



GRAY'S REEF NATIONAL MARINE SANCTUARY SANCTUARY PROGRAM REPORT



REPORTING PERIOD APRIL – AUGUST 2012

Sanctuary Advisory Council

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Dr. Clark Alexander, Vice Chair
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K-12 Education

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Charter/commercial Fishing

Mary Conley
Conservation

Anna George
Conservation

Randy Rudd
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University Education

William Cliett, Jr.
Citizen at Large

Michael Denmark
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Sapelo Island NERR

Lt Brandon Fisher
U.S. Coast Guard

Capt. Doug Lewis
Georgia DNR Law Enforcement

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NOAA Office of Law Enforcement

Dr. Charles Hopkinson
NOAA Sea Grant

Hot Topics

Scoping Underway for Management Plan Review

The National Marine Sanctuaries Act requires that each sanctuary review its management plan every five years to ensure that sites continue to conserve, protect and enhance their nationally significant natural 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. An assessment of the 2006 Gray's Reef Management Plan began in 2010. Scoping, which included three public meetings in July, continues through August 31.

Scoping is an opportunity for the public to learn about, and comment on the current state of sanctuary management and emerging issues. Sanctuary users, interest groups, government agencies and other members of the public are encouraged to provide input that will help define the range of issues that the program needs to address in a revised management plan.

Complete details of the management plan review process and links to opportunities and ways to comment can be found here:
<http://graysreef.noaa.gov/management/mgmtplanreview/welcome.html>

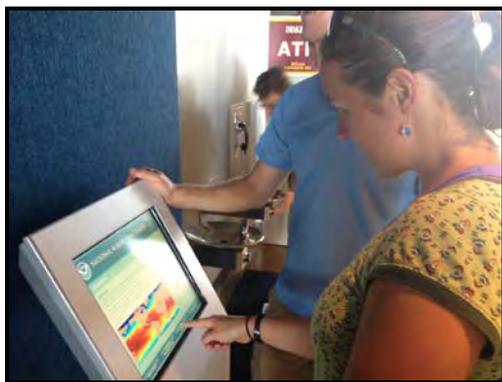
Welcome New Sanctuary Advisory Council Members

Gray's Reef welcomes three new members and one returning member to the Sanctuary Advisory Council. Randy Rudd was appointed in the spring to serve as the sport diving representative. Randy, who is a Gray's Reef Team Ocean volunteer diver, replaced outgoing member Kellie Parr. Warren Hupman will serve as the charter/commercial fishing representative, replacing Capt. Wendell Harper. Capt. Hupman is a dive and fishing charter boat captain from Woodbine, Georgia. Michael Denmark, executive director of Coastal Conservation Association of Georgia (CCAGA) will serve as the sport fishing representative, replacing outgoing member Tim Tarver. Mary Conley, Southeast Director of Marine Conservation for The Nature Conservancy, was also reappointed to serve in one of the two conservation seats on the council. The staff of Gray's Reef extends sincere appreciation to Wendell, Kellie and Tim for their contributions to the council and Gray's Reef National Marine Sanctuary.

Kiosks Installed

New Gray's Reef informational interactive kiosks were installed at the South Carolina Aquarium, the Georgia Southern University Museum, the Tybee Island Marine Science Center and the Sapelo Island National Estuarine Research Reserve Visitors Center in June. The kiosks add another dimension to the long-standing partnerships Gray's Reef has with each of those facilities and provide yet another way to reach out to the public.

Kiosk users can explore Gray's Reef programs; learn about the science conducted in the sanctuary; view a film on the fish tagging project; and connect with real-time local weather. There is a special section of interactive games just for kids. The kiosks have been a hit at the partner facilities where they are installed.



Visitors to the South Carolina Aquarium explore the newly installed Gray's Reef informational kiosk. Photo: Amy Cale-Huebner.

