ACCESS NUMBER: 32806-36185

STUDY TITLE: Incorporation of Benthic Survey Data into OBIS: Phase One of a North Atlantic Benthic Synthesis

REPORT TITLE: Incorporation of Gulf of Mexico Benthic Survey Data into the Ocean Biogeographic Information System

CONTRACT NUMBER: 0104-CA-32806-36185

SPONSORING OCS REGION: Gulf of Mexico

APPLICABLE PLANNING AREAS: Eastern, Central, and Western Gulf of Mexico

FISCAL YEARS OF PROJECT FUNDING: 2005; 2006

COMPLETION DATE OF REPORT: December 2007

COSTS: FY 2005: $17,021.81; FY 2006: $14,890.19; CUMULATIVE PROJECT COST: $31,912

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KEY WORDS: Gulf of Mexico; benthic; bioinformatics; OBIS; Census of Marine Life; CoML; south Texas; southwest Florida; NODC; MULDARS; Pequegnat

BACKGROUND: The Minerals Management Service has been one of the primary sources of oceanographic data since it first began supporting offshore sampling of the biota and environment. It has been a stipulation in all such studies that data be filed with the National Oceanographic Data Center (NODC) of the National Oceanic and Atmospheric Administration (NOAA). In addition voucher specimens of all species collected are to be deposited with a repository museum, usually the U.S. National Museum of Natural History. Over the past 10 years there has been a greatly increased interest in the biological diversity of the seafloor. Making use of informatics, scientists are actively re-examining older studies in the search for ecological patterns. The information on benthic community distributions supported by museum specimens comprises one of the best data sources for the study of seafloor ecology available anywhere in the world.

NODC is noted for its exceptional work with archived physical and chemical data, but it lags behind other archiving programs with respect to biological survey data. Innovation in this area lies primarily in the academic and museum communities. The Ocean Biogeographic Information System (OBIS) is under development in the U.S. both as a

primary repository of data and a gateway to fully integrated databases elsewhere in the world. Therefore, to assure that MMS-collected data is available for continued analysis, it must be transferred from discontinued NODC formats into OBIS format while there is still some understanding of the older data content.

OBJECTIVES: (1) To begin transfer of Minerals Management Service (MMS) legacy data on the distribution of benthic species from archival formats to data elements in a format suitable for modern database analysis. (2) To serve as a trial project of data conversion for archived benthic data, detailing the potential problems and methods for conversion.

DESCRIPTION: This project has been a trial effort at carrying out transfer from four Gulf of Mexico data sources: the published results of deep sampling by W.E. Pequegnat, contractor's data archives for the Northern Gulf of Mexico Continental Shelf study, NODC archives of the South Texas OCS study, and NODC archives of the Southwest Florida Benthic Community study. Entry, proofing, and reformatting of the published results proved to be the easiest undertaking. Conversion of all archived data was seriously hampered by the lack of available documentation for the NODC Species Code that has been discontinued. Once Species Code information was finally located, conversion of the NODC MULDARS format required a great deal of manual intervention due to inconsistent use of format standards. Unfortunately, this inconsistency makes it impractical to reformat all data sets with a single computer program.

SIGNIFICANT CONCLUSIONS: Archived data exists in varied formats that require custom processing to convert into modern digital database formats. Codes and keys to older formats are in danger of being lost due to lack of metadata and disuse. Benthic biology data stored in NODC archives can be difficult to collate and may require significant manual intervention for quality control. Many older datasets require manual data entry to convert to a digital format.

STUDY RESULTS: Data from four major MMS studies were converted to digital database format compatible with the Census of Marine Life's Ocean Biogeographic Information System and spreadsheet format. These are available for study at www.iobis.org. The Final Report serves as a manual for conversion of NODC and other archived benthic data. Project reports should be considered the primary source if species-level sample-by-sample data are provided. A percentage of records in the final digital file should be manually checked against the hardcopy reports.

STUDY PRODUCT: Carney, R.S. 2007. Incorporation of Gulf of Mexico benthic survey data into the Ocean Biogeographic Information System. U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS, New Orleans Region, LA. OCS Study MMS 2007-030. 29 pp.