

# Seismic Survey Mitigation Measures and Protected Species Observer Reports

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## Abstract

The study provides the compilation and analysis of visual and acoustic observation data collected by protected species observers (PSOs) as part of Notice to Lessees (NTL) and permit requirements issued to seismic operators in the Gulf of Mexico (GOM) between January 1, 2009 and December 31, 2015; and where applicable, data from reporting between 2002 and 2008 are incorporated into the analyses.

A total of 2,446 bi-weekly PSO reports containing Survey, Effort, and Detection reports during the 2009 to 2015 time period were reviewed. PSOs recorded 404,046 hours of visual survey effort and 214,887 hours of acoustic effort resulting in 11,166 visual detections and 8,807 acoustic detections. Mitigation resulted in 763 ramp-up delays and 215 shutdowns from 2009 through 2015 which were attributed to both acoustic and visual monitoring.

Statistical data analysis of the visual whale detections within 2,500 m (8,202 ft) for the combined 2002-2015 dataset showed that the CPA for all whales to the airgun array was, on average, approximately 140 m (459 ft) further from airguns operating at full power operations when compared to silence.

Sighting rates for mysticete whales (presumed to be Rice's whales) were higher within the Rice's whale biologically important area (BIA) than the overall GOM. Similarly, whale sighting rates (dominated by sperm whales) were substantially higher within the Canyon areas of interest (AOIs) than the overall GOM survey area. Loggerhead turtle sighting rates were equal inside and outside the designated *Sargassum* loggerhead critical habitat area.