Resource Protection

Law Enforcement Group Explores Future Opportunities

The Sanctuary Advisory Council's Law Enforcement Working Group held its annual meeting in June to continue the important networking among partners that enhances enforcement and compliance with regulations in the sanctuary. In addition to regular updates, the group discussed possible new technologies, such as unmanned aircraft systems that are being tested in Hawaii. While the system is not yet applicable for enforcement operations at Gray's Reef, the technology is continuing to improve.

Staff is also working with research partners at the University of Georgia to deploy cameras on the data buoy in the sanctuary. Those cameras could be used to provide real-time information on the presence of vessels in the sanctuary, allowing us to make better use of our enforcement partners to deploy patrol vessels to enforce regulations and distribute outreach materials when vessels are actually present in the sanctuary. This project is long term.

Working with the South Atlantic Fisheries Management Council

Superintendent George Sedberry served as Chair of the South Atlantic Fishery Management Council's (SAFMC) Marine Protected Areas (MPA) Expert Workgroup. The Workgroup met in Savannah in May to review existing data to determine where MPAs might be useful in restoring populations of warsaw grouper and speckled hind, which are listed as Critically Endangered by the International Union for the Conservation of Nature (IUCN).

Although we do not fully understand the life history and ecology of these two species, comparison of historical catches to those just prior to the current closure of the fishery indicate that these grouper populations are very depressed and that bycatch is still preventing recovery. Although the fishery has been closed for several years, bycatch still occurs and release mortality is very high, as most catches are from waters deeper than 150 ft.

No-take MPAs are a tool that could be used to restore these species, and the Workgroup compiled existing data on habitat mapping and spawning aggregations to help in siting MPAs for these species. In the report submitted to the SAFMC, the Workgroup recommended a no-take MPA off St. Simons Island, in addition to other sites off the Carolinas and Florida. The Workgroup also made suggestions regarding research, monitoring and enforcement. The report can be found at <http://safmc.net/LinkClick.aspx?fileticket=5Cl1M4ndCp8%3d&tabid=404>.

Sedberry, a member of the South Atlantic Fishery Management Council's (SAFMC) Scientific and Statistical Committee (SSC), also attended that Committee's triannual meetings in Savannah



Warsaw grouper catch circa 1975. Photo: National Marine Fisheries Service

and Charleston. The Committee reviewed the schedule for future stock assessments, which will include updates for black sea bass, vermilion snapper, red porgy and other species. The Committee also dealt with developing management plans for uncommon species for which there is not adequate data for a stock assessment, by using data from similar species or species complexes, and catch-only data. The Committee also reviewed data from the newly re-designed recreational fishery statistics survey. Analysis and comparison with older survey methods and fishery-independent surveys indicate that trends in all three indices are similar.

Additional discussions focused on expanding deepwater coral habitat areas of particular concern (HAPCs) based on new sonar maps (including surveys conducted by staff of Gray's Reef National Marine Sanctuary). New sonar surveys have revealed previously unknown deepwater coral banks that are important habitats for reef fish and deepwater crustaceans that support fisheries.

Whales, Sound, and Oil and Gas Resources

Resource Protection Coordinator Becky Shortland attended the spring Right Whale Forum in Jacksonville, Fla., followed the next day by the Southeast Implementation Team (SEIT) meeting. The SEIT has been discussing methods, including aerial surveys and passive acoustics, for protecting the highly endangered North Atlantic right whale.

Shortland also participated in system-wide discussions to develop Office of National Marine Sanctuaries (ONMS) comments on proposed U.S. Navy activities 2014-2019 and on the Bureau of Ocean Energy Management's (BOEM) proposal for geological and geophysical testing for oil and gas off the south Atlantic coast.

These proposed actions have the potential to impact sanctuary resources primarily through ensonification from sonar or seismic equipment used for exploration. Earlier comments on a separate proposal for the Navy's use of low-frequency sonar led to recognition of Gray's Reef NMS as a year-round dive area. That means that ensonification from low-frequency sonar within the boundaries of the sanctuary must not exceed 145dB to protect sanctuary and other divers, along with marine resources including fish, sea turtles and marine mammals.

