NATIONAL MARINE SANCTUARIES ™

GRAY'S REEF

1981 2006

25th Anniversary

NOAA'S NATIONAL OCEAN SERVICE

The National Marine Sanctuary Program

Our national marine sanctuaries embrace part of our collective riches as a nation. Within their protected waters, giant humpback whales breed and calve their young, coral colonies flourish, and shipwrecks tell stories of our maritime history. Sanctuary habitats include beautiful rocky reefs, lush kelp forests, whale migration corridors, spectacular deep-sea canyons, and underwater archaeological sites. Our nation's sanctuaries can provide a safe habitat for species close to extinction or protect historically significant shipwrecks. Ranging in size from less than one square mile to over 5,300 square miles, each sanctuary is a unique place needing special protections. Natural classrooms, cherished recreational spots, and valuable commercial industries—marine sanctuaries represent many things to many people.

The National Marine Sanctuary Program serves as the trustee for a system of 14 marine protected areas, encompassing more than 150,000 square miles of marine and Great Lakes waters from Washington State to the Florida Keys, and from Lake Huron to American Samoa. The system includes 13 national marine sanctuaries and the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, which is being considered for sanctuary status. The sanctuary program is part of the National Oceanic and Atmospheric Administration (NOAA), which manages sanctuaries by working cooperatively with the public to protect sanctuaries while allowing compatible recreational and commercial activities. The program works to enhance public awareness of our marine resources and marine heritage through scientific research, monitoring, exploration, educational programs and outreach.

National Oceanic and Atmospheric Administration

National Marine Sanctuary Program

Front Cover and Back Cover:

Atlas Image of Gray's Reef and the Georgia Coast
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Message from the Sanctuary Manager

This year marks the 25th anniversary of Gray's Reef as a National Marine Sanctuary. While the reef itself dates back more than 2.5 million years, the 25th is very much a milestone, for it represents a commitment by the citizens of this country to protect and conserve one of the great underwater treasures of our nation. As noted on the facing page, Gray's Reef is one of 13 designated national marine sanctuaries and one proposed sanctuary surrounding the northwestern Hawaiian Islands. Together they represent the great diversity of marine and Great Lakes habitats and maritime history in our country. As a highlight this 25th Anniversary year, Jean-Michele Cousteau and his Ocean Adventures team will broadcast this fall on PBS, a documentary entitled *America's Underwater Treasures* which will profile all the sanctuaries.

It is particularly exciting to see Gray's Reef revealed in such dramatic footage with our sister sanctuaries around the country. I believe it will provide renewed appreciation for the visionaries such as the late Jane Yarn and leaders in the Georgia Department of Natural Resources who recognized the necessity to protect this incredible reef habitat in the early 1980's.

I have had the great fortune to be a part of the Gray's Reef team for the last 16 years and what has been most rewarding is being witness to the growth in our understanding of the ecology of the reef and the commitment of the community toward enhanced conservation of the sanctuary. Like many of the magnificent barrier islands of the Georgia coast that are protected for future generations to explore and enjoy, the sanctuary represents the best in natural reef habitat that is both accessible to the public and protected for the future. We are fortunate, here at Gray's Reef, to have some of the most talented and dedicated employees of NOAA's national marine sanctuary program. They truly have devoted both mind and spirit to this enterprise and it is that commitment that makes the next 25 years at Gray's Reef brighter still.

Sincerely,

Reed Bohne

Gray's Reef Sanctuary Manager

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Gray's Reef

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What is Gray's Reef?

Gray's Reef National Marine Sanctuary, designated in January 1981, is one of the largest near shore live-bottom reefs in the southeastern United States. The year 2006 marks our 25th anniversary.

Gray's Reef is just one of 14 sites that make up the National Marine Sanctuary Program. Gray's Reef is part of the Sanctuary Program's Southeast region, which also includes the Florida Keys and Flower Garden Banks. The Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) manages the National Marine Sanctuary Program, which was created by the National Marine Sanctuaries Act in 1972.

Gray's Reef is the only natural area protected off the Georgia coast and the only federally protected ocean bottom habitat in the South Atlantic Bight. The 17 square nautical miles (about 11,000 acres) of Gray's Reef is just a tiny part of the vast Atlantic Ocean, yet its value as a natural marine habitat is recognized both nationally and internationally.

Within the sanctuary you'll find both rocky ledges and sandy plains. Gray's Reef isn't a coral reef like those found in the tropics, built by living hard corals, but is instead made up of scattered limestone rock outcroppings, standing above the shifting sands of the nearly flat continental shelf. Gray's Reef does, however, support soft, non-reef building corals and sponges.

The rocky ledges can be as tall as eight feet but lie under 60 to 70 feet of water. The rocky ledges are complex—they have many nooks, crannies and bumps for invertebrates (animals without spines) to latch on to and for fish to hide in. These animals form a dense carpet of living creatures that, in places, completely hides the rock. That gives the habitat of Gray's Reef its common name—a live-bottom. The small cryptic fishes as well as worms, shrimp and man other invertebrates provide a food source for the larger pelagic fishes that move through the sanctuary.

Recent extensive bottom surveys have revealed that there is far less of the important rock ledge habitat than originally thought. It was once thought that the rocky live-bottom covered about 25 percent of the sanctuary. Now we know that the high-quality ledge habitat is scattered over only about one percent of the sanctuary.

That revelation directly impacts the management of the sanctuary. Both the mandates of the National Marine Sanctuary Program and the Gray's Reef designation call for the protection of this unique and fragile habitat and its living resources. Since there is less of this habitat than originally thought, issues like anchor damage and marine debris become more critical.

