

Reef Fish Spawning Aggregations (FSAs) in the Florida Keys: An Update

Reef Agregaciones Reproductivas de Peces en los Cayos de Florida: Actualización

Poissons de Récif Zones de Frai dans les Keys de Floride: Une Mise à Jour

CHRIS TAYLOR^{1*}, TODD KELLISON², DANIELLE MORLEY³, and ALEJANDRO ACOSTA³

¹NOAA/NOS/NCCOS CCFHR, 101 Pivers Island Road, Beaufort, North Carolina 28516 USA. *chris.taylor@noaa.gov.

²NOAA/NMFS/SEFSC Beaufort Laboratory, 101 Pivers Island Road, Beaufort, North Carolina 28516 USA.

³FWC/FWRI, 2796 Overseas Highway, Marathon Florida 33050 USA.

EXTENDED ABSTRACT

Since 2007, we have been surveying historical and reported reef fish spawning aggregations (FSAs) in the Florida Keys National Marine Sanctuary (FKNMS). Over the six years we have documented geomorphologies common among several species-specific FSA sites. Using coordinated fishery acoustic and diver visual surveys, we have also found significant elevated densities of fish at some of the reported sites, including elevated densities of black grouper and cubera snapper, several hundred permit to over 2000 gray snappers exhibiting behaviors and coloration consistent with spawning, and have confirmed over several years the absence of fish from other historical FSAs (Table 1, Figure 1). While aggregations have been found, spawning has yet to be observed at any aggregation. Since 2012, we implemented a new wide-swath fishery multibeam sonar system that has increased the search volume for fish aggregations by orders of magnitude while allowing us to map seafloor topography at the FSA sites (Figure 2). We continue to provide updates on this research effort to researchers and advisors to the FKNMS management process, with specific comments on the importance of these data to regulatory review processes for the Sanctuary.

KEY WORDS: Spawning aggregations, coral reefs, snapper, grouper

Table 1. Representative data from field observations made at reported fish spawning aggregating sites in the Florida Keys National Marine Sanctuary.

Site Name	Species of Importance	Description
Carysfort	Black Grouper	Several observations of 6-11 large black grouper (50-85 cm), Feb & March 2010
Whistle Buoy	Cubera Snapper	Several visual observations of 15-34 schooling cubera snapper (60-85 cm), June and July 2009
Watsons Reef	Mutton Snapper	Visual observation of 35-45 mutton snapper (60-65 cm) swimming in water column
Western Dry Rocks	Mutton Snapper	Dozens of mutton snapper observed by divers May 2011, observations of 38 fishing boats on site in May 2011
Western Dry Rocks	Gray Snapper	Hundreds to over 1000 gray snapper observed over several months (June, July, and/or August) 2010 and 2012
Mangrove Topino	Gray Snapper	Over 1000 gray snapper swimming in tight school over two successive days, August 2012
Eyeglass Bar	Mutton Snapper	Fishing boats observed catching mutton snapper in May 2012, No visual observation
Eyeglass Bar	Gray Snapper	Hundreds of gray snapper observed over three consecutive months (June, July, August) 2010
Maryland Shoal	Gray Snapper	Numerous schools of 12-25 fish, large (30-50 cm) fish, swimming in close formation. Observations of 10 fishing boats (1 commercial, 9 recreational) fishing on gray snapper in July 2010