Gray's Reef Reaches In to Georgia Watershed Associations

Gray's Reef staff attended the June meeting of the Save Georgia's Coast Alliance, which includes River Keepers associations, and gave a presentation on Gray's Reef, the research cruise, and biological and hydrographic studies conducted at the Sanctuary that demonstrate the connectivity of Georgia watersheds and Gray's Reef. Occurrence of endangered Atlantic sturgeon in the sanctuary demonstrates an important biological connection between watersheds and Gray's Reef. This anadromous fish spawns in the freshwaters of eastern coastal plain rivers and several overwinter at Gray's Reef. Dye studies conducted in Altamaha Sound have also shown the connectivity of the Altamaha River drainage to Gray's Reef.



Eight Atlantic sturgeon acoustically tagged in rivers along the eastern seaboard have been detected by receivers at Gray's Reef.

Ocean Science & Exploration

Annual Research Cruise a Success Despite Weather Woes

During the first leg of the eleven-day mission aboard the NOAA Ship *Nancy Foster*, the cruise was tremendously productive, despite Tropical Storm Alberto's best effort to complicate matters. The team was able to complete nearly 200 science dives, in support of three of our four diving objectives. Because three days were lost to weather, the marine debris surveys were not conducted.

Collections of arc shell (native turkey wing mussels *Arca zebra*) were made to look for contaminants in their tissues, and significant progress was made servicing the acoustic receiver array. Underwater trapping and tagging of 14 fish was conducted (six black sea bass, six gag grouper and two scamp grouper) and the acoustic array which will be tracking these newly tagged fish was deployed.

Lionfish were encountered and removed at three different sites in the sanctuary. Only four lionfish were removed, but that may reflect the fact that diving activities did not involve surveying large areas on this leg. The non-diving objectives were also met, as approximately 56 square kilometers of multibeam mapping was completed east of Gray's Reef National Marine Sanctuary. Photos and videos were taken of all these activities and will be used by the sanctuary for education and outreach.



Divers conducting underwater surgery to implant acoustic tags in the abdomens of fish. Photo: GRNMS Greg McFall

All of this work would not have been possible without the fabulous support of the ship's officers and crew and the scientists and volunteers that joined the expedition. Our productivity underwater was greatly increased

by the able assistance of divers from the ship (LT Josh Slater, ENS Jamie Park and Senior Survey Technician Samantha Martin). We also had divers from the National Marine Fisheries Service in Panama City, Fla. (Guy Davenport, Andy David, Chris Gardner and Steve Matthews), the Florida Fish and Wildlife Research Institute (Paul Barbera), and the Gray's Reef Team Ocean Volunteer Diving Program (Randy Rudd, Mike Mullenix, Keith Borden and Shannon McAteer). National Marine Sanctuaries in Hawaii (Kelly Gleason, Papāhānaumokuākea Marine National Monument) and Texas (Michelle Johnston, Flower Garden Banks National Marine Sanctuary) also sent scientists/divers to assist with field work.

Finally, our arc shell collections were made possible by a scientist from NOAA's National Centers for Coastal Ocean Science (JD Dubick). Topside, we had fantastic support from the Gray's Reef Vessel Operations Coordinator (Chris Briand) and Marine Operations Coordinator (Todd Recicar). We also had science support from our Teacher at Sea (Debbie Campbell), and a graduate student (Noelle Hawthorne). Mapping data analysis was completed by Kacey Johnson, and video editing was done by Gabrielle Garcia-Pardo.

By having Gray's Reef webmaster Debbie Meeks aboard the ship during the cruise it was possible to have our logs updated in a timely manner so that everyone back at home port could follow the progress daily.

