



# GRAY'S REEF NATIONAL MARINE SANCTUARY SANCTUARY PROGRAM REPORT



## VOLUME 3, NUMBER 2

A report for the Sanctuary Advisory Council and Sanctuary Constituents

Reporting period: May-July 2009

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## OPERATIONS

### Safety and Planning

Over the spring, Gray's Reef marine operations staff conducted a series of trainings and planning sessions for safe sanctuary operations including flare training, CPR, O2, AED and First Aid certifications, Vessel safety drills, and more. LTJG Chad Meckley and Captain Todd Recicar attended the National Marine Sanctuary Small Boat Workshop in Seattle, Washington to discuss hurricane planning, maintenance and safety. Given the storm experiences of recent years, Gray's Reef and other sites vulnerable to hurricanes have overhauled response plans.



### Productive Cruise Aboard the NOAA Ship *Nancy Foster*

Gray's Reef National Marine Sanctuary conducted a very productive cruise aboard the NOAA Ship *Nancy Foster* in June. Four research projects were undertaken during the two weeks at sea: acoustic fish tagging and tracking, piscivore ecology, marine debris monitoring and multibeam mapping. Eight fish were captured and surgically implanted with acoustic tags which will allow researchers to track fish movement within the sanctuary for several years. A team of University of Connecticut researchers conducted twenty surveys in support of a piscivore ecology project, resulting

in over 55 hours of bottom time at three sample sites. Over seventy hours of fisheries acoustics surveys were conducted at these same sample sites to compare diver based and acoustic survey techniques.



*Red grouper caught by GADNR's Dawn Franco*

Nine permanent marine debris monitoring sites were revisited and marine debris was collected at each. Finally, multibeam mapping activities were conducted adjacent to the sanctuary to continue characterizing habitats around Gray's Reef. The cruise involved support and participation from over twelve organizations as well as numerous volunteers. Three Teachers-At-Sea participated in the second half of the cruise. The primary objective of the cruise is to collect information to better understand, manage, and protect Gray's Reef National Marine Sanctuary. Local media visited the ship on two separate days, which resulted in several print and television stories. Here are links to some of them:

<http://www.coastalcourier.com/news/article/14651/>

<http://savannahnow.com/node/741741>

<http://savannahnow.com/node/737589>

At the conclusion of the cruise, an open house was held for public tours of the ship which was docked along River Street in downtown Savannah. ONMS headquarters hosted a web site where photos, logs and more information on the cruise can be found ([http://sanctuaries.noaa.gov/missions/2009nancy\\_foster/welcome.html](http://sanctuaries.noaa.gov/missions/2009nancy_foster/welcome.html))

## Offshore Operations

Gray's Reef vessel operators have continued to support partners – Georgia Southern University (GSU), University of Georgia (UGA), Skidaway Institute, Georgia Aquarium and others – in offshore diver operations in the sanctuary, J-Y Reef, and R2 Navy Tower. The GSU and UGA teams have been monitoring sediment traps and mapping and photographing ledges. The Georgia Aquarium continued collections of lionfish and Skidaway continued water quality sampling. Receivers accumulating data from tagged fish in Gray's Reef were also retrieved and replaced. Surface CO<sub>2</sub> samples were collected on one trip; this is a project that we are running in tandem with the CO<sub>2</sub> collection being conducted with a data package that is on the sea floor at Gray's Reef. Team Ocean dive volunteers supported several operations.

## Superior Performance!

Vessel Operations Officer LTJG Chad Meckley was presented with the NOAA Corps Achievement Medal for sustained superior performance as Navigation Officer aboard NOAA Ship *Albatross IV*. Superintendent George Sedberry presented the award to Meckley. Meckley was stationed on the *Albatross* before coming to Gray's Reef.



*Superintendent George Sedberry presents Achievement Award to LTJG Chad Meckley*

And, Gray's Reef Research Coordinator Greg McFall was named winner of the first NOS Quarterly Safety Pro Award for his commitment to and support of diving safety as the NOS Line Office Diving Officer.



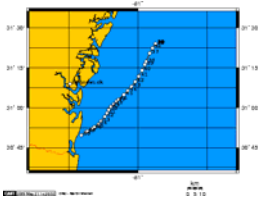
*NOS Safety Pro Greg McFall*

### **Loggerhead Release**

In June, the Gray's Reef marine operations team assisted in the release of a three and a half year old loggerhead sea turtle that has been at the University of Georgia Aquarium on Skidaway. The turtle, named Oliver, was transported, along with a crew of media and well-wishers, to Wassaw Island and released on the beach.

