

STUDY TITLE: Mapping Areas of Hard Bottom and Other Important Bottom Types: Outer Continental Shelf and Upper Continental Slope

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CONTRACT NUMBER: 1435-01-99-CA-30951-17800

SPONSORING OCS REGION: Gulf of Mexico

APPLICABLE PLANNING AREA: Central Gulf of Mexico

FISCAL YEARS OF PROJECT FUNDING: 2000, 2001, and 2002

COMPLETION DATE OF REPORT: December 2005

COSTS: FY 2003 \$83,432; FY 2004 \$83,432; FY 2004 \$83,433; **CUMULATIVE PROJECT COST:** \$250,297

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KEY WORDS: Outer Continental Shelf, Hard Bottom

BACKGROUND: Geophysical high-resolution acoustic data is routinely collected from the Gulf of Mexico continental shelf and slope to allow evaluations of geohazards prior to oil and gas development. A total of 182 blocks of geophysical data was contributed to the Coastal Studies Institute (CSI) by industry for analysis in the mid-1980's. Although CSI has worked extensively with these original data sets on an individual basis, the data was not considered as a whole or processed into the useful Geographic Information System (GIS) format allowing evaluations and analyses of geohazards on a regional basis.

OBJECTIVES: This project will organize and map previously separate and isolated data sets to produce useful regional maps of seafloor characteristics categorized in a logical and uniform way.

DESCRIPTION: This project, conducted cooperatively through the Louisiana State University Coastal Marine Institute, was designed to convert existing seafloor maps compiled from high-resolution seismic profiles, side-scan sonar data, and bathymetry acquired in 182 OCS lease blocks to MMS-approved GIS format for use in geohazards

evaluations. Six mapping categories were used: (1) undisturbed seafloor, (2) seafloor erosion, (3) hard bottom areas (carbonate banks, bioherms, hardgrounds, and outcrops), (4) faults, (5) acoustic wipeout zones, and (6) mass movement features. In addition to converting existing maps, mapping of new 3-D seismic surface amplitude data filled many of the gaps in the high-resolution acoustic data sets. This project produced a set of seafloor maps from five mapping areas that can be used for planning activities in the OCS region of the northern Gulf of Mexico from the shelf edge to a depth of 1,000 m.

STUDY RESULTS: This project was designed to convert existing seafloor maps compiled from high-resolution seismic profiles, side-scan sonar data, and bathymetry acquired in 182 OCS lease blocks to MMS-approved GIS format for use in geohazards evaluations. Six mapping categories were used: (1) undisturbed seafloor, (2) seafloor erosion, (3) hard bottom areas (carbonate banks, bioherms, hardgrounds, and outcrops), (4) faults, (5) acoustic wipeout zones, and (6) mass movement features. In addition to converting existing maps produced at Coastal Studies Institute through an industry consortium, mapping of new 3-D seismic surface amplitude data filled many of the gaps in the high-resolution acoustic data sets. The goal was to extend the mapping wherever possible to water depths of 1,000 m. All mapped data were converted to MMS-GIS compatible products. Past experience has clearly shown that understanding the processes that are associated with geohazards and locations of potential “trouble spots” on the seafloor saves money and lives. This project produced a set of seafloor maps from five mapping areas that can be used for planning man’s activities in the OCS region of the northern Gulf of Mexico from the shelf edge to a depth of 1,000 m.

STUDY PRODUCT(S): Roberts, H.H., J.M. Coleman, and R.H. Peele. 2005. Mapping areas of hard bottom and other important bottom types: Outer continental shelf and upper continental slope; final report. U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 2005-067. 45 pp. + 6 maps.