Working out in the ocean is always an adventure. Sometimes the seas are your friend, and sometimes they aren't. During the second leg of the Gray's Reef cruise aboard the NOAA Ship *Nancy Foster*, the seas were not very friendly. Tropical Storm Beryl kept the ship at the dock a few extra days, and then, once it did sail, the storm had made underwater visibility almost unworkable.

With time, visibility improved, but the seas kept picking up with the passage of small storms. On numerous days the divers were forced to stay on the ship due to storm activity in the area. Thankfully this time was put to good use to conduct mapping operations, and Laura Kracker was able to survey using the ship's fisheries sonar. Even though the poor visibility limited what the invertebrate and fish surveyors could accomplish, the fish telemetry team was still able to service the acoustic array deployed within the sanctuary.

Another significant accomplishment of this trip was the first use of closed-circuit rebreathers by NOAA Divers aboard a NOAA platform. Most divers are familiar with traditional "open-circuit" SCUBA where a diver inhales a breath and then exhales it to the surrounding water. With a closed-circuit rebreather (CCR), the diver inhales a breath and when they exhale, the breath passes into a "scrubber" material which removes the carbon dioxide and recycles the remaining oxygen. In this manner, the diver "re-breathes" the oxygen which makes up the majority of what is exhaled. Because none of the oxygen is wasted, divers can stay down much longer than they would be able to with open-circuit scuba. Additionally, there are no noisy bubbles scaring creatures away. NOAA has been looking to utilize this technology for several years and the divers were very fortunate to have such a supportive crew for these first NOAA operational dives using this advanced technology.

Visitors to the ship included several members of the media and a contingent from Georgia Southern University, an important research partner to Gray's Reef. A public open house was held on the ship while she was docked in Savannah for Memorial Day. More than 400 people toured the ship. The cruise received extensive coverage in area media (print and television) and on the Gray's Reef webpage, and Facebook page. Some examples of media coverage can be found here:

<http://savannahnow.com/news/2012-06-01/surgery-grays-reef-goes-swimmingly>
<http://www.bryancountynews.net/section/101/article/20823/>

Outreach & Education

Gray's Reef Southeast Regional MATE ROV Competition

In April, the eighth annual Gray's Reef Southeast Regional MATE ROV Competition was staged by staff and volunteers in the Chatham County Aquatic Center. Six competing Ranger class teams (for older and more experienced students, generally in high school) and four Scout class teams (for younger and less experienced students, generally in middle school) put their piloting skills and engineering ingenuity to the test. Staff and volunteers built props such as model shipwrecks, debris fields and endangered corals for teams to measure,

map and collect. The exercise also simulated the use of backscatter sonar, retrieval of oil from sunken tankers and use of a lift bags to bring the mast of the ship to the surface.



Carrollton High School at the Gray's Reef Southeast Regional MATE ROV Competition. Photo: Gray's Reef

Carrollton High School won the Ranger class at our regional event; they moved on to the international competition in June in Orlando, Fla. Carrollton Middle School won first and second place in the Scout class competition.

Education Cruise Wrap Up

The last of five education cruises for Islands High School, the Savannah high school that immerses students in a career tracked marine science program, was conducted in June. The cruises took place on the Wilmington River and in Wassaw Sound.

The four-hour cruises departed from Hogan's Marina, which is very close to the high school. Students learned about watershed issues and conducted water quality monitoring tests for pH, salinity, turbidity and dissolved oxygen at two different sites per cruise. The Gray's Reef team also deployed an otter trawl to collect estuarine organisms. Several species of fish were collected as were crabs, shrimp, amphipods, hydroid colonies and algae. A reporter from the Savannah Morning News met the group at the dock to ask questions and take quotes and pictures. The story may be viewed here:

<http://savannahnow.com/news/2012-04-25/islands-high-students-get-sciencey#.T5hRP8rleSo>

Gray's Reef Celebrates World Ocean Day at the Georgia Aquarium and the Marine Extension Service Aquarium

The Georgia Aquarium invited Gray's Reef to help celebrate World Ocean Day by hosting an exhibit at their event held on Saturday, June 9. Gray's Reef was the only outside partner to be invited.

