



# GRAY'S REEF NATIONAL MARINE SANCTUARY SANCTUARY PROGRAM REPORT



## VOLUME 3, NUMBER 1

A report for the Sanctuary Advisory Council and Sanctuary Constituents

Reporting period: January-April 2009

Dr. Joe Kimmel, Chair  
NOAA Fisheries Southeast Region

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Georgia Conservation

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Sport Diving

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Regional Conservation

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Living Resources Research

LT Michael Gris  
U.S. Coast Guard

Capt. Wendell Harper  
Charter/commercial fishing

Dr. Scott Harris  
University Education

Sgt. Doug Lewis  
Georgia DNR Law Enforcement

Al Samuels  
NOAA OLE

Buddy Sullivan  
Sapelo Island NERR

Tim Tarver  
Sport Fishing

Spud Woodward  
Georgia DNR  
Coastal Resources Division



## RESOURCE PROTECTION

### SPEARFISHING GEAR BAN

The proposed rule to prohibit all spearfishing gear in Gray's Reef National Marine Sanctuary was published on March 4<sup>th</sup>. On March 19<sup>th</sup>, staff held a public hearing in Richmond Hill, Georgia, to receive comments in person. The comment period is open until May 4<sup>th</sup> after which all comments will be summarized and evaluated before a final decision is made.

### DEEPWATER CORALS

The South Atlantic Fishery Management Council (SAFMC) has been engaged for several years in developing a large Habitat Area of Particular Concern (HAPC) to protect deepwater corals off the southeast coast. Gray's Reef staff have contributed to development of the proposed HAPC through sonar mapping and participating in submersible cruises to describe the fauna associated with these deepwater coral banks. The SAFMC is proposing to establish five HAPCs to aid in the protection of deepwater (deeper than 400 m) coral habitats. These areas encompass more than 24,000 square miles off the coast from North Carolina through the Florida Keys.



*Lophelia pertusa.*  
Photo credit: S. Ross et al., UNCW

The Office of National Marine Sanctuaries applauds the efforts of the SAFMC to protect fragile deepwater coral habitat and its associated species, as these areas are essential fish habitat and similar areas have been damaged by fisheries in other parts of the world.

In the future, it may prove advantageous to further protect these productive yet fragile habitats. One way to do so is by incorporating them into the National Marine Sanctuary System. These sensitive habitats face a number of potential threats from non-fishing activities that could be addressed through NOAA's authorities under the National Marine Sanctuaries Act. While doing this now may not be the highest priority for NOAA, it could become essential in the face of more imminent threats.

Establishment of deepwater coral HAPCs would prevent destructive fishing practices, reduce bycatch, enhance management and allow for important research on these poorly-known habitats while they are relatively pristine.

## RESEARCH

### MAPPING DEEPWATER CORALS

In February, Gray's Reef staff hosted a meeting of scientists with experience and interest in further mapping of deepwater coral banks off the southeastern U.S. The group – including representatives from NOAA Fisheries, Undersea Research Program, and Biogeography Team; the SAFMC and the University of South Florida – reviewed data that have been collected to date.

The team's charge is to draft a science plan to locate and map deepwater corals and conduct research for NOAA's Coral Reef Conservation Program Deep Coral Initiative for the South Atlantic Bight. Initial surveys will include broad multibeam profiling of targets of interest to the SAFMC. Future work will include ground-truthing of sonar signals and additional species association and habitat characterization studies with autonomous or remotely-operated vehicles.

### MAPPING AT GRAY'S REEF

Research Coordinator Greg McFall and George Sedberry met with Coastal Carolina University professor Paul Gayes and some of his students to discuss additional bottom mapping,

instrumentation and oceanographic modeling efforts at Gray's Reef and on the southeastern continental shelf. Interest in development of alternative energy resources off the coast may provide opportunities to place ocean observing instruments at offshore locations and obtain funding for environmental assessments.

### RESEARCH AREA DESIGNATION

Early in March, Superintendent George Sedberry presented the SAFMC the opportunity to draft regulations regarding fishing and fishing gear in the proposed Gray's Reef research area. This opportunity was provided to the SAFMC as per the National Marine Sanctuaries Act and a Memorandum of Understandings that Gray's Reef has with the SAFMC and NOAA Fisheries. George presented draft regulations that would ban all fishing, with provisions for transiting the area with stowed fishing gear. The SAFMC deferred to Gray's Reef to write the regulations.

