ACCESSS NUMBER: 15563

STUDY TITLE: Digital Conversion and Selected Analysis of Dive Video from Fifteen Dive Seasons

REPORT TITLE: Digital Conversion of Dive Video from Fifteen Dive Seasons

CONTRACT NUMBER: M05AC15563

SPONSORING OCS REGION: Gulf of Mexico

APPLICABLE PLANNING AREA: Western and Central

FISCAL YEARS OF PROJECT FUNDING: 2004–2009

COMPLETION DATE OF REPORT: December 2014

COSTS: FY 200 -2008: $110,975; FY 2009: $48,531

PROJECT COST: $159,506

PROJECT MANAGERS: H.H. Roberts, R.S. Carney

AFFILIATION: Louisiana State University

ADDRESS: Coastal Studies Institute and Department of Oceanography and Coastal Science, School of the Coast and Environment, Louisiana State University, Baton Rouge, LA 70803

PRINCIPAL INVESTIGATORS: H.H. Roberts and R.S. Carney

KEY WORDS: Submersible dives; video, northern Gulf of Mexico; continental slope, hydrocarbon seeps, chemosynthetic communities, authigenic carbonates

BACKGROUND: With the discovery of chemosynthetic communities on the northern Gulf of Mexico continental slope in the mid-1980s, government, industry, and academia began focusing scientific attention on the Gulf's hydrocarbon seeps and their unique biological communities. Because the Minerals Management Service (now Bureau of Ocean Energy Management Service [BOEM]) is tasked with leasing, assessing risks, and protecting sensitive benthic communities from the impacts of operational activities, they provided research support to learn more about seep communities and the general fundamentals of these unique habitats. Other national funding agencies also added their support to help better understand natural hydrocarbon seeps and their communities. Use of research submersibles was key to observing and sampling seep sites. A primary data source on each dive was video. These datasets were collected as analog images and, over the 15 years of study addressed in this report, a variety of systems and tape formats were used.

ACCESSS NUMBER: 15563

OBJECTIVE: The objective of this project was to convert fifteen dive seasons of analog video to a common digital format that would be a permanent data archive and make the dive video data more accessible and user-friendly.

DESCRIPTION: As oil and gas industry exploration moved from the continental shelf to the continental slope in the 1970s, a growing database of high quality seismic profiles and side-scan sonar swaths identified many fluid-gas expulsion features on the upper continental slope. These features attracted the attention of MMS (BOEM), industry, and academia. Since the mid-1980s, MMS (BOEM) and other national funding agencies have supported studies of the northern Gulf of Mexico natural hydrocarbon seeps and their unusual biologic communities. These investigations used research submersibles to observe and sample the benthic biology and geology-geochemistry of seep sites. An important part of the database generated from these studies was video of the seafloor associated with each site visited. In addition to simply producing a record of the seafloor, video was used to record instrument installations and sample sites, a valuable record during the data analysis and interpretation phases of seep studies. Over the nearly three decades of submersible dives and associated video collection, several different analog video formats with various resolutions were used. The project described in this document was designed to convert these various analog video datasets to a common digital format for the purpose of both archiving these important datasets and making them more accessible to the user.

SIGNIFICANT CONCLUSIONS: The significant outcome of this project was that 15 dive seasons of video data were converted to digital files and archived on DVDs. This archive represents 144 submersible dives covering 48 different oil and gas lease block areas. A total of 3,341 clips of five minutes duration each, representing a total of 280 hours of bottom time, comprises the video data archive. An index to these video clips is included to facilitate use of the database. Summary statistics for all dives and similar summaries for lease blocks were calculated and presented as appendices attached to this report. Seep communities were found on all but four dives, although sparse community development was common.

STUDY PRODUCTS: Carney, R.S., Roberts, H.H. 2014. Digital conversion of dive video from fifteen dive seasons. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study BOEM 2015-004.

The products from this study consist of the DVD archive that contains 15 dive seasons of video data in digital format and tables of summary statistics derived from this database. The locations of the 48 lease blocks from which the seep-related video data were collected are located in Figure 1.

P.I.’s affiliations are the same as listed for the Project Managers.

ACCESSS NUMBER: 15563

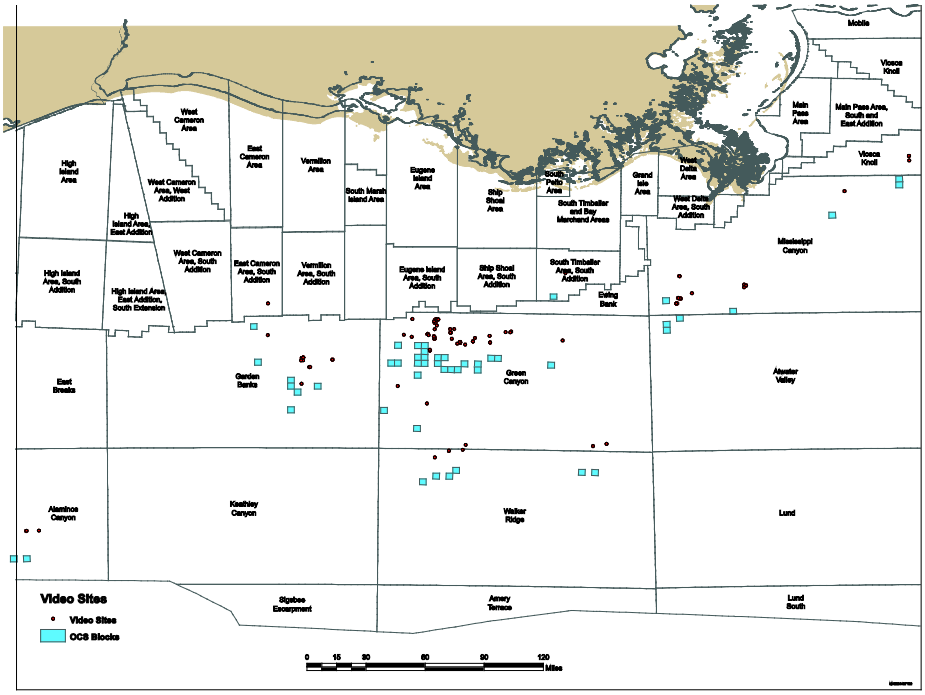

Figure 1. The dive video data were acquired from 48 separate lease blocks located on this figure.