The event attracted hundreds of children and their parents. NOAA Education Partnership Program intern Jasmine Richardson and Education Coordinator Cathy Sakas staffed the exhibit, answering questions from visitors and handing out Gray's Reef information and educational posters. Sakas and Richardson engaged several hundred visitors during the six-hour long event.

On the same Saturday, Gray's Reef sponsored free admission to the University of Georgia Marine Extension Service Aquarium (MECA). The MECA aquarium, located on the same campus as the Gray's Reef office, specializes in local marine species and is another long-time partner with the Sanctuary. Nearly 500 people came out with the first 100 receiving a Gray's Reef BPA-free, recycled plastic reusable water bottle as part of an anti-marine debris awareness program. To get one, they pledged not to use disposable bottles and to reduce their overall use of plastic. Red watch caps honoring Jacques Cousteau were passed out to early visitors.

Earth Day and Beach Week

On April 21, Gray's Reef participated in the City of Savannah's Earth Day celebration in Forsyth Park along with dozens of other natural resource protection agencies and conservation-minded organizations. Sanctuary staff presented an anti-marine debris message and passed out sea turtle posters to children.

Gray's Reef staff also participated in Beach Week, an annual event put on by the Coastal Resources Division of the Georgia Department of Natural Resources, one of sanctuary's outreach partners. Each year DNR brings an RV van outfitted as a mobile exhibit to various public beaches to meet, greet and educate the beach-going public on the importance of dune ecosystem. Gray's Reef joined them at Tybee Island with a message of keeping plastic waste out of the ocean and off the beach. About 50 people signed "pledge cards" promising to keep plastics out of the ocean by using less of them and by recycling in exchange for a re-useable, non-disposable water bottle with the sanctuary logo.

Rivers to Reef Wrapped Up

The Rivers to Reefs Educators' Workshop wrapped up July 21. The workshop was an immersion experience for teachers in the seventh largest watershed on the eastern

seaboard, one that directly influences Gray's Reef. The workshop focused on teaching educators about the Altamaha River Watershed, how we impact it and how it influences Gray's Reef and other offshore habitats. Staff from Gray's Reef, with partners from Georgia Aquarium, Skidaway Institute of Oceanography, Atlanta Public Schools, Gordon College and Armstrong-Atlantic State University give participants background information, tools, activities and materials and all-important first-hand field experiences to teach their students and communities about watershed connections. This summer's workshop was the 13th Rivers to Reefs Educators' Workshop. To experience what the teachers experienced, check out the daily blogs they wrote here: http://graysreef.noaa.gov/education/workshops/2012_rivers_reefs/welcome.html

Sand and Sidewalk Arts Festivals

Gray's Reef sponsors awards for the best depiction of the marine environment in two arts festivals each year; the Savannah College of Art and Design's Sidewalk Arts and Sand Arts festivals. Both events drew huge numbers of visitors to large public venues to view creative, but ephemeral, works of art. Sidewalk Arts artists work in chalk and Sand Arts artists work in sand along the Tybee Island beach front. This year's Sand Arts winner was a sea turtle sculpture with



The winner of the 2012 Gray's Reef underwater award for SCAD's Sidewalk Arts Festival, an image of North Atlantic right whale was created in chalk by the team of Chen-Wei-Hsuan, illustration, Taiwan; and Amidon Gordon, architecture, Jacksonville, Fla. Photo: SCAD

an entire marine ecosystem depicted on its back. The Sidewalk Arts winner was a smiling North Atlantic right whale. That image will be used for poster for the 2012 Gray's Reef Ocean Film Festival.

By sponsoring these awards, Gray's Reef has steadily increased the number of depictions of marine creatures and their habitat at these festivals, bringing a different level of awareness of the marine environments to the community.