Gray's Reef is one of the most popular recreational fishing and sport diving destinations along the Georgia coast. Sport fishing occurs year-round but at different levels of intensity. Fishing for pelagic species (open water) such as king mackerel is one of the most popular activities. Regional sport fishing tournaments sponsored by private fishing clubs take place in the spring and summer; Gray's Reef is a popular destination for participants.

For divers, access to the reef itself requires experience in open-ocean diving; currents can be strong and visibility varies greatly. For those who do not dive, Gray's Reef engages the public through extensive land-based education and outreach programs. The sanctuary is used as a living classroom for educators and numerous education programs are based on the resources of the sanctuary. For scientists, the sanctuary is a living laboratory for a variety of marine research and monitoring projects.

The management of the sanctuary is guided by scientific, educational and constituent interests. Gray's Reef has a Sanctuary Advisory Council which, through its members, serves as a liaison to the community with regard to sanctuary issues and represents community interests, concerns, and management needs of the sanctuary. The following sections describe in greater detail the work of Gray's Reef National Marine Sanctuary in these areas in 2005.

Science-What We've Learned

Each sanctuary's primary goal is resource protection. Each marine sanctuary is mandated to support, promote, and coordinate scientific research on, and monitoring of, the resources of these special ocean places. Research at Gray's Reef is ongoing with scientists in various fields using the reef as a staging area for research related to water quality, invertebrates, undersea geography, fish populations and other topics.

Water Quality Monitoring

Gray's Reef established a water quality monitoring program in 2005. Every four to six weeks since early February, water samples have been taken from multiple depths near the NOAA weather buoy, which sits roughly in the middle of the sanctuary. For each sample, the following parameters are measured: temperature, salinity, dissolved oxygen (DO), inorganic nutrients (NO_2/NO_3, NH_4, PO_4, $Si(OH)_4$), organic nutrients (DON, Urea, DOC), chlorophyll a, and a number of bacteriological parameters including total bacteria counts, total and fecal coliforms, enterococci, and the ratio of bioluminescent to total heterotrophic bacteria. Samples for the extraction and purification of total DNA are also collected and being archived for future studies.

This data will be used both to verify measurements made by a bottom-mounted water quality in situ instrument package and to compare surface and depth measurements so that the relative influence of freshwater runoff from the Georgia coast (17 miles west of Gray's Reef) can be determined.

Initial analyses from the program suggest human activities associated with riverine or estuarine areas aren't impacting the sanctuary. Nutrient concentrations, dissolved oxygen concentrations, and chlorophyll a concentrations suggest that sanctuary waters aren't experiencing increased nutrient loading (unlike many of the near shore areas on the Georgia coast.) Likewise, there is no evidence of human (or animal) fecal pollution at Gray's Reef. However, it should be stressed that normal ranges for some of the parameters being measured in this program are poorly known for South Atlantic Bight Waters. Therefore, this study is also providing some of the first long-term observations available for Gray's Reef and the mid-shelf waters of the South Atlantic Bight.

Acoustic Monitoring

Gray's Reef has been listening to the under water sounds of the sanctuary to expand the methods of monitoring fish populations. In 2005 the staff deployed an Autonomous Underwater Listening System (AULS) several times to record the ambient underwater sounds of the sanctuary. The sound captured by the AULS will eventually be made available to the public via the sanctuary's website.

Passive and active hydro-acoustics were also used as part of an overall assessment of methods for monitoring fish populations. NOAA National Centers for Coastal Ocean Sciences (NCCOS) lab, in Charleston, S.C., deployed active acoustics in attempts to estimate pelagic fish biomass and to identify locations and sizes of spawning aggregations. In addition, scientists from NASA deployed an experimental Passive Acoustic Monitoring System (PAMS) to characterize the sounds produced by soniferous (sound-producing) fishes to try to pinpoint the locations of spawning aggregations. It's too soon to look for results from these cutting-edge methods, but they should yield information for resource management in the future.

Invertebrate Assessment

A three week cruise during May and June 2005 on the NOAA Ship *Nancy Foster,* a 187-foot research vessel that provides a platform for various scientific projects, allowed scientists from Georgia Southern University (GSU) and other institutions to investigate the recruitment, colonization and ecological succession of the sanctuary's community of invertebrates. In 2005, those projects included work for two masters of Science degrees.

Science

Preliminary genetic investigations indicate that sanctuary populations of temperate hard corals are maintained by local recruitment of asexually and sexually produced offspring. Larval invertebrates also drift into the sanctuary on ocean currents then metamorphose into a form that allows them to settle on the bottom and grow into adult forms.

One GSU graduate student studied sponges and the predators that feed on them. The student found that sponges growing in the flat sandy areas experience less predation than do sponges on the rocky ledge. The student is investigating if predation by spongivorous (sponge-eating) fishes and physical or chemical traits in the ledge-dwelling sponges can account for that difference.

In order to establish this, the student extracted chemicals from sponges and concentrated them into squid-based food cubes that are offered to fish. The fish ate some cubes and rejected others, depending on which sponge chemicals they contain. Another graduate student fed the food cubes, laced with sponge chemicals, to sea stars. This investigation furthers the work to refine the potential sponge defense chemicals. The work one sponges attract much interest because of sponges' potential use by the pharmaceutical industry as antibiotics, immunosuppressive agents and anti-tumor compounds.

A GSU scientist conducted an ongoing study to determine how the rocky ledges would be re-colonized by invertebrates if a man-made or natural disaster (such as a hurricane) were to impact the sanctuary. He and his students marked off patches of reef, cleared away all the settled invertebrates and photographed the patches at regular intervals to record re-growth and settlement by new organisms. So far, the study indicates it would take a very long time to re-grow the sanctuary's living carpet of invertebrates.