### **Data Buoy Down and Out**

The National Data Buoy Center data buoy that was located in Gray's Reef National Marine Sanctuary broke loose during a 3-day gale with 50-knot gusts and 12 ft. seas. It came ashore on Cumberland Island, GA. The Buoy Center is in the process of building a replacement that will be available in a few weeks.



*Drifting buoy locations and final resting on Cumberland*

### **NOAA Tech Diving**

Research Coordinator and Line Office Diving Officer (LODO) Greg McFall has been working with the NMFS LODO Andy David to identify funds which can be used for the evaluation of technical diving equipment to further the

potential for use of this equipment between the lines. Because ONMS and NMFS have the majority of divers in the NOAA Diving Program and because the NOAA Diving Program does not have the fiscal or personnel resources to conduct the needed evaluations, by working together ONMS and NMFS can help to provide this necessary tool and further the capabilities of the NOAA Diving Program. Partners within ONMS have already obligated money for the evaluation and the NMFS LODO is seeking matching funds to begin the process.

## **RESEARCH**

In addition to the *Foster* cruise and other research projects reported in the Operations report, Gray's Reef staff have been involved in the following ventures.

### **Sonic Fish Tagging Study**

Knowledge of the habitat utilization patterns, habitat shifts, and the spatial and temporal ranges of fish movement are a primary research and management need at GRNMS. A fish tracking study using surgically implanted transmitters and a passive receiver array to continuously monitor fish movements began in 2008 to meet this need. In 2008, eight fish were tagged and released into a small receiver array. Since deploying the receivers in May 2008, Gray's Reef staff, along with Team Ocean volunteer divers, have returned to the sanctuary to retrieve the receivers and download data on the tagged fish. The results thus far show that several of the fish have remained in the study area for most of the past year. Eight more fish were surgically implanted with acoustic transmitters during the June 2009 research cruise aboard the NOAA Ship Nancy Foster. In addition, ten more acoustic receivers were deployed within the sanctuary, bringing the total array up to fourteen receivers. Scientists will continue to track the movement of these fish in an effort to understand where these fish are and how long they remain in a given area.

### **April in New Zealand**

Superintendent George Sedberry traveled to New Zealand in April at the invitation of the Ministry of Fisheries to participate in a stock assessment workshop for the blue cod fishery in New Zealand. The blue cod fishery is similar to the fishery for black sea bass off the

southeastern U.S. The commercial fishery is primarily a trap fishery and the recreational hook-and-line catches comprise over half the landings. Like black sea bass, the blue cod is a facultative protogynous hermaphrodite, with some large females changing sex to males, but with primary males (generally smaller) in the population. The lack of accurate catch statistics, especially for the recreational sector (very similar to problems in the U.S.) and concerns by recreational fishermen regarding the “best available science” (just like in the U.S.) make the stock assessment and implementation of regulations difficult. The review panel recommended improved catch statistics, additional life history studies, and an improved fishery-independent trapping survey to improve the stock assessment.

### **Funding for Deep Coral Mapping**

Gray's Reef NMS has received funding from the NOAA Coral Reef Conservation Program to conduct additional mapping of deep coral habitats and associated fishes off the southeastern U.S. Gray's Reef will contract with regional institutions that have experience in deep coral mapping off the southeast to analyze historical sonar and fish distribution data.

### **ICES and Deep Oceans**

Superintendent George Sedberry co-authored a poster with College of Charleston graduate student Sarah Goldman that was presented in May at the International Council for the Exploration of the Seas (ICES) International Symposium on “Issues Confronting the Deep Oceans”, in Horta, Azores, Portugal. The title of the poster was “Feeding Habits of some Demersal Fishes on the Charleston Bump off the Southeastern United States”. Investigation of the feeding habits of economically valuable (wreckfish, barrelfish, red bream) and ecologically dominant (squaloid sharks) fishes showed that many of the prey items were vertically migrating organisms, which are a critical link between productive surface waters and the benthic continental slope habitat where prey is scarce.

### **Deep Coral Research Priorities**

George Sedberry served on the steering committee for the South Atlantic Deep-Sea Coral Research Priorities Workshop and attended a

workshop in Wilmington, NC. The workshop was aimed at getting researchers on corals and their genetics, associated species and habitats together to plan research priorities that fit the goals of coral managers such as the Office of National Marine Sanctuaries, South Atlantic Fishery Management Council, and the Coral Reef Conservation Program. The workshop was facilitated to set research priorities to meet management goals for deepwater coral banks from North Carolina to Florida. The program will expand to additional regions in the future.

