High-Resolution Multibeam Mapping and Submersible Surveys of Topographic Features in the Northwestern Gulf of Mexico

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Abstract: The Flower Garden Banks National Marine Sanctuary (FGBNMS) and the USGS Pacific Seafloor Mapping Project mapped approximately 2000 km2 of the northwestern Gulf of Mexico continental shelf during June 2002, using a Kongsberg Simrad EM1000 multibeam echosounder. Mapping focused on select topographic highs that have been identified as biological features warranting protection from oil and gas activities by the Minerals Management Service (MMS). These areas are of interest for future biological and ecological investigations by the National Oceanic and Atmospheric Administration (NOAA). High-resolution bathymetry maps were not previously available for these features, with the exception of the East and West Flower Garden Banks, where these data have been crucial in Deep Water Habitat Characterization surveys. Previous investigations conducted on the features of interest (with the exceptions of East and West Flower Garden and Sonnier Banks, accessible by SCUBA) had not been conducted since the 1970's and 1980's, and without the use of high-resolution, geo-referenced maps to target survey sites. In 2002, the multibeam base maps were instrumental in targeting dive sites during the Sustainable Seas Expedition (SSE) – a submersible effort culminating from a partnership between NOAA and the National Geographic Society (NGS). Data obtained during this project will contribute to the benthic habitat characterization and assessment of the associated fish communities. The base maps will also be used for all future ROV and submersible missions to investigate these features. The multibeam data has provided a base data layer for Geographic Information Systems (GIS) projects into which all future (and historical) data can be integrated and upon which future scientific investigations can be planned and implemented.

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