

JUSTIFICATION

Deep Gulf Habitats Project: Investigations of Chemosynthetic Communities on the Lower Continental Slope of the Gulf of Mexico

1. Conservation that Furthers the Mission of Interior

The largest reserves of oil and gas in the United States lie under the Gulf of Mexico. As the oil and gas industry moves its operations farther and farther from shore and into ever-deeper water, the Minerals Management Service (MMS) of the U.S. Department of the Interior faces new challenges in fulfilling its role as an environmental steward. The primary project mission of MMS is to identify and study these unique and potentially rare habitats. The MMS will use this information to develop an adaptive approach to the management and protection of all sensitive biological habitats discovered concurrently with energy development in the deep Gulf. MMS scientists will use the discoveries and results of this study to create, or modify regulatory policies that require avoidance of a variety of biological habitats including chemosynthetic communities from the potentially impacts of oil and gas activities. The results of this study will also enhance the understanding of deepwater biological communities worldwide.

The goals of the project focus on the exploration and study of sensitive biological communities below a depth of 3,300 ft. These include not only remarkable chemosynthetic communities but also deepwater coral habitats in the deepest parts of the Gulf of Mexico where very little is known. The public has become very aware of deepwater coral habitats in recent years. These communities are also a topic of significance for the Joint Subcommittee on Ocean Science and Technology (JSOST) which is now working with MMS, USGS, and NOAA to facilitate interagency cooperation on ocean research. This project will set an example for future research projects to model! The efforts of all the participants in this study will greatly enhance the interagency management tools and conservation and protective measures for chemosynthetic communities, deep sea corals, and other deep sea communities.

2. Collaboration to Promote Full Partnership

a. Consultation

Three federal ocean science federal agencies, Minerals Management Service (MMS) and National Oceanic and Atmospheric Administration's Office of Ocean Exploration (NOAA OE) partnered under the auspices of the National Oceanographic Partnership Program (NOPP) (later joined by U.S. Geological Survey) to bring together numerous cooperating groups and individual leading scientists from both the U.S and Europe to explore and study incredible new biological communities in the deepest parts of the Gulf of Mexico. In addition to the MMS/NOAA OE partnership, an additional cooperative partnership was initiated early in the project with a second Department of Interior bureau, the U.S. Geological Survey (USGS) whose ongoing collaboration with MMS helps to improve the information base necessary to support decision-making pertaining to the

energy and mineral resources on the Outer Continental Shelf. USGS provided expertise on deepwater coral genetics during the first expedition (2006) of the project and has since expanded participation to several disciplines including microbiology for the second field year (2007). The partnership support from NOAA OE, nearly matching the funding of \$3.3 million provided by MMS from its Environmental Studies Program, makes possible the use of state-of-the-art submergence facilities including the only human-occupied research submersible capable of reaching the deepest parts of the Gulf, the *Alvin*.

b. Cooperation

The Deep Gulf Habitats Project was awarded to TDI Brooks International Inc of College Station Texas, who formed a world class international team of researchers from five universities including scientists from the United States, France, Germany and Austria. All participants are leaders in their fields and dedicated to the understanding and stewardship of these unique habitats. This cooperative venture, initiated under NOPP and now under the auspices of the Interagency Committee on Ocean Science and Resource Management Integration (ICOSRMI), is making land-mark strides towards the goal of discovering and understanding the deepwater biological communities of the Gulf not previously known. An earlier exploratory cruise had confirmed a large number of potential sites after extensive research utilizing MMS in-house seismic records of the deep Gulf. The success of the mission was critically dependent upon the successful cooperation of MMS personnel and members of the scientific team during this phase. This cooperation resulted in a 100% success rate for *Alvin* dives encountering high-density chemosynthetic or coral communities.

c. Communication

Educational outreach and classroom participation is a major component of the project and was integrated into the original study objectives. NOAA-OE created a “signature expedition” internet site that was live during the first field effort (<http://www.oceanexplorer.noaa.gov/explorations/06mexico>). The internet site was updated daily with images and personal stories presented by the scientists explaining the progress of the ongoing project. Ocean Explorer Expedition Education Modules were designed with internet uplinks during the field work to reach out in new ways to teachers, students, and the general public to share the excitement of at-sea discoveries and the science behind the project. Classroom lesson plans were created specifically for this mission that will instill wonder, inspiration and motivation to children in the future.