2009 ACCOMPLISHMENTS

Gray's Reef National Marine Sanctuary surrounds one of the largest live bottom reefs in the southeastern United States, located just off the Georgia coast. The 22-square-mile sanctuary consists of rocky outcroppings separated by sandy troughs, resulting in a complex habitat of ledges covered by a living carpet of algae and invertebrates ranging from sponges to sea stars. Gray's Reef also supports loggerhead sea turtles, migrating right whales and a wealth of fish species, making the sanctuary a popular sport fishing and diving destination. Established Jan. 16, 1981.

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Gray's Reef Tags Fish and Observes Predation

Two research projects are revealing how shallow reefs serve as habitat for fish, how productive these reefs can be in the absence of disturbance, and how a natural balance of large predatory fish and their prey affect the reef and the hundreds of species of invertebrates and fishes that live there. An acoustic tagging project begun in 2008 has expanded to include 14 deployed receivers and 16 tagged fish. Preliminary data have shown the first eight fish tagged have been present and active on the reef. The gag fish from 2008 has been a daily resident since it was implanted with a tag. A red snapper was detected for only a few days when it was first tagged in 2008; however, it has reappeared as daily resident around one receiver since the beginning of November 2008. The data from the fish tagged in 2009 are just beginning to be collected and processed.

Scientists are also observing the interaction between pelagic, or ocean-going, fish like amberjack and Spanish mackerel and reef fish like groupers. The fish species assist each other indirectly as feeding pelagic predators drive bait balls of small fish to the bottom, making them easy prey for bottom-dwelling fish. Public outreach on both projects has generated several print and television stories. Together with lionfish research and response efforts, Gray's Reef boats have spent 80 days underway so far in 2009.

Gray's Reef sanctuary leadership is currently involved in a multi-year public process to consider making part of the sanctuary a research area. This would be a no-take, no diving area, where scientists could observe how the undisturbed ecosystem functions. Together, the two research projects will tell us how much time these large predatory fish spend in the closed area and how they affect populations of prey fish and the ecology of the reef. The data will also give us insight into how closed areas might be helpful in restoring overfished species on local reefs.

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Gray's Reef Hosts National Association of Black Scuba Divers Youth Education Summit

The National Association of Black Scuba Divers (NABS) brought 35 students to Gray’s Reef to explore the coastal environment through a series of hands-on learning activities. Students ranged from nine to 18 years old, and many had already completed a basic scuba course with NABS. Student activities included marsh crawls, estuary trawls, building remotely operated vehicles and other activities to promote an appreciation for the marine and coastal environment. The program gives students greater access to marine science professionals from the sanctuary and academic institutions, as well as greater exposure to the marine and coastal environment.

Sanctuary Leads Fight Against Invasive Lionfish

Gray’s Reef sanctuary staff organized a meeting of sanctuary leadership from the Southeast Region to formulate a cohesive policy to combat the spread of invasive lionfish, a predatory species of fish with the potential to severely impact the area’s marine ecosystems. Reef Environmental Education Foundation staff joined in the effort, conducting a workshop on the safe capture and harvest of lionfish, which was attended by the chairman of the South Atlantic Fishery Management Council. Two days were dedicated to collecting lionfish at sites outside the sanctuary; a total of 58 were captured. At one site, 17 lionfish were captured in 14 minutes.

The sanctuary also organized several public outreach events where REEF personnel spoke about various lionfish issues, focusing on their predation on larvae of commercially and recreationally important fish like groupers. Gray’s Reef sanctuary staff supported the Georgia Aquarium’s lionfish collection effort for a new exhibit on marine invasive species in the Atlanta facility. The sanctuary is prominently featured in the exhibit, as well as in a lionfish exhibit at the University of Georgia’s Marine Extension Aquarium. Gray’s Reef personnel also facilitated the making of a short film on lionfish, “Ocean Invaders,” which won a BLU Ocean Film Festival award. The film is being shown in various marine institutions across the country. Several print and television stories were generated by the lionfish outreach effort.

Gray's Reef a Sentinel Site for Climate Research

Carbon cycling on the continental margins is poorly understood and is under-sampled to the point that it is uncertain whether these regions are a net sink or a net source of carbon dioxide to the atmosphere. Gray’s Reef National Marine Sanctuary data buoy, operated by the National Data Buoy Center, is one of only seven buoys worldwide that has surface and subsurface carbon dioxide monitoring capacity. Data have been collected since 2006. The sanctuary works with several partners including the University of Georgia, to establish continuous monitoring for increased levels of carbon dioxide.

Spearfishing Gear Ban to Take Effect

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