



GRAY'S REEF NATIONAL MARINE SANCTUARY SANCTUARY PROGRAM REPORT



VOLUME 2, NUMBER 2

A report for the Sanctuary Advisory Council and Sanctuary Constituents

Reporting period: August-October 2008

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RESOURCE PROTECTION

Condition Report

The Gray's Reef National Marine Sanctuary Condition report was released on August 20, 2008. The report on the health of GRNMS indicates that the overall condition of the sanctuary's marine life and habitats is fair. The report also identifies several emerging threats to sanctuary resources, including non-indigenous marine species, overfishing, waterborne chemicals from human coastal activities, and increased recreational use of the site.

The first-of-its-kind report about the sanctuary finds that its water quality is relatively good, although researchers have detected low levels of human-produced pollutants in the sanctuary's sediments and water-filtering organisms.

The report cites illegal anchoring, recreational fishing and spearfishing as additional human pressures on the living marine resources of Gray's Reef, and states that snapper and grouper are being overfished both within the sanctuary and throughout the region.

The report also notes that the red lionfish, a voracious and venomous predator native to Pacific waters, has been seen in the sanctuary and may pose a danger to local fish populations and recreational divers.

RESEARCH AND MONITORING

Research Area

In July, the Gray's Reef Sanctuary Advisory Council decided to move ahead with a recommendation to create a research area within the boundary of the sanctuary. NOAA GRNMS has adopted those recommendations with some minor changes. The next step will be to complete a draft Environmental Impact Statement and Proposed Rule.

A working group of the Advisory Council met in early July to develop a recommendation for boundary options and restrictions for a research area. The preferred alternative presented to the advisory council and adopted by NOAA includes no fishing, diving by permit only, transit through the area with no stopping and gear stowed. The preferred boundary option (Southern Option #6) avoids most fishing activity in the sanctuary and is acceptable to the science community.

Recent Research Results

*In response to Advisory Council and stakeholder requests, the Gray's Reef staff has stepped putting research results on the website so the information can more easily be accessed by the public. What follows are **brief summaries** of the items found on the website. For complete details, see the website at graysreef.noaa.gov*

Sponges and Corals Provide Habitat for Thousands at GRNMS

College of Charleston graduate student Anna Greene recently defended her M.S. thesis, *Invertebrate Endofauna Associated With Sponge And Octocoral Epifauna At Gray's Reef National Marine Sanctuary Off The Coast Of Georgia*.

Greene's thesis advisor was Jeff Hyland, a marine ecologist at NOAA's National Centers for Coastal Ocean Science's (NCCOS) Center for Coastal Environmental Health and Biomolecular Research in Charleston. Hyland himself has done much research work in the sanctuary. Greene's study was conducted to characterize the assemblages of invertebrates that live in association with the sponges and soft corals of the live-bottom reefs at the Gray's Reef. Sponges and corals were collected from "densely colonized live bottom" mapped by GRNMS and NCOSS. Three sponge species (stinking vase sponge, orange branching sponge and red devil's finger sponge) and three octocoral species (false sea fan, sea whip, sea fingers), were selected for analysis.



Vase sponge GRNMS

Gray's Reef Collaborates with UConn Faculty in Study of "Fish Co-ops"

Cooperation between animals, both within and between species, is common across the animal kingdom. Familiar examples include ant or honeybee

colonies that cooperate to build shelter and provide food for the group (within species), or the cooperation between sea anemones and clownfish (between species). Forms of cooperation also include forming groups to reduce predation (e.g. schooling of fishes), joint defense of shelter, and finding prey (e.g., group foraging that increases success in food location). Such behaviors are forms of an entire class of "facilitative" or "optional" behaviors that produce positive outcomes for at least one or a few individuals, with positive or neutral outcome for others. For example, no one loses in the cooperation between sea anemone and clownfish, whereas the prey species always loses while the predator wins in a classic predator-prey relationship.

At Gray's Reef National Marine Sanctuary, research staff are working with faculty and students in the Department of Marine Sciences at the University of Connecticut to determine if cooperative hunting and feeding behavior occurs among fishes in the Sanctuary. This research is part of a larger effort to understand the roles of "choices" fishes might make in their behaviors, and how this adds to the high diversity of species found in reef fish communities.