### CENSUS OF MARINE LIFE

George Sedberry participated in the semiannual meeting of the U.S. National Committee for the Census of Marine Life. This project, funded by the Sloan Foundation, ends in 2010 and a synthesis document is being prepared that summarizes available data on biodiversity knowledge and issues facing biodiversity conservation in the U.S. The document will draw on information from a variety of sources, including individual National Marine Sanctuary sites, and is being coordinated with NOAA biodiversity initiatives.



*New species and family of crustaceans: Kiwa hirsuta, the Yeti Crab.* ©2006 IFREMER/A. Fifis;

## RECENT PUBLICATIONS

Following are recent publications relevant to Gray's Reef NMS and surrounding waters

Sarmiento, Leslie V. 2008. Inducible chemical defenses in temperate reef sponges of the South Atlantic Bight. M.S. Thesis, Georgia Southern University, Department of Biology, 68 pp.

Ruzicka, R. and D.F. Gleason. 2008. Latitudinal variation in spongivorous fishes and the effectiveness of sponge chemical defenses. *Oecologia* 154:785-794.

Núñez, Cecilia V., Erika V.R. de Almeida, Ana C. Granato, Suzi O. Marques, Kelly O. Santos, Fabio R. Pereira, Mario L. Macedo, Antonio G. Ferreira, Eduardo Hajdu, Ulisses S. Pinheiro, Guilherme Muricy, Solange Peixinho, Christopher J. Freeman, Daniel F. Gleason, and Roberto G.S. Berlinck. 2008. Chemical variability within the marine sponge *Aplysina fulva*. *Biochemical Systematics and Ecology* 36:283-296.

Sanamyan, K. and D. F. Gleason. 2009. Ascidians of the genus *Aplidium* collected on shallow hard-bottom reefs of coastal Georgia (Atlantic coast of N America, U.S.A.). *Zootaxa* 2066:50-58.

## MARINE/DIVE OPERATIONS

### AAUS PARTNERSHIP

As National Ocean Service's Diving Officer, Greg McFall gave a presentation at the March meeting of the American Academy of Underwater Sciences in Atlanta, GA. The presentation was focused on recent incidents within the NOAA Diving Program, the changes that have resulted, and how those changes could potentially affect the reciprocity partnerships we have with academic institutions. Greg further co-presented a talk highlighting the scientific partnerships Gray's Reef has with AAUS and how that important relationship helps us better answer scientific questions at the site, aids in the understanding and protection of our natural resources and helps us stretch our fiscal science resources.

### GRAY'S REEF VESSELS

*The bad news...* In February, R/V *Joe Ferguson* made what is likely to be its last trip to Gray's

Reef when one of the engines had to be shut down on the return trip. A cracked piston and repetitive engine issues led staff to determine repair was not reasonable.

*The good news...* The research catamaran R-4106 will stay with Gray's Reef NMS indefinitely, according to a decision by the Office of National Marine Sanctuaries (ONMS). The vessel was originally built for a site in Hawaii, but the benefits demonstrated by the marine operations and research staff of Gray's Reef convinced ONMS Director Dan Basta to allow the vessel to remain with Gray's Reef. While it is hoped that a new vessel may be designed and built in the future especially for Gray's Reef, the R-4106 will enable marine and dive operations to continue at the present productive level.

### OFFSHORE OPERATIONS

In February, March and early April – in between routine and unexpected maintenance work – marine operations and research staff ventured offshore:

- with the help of Team Ocean divers, they located and replaced acoustic receivers that have been collecting fish data at Gray's Reef;



*Team Ocean divers*

- to accomplish water quality sampling in Gray's Reef;
- to assist in replacement of a bottom-mounted CO<sub>2</sub> sensor;
- transporting Skidaway Institute staff to collect instrumentation packages and other gear from the R2 Navy tower.

The crew is also busy preparing for the annual research cruise aboard the NOAA Ship *Nancy Foster* in June.

### COLLECTING LIONFISH

Among operations this winter, staff also worked offshore with a team from the Georgia Aquarium to collect red lionfish. Divers used special gloves, clear, semi-rigid plastic nets and a modified household trash can to safely collect the venomous fish while Gray's Reef boat operators maintained dive safety. The lionfish that were caught were transferred into a larger tank at the University of GA Aquarium. A total of nearly 20 lionfish were collected in the vicinity of the R2 tower and successfully transferred to the aquarium in Atlanta.

