

October 26, 2012

To: Coral AP and Habitat AP

From: John Reed, Research Professor, Harbor Branch Oceanographic Institute/FAU

Recent discoveries of deepwater *Oculina* coral and hard-bottom habitat outside but adjacent to the current *Oculina* HAPC (OHAPC), resulted in a proposal last year to the SAFMC to add these areas to the OHAPC: Northern Extension and Western Extension of which the Coral AP approved. At the recent meeting of both the Coral and Deepwater Shrimp APs, the Shrimp AP proposed other alternatives including opening up portions of the current OHAPC and OECA (original HAPC) to bottom trawling. As a result the Habitat AP has requested additional information about the *Oculina* habitat. As many members of the Coral and Habitat APs were not around in 1980s when the OHAPC was first established, nor present when the Coral AP had a thorough review of the HAPC. The following reports and publications may be of interest to you. The deepwater *Oculina* coral banks are unique and occur nowhere else on earth. They have been heavily damaged by trawling over the past several decades, but still provide important essential fish habitat and coral habitat. These data show that the deepwater *Oculina* reefs are one of the best known and well-studied in the world.

1) 2006 *Oculina* Research Summary Report- 1970-2006.pdf: Annotated bibliography of research from 1975 to 2006 which was compiled for the Coral AP in 2006- listing some dozens of publications by category (habitat, fish, benthic biota, taxonomy, geology, etc.). You can order these publications from your libraries or contact me. Some are available as pdfs.

2) Recent publications:

- a) Harter, S., M. Ribera, A. Shepard, J. Reed. 2009. Assessment of fish populations and habitat on *Oculina* Bank: examination of a deep-sea coral marine protected area off eastern Florida. *Fishery Bulletin* 107(2):195-206. - Data from ROV dives in 2005 comparing fauna and fish within and outside of the OHAPC showing that the HAPC is working.
- b) Reed, J. K., C. C. Koenig, and A. N. Shepard, 2007. Impacts of bottom trawling on a deep-water *Oculina* coral ecosystem off Florida. *Bulletin of Marine Science* 81: 481–496. - Comparing sites inside and outside original OHAPC showing greater habitat impact in unprotected areas.
- c) Koenig, C.C., A.N. Shepard, J.K. Reed, F.C. Coleman, S.D. Brooke, J. Brusher, and K.M. Scanlon. 2005. Habitat and fish populations in the deep-sea *Oculina* coral Ecosystem of the western Atlantic. *American Fisheries Society Symposium* 41: 795-805. - Comparison of fish populations on healthy vs impacted coral habitat.
- d) Reed, J.K., A. Shepard, C. Koenig, K. Scanlon, and G. Gilmore. 2005. Mapping, habitat characterization, and fish surveys of the deep-water *Oculina* coral reef Marine Protected Area: a review of historical and current research. Pp. 443-465, *In* (A. Freiwald, J. Roberts, *Ed.*), *Cold-water Corals and Ecosystems*, Proceedings of Second International Symposium on Deep Sea Corals, Sept. 9-12, 2003, Erlanger, Germany, Springer-Verlag, Berlin Heidelberg.- Summary of research of *Oculina* reefs.

3) 1980 *Oculina* Nomination- The Original HAPC designation, description and application.

4) 2007SAFMC Evaluation Report [Reed, J.K., K. Koenig, G. Gilmore, et al. 2007. Final *Oculina* evaluation team report, Oculina Experimental Closed Area (OECA). The South Atlantic Fishery Management Council, February 2007, 63 pp]- Results of the Coral HAPC in depth review of status and proposed future research that could be done if there were any funding (there is none).

Basically there has been very limited funding for the Oculina reefs since 1985. These include:

1) In 2001 NOAA OE funded the first extensive research dives on the Oculina reefs since 1985. Resulted in publications: Reed 2002 a,b; Koenig et al 2005, Reed et al 2007 (see above).

2) 2003- 2005 ROV dives (funded by NOAA OE, NMFS, CRCP)- results published in Harter et al 2009 (see above).

3) 2005- Multibeam mapping of ~30% of OHAPC. This had about 5-m resolution and did not have back-scatter data which is critical for good digital maps. Most older NOAA contour maps of the region have resolution of 10 m or more. Consider that a sonar map with 10-m resolution will show a 10-m feature as a single pixel. Therefore to actually 'see' or resolve a feature you need a minimum of 9 pixels (3x3 blocks) or 100 m² size features. Obviously, in any case it will only define the largest structures and this resolution is typically used to map the broadest scale to cover large areas quickly. It is never used to suggest that you could define individual coral heads. And more importantly, you miss low (0-1 m) and moderate (1-3 m) relief hard-bottom features which comprise the majority of the habitat.