



# GRAY'S REEF NATIONAL MARINE SANCTUARY SANCTUARY PROGRAM REPORT



REPORTING PERIOD JUNE-OCTOBER 2011

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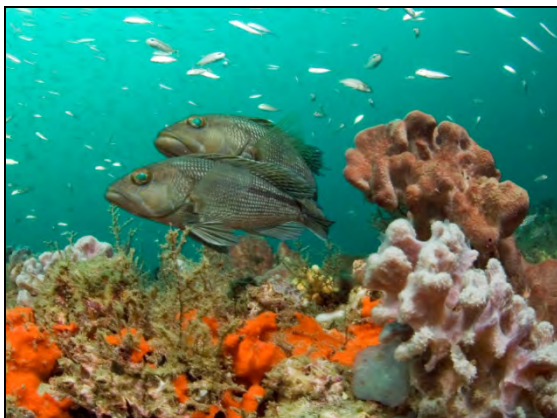
**Spud Woodward**  
Georgia DNR  
Coastal Resources Division

**Dr. Charles Hopkinson**  
Sea Grant

## Hot Topics

### Research Area

The Final Rule to designate a no-take, no-dive, transit-only research area in Gray's Reef is moving through clearance. If all goes well, the Final Rule should be published on or soon after October 4th. The effective date of the research area would be calculated from there to include the mandated "review period of forty-five days of continuous session of Congress."



Black Sea Bass at GRNMS. Photo by Greg McFall

NOAA proposes establishing a research area in Gray's Reef to increase the opportunity to discriminate scientifically between natural and human-induced change to species populations in the sanctuary. Although allowable fishing gear is limited in the sanctuary, recreational fishing continues to impact the resources. Without having an area of the naturally-occurring live bottom devoted to research and devoid of direct human impacts, it is difficult to fully understand how these reefs function. The research area would also allow researchers to more accurately determine the effects of natural events (e.g., hurricanes) and to study impacts of climate change, including ocean acidification,

which can be better determined in the absence of additional factors like fishing and diving.

NOAA's preferred alternative is the designation of an area in the sanctuary where fishing and diving activities are prohibited and vessel transit is allowed without interruption (stopping) and all fishing gear is stowed and unavailable for immediate use. The preferred boundary encompasses 8.27 square miles (21.43 square km), roughly the southern third of the sanctuary. The preferred boundary option is expected to displace a minimal number of sanctuary visitors. Staff is preparing various outreach materials and notices to accompany designation of the research area.

### **Jeff Corwin Experiences Gray's Reef**

TV celebrity Jeff Corwin (*JASON Project*, *The Jeff Corwin Experience*, etc.) and his film crew spent time with Gray's Reef divers hunting for lionfish in waters off Georgia. Corwin was contracted by the Georgia Aquarium to produce a television series called "*Ocean Mysteries*." The series is intended to draw a comparison between animals which are exhibited at the aquarium and the same animals in their natural (or unnatural in some cases) environment. Corwin and his production crew came to the sanctuary to tell the story of how lionfish have become the scourge of the southeastern U.S., Gulf of Mexico, Caribbean Sea and Bermuda.

Corwin called the lionfish he found in Georgia waters, "the potential to be an unprecedented environmental catastrophe."



Lionfish from REEF roundup. Photo: Gail Krueger

Corwin's visit generated good media coverage for the sanctuary and the lionfish issue. See: <http://savannahnow.com/news/2011-07-28/jeff-corwin-comes-savannah> and <http://www.thecoastalsource.com/mostpopular/story/Corwins-hunt-for-Lionfish-off-Savannahs-coast/IPitSuYm4UqSqvb3e1RZDw.csp>

The show airs Saturday mornings on ABC. A teaser for *Ocean Mysteries* can be seen at <http://www.youtube.com/watch?v=gDy39jqYIKI>

