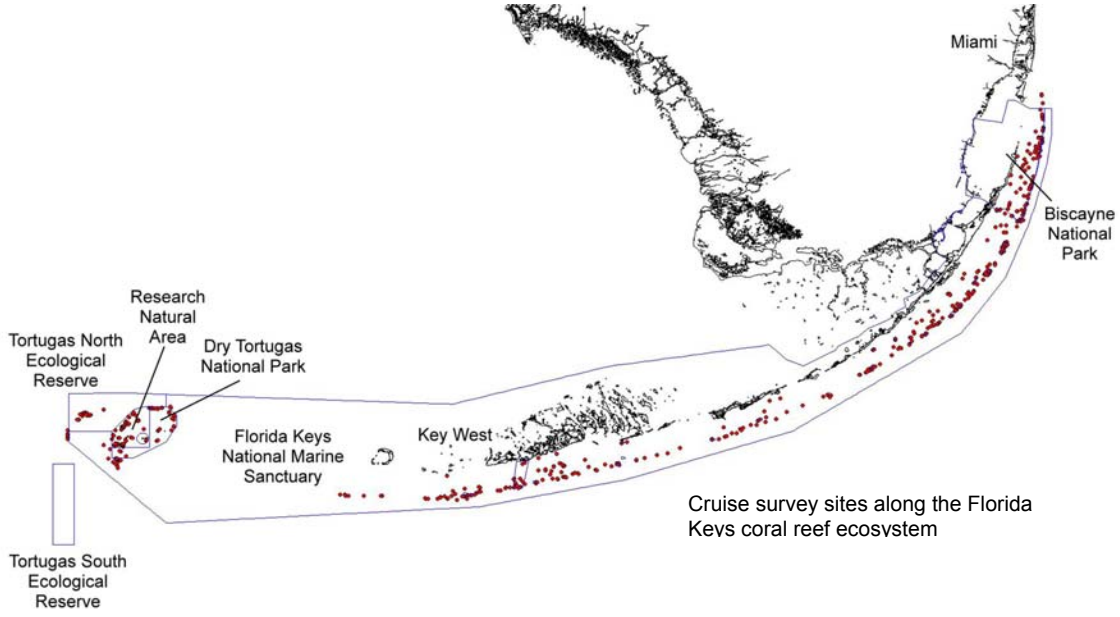
NOAA Fisheries

Coral Reef Conservation Program

Florida Keys Coral Reef Ecosystem Census
Summer 2002

NOAA Fisheries

In June 2002, NOAA Fisheries (National Marine Fisheries Service) South East Fisheries Science Center and its partners completed an oceanographic expedition that was unparalleled in its intensity and spatial coverage. NOAA Fisheries, University of Miami, the National Undersea Research Center, Florida Fish and Wildlife Conservation Commission, National Park Service, the Florida Keys National Marine Sanctuary, Nova University, and Reef Environmental Education Foundation conducted the first comprehensive survey of coral reefs along 230 miles of Florida's coast and ocean from Miami to the Tortugas Bank.



Cruise survey sites along the Florida Keys coral reef ecosystem

Chartered dive boat

This month-long expedition included 52 scientists who conducted 1806 scuba dives to depths up to 100 ft. A specially equipped chartered dive boat carried 22 divers on three 10-day expedition legs. Divers surveyed throughout the entire Florida Keys coral reef ecosystem, the largest living barrier coral reef in North America comprised of lagoons, mangroves, sea grass bed, and coral reefs. This ecosystem supports multibillion dollar tourist and fishing industries, including economically important fisheries, such as the spiny lobster, grouper, snapper, and Spanish mackerel. While this ecosystem is still considered to be highly productive, it has become highly stressed and is an "ecosystem at risk." Over the past several decades landings of many of the economically important species have declined; scientists attribute declines to overfishing, habitat degradation, increase in coastal human populations, and changes in water quality.

In order to assess the status of the Florida Keys Ecosystem, scientists conducted a battery of sampling strategies including visual surveys and video sampling of fishes and detailed benthic surveys of corals, sponges and spiny lobster. This type of scientific census of the coral reef ecosystem provides a robust estimation of population size, structure, and habitat uses of fishes, coral, conch, spiny lobster, and other reef species, which will ultimately provide a better understanding of ecosystem function.

Diver conducting ecosystem survey

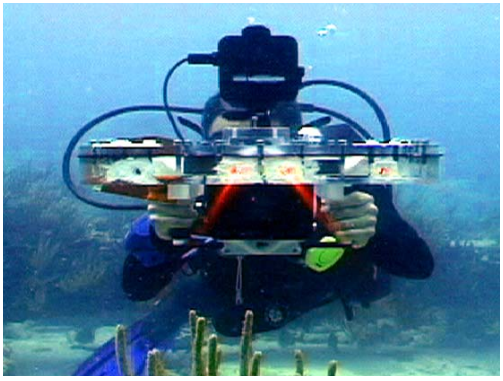
Previous assessments of the Florida Keys reef fish community have shown that high exploitation levels exist and many species are over fished. Preliminary survey results indicate that the abundance and size of exploited fish species are significantly less in areas near large human populations centers. On a positive note, preliminary data indicated an apparent increase in the diversity of exploited fishes within the Tortugas North Ecological Reserve and overall increased abundance of the protected Goliath Grouper.

Goliath Grouper

This cruise supported a 5-year performance review of resource management in the Florida Keys National Marine Sanctuary by NOAA and the State of Florida. It specifically looked at changes in populations since the 1997 establishment of "no-take" zones with in the Sanctuary. The results of the cruise will be used to assess and define current conditions of Florida's coral reef ecosystems and will provide a baseline for scientists and managers to monitor population changes due to different management actions (e.g. fishing regulations and "no-take" zones). Managers will also apply data collected to the development of a comprehensive Fisheries Management Plan for Biscayne National Park.

Hawksbill Turtle

In Situ Sampling



State-of-the-art four laser beams. The sampling included using a video camera equipped with spacing of the laser beams allow scientists to accurately determine the size of fish when reviewing the tapes in the laboratory.

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This is an element of the NOAA Coral Reef Conservation Program.