

Final Report for Florida Middle Ground Project

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CY 2003 Coral Project for the period 10/1/03 through 3/31/05

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GENERAL OBJECTIVES/LOGISTICS:

We planed to conduct a “mowing the lawn” type of multibeam bathymetry and backscatter survey of the Florida Middle Ground HAPC (Habitat Area of Particular Concern; Figure 1) and to collect some ground truth data. The survey was to augment the existing coverage in the area from a previous USF cruise and will entail for the most part very long lines compared to the number of turns (Figure 1). The main scientific objectives of the cruise were to define the fish habitat areas within the Florida Middle Ground HAPC using multibeam bathymetry, multibeam backscatter, ground truth data (previous and new sediment grab samples and previous video samples). Second, to eventually produce a Habitat Map that defines area of Sediment, rock, and coral reef. Third, to provide a map of the paleoshoreline during a previous glacial period, when sea level was lower.

ACTIVITIES AND RESULTS:

The ship was mobilized on Monday October 4, 2004 departing Tuesday October 5 at 0030 hours local time. Mapped was terminated at 0230 hours local time, Thursday October 7, due to sea conditions. We were experiencing 8-12 foot seas and 20-30 knot easterly winds. The bow of the Suncoaster was being washed over by waves, the fantail of the vessel was awash, and the bow (and occasionally the transducer) was airborne. If

the transducer was not airborne it was getting so much bubble sweep (air bubbles in front of the transducer face) from excessive pitch and roll that no useful data could be collected. Furthermore, the ship was having difficulty staying on the survey line. The captain was concerned about the safety the vessel, equipment, and personnel, therefore it was decided to heave to. We returned to port due to forecasts predicting more of the same and a tropical storm southwest of the study area was predicted to cross over us in 4 to 5 days.

We departed again on October 16 at 0030 hours and returned October 23 at 2359 hours. Once more we departed on October 25, 0030 hours and returned October 29 at 1500 hours – the early return was required to insure time for refueling and demobilization. Other cruises had been rescheduled due to the 4 hurricanes that arrived the months before. Thus we were able to make use of 16 of the 17 days budgeted and covered the area shown in Figure 1. We plan to make use of the unused day in the Middle Ground after another cruise nearby, thus avoiding wasting time on the transit to the area. In addition, we have a pending request for seven more days of additional ship time to attempt to complete the remaining area in the summer of 2005 when the next block of time will be available on the R/V Suncoaster.

During the survey, we were able to obtain about dozen bottom samples to help with the interpretation of the backscatter data and prepare a habitat map. At the time of this writing, we have only been on land for 5 days. During this time, we were able to do some preliminary post-processing of the multibeam bathymetry data, including incorporating the pressure sensor data as a tide file and obtaining the bathymetry shown in Figure 2 and the backscatter data in Figure 3. These data are still very preliminary, i.e. only tide file but no cleaning as of yet. However their high quality in this raw form is quite encouraging.

We have had some preliminary meetings with Walt Jaap, Andy David, David Mallinson and others interested in this general area during a recent NOAA South Florida Shallow-water Coral Ecosystem Mapping Project Meeting here in St. Petersburg, Florida at the Florida Wildlife Research Institute during October 2 –3, 2004.

We have not prepared a final interpretation map at this stage, until we complete the mapping of the HAPC area so we will have one final habitat map completed from the multiyear piecemeal mapping that has been necessary to map this area within the funding available. Due to poor weather from an active Fall 2004 hurricane season (4 hurricanes) we are completing our mapping this July/August 2005 for the 2004 funding which is a follow up of this 2003 project. The figures displayed here, however, clearly show the location of the shallow Florida Middle Ground Fish Habitat areas deserving more detailed studies by scientist interested in Marine Fisheries.