### **Savannah Ocean Exchange**

A wave-powered remote sensing device was the winner of the \$100,000 Gulfstream Navigator Award for solutions to ocean-related problems. Created by Liquid Robotics of Sunnyvale, CA, the winning device called the Wave Glider Autonomous Ocean Vehicle was originally developed to monitor the songs of humpback whales. The award was announced as part of the Savannah Ocean Exchange. Gray's Reef National Marine Sanctuary is one on the founding organizations of Savannah Ocean Exchange. The event hosted nearly 200 international participants and solutions presenters. During the four-day Solutions

Exchange, the top ten solutions presenters, narrowed down from a field of 60 entries, presented their solutions that addressed the theme “Shaping the Future of Our Coasts”. The audience of invitees of the 29 members of the Board of Governors listened to each presentation and voted on their top choice.

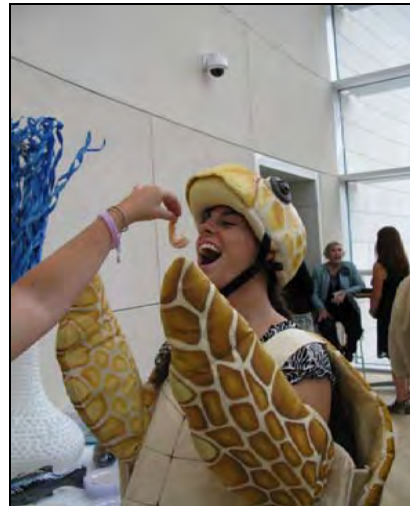
Founded in 2010, the Savannah Ocean Exchange unites worldwide organizations across multiple disciplines and boundaries to accelerate the distribution and adoption of solutions that positively impact our ocean and coast.

In addition to the solutions award, the Savannah Ocean Exchange presented a month’s worth of ocean related programming to the public; the Gray’s Reef Ocean Film Festival was part of that programming. For more on the Savannah Ocean Exchange and the events, see <http://www.savannahoceanexchange.org>

### **Gray’s Reef Ocean Film Festival**

The 2011 Gray’s Reef Ocean Film Festival held Sept 22-25 focused on two critical issues for the marine environment— ocean acidification as a result of climate change ,and the growing problem of marine debris. The festival was held at two downtown venues: the Jepson Center for the Arts and the Savannah College of Art and Design’s Trustees Theater. The festival remains free to the public.

Some of the films at this year’s Ocean Film Festival used humor to draw attention to problems, as when a plastic bag was tracked (National Geographic style) across the landscape as it “migrated” to the sea.



Gray’s Reef Ocean Film Festival 2011. Loggerhead sea turtle eating local wild caught shrimp. Photo: Jody Patterson

Two National Marine Sanctuary Program related films, “Stellwagen Sweep” and “In the Wake of Giants,” reminded the audience that even mighty creatures like humpback whales can suffer from the marine debris mess that humans create as well as lost or active fishing gear. The festival films noted that marine debris is found worldwide and we can all help eliminate it with the smallest actions. Reduce, reuse, recycle, and participate in local beach or stream cleanups. If we each do a little, together we can make a big difference. To that end, Gray’s Reef passed out a reusable fabric shipping bag to each film festival attendee with an anti-marine debris message printed on it.

The problem of ocean acidification is harder to see and harder to grasp; yet the award winning film, “A Sea Change,” brought the issue down to a human scale.

The film followed the journey of retired history teacher Sven Huseby on his quest to discover what is happening to the world’s oceans. After reading Elizabeth Kolbert’s *The Darkening Sea*, Huseby became obsessed with the rising acidity of the oceans and what this “sea change” bodes for mankind. His quest took him to

Alaska, California, Australia, and Norway as he uncovered a worldwide crisis that most people are unaware of.

In conjunction with the films, the Telfair Museums-Jepson Center for the Arts is holding an exhibit of photography by Sal Lopes (<http://telfair.org/museum-events/calendar/>) through Oct. 22. Lopes is a noted landscape photographer whose work, "The Water Project," captures the human fascination with, and dependence on the oceans. The exhibit is sponsored by Mrs. Robert O. Levitt, a long time supporter of the Gray's Reef Ocean Film Festival.