Fisheries Assessment

The 2005 research cruise aboard the *Nancy Foster* also enabled scientists to continue their work assessing fish population survey methods. Fish traps, visual counts by divers, and acoustic sensors were deployed from the Nancy Foster to look at the abundance of fish in the sanctuary. Data collected during this survey will be made available to scientists as they develop hypotheses to address management issues in our region.

The scientists and divers explored approximately 80 randomly selected sites representing the four basic habitats types within Gray's Reef—ledge, sparse live bottom, flat sand and rippled sand—collecting biotic and abiotic data. The biotic data include the percent cover of sponges, gorgonians, macroalgae, corals, and other sessile (non-moving) biota. The abiotic factors include the percent cover of sand, shell rubble, hard bottom, and fine sediments.

Marine Debris Monitoring

Members of the NOAA's biogeography team conducted a marine debris study in 2005. Evidence indicates that debris impacts the sanctuary and that the debris is deposited in the sanctuary accidentally and intentionally. Scientists are trying to quantify that impact, seeing how it affects the sanctuary's biologic resources.

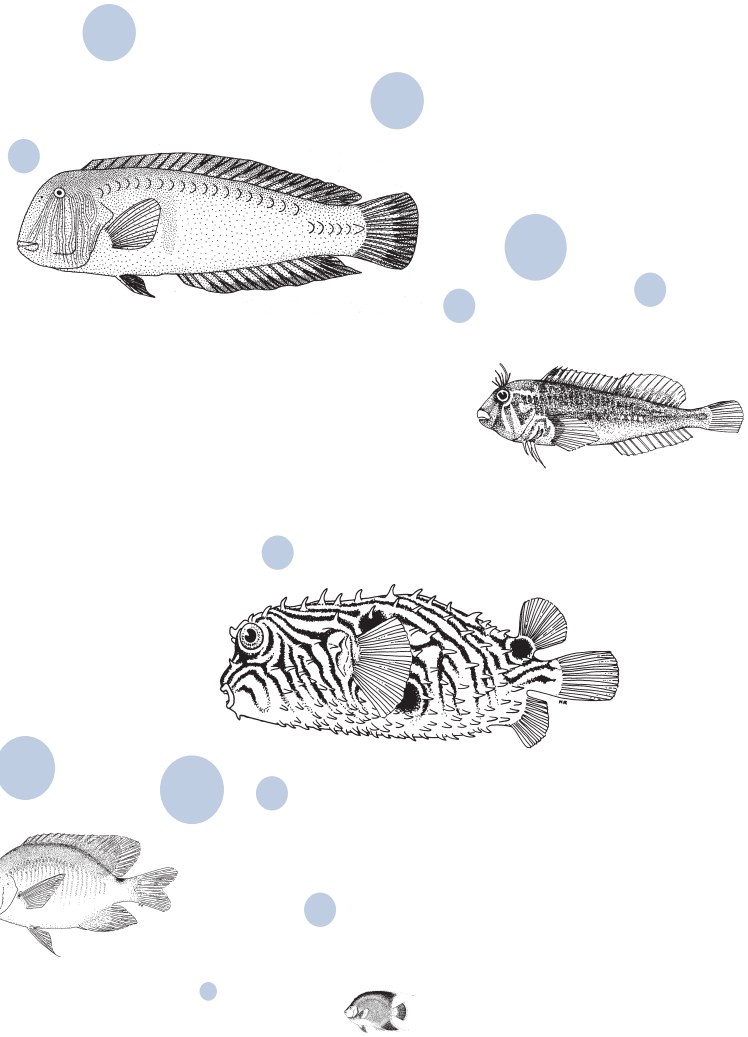
Scientists found that debris is more evident in some of the more highly fished areas of the sanctuary. (For this study, debris is defined as fishing gear, aluminum cans, and other man-made objects.)

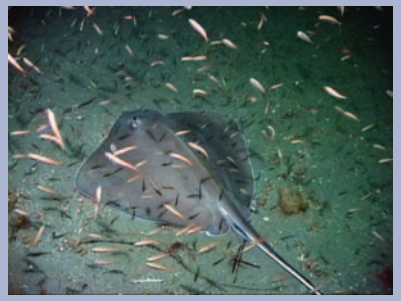
As with all studies conducted in Gray's Reef, the data gathered from these expeditions enable us to better understand the relationships between natural and human-induced fluctuations in the ecosystem. Understanding how the benthic communities are structured will help us to respond to either man-made or natural changes that damage the resources. Knowledge gained from these investigations will further enable us to make informed decisions regarding the continued protection and wise use of the resources that belong to all of us.

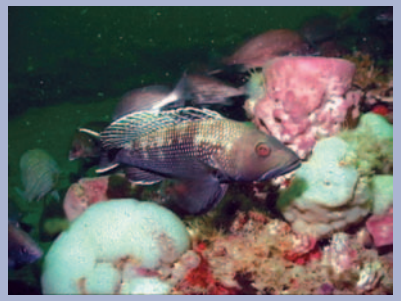
Research Area Working Group

A working group of the sanctuary's Advisory Council found that significant research questions exist at Gray's Reef that may best be answered by establishing a control (research) area. That concept, the council decided, should be further explored through a public review process. The working group's recommendations also included guidance on how the sanctuary might use geographic information systems to help decide on possible locations for a possible research area.

The Advisory Council unanimously endorsed and enhanced the recommendations, forwarding them to Gray's Reef management for a decision to proceed or not. The sanctuary decided to more formally consider the concept of a research area in Gray's Reef through a public review process. The idea of a marine research area was first raised during a scoping meeting for the review and revision of the Gray's Reef management plan.