### OUTREACH



*New Gray's Reef exhibit Georgia Aquarium*

### EXHIBITS

The Gray's Reef Lionfish exhibit is now open at the Georgia Aquarium in Atlanta. The purpose of the exhibit is to draw the public's attention to marine invasive species in the offshore Georgia environment including Gray's Reef NMS. The lionfish "wrangle" (see Operations story above) received substantial media attention both in the Atlanta area and locally.

"Georgia Aquarium to Display Invasive Lionfish" – Atlanta Journal Constitution – by Leon Stafford  
[http://www.ajc.com/metro/content/living/stories/2009/02/12/lionfish\\_georgia\\_aquarium.html](http://www.ajc.com/metro/content/living/stories/2009/02/12/lionfish_georgia_aquarium.html)

In addition, Gray's Reef recently funded an upgrade to its exhibit at the University of Georgia Marine Education Center and Aquarium. A diorama was added to the aquarium during an

overall upgrade two years ago. The diorama upgrade now offers a more realistic view of live-bottom habitat.

And don't forget to visit Gray's Reef exhibits at the South Carolina Aquarium when you are in Charleston, and the Fernbank Museum of Natural History and the Georgia Aquarium when you are visiting Atlanta.

### COMMUNITY OUTREACH

- Gray's Reef staff are collaborating with the University of Georgia Marine Education Center and Aquarium (UGA-MECA) on a series of Saturday programs focusing on marine topics. The UGA-MECA staff also have plans for a science café informal lecture series that will include Gray's Reef staff.
- <http://www.marex.uga.edu/aquarium/SEA1.html>
- Sanctuary Advisory Council member Venetia Butler gave a presentation on Gray's Reef NMS to over 100 members of the Savannah Propeller Club. The 75-year old club exists to promote, further and support an American Merchant Marine.
- Gray's Reef staff and volunteers participated in the Savannah International Boat Show in March.
- Gail Krueger and other staff also represented Gray's Reef during public tours on the U.S. Environmental Protection Agency's *R/V Bold*. The *Bold* is used to monitor the health of the coastal waters of the Atlantic. Several agencies had displays on the *Bold* while she was docked in Savannah.

### Environmental Entrepreneurship

Graduate intern CJ Carroll attended the 2009 NOAA Summit on Environmental Entrepreneurship hosted by Savannah State University. The goal of the summit is to expose students, businesses and entrepreneurs to fields of science. A poster titled "Acoustic Receivers at Gray's Reef National Marine Sanctuary Used to Track Tagged Red Snapper, Gag Grouper and Scamp Grouper," by CJ Carroll and Krystle Ludwig was chosen to be presented at the summit. The poster highlights how a GIS map was created for the acoustic tagging project at Gray's Reef.

### **LIONFISH DOCUMENTARY**

Gray's Reef staff are participating in the making of a film documentary on invasive red lionfish. The film is being produced by students at the Savannah College of Art and Design. Superintendent George Sedberry, Research Coordinator Greg McFall, Education Coordinator Cathy Sakas and Outreach Coordinator Gail Krueger were interviewed on camera. The film will be entered in the upcoming BLUE Ocean Film Festival hosted by Gray's Reef and will also serve as a lionfish outreach vehicle in the future.

## **EDUCATION**

### **Science Fair**

Gail Krueger and Education Coordinator Cathy Sakas served as judges for the Savannah-Ogeechee Regional Science and Engineering Fair. This regional fair sends winners to the state fair in Athens, Georgia. Cathy then helped to judge the state fair selecting two senior and one junior division level winners. Students were also chosen to receive a Gray's Reef Award of Excellence. The Awards of Excellence are given as encouragement for students whose projects are in ocean-related topics.

### **COSEE Southeast**

Cathy Sakas participated in a workshop sponsored by the Center for Ocean Science Education Excellence Southeast (COSEE SE). The workshop brought together invited educators, graduate students and scientists to develop protocol to teach building a scaled down, but operational, observation buoy.

Cathy also gave a presentation on current NOAA and Gray's Reef research during the COSEE SE's SEAPORT workshop on Sapelo Island. The workshop was hosted by Sapelo Island National Estuarine Research Reserve and attended by teachers from southeastern states.