Up-to-the minute 2011 Gray's Reef Ocean Film Festival information was posted on our website: <http://graysreef.noaa.gov> as well as on our facebook page.

## Resource Protection and Management

### Help Prevent Extinction of the North Atlantic Right Whale

*By Cheryl S. Bonnes, Marine Mammal Outreach Specialist, NOAA Fisheries Service*

With as few as ~360 remaining, North Atlantic right whales are one of the most endangered whales in the world. Species recovery is dependent upon the protection of every remaining whale. Each fall, pregnant females travel from the waters off Cape Cod and Nova Scotia, hugging the coastline to the Southeast Atlantic Coast - their only known calving area. Here they give birth and nurse their young. Calving season is the most vulnerable time in the entire life of a right whale; any disturbance could affect calving, nursing, or other behaviors critical

to the survival of the species. When spring arrives, mothers and their calves make the long journey back north.

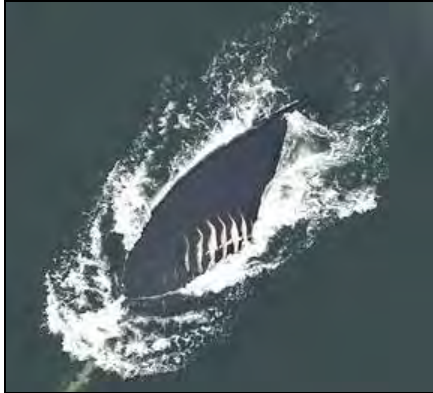


A mother right whale and calf. Photo: NOAA

You can help with the recovery of this species by allowing right whales to swim, feed, and socialize free of vessel disturbance. Use caution in the Southeast U.S. calving area November 15- April 15.

- It is illegal to approach and remain within 500 yards of a right whale. Any vessel finding itself within the 500 yards of a right whale must depart immediately at a safe, slow speed.
- Vessels as small as 43 feet are capable of killing juvenile and adult right whales; Vessels as small as 34 feet are capable of killing calves.
- Right whales are difficult to see because they are dark in color, have no dorsal fin, move slowly and hover just below the surface.
- Preventing right whale collisions also helps prevent expensive damage to your vessel.
- Always wear polarized sunglasses and stay alert in right whale habitat.
- Operate water craft at a slow, safe speed 10 knots or less in areas where right whales are known to occur.

- Avoid operating water craft in the calving area at night or during periods of low visibility.



A right whale with scars from injury; probably a boat strike.  
Photo: NOAA

Report sightings of dead, injured, or entangled whales: 1-877-433-8299. or to the USCG via Channel 16.

For more information and to learn how to identify a right whale, visit: <http://rightwhalesouth.nmfs.noaa.gov>

### Management Plan Review

National Marine Sanctuaries are required by law to review their management plans every five years to ensure that sites continue to conserve, protect, and enhance their nationally significant living and cultural resources. This allows each site to include new and relevant scientific information and advances in marine resource management to ensure current issues are being addressed. The Gray's Reef Management Plan was completed in 2006.

Over the past year, Gray's Reef staff and the Sanctuary Advisory Council have been engaged in an evaluation of the 2006 programs. The staff also developed a fundamental "vision" statement for Gray's Reef NMS and revised sanctuary goals for review and consideration by the council during the October 14<sup>th</sup> meeting.

Public involvement is a critical element in sanctuary management planning and Sanctuary Advisory Council meetings are unique opportunities for the general public and stakeholders to learn more about the issues and the process, as well as be involved in the discussion.

(<http://graysreef.noaa.gov/management/sac/welcome.html>) Council members are also encouraged to keep their constituent groups informed of plan progress and opportunities to comment. For more information, contact Resource Protection Coordinator Becky Shortland (912-5982381; [becky.shortland@noaa.gov](mailto:becky.shortland@noaa.gov)).