Education

Education-Sharing What We Know

Enhancing public awareness of Gray's Reef and NOAA National Marine Sanctuary Program is a vital part of the sanctuary's mission. Education through outreach to teachers and students is one way of accomplishing that goal, meeting the program's mandate to "enhance public awareness, understanding and appreciation of the marine environment." To that end, dozens of teachers from across the country are brought together each summer to use the sanctuary as a living classroom.

Rivers to Reefs With Georgia Aquarium

In June 2005, 17 teachers—eight from Atlanta and north Georgia and nine from coastal Georgia—spent six days following the watershed of the Altamaha River by bus, canoe and pontoon boat until they reached Sapelo Island and the sanctuary, 17 miles offshore. The R/V *Savannah*, from the Skidaway Institute of Oceanography, transported the teachers to the sanctuary. This special educator's workshop was jointly presented by Gray's Reef and the Georgia Aquarium.

The workshop's goal was to show the teachers how the ocean is effected by the actions of all who live upstream and to have them take that lesson back to their classrooms and students. The Gray's Reef "Rivers to Reefs" curriculum was used as the basis of the trip's instruction package.

The teachers met with water quality experts from the federal Environmental Protection Agency and state water district managers and took water quality samples all along the way. Aboard the *Savannah*, the teachers learned how to operate the Gray's Reef Remotely Operated Vehicle (ROV) and saw the reef through its underwater camera. The teachers used their experience to create lesson plans for their classes.

The Georgia Aquarium opened in November 2005 with a Gray's Reef exhibit; the educational partnership with the Aquarium will be expanded in 2006 with two joint workshops.

ROVing The Sanctuaries

Gray's Reef hosted a pool party with a purpose in May 2005 when several Georgia teachers were taught how to build their own Remotely Operated Vehicles (ROVs) so they can in turn encourage their students to build their own. Each teacher participant was given a kit to create an ROV with their students.

Through the intense hands-on workshop, teachers can spark the imaginations of their students as to how ROVs are used in ocean research. The most successful teams will compete in the southeastern regional ROV building competition to be held in Savannah in April 2006. Winners of regional competitions go on to a national competition sponsored by the Marine Advanced Technology Education (MATE) Center.

Seeing The Sea in The Classroom

Through the technology of distance learning, a teacher anywhere in the nation can bring students to the bottom of the ocean where fish swim through marine sanctuaries like Gray's Reef. In an effort to establish this technology program-wide, Gray's Reef hosted a distance learning workshop for staff from sister sanctuaries in March 2005. Educators from Flower Gardens, Thunder Bay and Olympic Coast National Marine Sanctuaries participated in the two-day program where they observed distance learning classes taught by Gray's Reef staff. The broadcast was transmitted from studios in at the University of Georgia Marine Education Center and Aquarium (MECA), a Gray's Reef education and exhibit partner. The workshop participants also conducted a video conference with the South Carolina Aquarium in Charleston, where Gray's Reef has educational exhibits, to test the technology. Gray's Reef conducted 14 distance learning broadcasts in 2005.

Education

Dive Into Education

Each year the educators from all the marine sanctuaries come together for a meeting and to offer a series of workshops where participating teachers can get lessons and materials from each sanctuary. In May 2005, the event was hosted by Gray's Reef.

The workshop provided approximately 100 K-12 teachers with the knowledge and resources to bring ocean science into their classrooms. Sanctuary educators provided hands-on sessions during the event. *Dive into Education* illustrates Gray's Reef and NOAA's commitment to developing life-long ocean education for teachers and their students.

Student Ocean Council and Education Internship

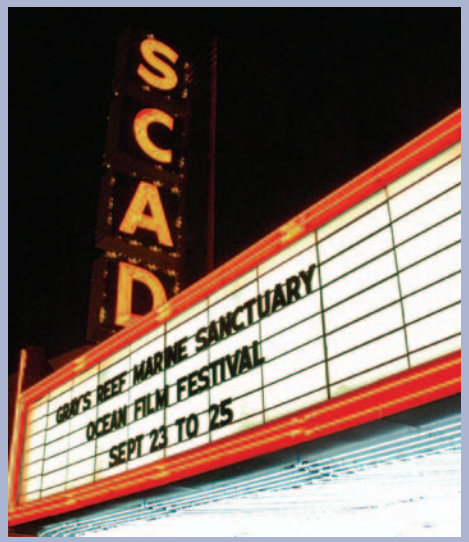
Since 1999, Savannah State University, which traditionally serves minority students, has identified one student annually to serve as the Education Intern at Gray's Reef. The Education Intern leads the Gray's Reef Student Ocean Council, a program for upper level high school students from local public and private schools who have a desire to learn more about ocean sciences.

Together the two programs offer a unique opportunity to reach students at a variety of levels with ocean messages and educational opportunities. The Education Interns, usually students with marine science based majors, gain work experience at a government agency tasked with ocean resource management. They also gain management and supervisory skills as they plan for and execute various field experiences for the Student Ocean Council members.

The Student Ocean Council members have the opportunity to explore the marine and coastal environment as part of an education package. In 2005, Council members participated in a variety of field trips designed to give them a working knowledge of marine mammals and water quality issues.

Educational Materials

Gray's Reef publishes a variety of educational materials including posters, workbooks, and videos and teaching guides. All materials are free and available to educators and the public upon request. In 2005, the sanctuary distributed approximately 1,000 posters, 200 videos & DVDs and 150 teaching guides along with brochures and other materials. Approximately 14,000 educators and students were reached by direct contact and education conference exhibits.



Outreach - How We Collaborate

Enhancing public awareness, understanding and appreciation of the marine environment is a mission of both NOAA National Marine Sanctuary Program and Gray's Reef. While the sanctuary education program reaches teachers and students in traditional classroom settings, the outreach program brings the sanctuary and the marine environment to the general public in less programmatic learning environments such as festivals, exhibits and events.