Bait fish schooling in waters above GRNMS

Understanding the behavioral relationships of fishes may allow us to identify species whose behavior play important roles in enhancing feeding, growth and survival of others. This will ultimately help us further understand what the effects of fishing might be on removing large predatory species from the water

column and from the bottom, and how changes in abundance of a target fishery species might affect abundance, size and growth of other fish species.

Research at GRNMS Published in Fisheries Journal

Research conducted by Matt Kendall and colleagues of NCCOS recently published a paper in the *Transactions of the American Fisheries Society*. Results of their research, conducted with help from Gray's Reef staff, demonstrate that black sea bass and two species of grouper (gag and scamp) show signs of heavy fishing pressure. The study also revealed that one of the largest grouper species in the sanctuary were especially reduced in size and abundance in heavily-fished areas compared to lightly-fished sites.

Scientists found only small schools of large grouper, and those were at only a handful of the 92 ledges that surveyed. This demands a cautious approach in fishing at Gray's Reef since just a small level of effort on a few ledges could substantially impact one of the sanctuary's hallmark species.



Bank sea bass GRNMS

VESSEL OPERATIONS

Since the last SAC meeting, the sanctuary has acquired a 41' catamaran, one of the newest class of sanctuary vessel, the R-4106. We will be doing operational tests before it is transported to its official home in Hawaii. We used this platform off the coast of the Outer Banks, NC to support the "Battle of the Atlantic Expedition" which was an operation championed by the Monitor National Marine Sanctuary and supported by Gray's Reef National Marine Sanctuary. This is a more stable platform that has the ability to perform a wide range of operations.

As with many new platforms, we have been met with some challenges to get this vessel operationally fit for duty. However, each day

improvements are made and in the eyes of the National Marine Sanctuary Small Boat Program this vessel is ready to go to work.

The *R/V Sam Gray* and *R/V Joe Ferguson* have also been hard at work with water quality surveys, buoy operations, science package deployments, dive operations, and data acquisition. These vessels have also faced another hurricane season. With the proximity of TS Fay and TS Hanna a new and more dynamic plan needed to be implemented to provide safe havens for the vessels at Gray's Reef. With the help of Chatham County Commission Chairman Pete Liakakis, we were able to shelter the *R/V Joe Ferguson* at the old Intermarine facility up the Savannah River. With the help of the fine team at the USCG Air Station Savannah we have an area of high ground for the *R/V Sam Gray*. It has certainly been a busy few months.

EDUCATION

Gray's Reef Staff Serves as Co-Chair of NMEA 2008

The annual National Marine Educators Association (NMEA) conference was held in Savannah 21 – 24 July 2008. Called NMEA 2008: *One World, One Water*, the conference featured ocean themes including International Year of the Reef, Ocean Literacy Principles, state of the southeastern fisheries and ocean science in general. Dr. Billy D. Causey, Regional Director of the Southeast, Gulf of Mexico and Caribbean Region of the Office of the National Marine Sanctuaries, was one of the plenary speakers at the conference. He focused on International Year of the Reef and the state of coral reefs.

The conference was supported by contributions at various levels by National Marine Sanctuary Foundation, NOAA Office of National Marine Sanctuaries (ONMS), NOAA Southeast, Gulf of Mexico and Caribbean Region of ONMS and substantial in-kind contributions from NOAA Gray's Reef National Marine Sanctuary.

Education Coordinator Cathy Sakas along with three outstanding colleagues from the University of Georgia Marine

Extension Service and Center for Ocean Science Education Excellence Southeast served as the conference committee.

The estimated 475 attendees, representing 41 states and ten countries, praised the conference, especially the speaker line up which included six Georgia scientists and one NOAA weather service meteorologist among others. Local naturalist John Crawford and regional author Janisse Ray waxed eloquently on the beauty and challenges of our coastal area. The McIntosh County Shouters had everyone clapping and on their feet during their rousing performance of traditional coastal African-American music.

Ocean explorer Fabien Cousteau gave the closing impassioned keynote presentation on ocean stewardship with moving footage of Humpback Whales sleeping and historical footage of his late grandfather Jacques Ives Cousteau as a young French naval officer testing the first generation of aqua lungs.

