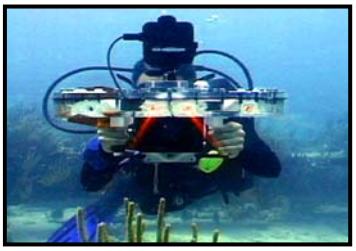
NOAA Fisheries

Coral Reef Conservation Program

Program Highlights for Fiscal Year 2004 and Selected Accomplishments for FY 2003

FLORIDA AND THE CARIBBEAN

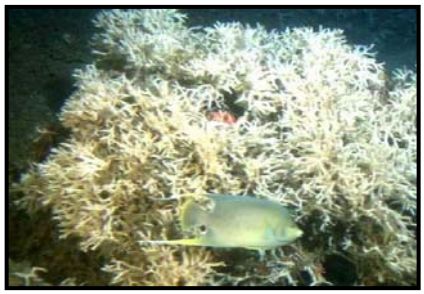
Monitoring Reef Fishes and Habitats in the Florida Keys. **FY-2003**: NMFS, working with its partners, continued to monitor the no-take reserves within the Florida Keys National Marine Sanctuary. Scientists developed and tested MPA theory and effectiveness as a tool for coral reef resource management. Specific tasks included quantifying changes in fish densities and determining probability of occurrence and mean exploitable fish size by species in the protected areas within the sanctuary. Fish monitoring on reefs in the southeast Florida was also expanded. NMFS used fishery dependant data to conduct a stock assessment to determine the validity of the stock status estimates generated by visually-based, fishery-independent stock assessments conducted for Biscayne National Park, the Florida Keys, and Dry Tortugas National Park.



NOAA diver holding video camera outfitted with laser beam, which allows scientist to accurately determine size of fishes while reviewing the tapes

In FY-2004: NMFS will continue long-term monitoring with comprehensive spatial coverage of the southern Florida reef ecosystem from Palm Beach to the Tortugas. Researchers will monitor reef populations and associated benthic habitats using rapid visual surveys. The data collected will directly support fishery-independent reef fish stock assessments to evaluate population changes due to fishing, diving, other recreational use, recruitment variability, and habitat changes in response to existing and proposed regulations and MPA zoning in southern Florida by the National Marine Sanctuary, National Parks, and Florida. This comprehensive spatially-based monitoring is essential to understand the reef ecosystem, assess impacts from human activities, and determine the effectiveness of the different management practices and policies.

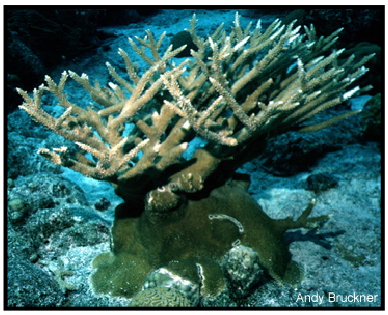
Evaluating the Oculina Banks Habitat Area of Particular Concern (OHAPC) and Experimental Reserve. **FY-2003:** The OHAPC is characterized by a history of snapper and grouper overfishing and severe coral destruction. The OHAPC was established in 1984, closed to fishing in 1994 and expanded in 2000 to an area of 300 nm^2. The biological and habitat assessments, along with historical video and data from the area, and multibeam maps will be used to evaluate how effective the Oculina Reserve is for addressing overfishing, conserving reef fish populations and habitat. Additionally, fish larval transport studies using satellite-tracked technologies, showed that larvae spawned within the Oculina reserve could supply juvenile nurseries with benefits accruing to fisheries along the southeastern United States shelf from north Florida to North Carolina.



Oculina “Ivory Tree Coral” visited by a blue angelfish.

Coral Decline and Impacts of Coral Diseases: **FY-2003:** The dramatic decline of staghorn and elkhorn corals in Florida and the Caribbean is a major conservation concern. During regular monitoring efforts of staghorn and elkhorn corals in the Florida Keys, researchers discovered and responded to a disease-die-off event. NMFS also sampled elkhorn coral throughout the Caribbean and Florida and conducted genetic analyses of this species in order to determine population structure. The level of genotypic diversity within elkhorn stands determines their vulnerability to diseases and environmental factors—low genotypic diversity may impede or threaten the recovery of elkhorn populations. Recently completed studies show that Bahamian populations were most diverse, followed by Panama and Mexico populations and with Florida stands having the lowest levels of genotypic variability.

FY-2004: To continue to gather information on the status of *Acorpora* species in the Caribbean, NMFS will continue ongoing regular monitoring of staghorn and elkhorn corals in the Florida Keys and will conduct follow-up assessments regarding the FY2003 disease-die-off event in collaboration with Coral Disease and Health Consortium (an NOS Coral Reef Project). NMFS will also complete the population genetic studies on Caribbean-wide elkhorn corals.



Elkhorn coral

Distribution of Trap Fishing and Effects on Habitats in Coral Reef Ecosystems **FY-2003:** Artisanal fishermen use traps extensively in the Caribbean for catching reef fishes and crustaceans. An interdisciplinary study incorporating fisher knowledge and quantitative field surveys was employed to study trap fishing practices, gear construction, habitat impacts and fishers' perceptions of the main problems in the fishery and their possible solutions. The main problems identified by fishers in Puerto Rico are trap loss and habitat degradation. In both Puerto Rico and the USVI, coral reefs although targeted by some trap fishers, were not seen as a preferred fish trap location; areas adjacent to reefs (sand, seagrass, hard-bottom, and algal habitats) were preferred. These data will support the development of appropriate management measures for addressing overfishing and trap impacts on habitat.

FY-2004: Working with partners in USVI, Puerto Rico and the FL Keys, NMFS will continue to define spatial and temporal (seasonal) distribution of traps, quantify potential for habitat damage in both shallow and deep waters, document gear effects on corals and other structural organisms, and estimate recovery trajectories for damaged organisms. Additional resources are being devoted to the project to expand the coverage of data for Puerto Rico over the next two years. Field operations will increase focus on identifying damaged sites that can be monitored reliably over time to learn the fate of damaged organisms, i.e. whether they recover or die. This year will include cooperative research with local fishers involving ROV video technology to study differences in trap fishing techniques on deep-water vs. shallow water habitats, as well as hauling and setting operations.


Trap fishing in the Caribbean

Technical Assistance to Puerto Rico and US Virgin Island. **FY-2003:** NMFS held workshops for Puerto Rico Rangers to enhance their understanding of the biology of coral reef species and coral reef ecosystems they protect. NMFS began assisting the government of USVI in instituting a trammel net buy back program to phase out this particularly damaging fishing gear. To help reduce the impact of boating on La Cordillera Natural Reserve, NMFS began working with Puerto Rico to design a zoning system for the reserve and installing morning buoys and educational signage throughout the reserve.


Fishing boats in Puerto Rico

FY-2004: NMFS will conduct workshops for fishermen in USVI and for the fishing associations in Puerto Rico to disseminate information on fishery regulations and to increase communication between the local fishers and management authorities and continue assisting Puerto Rico is designing zoning systems for their natural reserves. The Caribbean field office will also assist USVI and Puerto Rico in a number of outreach activities related to the implementation of newly developed local action strategies addressing lack of public awareness, overfishing, and recreational overuse.