Part of this work is to reach people who may not have an established interest in the marine environments; to engage them in thought-provoking ways and to encourage them to learn more and take action to protect the seas. Gray's Reef also strives to keep the public abreast of its activities though local, regional and national media outreach.

The Gray's Reef Ocean Film Festival

In September 2005, the Gray's Reef Ocean Film Festival brought an underwater wonderland to downtown Savannah, screening more than 40 films about the sea.

Keynote filmmakers Stan Waterman, Frank Capra, Jr. and Karuna Eberl were joined by special guest speaker Fabien Cousteau in a three-day event that drew more than 2,000 people to the downtown venue. Special children's programming was also offered at the Tybee Island Marine Science Center.

This year's festival was enriched with a children's art and essay contest called "Seaing is Believing." The contest encouraged students and teachers to view the film The Guerrero Project, a documentary about the search for a slave ship sunken in the Florida Keys—possibly in the Florida Keys National Marine Sanctuary—and the cultural issues raised by the effort to find her.

Gray's Reef and its partner Savannah State University used a grant from the city of Savannah to sponsor a community lecture about the Guerrero after the film festival and to promote the essay and art contest.

The Ocean Film Festival has become the sanctuary's primary outreach event, bringing the sanctuary and the ocean realm to the community.

Exhibits

The Gray's Reef exhibits program allows the sanctuary to reach millions of people—far more than could be accommodated in a traditional visitor center.

A highlight of the 2005 exhibit program was the Thanksgiving week opening of the 8 million gallon Georgia Aquarium. Gray's Reef is featured in the aquarium's highly interactive "Georgia Coast Gallery" section. Several large habitats feature sea turtles and fish of Gray's Reef. The gallery also connects visitors with highly endangered North Atlantic right whales through videos featuring Gray's Reef and models of right whales.

Gray's Reef also has a strong and vital presence in the Georgia Aquarium's educational programming effort in the form of joint workshops and materials. Other exhibit partners include Fernbank Museum of Natural History, South Carolina Aquarium, Georgia Southern University Museum, Tybee Island Marine Science Center, Sapelo Island Visitor Center and the University of Georgia Marine Education Center and Aquarium.

Events

Some 300 artists competed for the Gray's Reef Fantastic Fishes Award at the 2005 Savannah College of Art and Design's Sidewalk Arts Festival. Students, prospective students and alumni used colored chalk

to draw on the sidewalks around Savannah's Forsyth Park; thousand of people attend the annual event to view the ephemeral art works. The festival provides a way to get hundreds of people—some of whom may not routinely spend much time thinking about the ocean—to think about the marine environment as a source of inspiration for art.

Gray's Reef participated in a variety of ocean-related events with our various partners during 2005. Among them were CoastFest with the Georgia Department of Natural Resources, Earth Day with the city of Savannah, the Marine Mammal Seminar with the Coastal Training Program of the Sapelo Island National Estuarine Reserve, and Marine Science Day with the Skidaway Institute of Oceanography.

As always, the NOAA Ship *Nancy Foster* cruise offered Gray's Reef a way to communicate about the on-going research at the sanctuary to a wider community. Visits by local media, non-governmental organizations and aides from the offices of Sen. Saxby Chambliss, Sen. Johnny Isakson and Rep. Jack Kingston help to bridge the gap between the scientists, the general public, and policy makers.

The wider public could follow the cruise on the Project Oceanica website at http://oceanica.cofc.edu/ where daily cruise logs were posted. Part of the College of Charleston, Project Oceanica's goal is to integrate education with oceanographic research. Project Oceanica was established with initial support from the NOAA Ocean Service Coastal Services Center.

Community Volunteers

Volunteers help extend the reach of the sanctuary into the community. In 2005, Gray's Reef partnered with Clean Coast to create the "Sweep the Reef, Sweep the Beach World Oceans Day Clean-Up." About 25 volunteers from Clean Coast picked up trash off the beaches of Ossabaw Island to support the Gray's Reef cleanup. The underwater portion of the cleanup was handled by volunteers from area scuba clubs including the Savannah Scuba Club and the Southeast Scuba Club as well as individual volunteer divers.

Volunteers on Ossabaw and Gray's Reef collected a total of 35 bags of mixed trash (estimated total weight of 700 pounds); seven bags of aluminum cans; lots of plastic beverage containers; fishing line, lures and other fishing gear; and a scuba knife and large plastic lounge chair.

Sanctuary volunteers also help at all outreach events including the Ocean Film Festival, CoastFest and Earth Day.

The Media, Publications And Speakers

Media coverage of the sanctuary has a multiplier effect, enabling Gray's Reef to reach many more people than staff could on a one-on-one basis. In 2005, area and regional stories about whales, scientific research, visiting scientists and marine life were among the stories covered that included Gray's Reef.

Each month Gray's Reef produces a radio commercial for broadcast on the Adventure Radio Groups—a group of seven AM and FM stations with a combined reach of more than 300,000 households. In addition, late in 2005 Gray's Reef took up sponsorship of a National Public Radio program called "Our Ocean World" broadcast in the coastal region by Peachstate Public Radio station WSVH.

Three issues of the *Shades of Gray* newsletter published in 2005 reached about 3,000 people, highlighting the research, education and outreach efforts of the sanctuary. In addition, thousands of posters and brochures on various issues were distributed.

Gray's Reef staff and volunteers are frequently called upon to talk to civic, non-governmental, sport fishing and other organizations in addition to our frequent talks to educators. In 2005, those general population talks reached about 2,000 people.