### KAP Survey

Resource Protection Coordinator Becky Shortland has been supervising the knowledge, attitudes and perceptions (KAP) survey for Gray's Reef. The survey was designed by ONMS Chief Economist Bob Leeworthy for both users and non-users of the sanctuary. The raw results have been compiled and sent to Leeworthy for his analysis. The purpose of the survey is to gauge the public's awareness of Gray's Reef and the level of support for sanctuary and ocean management. The results will guide strategies and activities in the upcoming management plan revision.

### Law Enforcement

In July, Gray's Reef Superintendent George Sedberry, Resource Protection Coordinator Becky Shortland and Georgia Department of Natural Resources (GADNR) Law Enforcement Captain (and sanctuary advisory council member) Doug Lewis attended a workshop focused on the enforcement challenges in small, offshore marine protected areas like Gray's Reef. The workshop was

sponsored by the NOAA Coral Reef Conservation Program, and organized by the Marine Conservation Institute and the South Atlantic Fisheries Management Council. Participants, including state and federal law enforcement partners, discussed possible solutions, including more collaborative operations among agencies. Also in July, the agreement that authorizes GADNR to enforce sanctuary regulations was renewed for another year. The U.S. Coast Guard is also responsible for enforcing regulations in the sanctuary.

### **U.S. Coast Guard Helicopters at Gray's Reef**

Orange United States Coast Guard (USCG) helicopters have been flying over Gray's Reef more than usual lately due to a partnership that enhances protection of marine resources. The USCG division called Living Marine Resources (LMR) supports NOAA's efforts to maintain sustainable fisheries and protect vulnerable resources such as marine mammals, and assists the Office of National Marine Sanctuaries in monitoring activities within the nation's sanctuaries. In this regard, the USCG is providing enforcement of regulations, and observing mammals and endangered species that may be present within our sanctuaries. On board many of these flights to Gray's Reef are a Gray's Reef staff member or volunteer who acts as an observer, logging any important sightings such as whales, turtles, fishing activity or harmful algal blooms to name a few. Our website now has a feature providing details to the public about the Coast Guard flights at Gray's Reef at: [http://graysreef.noaa.gov/news/features/2011/coast\\_guard\\_flights\\_2011.html](http://graysreef.noaa.gov/news/features/2011/coast_guard_flights_2011.html)

As the Coast Guard air stations are required to always have helicopters training in preparedness for any emergency situations, this partnership also provides them with specific missions to further their training and proficiency within a unique environment that may have otherwise been conducted in a more familiar setting over land. Another partnership in which Gray's Reef occasionally works with the USCG is by providing a vessel to use during hoist and rescue swimmer training.

## **Ocean Science, Exploration and Research**

### **Nancy Foster Cruise Results**

Deputy Superintendent Greg McFall has had a chance to do a preliminary review the mountains of data generated during the *Nancy Foster* cruise from earlier this year. Here is a brief summary of the details:

#### Piscivore Ecology

This project is focused on quantifying patterns of direct and indirect cooperative (i.e., facilitative) foraging interactions by piscivorous (fish that eat other fish) fishes. The primary goal of this work is to determine the importance that these types of behavioral interactions have in local food webs.

Some of the highlights of the project from this cruise include:

- This is the fourth year of the study and on this cruise 141 NITROX dives were conducted.
- The investigators observed 161 predation events during 49 piscivore behavior surveys.
- They conducted 34 community surveys to assess local community composition

as it relates to the interaction of the predators.

- Twelve daytime DIDSON (sonar) deployments were completed to quantify patterns and rates of predation.
- Twelve dawn and dusk split-beam sonar surveys were conducted at targeted reef sites to assess distribution of prey and predators during these periods.
- Groups of greater amberjack, Spanish mackerel, and barracuda interact with coordinated behaviors both separately and together when preying upon mixed schools of tomtate and round scad.
- Such behaviors by mid-water predators “drive” small fish closer to reef habitats and produce opportunities for enhanced predation by scamp, gag grouper, black sea bass and other species that are associated with complex reef habitats.
- It appears there are three states of mid-water piscivory: (1) classic mid-water predators such as barracuda, amberjack and Spanish mackerel; (2) demersal (seafloor associated) piscivores assuming the functional role of mid-water piscivores such as scamp grouper and red snapper; and (3) YOY barracuda assuming the functional role of mid-water piscivores.