### **ROV Competition**

Cathy Sakas co-led a Remotely Operated Vehicle (ROV) building workshop for educators at the Georgia Aquarium. Georgia educators and students attended to prepare for the Gray's Reef Southeast Regional ROV Competition to be held April 25<sup>th</sup> in Savannah. These workshops and competitions provide an opportunity to introduce and engage students and teachers in the work

of NOAA, ONMS and especially Gray's Reef through ocean science technology.



*Students prepare ROV for 2008 competition*

### **Gray's Reef in the Classroom**

- Cathy Sakas gave a presentation to students at a local middle school on the impacts of humans on coastal species.
- George Sedberry spoke at two NOAA Ocean Exploration workshops for teachers. At the South Carolina Aquarium in Charleston and the Georgia Aquarium in Atlanta, educators learned about sponge-coral habitats and their management.
- George Sedberry gave a lecture in a marine geology class taught by College of Charleston professor (and former Gray's Reef Sanctuary Advisory Council member) Leslie Sautter. The subject was bottom mapping and its use in developing conservation zoning and management at Gray's Reef and other sensitive habitats in the region.
- George Sedberry gave a lecture on Marine Protected Areas, including Gray's Reef and other MPAs off the southeast coast, and their use in conservation of biodiversity and fisheries management. The lecture was given to students of a graduate course in fisheries science at the College of Charleston.
- Cathy Sakas hosted 25 advanced science students from a coastal Georgia middle school. She gave an overview of Gray's Reef research projects and a presentation on ocean science technology.

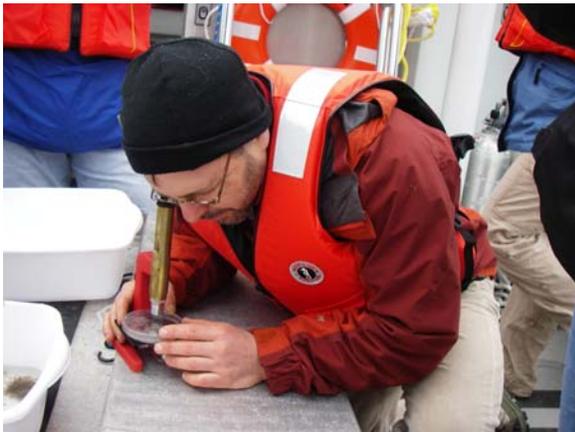
### **National Oceans Science Bowl**

George Sedberry participated as a moderator in the annual South Carolina-Georgia Regional Competition of the National Oceans Sciences Bowl, held in Columbia, South Carolina. Gray's

Reef is one of the many sponsors of this event, during which 18 teams from 17 high schools (nine in Georgia) participate in the day-long competition. The National Ocean Sciences Bowl is intended to broaden the awareness and understanding of our dependence on the oceans, and the critical value of ocean research, among high school students, educators, and the public. The competition also recognizes excellence among students interested in ocean studies and helps them become the next generation of marine scientists, educators and leaders. Oconee High School (Watkinsville, GA) claimed the title and will travel to Washington, DC, to compete against the 24 other regional winners for the national title.

### **Saturday Teacher Cruises**

Gray's Reef is now hosting monthly inshore cruises for educators to introduce teachers to the marine environment and Gray's Reef. During each cruise, teachers take water samples, collect plankton, test turbidity and examine larger species caught in a trawl net.



*Teacher on January Gray's Reef cruise*

### **"Tagging" Students at Thunderbolt**

Regional Associate Science Coordinator Sarah Fangman and Graduate Research Assistant CJ Carroll visited Thunderbolt Elementary School to discuss teaching students about the acoustic fish tagging project and to involve them in the project. To demonstrate how the acoustic tagging system works and the kinds of data on fish movements that can be collected, outreach and education staff will "tag" students with acoustic tags and use receivers that have not yet been deployed to track the daily movements of one or two students as they move about the

school on a typical day. Additional educational materials will be developed for teaching the students about the life history of the fishes that are being tagged at Gray's Reef and how the data will be used to manage the sanctuary.

## **SE, GOM, CARIBBEAN REGION Regional Director conducts meetings with representatives on Capitol Hill**

Billy Causey traveled to Washington D.C. in March and made 12 Hill visits, meeting with Senators and the staff from around the southeast region and staff from the Senate Commerce Committee, the House Science and Technology Committee and staff from the House Natural Resources Committee. It was an excellent week of meetings and considerable positive attention was put on the reauthorization of the NMSA and other issues of interest to the three sanctuaries in the southeast.