Student Winner of the 2005 Gray's Reef Fantastic Fishes Award, SCAD Sidewalk Arts Festival

Partnerships

Partnerships & Community -
Who We Work With & How We Grow

NOAA is responsible for the protection and conservation of Gray's Reef National Marine Sanctuary's valuable and vulnerable resources. Effective marine conservation bridges all boundaries and borders. Our partnerships with constituents – users, researchers, educators and other federal and state management agencies – are critical elements of site management. Some of the partners include NOAA Fisheries, United State Coast Guard, Georgia Department of Natural Resources, South Atlantic Fisheries Management Council, South Carolina Department of Natural Resources and the Skidaway Institute of Oceanography among many. Gray's Reef relies on collaboration with sanctuary partners to maximize the use of appropriated funds and avoid duplication of efforts.

Gray's Reef works with its many partners to develop exhibits to raise public awareness of sanctuaries and ocean issues, to protect the highly endangered Northern right whale and to explore the connections between the rivers and mountains of Georgia to offshore features like the Savannah Scarp and the Charleston Bump. Through the Sanctuary Advisory Council the sanctuary is an active member of local, regional and national interests.

The Sanctuary Advisory Council

Gray's Reef has a Sanctuary Advisory Council which, through its members, serves as a liaison to the community with regard to sanctuary issues and represents community interests, concerns, and management needs of the sanctuary. Council members represent science, recreational fishing and diving, commercial/charter fishing, living and non-living resources, governmental and non governmental partners among others. Advisory Council meetings are open to the public. The council meets quarterly with meeting held in various locations up and down the Georgia and South Carolina coasts.

Review and revision of the GRNMS 1983 Management Plan was the primary focus for Council activities from 1999 through the early part of 2004. In 2005, the Council focused primarily on investigation of a marine research area concept. The Council formed a working group of users, scientists, resource managers, law enforcement personnel and others to examine the idea and make recommendations to the full Advisory Council. The Council met in June to review the working group report and to develop final recommendations to NOAA and the sanctuary. The recommendations and report were adopted by NOAA GRNMS, which expects to begin formal consideration of the research area through a public process beginning in 2006.

Ocean Observing Partnerships

Gray's Reef is an active participant in the Southeast Atlantic Coastal Ocean Observing System (SEACOOS), the Integrated Ocean Observing Systems (IOOS), the Global Ocean Observation System (GOOS), the South Atlantic Bight Synoptic Offshore Observational Network (SABSOON), the Southeast Coastal Ocean Observation Regional Association (SECOORA) and the Sanctuary Wide Monitoring System. Together these monitoring systems are giving the nation better comprehensive near-real-time information on ocean and coastal conditions for a broad range of users. The system is improving weather forecasting, detecting and forecasting ocean component of climate variability and facilitating safe and efficient marine operations.

Resource Conservation and Law Enforcement

The sanctuary works with several other agencies including the Georgia Department of Natural Resources (DNR), the U.S. Coast Guard and the U.S. Coast Guard Auxiliary to monitor activities in the sanctuary and to enforce regulations as needed.

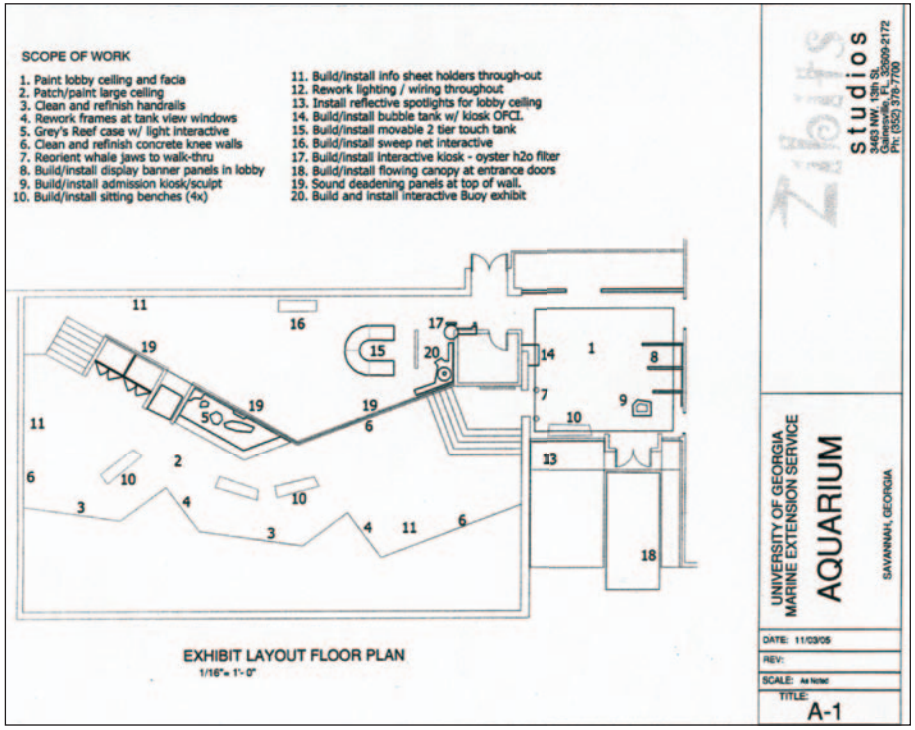
In February 2005, the Georgia DNR issued its first-ever verbal warning to a boater who came too close to an endangered right whale in Gray's Reef. An aerial survey team from DNR and the Wildlife Trust spotted four recreational boats near a group of four whales. DNR law enforcement officers boarded the one boat that remained in the area when they arrived.

Gray's Reef hosted a law enforcement meeting which included representatives from the National Marine Sanctuary Program, the Georgia DNR, the Coast Guard, the NOAA Office of Law Enforcement, and NOAA General Counsel to streamline the law enforcement efforts of the agencies.