#### Fish Censuses

The purpose of the fish counts was to focus on quantifying the distribution, abundance, size and diversity of fishes both inside and outside the proposed Research Area. It is important to know how these parameters look prior to establishing a Research Area, so we’ll be able to see changes that might occur throughout subsequent years. Some of the successes of this phase of the cruise are:

- Surveys were conducted at 37 sites of which 19 were inside and 18 were outside the proposed Research Area.
- At six locations from each site, benthic (bottom of the seafloor) habitat photoquadrats were obtained and structural benthic habitat characteristics including ledge height and undercut depth were assessed.

#### Invertebrate Assessments

Much like the fish censuses that were conducted, we also were able to look at the invertebrate (animals without backbones) community as well. Because fish interact with their environment, there is the potential that as the fish community structure changes, we might see concordant change in the animals which colonize the surface of the rock ledges and those that crawl or swim around the features. On this cruise we were able to:

- Visit 37 sites: 19 inside the proposed Research Area and 18 outside.
- Conduct a grand total of 391 benthic invertebrate quadrats of 0.5m x 0.5m each.
- Identify 12-15 different species of which sea squirts (tunicates) were the dominant benthic animal.
- Find that various species of sponges and cnidarians, especially the hard and soft corals were also common.
- Determine that sites outside the proposed research area are, in general, more diverse than those inside the research area.
- Take companion digital photos of almost all the quadrats quantified by divers, which will be used to verify the species identification, and to compare species diversity and percent cover.

#### Dye Tracer Study

This study was conducted to determine the potential for coastal watersheds

(rivers, creeks and estuaries) to transport nutrients, contaminants and pollutants into Gray's Reef. The bright red dye used is harmless to the marine environment but can be detected in very small amounts. Here are some of the highlights of the dye study:

- Fifty gallons of Rhodamine fluorescent dye was released just south of Wolfe Island in Altamaha Sound on the outgoing tide of May 18.
- Though the exact direction or speed of flow after that point was not known, dye was detected in Gray's Reef over a 30 minute time period at about midday on May 21, 2011.
- Dye was detected from a constant-flow raw seawater feed which was pumped on board the *Nancy Foster*.
- The detector is specific to the wavelength of the Rhodamine dye which greatly reduces the chance of a false positive reading.
- It took approximately three days for water leaving the Altamaha watershed to track northeast and reach the sanctuary.
- The concentration of dye reaching Gray's Reef was significant, reading at over 50 parts per billion (ppb) at its highest point.
- These results suggest that the Altamaha, as well as other rivers along the Georgia coast, are likely sources of both nutrients and contaminants for organisms living in the sanctuary and other offshore hardbottom reef sites that occur off the Georgia coast.

#### Remap Gray's Reef

In 2001, the entire seafloor of Gray's Reef National was mapped using multi-beam sonar imaging. Over time, storms and currents move sand around in the sanctuary, there is the potential to uncover some parts of the rock structure

and bury others. Because it has been 10 years since the seafloor was last mapped, we decided to re-map the entire sanctuary. We were able to complete the entire survey on the cruise and, after processing the data, we'll be able to compare the new map of the seafloor to the map created in 2001.

#### Acoustic Tagging Project

Even though we did not tag fish this year, we did have the opportunity to switch out some of the receivers which has been in place for almost six months and download the data. This project is ongoing and we'll have to continue to swap out the receivers and download data on fish movements until the project is completed.

All things considered, it was a very successful cruise and thanks to the hard work of all the scientists, staff, crew and volunteers we'll have great baseline data that can be used to compare to future year assessments.

#### **Tagged Fish Found**

In early July, a fisherman caught "Rare Treat," a tagged gag grouper. Gray's Reef staff tagged "Rare Treat" on May 18, 2008 near a receiver in the south central area of the sanctuary. When tagged, the gag measured just over two feet in fork length. Fork length is the fish measurement taken from the tip of the snout to the bend in the tail where the rays split. When captured three years later, "Rare Treat" had grown almost a foot in length. While tagged, the gag grouper spent most of its time near the receiver where it was tagged, but occasionally swam north to visit the ledges at the next closest receiver, as much as 1300 feet. The fish was not returned to the sanctuary after capture.