Master Teacher Workshop and High School Program at Gray's Reef Offices

GRNMS hosted eight master teacher program students and their professor from Lexington University for a day long workshop in ocean science technology. The master teachers explored the world of ocean science technology via a power point presentation on the subject, video footage of Gray's Reef, several hands-on activities focusing on neutral buoyancy and simple ROV building with on-hand objects and hobby store motors.

Along the same theme Gray's Reef hosted 20 freshmen, sophomores and juniors and their two teachers (Tara Fogleman and Flo Thurston) from St. Andrews School a local private school for a five-hour program at Gray's Reef offices. The program included an overview from each staff according to their role at Gray's Reef.

Gray's Reef at MACNA XX

Cathy Sakas represented ONMS/GRNMS as one of 33 invited speakers at the MACNA XX conference. The 20th anniversary of the Marine Aquarists Conference of North America was held in Atlanta with approximately 1800 hobby and professional fresh and saltwater aquarists in attendance over four days. While Sakas' presentation focused on the opportunities, programs and materials available in education through NOAA, ONMS and specifically Gray's Reef, she also spoke about issues facing Gray's Reef in terms of managing it as an underwater

resource and touched on the newly designated MPAs in the South Atlantic Bight. The conference provided an opportunity to get our NOAA ocean stewardship messages out to a group often overlooked in terms of coral reef conservation. Dr. Sylvia Earle was one of the key note speakers.

Gray's Reef Facilitates Right Whale Education and Outreach Steering Committee

Cathy Sakas facilitated the semi annual conference call of the Education and Outreach Steering Committee of the Southeastern US Implementation Team for the Recovery of North Atlantic Right Whales. During the call, representatives from federal and state agencies, NOAA, US Navy, USCG and the shipping industry formulated a plan to reach critical target audiences should the proposed rule to reduce ship speeds along the eastern seaboard become law. It is expected that the proposed rule will become a regulation as early as October

Appeal for Funding

Gail Krueger and Cathy Sakas made presentations to the Skidaway Marine Science Foundation in an effort to get the groups to provide support for both the Ocean Film Festival and the ROV Building Workshop and Competition. Budget cuts have reduced funding for both education and outreach events.

The SMSF Board of Directors awarded \$750 towards the ROV workshops and \$2,000 for the film festival. Gray's Reef is grateful for the financial and moral support of the foundation for both of these events.

National Association of Black Scuba Divers' Youth Summit

The National Association of Black Scuba Divers' Youth Summit that will take place in Savannah 22–26 June 2009. The itinerary includes a comprehensive overview of coastal and ocean processes and specifically the natural and geologic history of Gray's Reef as well as ocean

technology through ROV building and flying. The highlight of the week for half of the 40 students and ten chaperones will be an all day diving expedition to the Jane Yarn Memorial Reef and J-Reef. Non-divers will spend the day on Jekyll Island at the Georgia Sea Turtle Center and Tidelands Nature Center. The entire group will also tour several African-American cultural facilities in downtown Savannah at week's end. Gray's Reef competed for the honor of hosting NABS Youth Summit beating out four other contenders.

OUTREACH

Gray's Reef Ocean Film Festival

The fifth annual Gray's Reef Ocean Film Festival was held September 18-21, 2008. The mission of the Film Festival is to educate, inspire and enlighten coastal Georgia residents about the world's oceans and the issues facing them. The films are used to explore the beauty of the sea, the complexity of the marine ecosystem, the creatures that inhabit it, our maritime heritage and humankind's relationship with the oceans and the environment in a positive, healthy, family-oriented format.

The 2008 Ocean Film Festival set the stage for an international filmmaker to filmmaker industry event slated to be held in Savannah in 2009 called BLUE Ocean Film Festival. BLUE will include a community film festival which Gray's Reef will host and manage. The goal is to make top-notch film from the festival available to all other sanctuaries as part of a traveling film festival designed to bring the Gray's Reef ocean Film Festival format to any other sanctuary that cares to participate.



Student volunteers draw a crowd

LEARN MORE ABOUT YOUR SANCTUARY

The Gray's Reef National Marine Sanctuary produces the Sanctuary Program Report in conjunction with quarterly Sanctuary Advisory Council meetings. 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 National Marine Sanctuary Program
The Gray's Reef National Marine Sanctuary is one of 14 marine protected areas in the National Marine Sanctuary Program. This program 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 NMSP 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/visiting.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.

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