habitats and in particular sanctuaries serve as backdrops for real life scenarios of exploration, rescue and research upon which the annual competition missions are based.

The MATE competition challenges K-12, civic and home-school groups, community college, and university students from all over the world to design and build ROVs to tackle missions modeled after scenarios from the ocean workplace. In addition to engineering their ROVs, the students are required to prepare technical reports, poster displays, and engineering presentations that are delivered to working professionals



Photo credit: NOAA GRNMS

Remotely Operated Vehicle (ROV) for ocean exploration

who serve as competition judges. We welcome you to explore our new [regional competition website](#), review the [rules and missions](#), safety information, poster and technical report requirements, and [register your team](#) for Gray's Reef Southeast Regional MATE ROV Competition!

[Saturday, April 13, 2013](#)  
[Chatham County Aquatic Center-Savannah, GA](#)

## Ocean Observing Systems

The 2013 MATE competition highlights the role that ROVs play in the installation, operation, and maintenance of ocean observing systems. These systems aid in our tracking, predicting, managing and adapting to changes in our ocean, coastal and Great Lakes environments. The Integrated Ocean Observing System ([IOOS](#)) is a multi-agency, cooperative effort

based on a continuously operating network of buoys, ships, satellites, underwater vehicles, and other platforms that routinely collect real-time data and manage historical information. Gray's Reef supports a [data buoy](#) within the sanctuary which contributes oceanic and atmospheric data to the IOOS database. Additional instruments attached to the buoy and the

seafloor record data specific to carbon dioxide in the seawater and air. This data contributes to the [NOAA PMEL Carbon Program](#) which records biochemical measurements for long-term studies.

Be sure to check out this NOAA [Underwater Robots Observing the Ocean: the U.S. IOOS National Glider Network](#) webinar 2/13/13!

## Internships and Student Opportunities



University of Georgia Marine Education internships 2013-2014

[Apply Here!](#)

## Sea Grant Marine Education Interns-UGA MECA

Sea Grant Marine Education internships are designed for recent college graduates (with a BS in Biology) who would like some teaching experience in marine science and coastal ecology. The internships provide a transitional period between college and permanent professional positions or graduate work. Interns live on site for 50 weeks in studio apartments provided rent-free by MECA. Meals are available without charge in the cafeteria

whenever visiting groups are on campus. The internship includes a variety of teaching opportunities: in the salt marsh and maritime forest, on the beaches of developed and barrier islands (Tybee and Wassaw), on research vessels, and in well equipped plankton, fish and invertebrate labs. Interns begin to teach after a 6-8 week training period. They are also responsible for maintaining touch tank animals, working in the aquarium 1-2

Saturdays a month, and assisting staff in other areas of operation where necessary. During the winter months, each intern also completes an education project.



# Voyage to Discovery Essay Contest

*Learn about African-American contributions to the maritime history of the United States.*

Voyage to Discovery is a national marine sanctuary multimedia educational initiative highlighting African-American contributions to the country's maritime heritage while fostering increased participation in marine careers and ocean conservation.

The National Marine Sanctuary Foundation in collabora-

tion with NOAA Office of National Marine Sanctuaries is conducting a national essay contest open to all middle and high school students in the United States. The essay contest will run from January 15 through April 15, 2013.

The purpose of this contest is to encourage students to research and learn about

African-American contributions to the maritime history of the United States.

Journey through time to discover the untold stories of African-Americans and the sea through education, archaeology, science – and underwater exploration!

[Enter the essay contest here.](#)



## Give Wildlife A Chance– Poster Contest

The Georgia Department of Natural Resources, The State Botanical Garden of Georgia and The Environmental Resources Network, Inc. (T.E.R.N.) encourage you and your K-5 students to participate in the 23rd annual Give Wildlife a Chance Poster Contest. This popular conservation art contest provides a

unique opportunity for students to explore the wonders of Georgia's native plant and animal species through this year's theme: Everyone Can Be a Citizen Scientist.

Native species are those that naturally occur in Georgia, unlike exotic species that were introduced from other

places. They come in all shapes and sizes -- from the large, moss-covered live oak tree of South Georgia (our state tree) to the little grass frog, the smallest frog species in North America! Explore Georgia's wildlife!

[Contest rules and entry here.](#)

## Professional Development

### Green Eggs and Sand Horseshoe Crab Ecology

The Green Eggs & Sand workshop, co-sponsored by Sapelo Island National Estuarine Research Reserve (SINERR), starts Friday evening, April 26 and ends around 12:00 PM on Sunday, April 28. Interspersed with expert presenters on horseshoe crabs (HSCs), shorebirds, biomedical use of HSCs, and HSC management, are sessions that explore the

2012 GE&S curriculum and provide demonstrations of the rich assortment of hands-on activities it offers. A site visit to view spawning horseshoe crabs is a special highlight of the weekend.

Dormitory style housing is provided by the University of Georgia Marine Extension

Space for the workshop is limited and registrations are

made first-come-first-serve. Full attendance at all workshop sessions is required for receipt of the 2012 GEAS curriculum package and workshop materials.

Deadline for submission is April 8, 2013.

[Registration form can be found here.](#)



Horseshoe crab (*Limulus polydhemus*)  
Presented by the University of Georgia Marine Extension

### How Do We Explore? NOAA's *Okeanos Explorer*

Join NOAA and the Georgia Aquarium Staff as they introduce Volume 2 of the *Okeanos Explorer* Education Materials Collection: How Do We Explore? Participants will learn how to use standards-based lessons and other online resources that guide class-

room investigations into the innovative techniques, cutting edge tools and scientific processes the scientists and crew of *Okeanos Explorer* use in modern ocean exploration. Topics will include searching for anomalies, selecting sites for exploration, communica-

tion tools including telepresence technology, mapping techniques, water column study and operating remote operated vehicles. Workshop held at the Georgia Aquarium March 16 , 2013 with grant funding, no charge!

[Registration info found here](#)

[PDF of the entire How Do We Explore? book can be downloaded from NOAA here](#)

### Caretta Sea Turtle Research Project

The [Caretta Research Project](#) is a hands-on research, education and conservation project that has been studying the threatened loggerhead sea turtles that nest on Wassaw National Wildlife Refuge since 1973. Participants help

collect data on nesting turtles and protect their nests from predators during the nesting season, and escort hatchlings and determine the hatching success of each nest during the hatching season. The three goals of the project are: To

learn more about the reproductive biology, population trends and nesting habits of loggerhead turtles; to enhance survival of eggs and hatchlings on a nesting beach; and to educate and involve the public in turtle preservation.



*Each year volunteers travel to Wassaw Island, Georgia to collect data on the loggerhead turtles.*



# GRAY'S REEF NATIONAL MARINE SANCTUARY

Gray's Reef National Marine Sanctuary is one of the largest near-shore live-bottom reefs of the southeastern United States. It's just one of the 14 national marine protected areas that make up the National Marine Sanctuary System and is governed by the National Marine Sanctuaries Act. It is managed by the National Oceanic and Atmospheric Administration (NOAA).

Gray's Reef was designated as a sanctuary on January 16, 1981, and is the only protected natural reef area on the continental shelf off the Georgia coast. The 22 square miles of Gray's Reef protects an area that is recognized nationally and internationally.

<http://graysreef.noaa.gov/>

10 Ocean Science Circle Savannah, GA 31411

Phone: 912-598-2345

Fax: 912-598-2367

E-mail: [graysreef@noaa.gov](mailto:graysreef@noaa.gov)

## NATIONAL MARINE SANCTUARY SYSTEM



**National Marine Sanctuaries.....America's underwater treasures!**