Currently, the Gray's Reef staff is closely examining "Rare Treat's" detections on the receivers to learn more about how gag grouper in the sanctuary behave from day-to-day and season-to-season.

### **Research and Monitoring**

Superintendent George Sedberry and Deputy Superintendent Greg McFall participated in the Southeast Atlantic Marine Debris Initiative (SEA-MDI) Annual Consortium Meeting via a conference call. The SEA-MIDI membership includes representatives from the Southeast Center for Ocean Science Education Excellence; the US Fish and Wildlife Service; southeast Sea Grant offices; the National Park Service; and other NOAA offices, state agencies, universities and non-governmental organizations. Participants gave an overview of their marine debris projects. A PowerPoint presentation was given on the Marine Debris Track application for smartphones that enables boaters, beachgoers and others to report marine debris and add sightings to the database (<http://sea-mdi.engr.uga.edu/?p=155>).

For more information on SEA-MDI, see <http://sea-mdi.engr.uga.edu/>.

### **Papers and Presentations**

The following paper was published in the June issue of *Oceanography*:

Sedberry, G.R., D.G. Fautin, M. Feldman, M.D. Fornwall, P. Goldstein, and R.P. Guralnick. 2011. OBIS-USA: A data-sharing legacy of the Census of Marine Life. *Oceanography* 24(2):166–173. [http://www.tos.org/oceanography/archives/24-2\\_sedberry.html](http://www.tos.org/oceanography/archives/24-2_sedberry.html)

Summary: The United States Geological Survey's Biological Informatics Program hosts OBIS-USA, the U.S. node of the

Ocean Biogeographic Information System (OBIS). OBIS-USA gathers, coordinates, applies standard formats to, and makes widely available data on biological collections in marine waters of the United States (including National Marine Sanctuaries) and other areas where US investigators have collected data and, in some instances, specimens. OBIS-USA delivers its data to OBIS international, which then delivers its data to the Global Biodiversity Information Facility (GBIF) and other Web portals for marine biodiversity data. OBIS-USA currently has 145 data sets from 36 participants, representing over 6.5 million occurrence records of over 83,000 taxa from more than 888,000 locations. OBIS-USA, a legacy of the decade-long (2001–2010) international collaborative Census of Marine Life enterprise, continues to add data, including those from ongoing Census projects. Among the many challenges in creating OBIS, including OBIS-USA, were developing a community of trust and shared value among data providers, and demonstrating to providers the value of making their data accessible to others. Challenges also posed by the diversity of data sets relevant to marine biodiversity stored on thousands of computers, in a variety of formats, not all widely accessible, have been met in OBIS-USA by implementing a uniform standard and publishing platform that is easily accessible to a broad range of users.

Superintendent George Sedberry gave the following presentations:

Research Update for Gray's Reef National Marine Sanctuary and Other SE Marine Protected Areas at the Geechee Sailing Club, August.

Gray's Reef Update: Research and Management for Protecting One of

America's Ocean Treasures at the GRNMS Law Enforcement Working Group Meeting, June.

Wreckfish and its Biology and Fishery in the U.S., with Observations from Fisheries Throughout its Extended Range, USCG Southeast Regional Fisheries Training Center, August.

Surveillance, Enforcement and Compliance Challenges in Gray's Reef National Marine Sanctuary, SERMA South Atlantic Regional Workshop, July.

Research Update for Gray's Reef National Marine Sanctuary, Georgia Coastal Research Colloquium, September.

## **Outreach and Education**

### **River Street Markers**

Six bronze markers about the natural history of Gray's Reef are in the final stages of review before their installation at Rousakis Plaza on River Street, in the heart of Savannah's Historic District. Due to the installation in the historic district, the development and review of the markers has been lengthy. When embedded in the brick plaza area, these markers will be the first permanent public informational display in the downtown area to connect Savannah to Gray's Reef.

