

MMS Releases Deepwater Currents Study Report

Study Details Significant Findings of Offshore Current Patterns

NEW ORLEANS – The U.S. Department of the Interior's Minerals Management Service (MMS) has released findings from a year-long study of strong ocean currents in the northern Gulf of Mexico, *Exploratory Study of Deepwater Currents in the Gulf of Mexico*. Performed under contract for MMS by Science Applications International Corporation, the study incorporated state-of-the-art technology, some of it used for the first time in the Gulf of Mexico.

"This new study has added significant findings to the growing knowledge of physical oceanography," stated Chris Oynes, Associate Director of Offshore Energy and Minerals Management. "It is very useful because engineers can use this information to design offshore platforms and facilities that can withstand these deepwater currents."

From March 2003 through April 2004, the oceanographers investigated an area off the Mississippi Delta, where these deepwater current energies are known to concentrate. In this area, high-velocity currents develop in waves lasting for different periods of time. Those currents that developed in waves that peaked every 10 days are reflected back into the deepwater Gulf rather than moving west along the coast as would typically be expected. However, there are less powerful currents that develop in waves peaking every 20 or 30 days. The initial findings indicate that these longer period waves move westward; more study is needed on these phenomena to develop a better understanding of how they strengthen and move.

According to Dr. Alexis Lugo-Fernandez, an MMS physical oceanographer, "The study confirmed that there are two layers of currents. The top layer is more powerful, stronger. In motion near the bottom, however, are 'small' eddies some 50-70 kilometers in size. We also confirmed that there is a high energy current in front of and over the Sigsbee Escarpment, a steep section of the continental slope offshore Louisiana and Texas. The escarpment blocks that high energy current from moving onto the Continental Slope."

Many of the research tools used in this study had never been used previously in the Gulf of Mexico. It was the first time that submerged-tracked floats were used to measure currents down to the seafloor. Another type of float that was used moved up and down to measure temperature and salinity and was tracked while submerged. The floats are stabilized at specific depths ranging from 1,000 to 2,500 meters and they drift submerged through the Gulf of Mexico. Sound-emitting devices sitting on the Gulf floor were used in conjunction with the floats and moorings. The study also made use of bottom current measurements collected by the oil and gas industry as part of the study's database.

This study was contracted through the MMS, Gulf of Mexico OCS Region's environmental studies program.

Copies of this study, OCS Study MMS 2006-073 and -074, *Exploratory Study of Deepwater Currents in the Gulf of Mexico*, in two volumes – Volume I: Executive Summary and Volume II: Technical Report, are available from the Region on compact disc for \$15 at the Region Public Information office, 1201 Elmwood Park Blvd., New Orleans, LA 70123, or at no charge on the Region website. Compact discs can be ordered by phone at 1-800-200-GULF. Major credit cards are accepted.