Vessel-based monitoring of the proposed Undersea Warfare Training Range in Onslow Bay, NC USA

Kim, Urian, Andrew Read, Danielle Waples, Lynne Williams and Lucie Hazen

Duke University Marine Laboratory, 135 Duke Marine Lab Road, Beaufort, NC 28516 USA

The U.S. Navy has proposed constructing an Undersea Warfare Training Range (USWTR) along the Atlantic coast of the United States. Proposed training activities on the range will involve surface vessels, submarines, aircraft and mid-frequency sonar. The preferred site for the range is an area of 1,713-km^2 in Onslow Bay, 87 km from the coast of North Carolina. In collaboration with the University of North Carolina Wilmington and the University of St. Andrews Scotland, we have implemented a monitoring program designed to estimate density and document patterns of distribution and seasonal residency of marine mammals in the proposed USWTR. We employ a traditional single visual line transect survey team on a 16.2m vessel operating at a speed of 10 knots. On 23 survey days from June to November 2007, we surveyed ten 74-km long tracklines on multiple occasions (up to three surveys per transect line). During these surveys we observed bottlenose dolphins, spotted dolphins, pilot whales and loggerhead turtles. We also deployed a towed, four-element hydrophone array to detect vocalizing marine mammals; from our preliminary observations, we appear to detect more groups of dolphins acoustically than visually. We have also collected photo-identification images and biopsy samples from bottlenose and spotted dolphins. In October 2007, we placed a High-frequency Acoustic Recording Package (HARP) in the USWTR to provide detailed information on the seasonal occurrence and relative density of vocalizing marine mammals. By combining multiple methodologies we hope to ensure the most complete and effective monitoring program of the proposed USWTR.