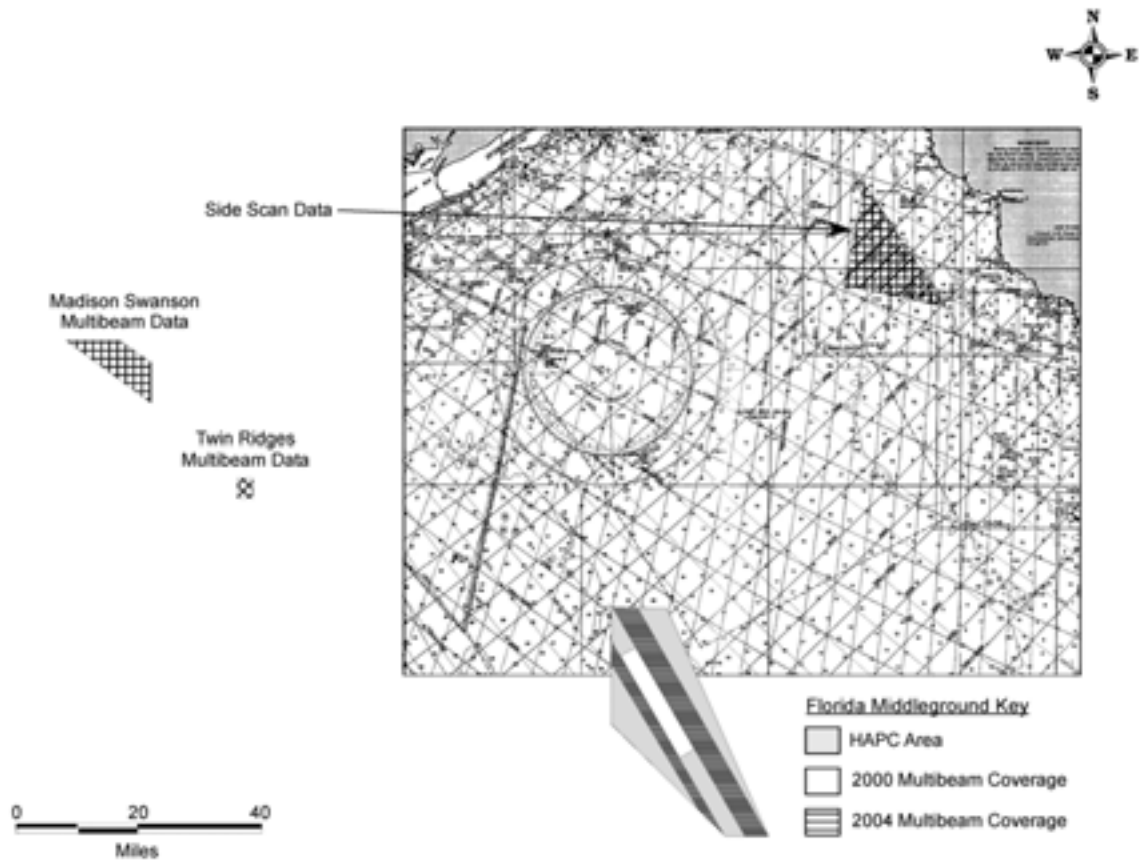


Figure 1 – Map of the Florida Middle Ground HAPC (Habitat Area of Particular Concern) shown as a 5-sided polygon. White area represents area covered in a previous USF Multibeam survey in 2000. The horizontal lined pattern represents our recent survey in October 2004. The gray area represents the unsurveyed portion within the within the Florida Middle Ground HAPC. Although an exact percentage has not yet been calculated, we have approximately increased our coverage area by about a factor of four.