Latitude 31-30

This program seeks to coordinate collaboration among coastal, open-ocean research organizations and land-based organizations whose sphere of influence touches the 31-30 latitude line. Included are Gray's Reef, Sapelo Island National Estuarine Reserve, the Nature Conservancy's Altamaha Bio-reserve project, the University of Georgia Marine Institute and others. It's anticipated that the non-binding Latitude 31-30 partnership will serve as an example of cooperative effort in ecosystem management.

As part of its regional partnerships, Gray's Reef is supporting a graduate student in archaeology who is primarily responsible for digitizing the files and creating digital images of the 5500-specimen Gray's Reef Invertebrate collection housed at the Georgia Museum of Natural History on the UGA campus in Athens, Ga. Sam Gray collected the specimens before the area known as the Sapelo livebottom was designated as Gray's Reef National Marine Sanctuary. The preservation of this collection for possible future scientific investigation is particularly fitting in 2006, the 25th anniversary of the designation of Gray's Reef as a national marine sanctuary.



Homeport

Homeport & Operations

Gray's Reef National Marine Sanctuary is 17 miles east of Sapelo Island in an area on the continental shelf where temperate and tropical waters mingle west of the Gulf Stream. The need for support vessels is critical to the sanctuary's work.

A New Platform for Research & Monitoring

On April 15, 2005, the sanctuary's newest boat, the 33-foot R/V *Sam Gray*, was dedicated at a ceremony at the dock of the University of Georgia Marine Education Center and Aquarium (MECA) on the campus of the Skidaway Institute of Oceanography. Gray's Reef's administrative offices are also located on the Skidaway Institute campus.

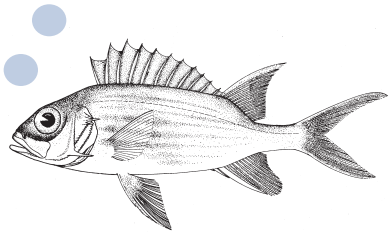
The *Sam Gray*, designed and built specifically for Gray's Reef, represents a major step forward in the sanctuary's research and monitoring programs by providing a substantial platform for sanctuary diving operations, the most basic tool for managing the use of coastal and ocean resources. The new boat enables sanctuary scientists to better assess and predict changes in the natural systems within the sanctuary.

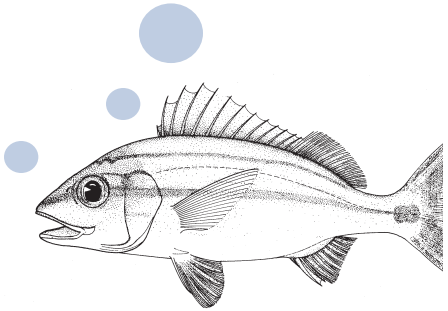
The boat is named for the late Milton Berford "Sam" Gray (the "Gray" of Gray's Reef), an early invertebrate collector for the Sapelo Island Research Foundation and the University of Georgia Marine Institute. Some of Gray's colleagues from his days at the Marine Institute were on hand for the dedication.

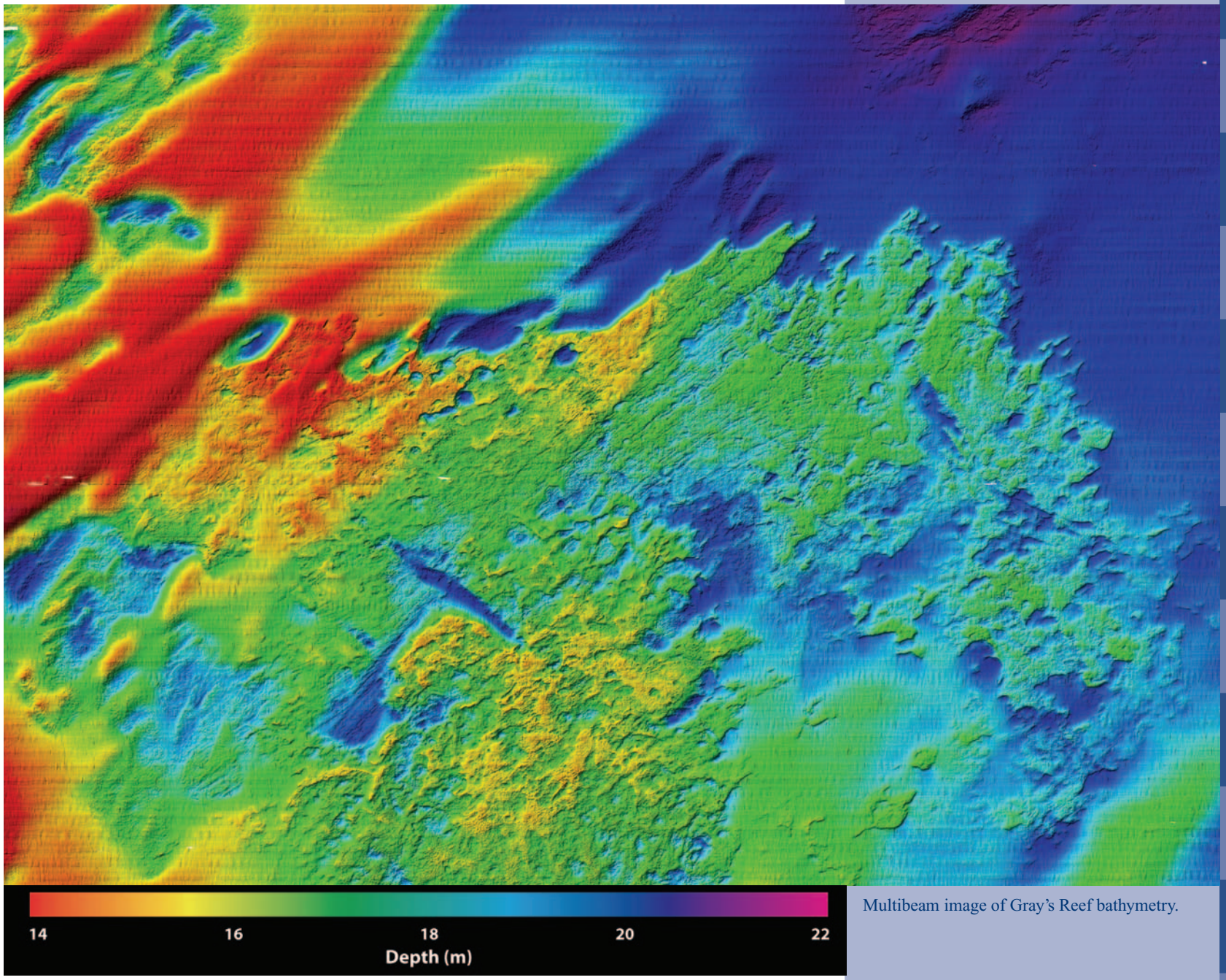
The location of Gray's Reef's administrative offices on the Skidaway Institute campus links the sanctuary with other academic institutions of the University System of Georgia such as Georgia Southern University, Georgia Tech and the University of Georgia, all of which have facilities and programs on campus. In 2005, Gray's Reef partnered with the Skidaway Institute and the U.S. Coast Guard to install new floating docks at the campus' Priest Landing pier. The new floating docks are shared with the Georgia Aquarium, which maintains a boat at the Skidaway Island campus. A new 1,200 square-foot Gray's Reef storage and office building was also completed in 2005.