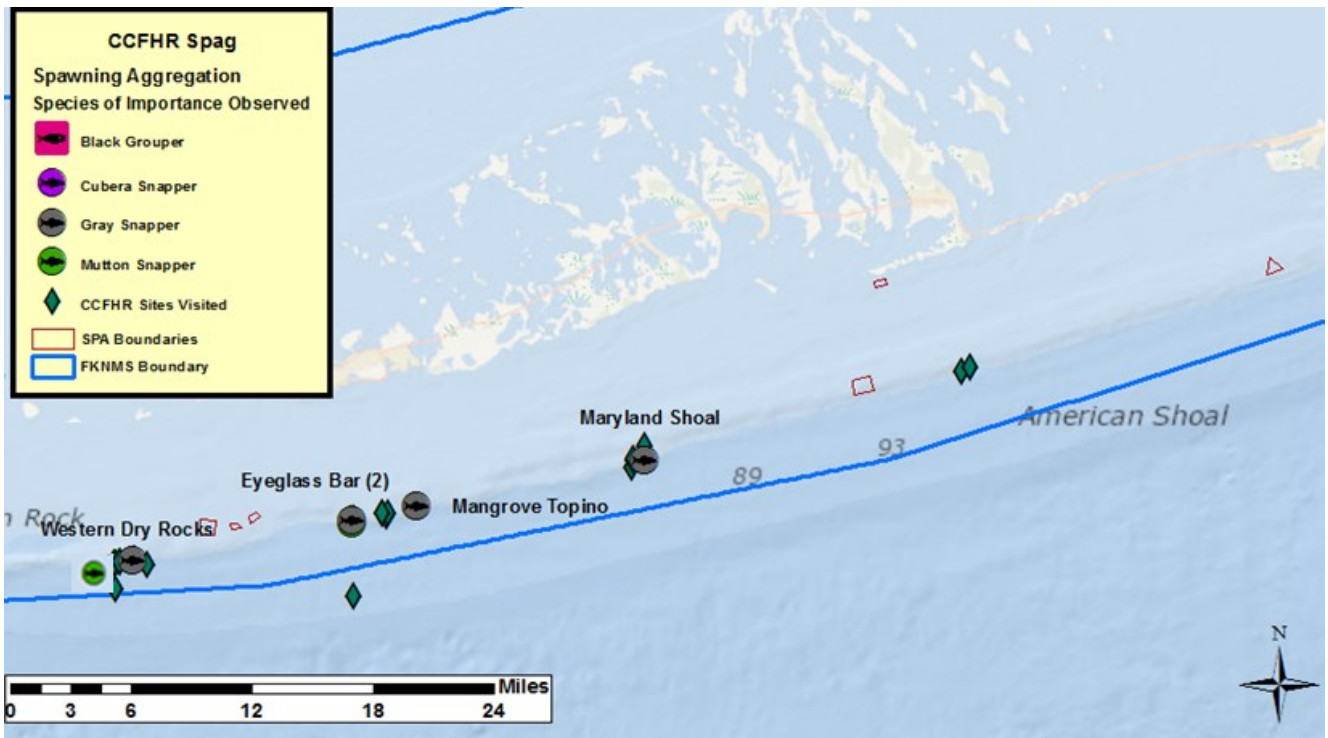


Figure 1. Locations of reported and observed reef fish aggregations near Key West, Florida (note that no spawning has been observed at any sites).

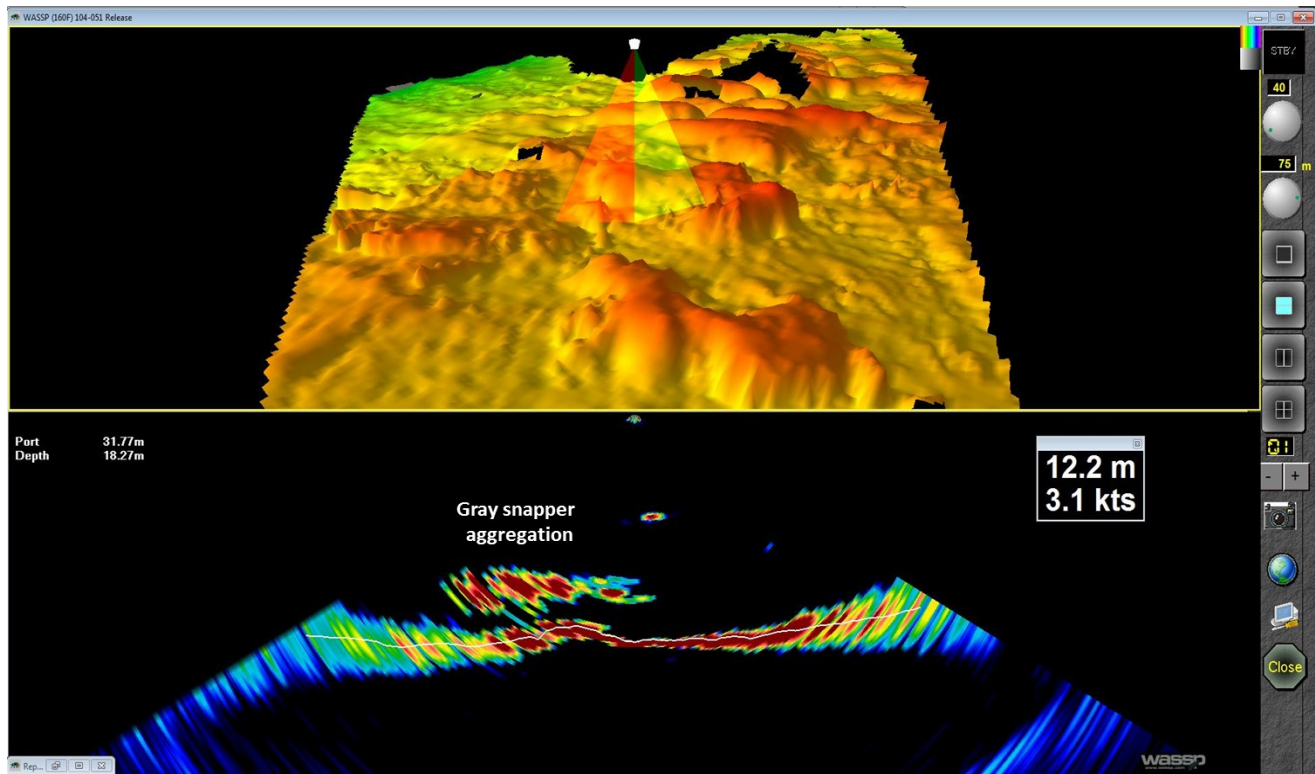


Figure 2. Screen image from wide-swath multibeam sonar used to simultaneously map the bathymetry of the seafloor (upper panel) and detect fish aggregations in the water column (lower panel).