EM3000 Multibeam Bathymetry of the Florida Middle Ground

gridded at 10 m per pixel
data compiled from August 2000 and October 2004

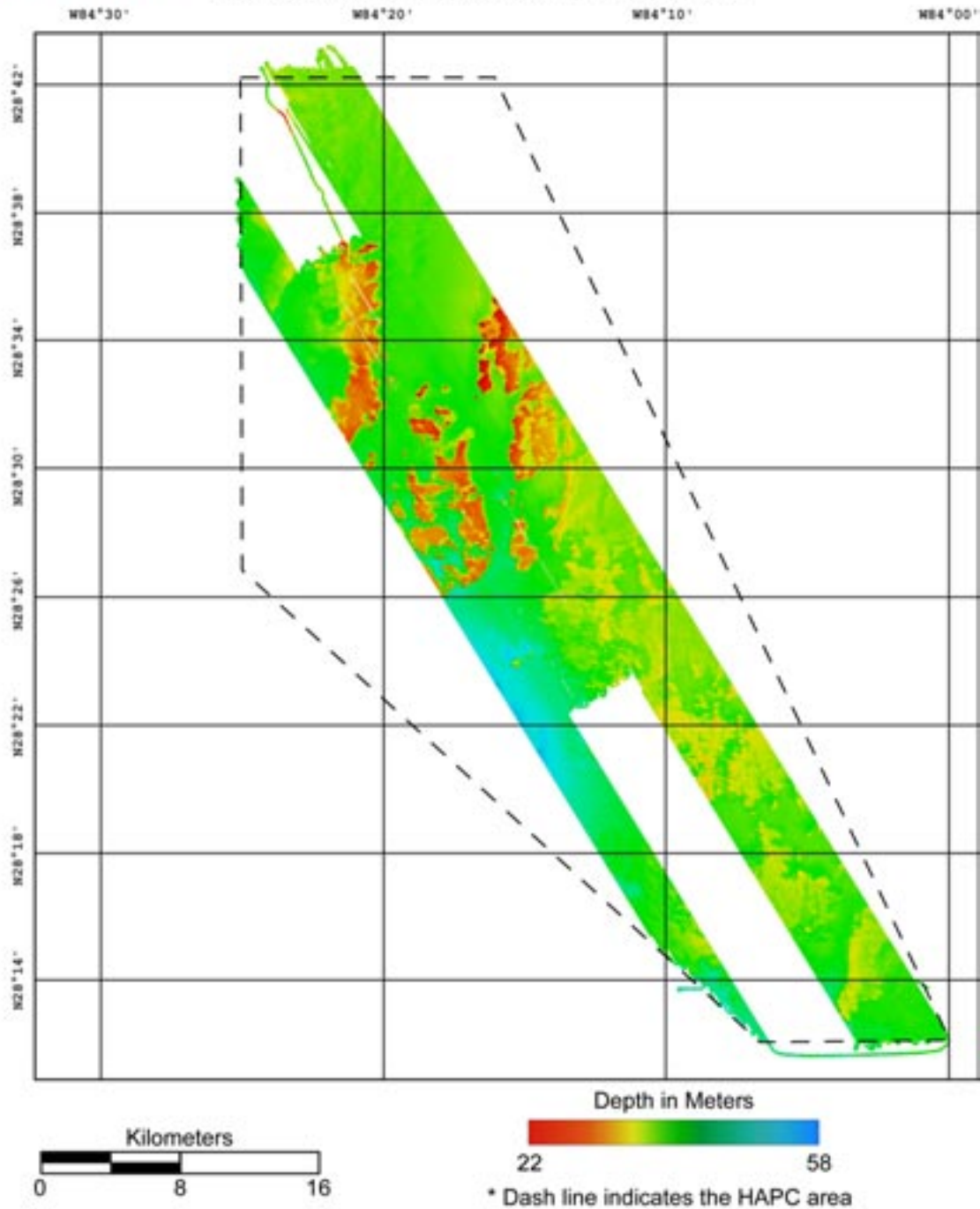
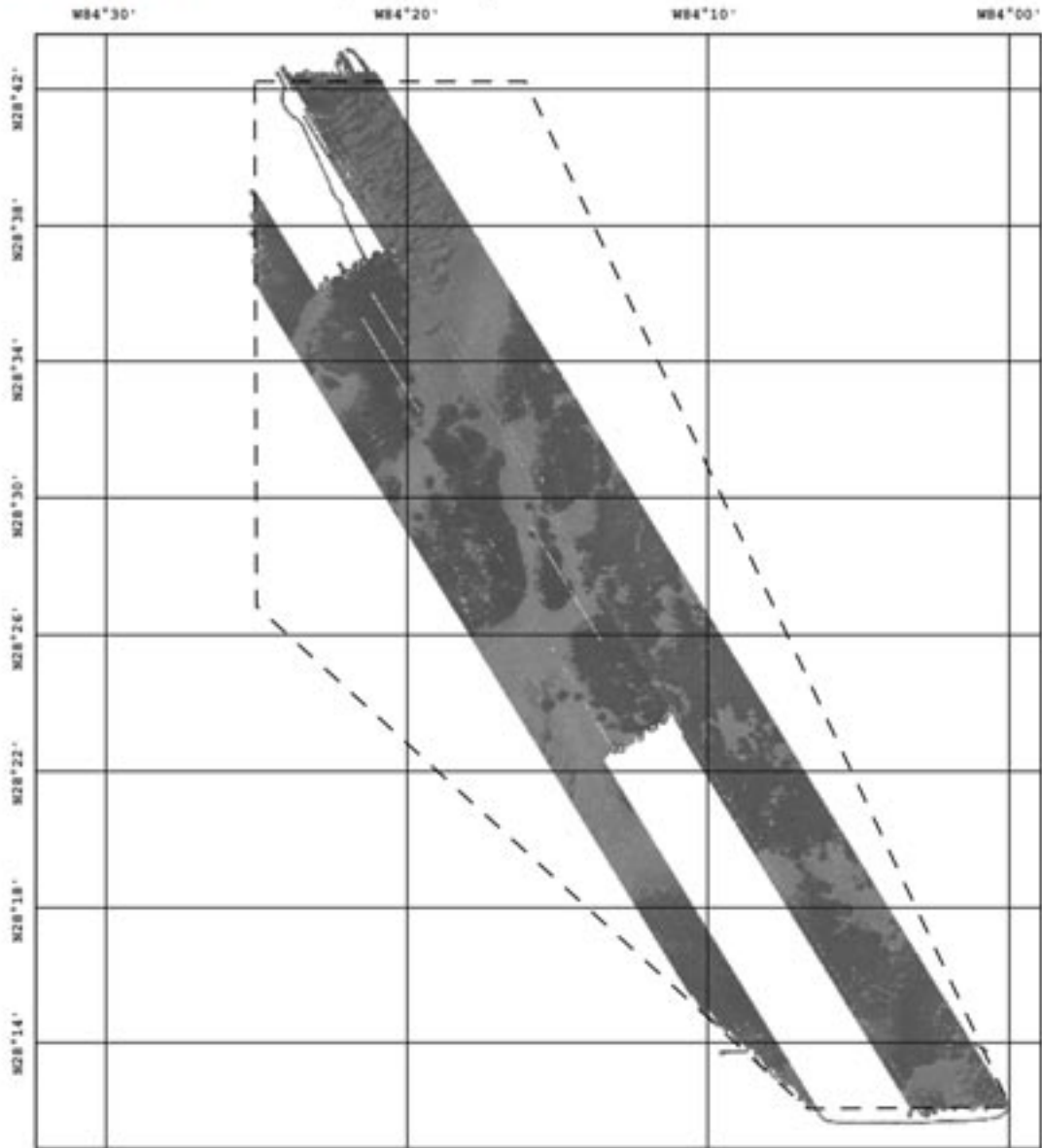


Figure 2. USF EM 3000 multibeam bathymetry data of the Florida Middle Ground HAPC (Habitat Area of Particular Concern).

EM3000 Multibeam Backscatter of the Florida Middle Ground

gridded at 5 m per pixel
data compiled from August 2000 and October 2004



- * Darker color denotes higher backscatter intensity i.e., corals or hardbottom, lighter colors denote lower backscatter intensity i.e., fine sands or muds
- * Dash line indicates the HAPC area

Figure 3. USF EM 3000 multibeam backscatter data of the Florida Middle Ground HAPC (Habitat Area of Particular Concern).