In 2005, the sanctuary operated the R/V *Sam Gray* and a 41-foot renovated Coast Guard patrol vessel, the R/V *Joe Ferguson*. Both boats were used for research, dive operations and day operations in the sanctuary and to support a variety of activities for our partners. The sanctuary logged a total of 90 vessel days at sea.

The sanctuary staff includes Reed Bohne, Sanctuary Manager, Leah Cooling, Education Program Student Analyst; Keith Golden, Operations Coordinator; Gail Krueger, Communications and Outreach Coordinator; Greg McFall, Research Coordinator; Debbie Meeks, Administrative Coordinator; Courtney Reynolds, Education Intern; Cathy Sakas, Education Coordinator; Becky Shortland, Stewardship Coordinator; and Jim Sullivan, Regional Projects Coordinator. During the summer months, when field research is at its most intense, Gray's Reef adds between one and three temporary interns to its staff.







Multibeam image of Gray's Reef bathymetry.

Helping the Ocean

Many marine animals mistake plastic bags and other forms of trash for food or may become entangled in it or die from eating it.

The water we use comes from and eventually goes back into our watershed affecting our coastal and offshore waters including Gray's Reef. Conserve it and keep it clean.

Many pollutants from power plants become airborne and end up in the ocean through rain and other precipitation. By reducing the use of power in your home you can help protect our air and oceans.

The most fun part of fishing is catching. Help make sure there will be fish in your future to catch.

Celebrate the 25th Anniversary of Gray's Reef by Helping the Oceans - Every Day!

There are many things you can do in your everyday life that not only help Gray's Reef but also benefit the health of the world's oceans. Your everyday actions do make a difference. Here's what you can do:

1. Learn all you can about the oceans and reefs and especially Gray's Reef.

   Explore all the sites in the National Marine Sanctuary Program at HYPERLINK "http://www.sanctuaries.nos.noaa.gov" www.sanctuaries.nos.noaa.gov.

   Also explore the Office of Ocean and Coastal Resource Management at HYPERLINK "http://www.ocrm.nos.noaa.gov" www.ocrm.nos.noaa.gov.
2. Place all trash especially non-biodegradable plastics in proper receptacles.
3. Puncture inflated balloons after use and dispose of properly.
4. Protect wildlife by disposing of fishing lines and nets properly, not in or near the water.
5. Volunteer to participate in beach and waterway cleanup whenever you can. If you dive, volunteer to participate in reef clean ups.
6. Use water sparingly when watering your lawn and washing your car as well as for all other household chores.
7. Reduce, or better yet, eliminate the use of household non-biodegradable chemicals and detergents.
8. Reduce, or better yet, eliminate the use of herbicides, pesticides and fertilizers on your lawns.
9. Reduce automobile pollution by using carpools or alternative forms of transportation like bicycles. Drive fuel efficient vehicles. Recycle used motor oil and keep your vehicles in good working condition.
10. Use native plants to reduce the amount of water needed for home and business landscaping purposes. Learn about xeriscaping, a way of landscaping your yard to use less water.
11. Become involved in groups dedicated to helping keep waterways clean and free of pollution.
12. Turn off lights and appliances including the television when you are not in the room. Use energy saving light bulbs wherever you can.
13. In the summer set the thermostat at 80 degrees F or higher, and in the winter set it at 68 degrees F or lower.
14. Inspect your wall outlets, windows and doors for air leaks.
15. Use shades and/or curtains or insulated windows and doors to reduce heat transfers.
16. Protect wildlife by not feeding sea animals including birds, sea turtles, dolphins and whales.
17. Protect ocean wildlife by not disturbing the nests and nesting grounds of shore birds and sea turtles.
18. Keep only fish that you will eat; release the rest.
19. Take pictures of trophy fish and release them properly
20. Practice ethical fishing methods by learning how to properly catch and release.
21. Fish only species that are not of concern, threatened or endangered.