### **Regional Director Serves as Chair of CRCP Working Group**

The Regional Director is serving as Chair of a Coral Reef Conservation Program (CRCP) Land Based Sources of Pollution Working Group (LBSP). The working group is one of three threat-based working groups (climate change, land-based sources of pollutions, and fishing impacts) that have been formed to develop a strategic plan with goals and objectives to address these issues affecting coral reefs ([www.coralreef.noaa.gov](http://www.coralreef.noaa.gov)). Billy Causey has been conducting regular conference calls with the working group, and on March 10-11 held a meeting of the group in Washington D.C. The group had excellent discussions and was able to draft four 20-year goals for addressing LBSP in the 7 jurisdictions, and they developed from two to four 5 year objectives for each goal. In addition, the group developed performance measures and targets for the goals and objectives. It was an excellent 2 day session and tremendous progress was made on the draft goals and objectives.

### **Oceans for Life Program**

Bill Kiene has been working on a new initiative that the ONMS will undertake this summer in several national marine sanctuaries. The Oceans for Life Program is an initiative to

increase cultural understanding through ocean science. Oceans for Life will provide high quality, immersive ocean field studies and follow-on education programs to facilitate cross-cultural learning, appreciation, and lasting experiences between Middle Eastern and Western students. This new initiative will bring together students from different countries to experience marine science and conservation in the Florida Keys and California sanctuaries. Bill Kiene is helping lead the Alumni and Continuing Education committee to ensure ongoing collaboration between participants in the future.



Photo: Seaberry Nachbar/NOAA

Bill Kiene is also working to develop additional educational programs for alumni and opportunities that would allow participants to apply their skills and knowledge in their home communities. As co-lead of the committee, Bill is helping the group plan activities for the students from the US and Middle Eastern countries to remain engaged with one another and to build on their summer experience in the Florida Keys and California sanctuaries, as well as on their visit to DC. The Oceans for Life Program plans to visit other sanctuaries as field sites in future years.

### **Climate Change**

Brian Keller, the Regional Science Coordinator, has been actively engaged in issues related to climate change. Brian serves on the NOAA Climate team as climate change liaison for the Southeast and Caribbean Regional Team. Brian is also representing the region on a climate change initiative within the ONMS, has joined other ONMS staff to help draft regional perspectives for NOAA's ocean acidification research plan, and is a member, along with Billy

Causey, of the Steering Committee for the Florida Reef Resilience Program.

## **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>.

## **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.

**Staff:**

George Sedberry, Sanctuary Superintendent  
912/598-2345

[George.Sedberry@noaa.gov](mailto:George.Sedberry@noaa.gov)

CJ Carroll, Graduate Intern  
912/598-2431

[Catherine.Carroll@noaa.gov](mailto:Catherine.Carroll@noaa.gov)

Gail Krueger, Outreach Coordinator  
912/598-2397

[Gail.Krueger@noaa.gov](mailto:Gail.Krueger@noaa.gov)

Greg McFall, Research Coordinator  
912/598-2416

[Greg.McFall@noaa.gov](mailto:Greg.McFall@noaa.gov)

ENS Chad Meckley,  
Vessel Operations Coordinator  
912/598-2432

[Chad.Meckley@noaa.gov](mailto:Chad.Meckley@noaa.gov)

Debbie Meeks, Administrative Coordinator  
912/598-2434

[Debra.Meeks@noaa.gov](mailto:Debra.Meeks@noaa.gov)

Todd Redicar, Vessel Captain  
912/598-2383

[Todd.Redicar@noaa.gov](mailto:Todd.Redicar@noaa.gov)

Cathy Sakas, Education Coordinator  
912/598-2417

[Cathy.Sakas@noaa.gov](mailto:Cathy.Sakas@noaa.gov)

Becky Shortland, Resource Protection  
Coordinator

912/598-2381

[Becky.Shortland@noaa.gov](mailto:Becky.Shortland@noaa.gov)

**Southeast, Gulf of Mexico, Caribbean  
Region staff:**

Sarah Fangman, Associate Science Coordinator  
912/598-2428

[Sarah.Fangman@noaa.gov](mailto:Sarah.Fangman@noaa.gov)