### **Research Coordinator's Meeting**

Research Coordinator Greg McFall attended the annual Research Coordinator's meeting which was held this year in Annapolis, CA. The meeting was hosted by Cordell Bank National Marine Sanctuary at a remote site where everyone could engage in discussion of the challenges we face and share solutions to ensure that we are able to continue to characterize and monitor our resources. Greg presented information on the challenges faced at the site and solicited advice from colleagues with regard to the ONMS position on invasive species.

### **OBIS**

Superintendent George Sedberry participated in a conference call with the NOAA Biodiversity working group. One of the group's functions is to identify NOAA data sets that could be included in the Ocean Biogeographic Information System (OBIS). George is working with sanctuary superintendents to identify data sets that could be included in this biodiversity internet map server that is part of the Census of Marine Life.

### **Invertebrate Recruitment Study**

Science and Operations staff conducted operations to establish a new invertebrate recruitment monitoring station at Gray's Reef. Dr. Danny Gleason of Georgia Southern University has been collecting data at a similar site at J-Y Reef for the past five years. Divers drilled holes in the substrate so that guide pins could be installed to enable Dr. Gleason to place a photo quadrat over the same patch of seafloor on a routine basis. By scraping the substrate clear of attached organisms and following recruitment over time, Dr. Gleason will be able

to determine how fast new organisms attach to the seafloor and how their community composition changes over time. He will also be able to compare the rates of recruitment and community composition to the data collected at J-Y reef to determine if there are differences inside and outside the sanctuary.

### Recent Publications

Sanamyan, K., D.F. Gleason and N. Sanamyan. 2009. A new species of *Polyzoa* (Ascidiacea: Styelidae) from the Atlantic coast of N America, U.S.A. *Zootaxa* 2088:65–68.

## EDUCATION AND OUTREACH

### BLUE Ocean Film Festival

The BLUE Ocean Film Festival was held from June 10 – 14 with more than 300 delegates from the film industry in attendance. The community films and ocean street fair were well attended. Hosted by Gray's Reef, the four-day festival included dozens of ocean films.



BLUE film festival poster

The film, "Ocean Invaders," about the invasion of lionfish in the southeast, won the prize in the student film category. The film features work done by Gray's Reef and the Georgia Aquarium to raise awareness of the lionfish problem. Outreach and Communications Coordinator Gail Krueger facilitated the making of the film by a team of four students from the Savannah College of Art and Design.

"Rivers to Reefs", a documentary connecting the Altamaha River Watershed to Gray's Reef that

was written and produced by Cathy Sakas, received honorable mention.

Dan Basta, Billy Causey and Matt Stout, along with Sanctuary Sam, were in attendance at the festival. All of them, except Sam, went out to the NOAA Ship *Nancy Foster* on Monday to see various research projects in action.

### Community Outreach Events

Education Coordinator Cathy Sakas coordinated BLUE Ocean Film Festival "All About the Oceans" Street Fair on Saturday, June 13<sup>th</sup>. Visitors learned about the oceans through exhibits with local partners that included Skidaway Institute of Oceanography, University of Georgia Marine Education Center and Aquarium, Tybee Island Marine Science Center and the Georgia Aquarium, a major sponsor of BLUE Ocean Film Festival. These partners, along with several others, engaged kids with hands-on activities and live touchable marine animals.



BLUE "All About the Oceans" street fair

The U.S. EPA Ocean Research Vessel *Bold* docked in Savannah in April and opened the ship for public tours. Gray's Reef staff members were on board to greet visitors and provide information about the sanctuary along with other local ocean-oriented organizations. Several hundred people toured the *Bold*.

Outreach and Communications Coordinator Gail Krueger conducted several media tours of the NOAA Ship *Nancy Foster*. Gray's Reef received television and front page newspaper coverage – once for the fish tagging project and one for the Adopt-A-Buoy program.

Education Coordinator Cathy Sakas presented a talk about the impact of marine debris on reef habitats to an interested and engaged audience

of adults and children as part of Gray's Reef support of partner University of Georgia Marine Extension Service's Saturday Education Adventure or SEA program.

