

The 2004 DOI Cooperative Conservation Award

SWSS : Sperm Whale Seismic Study

Location Gulf of Mexico

Project Summary

In managing the oil and gas resources of the Outer Continental Shelf (OCS), the U.S. Minerals Management Service (MMS) seeks "to ensure that all activities on the OCS are conducted with appropriate environmental protection and impact mitigation". The MMS sponsors studies to evaluate environmental impacts of OCS activities and to identify appropriate mitigation measures. Since the 1970s, one environmental focus has been the potential for impact of anthropogenic noise on marine mammals. Marine mammals are adapted to use sound in the ocean for communication, navigation, prey identification and location, and sensing of the environment. These animals have evolved in an ocean that is filled with natural sounds. Humans began to introduce additional sound sources with the advent of the industrial age in the mid-19th century. As these sounds increase, the potential for impacting marine mammals increases as well. Of concern are the potentials for negative behavioral and physiological responses to human-generated sound, at both the individual and population levels.

As oil and gas activities moved into ever deeper water in the Gulf, MMS recognized the increased potential for industry impacts to deepwater species of cetaceans. One species of particular concern was the sperm whale (*Physeter macrocephalus*), which is listed as endangered under the Endangered Species Act (ESA). In 1999, MMS hosted a Gulf of Mexico Protected Species Workshop (McKay et al. 2001) to review past research, evaluate new issues, and recommend research priorities. A panel of experts identified the potential effects of noise from seismic exploration operations on sperm whales as a key research priority.

SWSS is a multi-institutional, interdisciplinary research project supported by MMS under Cooperative Agreement 1435-01-02-CA-85186 for *Cooperative Research on Sperm Whales and their Response to Seismic Exploration in the Gulf of Mexico* through the Texas A&M Research Foundation. The objectives of SWSS are to establish the normal behavior of sperm whales in the northern Gulf of Mexico; characterize sperm whale habitat use in the northern Gulf of Mexico; and determine possible changes in behavior of sperm whales when subjected to manmade noise, particularly from seismic airgun arrays used for offshore petroleum exploration and geological monitoring.

Examples of Key Partners

Minerals Management Service
Texas A&M University
Oregon State University
Woods Hole Oceanographic Institution
Scripps Institution of Oceanography
Texas A&M University-Galveston
University of Durham
University of Saint Andrews
University of Colorado
Ecologic
Industry Research Funders Coalition (International Association of Geophysical Contractors (IAGC)
National Fish and Wildlife Foundation
National Science Foundation
Office of Naval Research