### **New Website Feature**

IT Coordinator Debbie Meeks and Communications Coordinator Gail Krueger have worked with Scott Noakes, a University of Georgia researcher, to create a new section on the Gray's Reef website devoted to the discovery of a subfossil jaw bone of an Atlantic gray whale. Noakes and Gray's Reef divers discovered the bone of the extinct whale

while on a reconnaissance dive at JY Reef, a nearby live bottom area. The identity of the bone was confirmed by the Smithsonian and Smithsonian-produced casts of it will be on display around Georgia. The three also worked on creating a new section on the Gray's Reef website devoted to Ocean Acidification / CO2 Monitoring that should be live this in the next week. See it here:

[http://graysreef.noaa.gov/science/monitoring/ocean\\_acidification.html](http://graysreef.noaa.gov/science/monitoring/ocean_acidification.html)

### **Girls Just Want to Have Science**

Education Coordinator Cathy Sakas worked with partners at University of Georgia Marine Extension Service (MAREX) to engage 20 middle school girls in a week-long summer camp called Women in Marine Science. Each day the participants did an on-water activity from two MAREX skiffs and learned about a different woman ocean scientist, including NOAA's Dr. Jane Lubchenco and Dr. Ellen Prager. They explored one of Georgia's pristine barrier islands, Wassaw Island, and tagged fish they collected in a trawl net. Sakas gave an overview of the acoustic fish tagging project that is ongoing at Gray's Reef. The workshop targets middle school girls because studies indicate this is the age at which girls either embrace science or turn away from it. The all female staff wanted to provide the opportunity for these girls to become fully engaged through fun field experiences with hands-on activities in ocean science.

### **Research Experience**

Gray's Reef staff worked with the faculty of the Marine Science Program at Savannah State University (SSU) to submit a proposal to the National Science Foundation to continue the Research

Experience for Undergraduates that SSU has run for three years. The group proposed an eight-week, 10-student marine and ocean sciences summer program. The unique aspects of this program are two-fold: (1) early recruitment and support of undergraduate students, particularly minorities, in science, technology, engineering and mathematics, and (2) the multidisciplinary, collaborative nature of multiple academic and governmental partners in the Savannah area. SSU's local partners; the Skidaway Institute of Oceanography, Georgia Institute of Technology, and Gray's Reef National Marine Sanctuary, each have research environments that are well-equipped and staffed to provide intellectual merit in student research projects. The breadth of projects completed under previous funding showcases the ability of this partnership to provide students with a substantial first research experience.

### Happy Birthday to Jacques!

In honor of World Oceans Day and Jacques Cousteau's 101st birthday, Gray's Reef sponsored a day of free admission to the UGA Marine Extension Service Aquarium on June 8. Some 333 adults and 221 children visited the aquarium where eight short films on ocean issues topics from acidification to marine debris were shown along with the regular informative exhibits. Children participated in a craft project that turned throw away items into sea creatures and learned about recycling to keep debris out of the marine environment. Many thanks go to the staff of the UGA Aquarium for their efforts in making the event a success.

### NABS in the Lowcountry

Lead by Education Coordinator Cathy Sakas, the students of this year's National Association of Black Scuba Divers spent a week in the Georgia and South Carolina lowcountry for their Youth Educational Summit. The students spent time with Queen Quet, the royal Chieftess of the Gullah/Geechee Nation; participated in a beach sweep on Sapelo Island; learned about Gray's Reef National Marine Sanctuary and went SCUBA diving. The students took a trip to Fort Pulaski, the Tybee Island Marine Science Center and enjoyed a day at the beach.

### School Exhibits

Gray's Reef is the star in a series of exhibits in the hallways of two new Statesboro, GA, schools. The schools are using every inch of the new buildings as active learning areas so students can absorb information on the marine environment throughout their days.



A mural with Gray's Reef facts. Photo: Deborah Harvey

Representatives from the school system and their exhibit designer, Deborah Harvey, spent time at the sanctuary office. Harvey has worked in partnership with the sanctuary before, designing a Gray's Reef exhibit for the Georgia Southern University Museum.

