

STUDY TITLE: Selected Aspects of the Ecology of the Continental Slope Fauna of the Gulf of Mexico: A Synopsis of the Northern Gulf of Mexico Continental Slope Study, 1983-1988

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BACKGROUND: New technology for OCS oil and gas exploration and development that would enable the industry to move from the continental shelf of the Gulf of Mexico to the deep waters of the continental slope was envisioned in the 1970s. Given this potential, the Minerals Management Service (MMS) conducted synthesis and field investigations of the Gulf continental slope in the 1980s, namely the Northern Gulf of Mexico Continental Slope (NGOMCS) Study. These studies were completed but not widely distributed. Deep-water development did not accelerate until the late 1990s. A new continental slope study was commissioned by MMS and it was learned that the database from the original study had been lost or corrupted.

OBJECTIVES: This study was awarded to the original contractors to reconstruct the database, prepare a layman's guide to the deep-sea Gulf, and prepare a technical-level summary of the findings of the NGOMCS study. The layman's guide (OCS Study MMS 2001-065) and revised database were submitted as independent products. This summary applies to the technical report.

DESCRIPTION: This stand-alone technical report includes an introduction providing a background for the study that is followed by a description of the approach and methods used to meet the objectives. The next sections provide first an environmental characterization of continental slope habitats, followed by a biological characterization of these habitats. Lastly, we provide our conclusions regarding selected aspects of the continental slope ecology.

SIGNIFICANT CONCLUSIONS: The results of the analysis of faunal data segregated by 100-m depth intervals discount the idea that the upper continental slope is characterized by three distinct megafaunal assemblages or zones within which the species composition is homogeneous regardless of depth. Rather, the data reflect a pattern of a non-repeating sequence of species arrayed along the depth gradient. The faunal composition changes continually with depth such that a distinct upper slope fauna penetrates to about 1,200 m. A broad transition zone characterized by low abundance and diversity occurs between 1,200 m and 2,500 m. A distinct deep-slope fauna appears to be present below 2,500 m but was poorly sampled. The patterns of abundance and diversity of fauna by depth on the Gulf slope differed from the patterns observed in contemporary U.S. Atlantic slope studies.

STUDY RESULTS: The study results are documented in a single volume report.

STUDY PRODUCTS: Gallaway, B.J., J.G. Cole and R.G. Fechhelm. 2003. Selected aspects of the ecology of the continental slope fauna of the Gulf of Mexico: A synopsis of the Northern Gulf of Mexico Continental Slope Study, 1983-1988. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 2003-072. 52 pgs.