Outreach Coordinator Gail Krueger and intern CJ Carroll hosted a Gray's Reef booth at the Savannah Earth Day Festival. Our message was to recycle to both save money and avoid polluting the ocean with plastics.

### **Saturday Teacher Cruises**

Another education cruise was conducted in April with six area educators and one volunteer. The educators learned about the Gray's Reef's acoustic fish tagging project, watersheds, and water quality monitoring. They collected water samples at various depths using Niskin bottles and used chemical analysis to determine pH, dissolved oxygen and salinity and determined turbidity by deploying Secci disks. A variety of estuarine organisms were collected in the small otter trawl towed behind the Gray's Reef vessel *R4106*.

### **ROV Competition**

The sixth annual Gray's Reef Southeast Regional MATE ROV Competition took place in April in Savannah. Ten teams made their way to Savannah to compete at the Ranger level and one team at the Explorer level. Two teams will advance to the international competition that will take place in Massachusetts in June.



*Competitors wait to fly ROV*

Gray's Reef staff and volunteers as well as Team Ocean divers supported the event. Funding from Skidaway Marine Science Foundation provided the lion's share of funding. Gray's Reef provided in-kind support and staffing. Interstate Batteries

of Savannah in Rincon, Georgia provided 12 12-volt deep cycle marine batteries to power the ROVs during the competition and Brighter Day Natural Foods of Savannah provided the milk crates that were tie-wrapped together to form the disabled submarine at the center of the mission tasks. Although only two teams came away as winners, all the students were rewarded for their hard work and ingenuity through creating and learning to pilot their machines. As part of their experience they also learned how ocean science technology is used at Gray's Reef and at other sanctuaries and throughout NOAA.

### **International Outreach**

While Superintendent George Sedberry was visiting New Zealand (see Research) he was invited to give a presentation on marine protected areas at the U.S. Embassy in Wellington, New Zealand. The presentation ("Making the Connections in Fisheries Management: Fish Genes, Ocean Gyres and Marine Protected Areas in the Western Central Atlantic and Beyond") was attended by a small audience of Embassy staff, local conservation NGO staff, and Ministry of Fishery scientists.

### **Sidewalk and Sand Arts**

Gail Krueger, CJ Carroll, Becky Shortland and Skidaway Institute of Oceanography graphic director Anna Boyette judged the Savannah College of Art and Design's Sidewalk Arts Festival on Saturday. Gray's Reef offers an award for the best underwater scene at the festival where students use chalk to decorate the sidewalks around Forsyth Park. Through the years, more and more of the art works have been dedicated to ocean themes turning the park into a virtual underwater fantasy land.



*SCAD sand art winners*

Outreach Coordinator Gail Krueger and Superintendent George Sedberry judged entries with a sea creature theme in the annual Sand Arts Festival held by the Savannah College of Art and Design. The competition was held on the beach at Tybee Island, and included sand castle, sand sculpture, sand relief and wind sculpture categories in addition to the best underwater creature category. The Gray's Reef winner was a sculpture of a clownfish nestled in an anemone.

### **Maritime Heritage Oral Histories**

Education Coordinator Cathy Sakas participated in the Marine Heritage Program's Oral History Workshop and Training last week with other staff from ONMS and NMFS and several NGOs and universities. Several collaborations on future projects resulted from the workshop. She developed a poster on Gray's Reef project to interview African-American life long residents of Hog Hammock on Sapelo Island, Georgia who worked with researcher Sam Gray for whom Gray's Reef is named.

### **National Association of Black Scuba Divers Youth Education Summit**

Gray's Reef NMS was the host site for this year's National Association of Black Scuba Divers Youth Education Summit (NABS YES). Education Coordinator Cathy Sakas led 36 students and 15 adults through a very robust itinerary. The six-day Summit had the students who ranged in age from 9 to 18 learning about research conducted by scientists from Gray's Reef and Skidaway Institute of Oceanography. The group also learned about coastal and ocean organisms, habitats and processes by exploring several barrier islands and through activities that included dissecting squid, pulling seine nets on the beach, crawling through the marsh, investigating organisms on an estuarine trawl, exploring an emerging barrier island and holding a hatchling Loggerhead sea turtle and learning about the adults in a rehabilitation facility. For two hours after dinner every night the students investigated ocean science technology by building and flying remotely operated vehicles or ROVs.