Gray's Reef Staff Co-Lead "Women in Marine Science" Summer Camp

Seventeen students—16 young women and one young man—signed up for this summer's "Women in Marine Science" camp conducted by Gray's Reef Education Coordinator, Cathy Sakas and partners from University of Georgia Marine Extension Service. The camp immerses participants in hands-on experiences that underscore presentations given by workshop leaders and invited women marine scientists. An oceanographer, a NOAA fisheries biologist, a Gray's Reef researcher working on acoustic tagging of fishes, a dolphin researcher and a saltmarsh scientist (all local women), engaged the campers with explanations of their work. Throughout the week the campers kept a journal and made fish print T-shirts to wear on the last day. As a grand finale to the program, participants created and gave a PowerPoint presentation on their favorite women in marine science, as well as a public service announcement they created about women in marine science.

Volunteers & Community

On the Hill

Superintendent George Sedberry attended Capitol Hill Ocean Week in Washington, DC in June. While in DC, he also attended the board meeting of the National Marine Sanctuary Foundation where he gave a presentation on Gray's Reef National Marine Sanctuary and the challenges we face in raising public awareness of the Sanctuary. Sedberry is working with the board and director to establish a Foundation chapter at Gray's Reef. Such a "friends group" will help with outreach efforts and in raising funds for outreach exhibits.

Ships, Nuclear and Wind Powered

Superintendent George Sedberry and *Monitor* National Marine Sanctuary Superintendent Dave Alberg met with Savannah tourism and convention partners to plan dedication of a historical marker commemorating the 50th anniversary of the departure of the N.S. *Savannah* from the city. The N.S. *Savannah* is the only nuclear-powered cargo and passenger ship ever built. It was named in honor of the S.S. *Savannah*, the first steam-powered ship to cross the Atlantic. The N.S. *Savannah* was part of President Eisenhower's "Atoms for Peace" initiative to demonstrate the use of nuclear power for merchant ships. The

commemoration in Savannah will occur on August 23 and will include a luncheon, reception and dedication of the historical marker. One of the Eisenhower grandchildren is slated to speak.

Five offices of NOAA shared exhibit space in the education area of Savannah Tall Ships Kid's Cove the weekend of May 4 - 6. The education component of the international event, called Planet Ocean in Motion, was coordinated by Gray's Reef Education Coordinator Cathy Sakas and brought together staff and volunteers from NOAA offices including Gray's Reef, Fisheries Protected Resources (Cheryl Bonnes), Geodetic Survey (Maryellen Salt), Coastal Survey (Kyle Ward) and Navigation (Michael Henderson). Local partners rounded including Georgia Aquarium, Tybee Island Marine Science Center, University of Georgia Marine Education Center and Aquarium, Ships of the Sea Museum, Army Corps of Engineers, Savannah State University, Tybee Island Power and Rescue, US Navy Sea Scouts, and The Dolphin Project.

Homeport

Gray's Reef Welcomes NOAA Education Partnership Program Summer Intern Jasmine Richardson

Jasmine Richardson chose Gray's Reef NMS as the site for her summer internship because of the work ongoing on watersheds. She is an Industrial Technology student at University of Arkansas at Pine Bluff and grew up in Memphis along the banks of the Mississippi. She was on the job June 4 and immediately began devouring background information on watersheds, particularly the Altamaha River watershed which impacts Gray's Reef. She interviewed research scientists, conservation organizations, educators and resource managers to better understand their roles in watersheds. Richardson investigated alternative practices and chemical choices that agribusiness and households can use to lessen contamination of the watersheds. She gave her report to the NOAA Student Scholarship Program at the end of July.

Days at Sea for Gray's Reef Vessels

So far this calendar year, we have had 34 days at sea and 12 maintenance days for the *R/V Joe Ferguson* and four days at sea and four maintenance training days for the *R/V Sam Gray*. Weather and maintenance issues have kept us ashore more than we would like.

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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.

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/management/sac/welcome.html>