## Art and Science

Gray's Reef continues to deepen its relationship with the Savannah College of Art and Design to the benefit of both facilities. SCAD faculty and students and Gray's Reef staff are planning a cooperative program in scientific illustration. SCAD has developed an undergraduate minor and a graduate track in scientific illustration, and would like to illustrate habitats and organisms at Gray's Reef. In addition, they would like to develop programs in sculpture and film that will use marine subjects. The initial projects will use stock photos and videos to develop posters on the invertebrates and fishes of Gray's Reef National Marine Sanctuary. Additional projects will be developed to depict the paleohistory of Gray's Reef through illustration and animation. Eventually, SCAD would like to develop a dive program compatible with NOAA dive protocol so that students can create illustrations and other art from observations made in the sanctuary.

## Volunteers and Community

### Volunteer Recruitment

Volunteer Coordinator Jody Patterson is keeping Gray's Reef in the lead among sanctuaries in volunteer recruitment by posting requests for volunteers on Volunter.gov (<http://www.volunteer.gov/gov/>), through listserv announcements and website placement, and a plug on the National Public Lands Day (NPLD) website (<http://www.publiclandsday.org>) and calendar of events. Initiatives for NPLD included Gray's Reef Ocean Film Festival support and marine debris tracking by accessing and downloading the marine debris tracker mobile app developed by

NOAA and SEA MDI. Festival attendees were requested to track and remove debris in their local watershed, beach, or wetland and to bring their phone or PDA with tracked debris data to the film festival. National Public Lands Day (NPLD) is the nation's largest, single-day volunteer event for public lands in the United States.

## Homeport

The marine operations team of Captain Todd Recicar and LTJG Chris Briand has been responsible for making upgrades and repairs on the sanctuary's two research vessels, the *Joe Ferguson* and the *Sam Gray*. Here is a summary of work done or underway on each vessel.



Gray's Reef Research Vessel *Joe Ferguson*. Photo Todd Recicar

Upgrades and haul out of the *Joe Ferguson*:

- High power/High resolution transducer for better bottom imagery on Furuno sounder
- ARPA (Automatic Radar Plotting Aid) for Furuno chartplotter/Radar
- Marine Weather Overlays on Furuno chartplotters
- Weather Station that provides current meteorological data to Furuno chartplotters

- Renew Antifouling coat on bottom and drive gear
- Renew Nonskid paint on work deck and aft dive platform
- Replace backup transducer
- Touch up paint in bilge areas
- Installation of cabin drains
- Installation of auxiliary bilge suction pumps

Haul Out of the *Sam Gray*:

- Renew Antifouling coat on bottom
- Replace old 2 stroke outboards with new 4 stroke outboards
- Replace collar
- Refabricate outboard extension bracket to reduce drag and improve fuel economy
- Repair bow eye
- Relocate transducers for better operation

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***Learn More about Your Sanctuary***

To learn more about the sanctuary please visit our web site at:  
<http://graysreef.noaa.gov/>.

To learn more about the Sanctuary Advisory Council please visit:  
<http://graysreef.noaa.gov/sac.html>.

**The Office National Marine Sanctuaries**

The Gray's Reef National Marine Sanctuary is one of 14 marine protected areas in the National Marine Sanctuary System. The Office of National Marine Sanctuaries (ONMS) was established under the National Marine Sanctuaries Act of 1972 which authorizes the Secretary of Commerce to designate as national marine sanctuaries areas of the marine environment or Great Lakes with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or aesthetic qualities. Visit the ONMS web site at:  
<http://www.sanctuaries.nos.noaa.gov/>

### ***Visit Your Sanctuary!***

For information on visiting Gray's Reef National Marine Sanctuary please see: <http://graysreef.noaa.gov/visit/welcome.html>. This page has information about visitor centers, sanctuary regulations, and recreation in the sanctuary, and about the sanctuary's unique resources and how you can help protect them.