### **Drifter Buoy Launch**

NOAA's Adopt a Drifter Program, Gray's Reef, the U.S. Coast Guard and BLUE Ocean teamed up in honor of World Ocean's Day to help third graders from Thunderbolt Elementary Marine Science Academy launch two drifter buoys into the Gulf Stream. The entire third grade from the school, about 70 students, has adopted the buoys and will track them through the summer and into the next academic year. The Coast Guard cutter *Tarpon*, with Thunderbolt principal Dr. Vicki Bryant and science coordinator Jill Lepo-Weiniwitz aboard, dropped the buoys in eddies of the Gulf Stream. The students toured the *Tarpon* and Coast Guard Station Tybee. Gray's Reef provided transportation for the students.

### **Capitol Hill Oceans Week**

Sanctuary Superintendent Dr. George Sedberry and Gray's Reef Volunteer of the Year (and Sanctuary Advisory Council member) Venetia Butler were in Washington in June for Capitol Hill Oceans Week and attended many events, including visits to the Capitol, the NOAA Fish Fry and various presentations and seminars.



*Georgia Senator Saxby Chambliss with GRNMS VOY Venetia Butler and Superintendent George Sedberry*

### **Coastal Legacy Workshop**

Superintendent George Sedberry gave a presentation at the 2009 Centers for Ocean Sciences Education Excellence-Southeast Coastal Legacy Workshop at the Honey Creek Camp & Conference Center in Waverly, GA. This teacher workshop was aimed at informing science teachers about the impacts of development on coastal wetlands and connected aquatic habitats. George gave a presentation on "Making the Connections in Marine Resource Management: Fish Genes, Ocean Gyres and Marine Protected Areas off the Southeast U.S. and Beyond".

## **SE, GOM, CARIBBEAN REGION**

### **The South Atlantic Regional Research Project**

April 20-22, 2009. The South Atlantic Regional Research Project (SARRP) met in Savannah, Georgia. Billy Causey was invited to attend and participate in the development of a region-wide research plan that is intended for use by federal, regional, state and academic entities within the region. The project is sponsored by the four South Atlantic Sea Grant Programs (NC, SC, GA, and FL) and coordinated by the Georgia Coastal Research Council. The Strategy Team workshop used information gathered by the Governor's South Atlantic Alliance and worked from a framework of four Regional Priority Issues as a starting point. The four Regional Priority Issues are: Healthy Ecosystems; Working Waterfronts; Clean Coastal and Ocean Waters; and Disaster-Resilient Communities. Billy participated in the Healthy Ecosystems breakout group. A report will be published shortly.

### **International Marine Conservation**

**Congress/Making Marine Science Matter, 20-24 May 2009:** Billy Causey and Brian Keller attended this major international meeting, which had over 1200 registrants from all over the world. Brian Keller gave a talk titled: "Climate Change and Management Options for Tropical Marine Protected Areas: The Florida Keys National Marine Sanctuary." The event featured up to 15 simultaneous sessions, a three-day marine protected area management training course, more than 20 side events and meetings, and incorporated the Second International Marine Protected Area Congress.

### **Oceans for Life**

The SEGOM Region is a part of an initiative called Oceans for Life, which seeks to promote cross-cultural understanding between world cultures through a greater appreciation of the ocean and how it connects us all. The program will provide immersive ocean field studies and follow-on education programs to facilitate cross-cultural learning, appreciation and lasting experiences between multi-national students. In July and August, 30 students from the Middle East will join 30 students from the US in trips to either the Florida Keys NMS and Washington D.C. or a trip to three California sanctuaries. Bill Kiene prepared the Ocean For Life website

([www.oceanforlife.org](http://www.oceanforlife.org)) for its formal launch to the participants. The site is for their use to connect and share knowledge, experiences and projects about environmental and ocean stewardship in their home countries and communities. Bill Kiene prepared an initial engagement plan for the Ocean For Life participants that will introduce them to the themes and principles of the program. This includes a series of questions related to "as sense of place," "interconnectedness" and "ocean stewardship." The plan is to use the website to allow the participants to research a marine organism and build its ecological links to the other organisms chosen by each participant. In addition, it will provide a platform to explore how the participants are connected to the ocean, to the environment where they live and to each other's lives.

### **MPA Course**

Brian Keller traveled to Puerto Morelos, Quintana Roo, Mexico, 30 June-4 July to help teach an annual course on marine protected areas. Twenty-two students from several countries around the Caribbean region participated in the training. Brian uses Florida Keys National Marine Sanctuary management and science as practical examples for discussion.



## 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.

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