

## **Using passive acoustics to monitor the presence of odontocete cetaceans during Naval exercises in Onslow Bay, NC**

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During July 2008, the U.S. Navy performed anti-submarine warfare training exercises in Onslow Bay, NC using mid-frequency tactical sonar (1-10 kHz). The exercises were conducted in one of the potential sites of the proposed east coast Undersea Warfare Training Range (USWTR). As part of the monitoring for these exercises, five passive acoustic recorders were deployed in Onslow Bay. The recorders sampled continuously at 32 kHz from July 6 – July 27, 2008. We analyzed these acoustic recordings to look for odontocete vocalizations (clicks, whistles and burst-pulse sounds) using Long-Term Spectral Averages (LTSAs). A preliminary analysis indicated that the recordings contain hundreds of odontocete vocal events, including 12 apparently from pilot whales (*Globicephala* sp.) and 197 from sperm whales (*Physeter macrocephalus*). We detected sperm whale clicks on two recorders, primarily at night (from 20:00-06:00), throughout the entire recording period. The pilot whales were also detected on two recorders, but unlike the sperm whales, they were detected sporadically throughout the day and night and only from July 14 – July 18. Unidentified odontocete vocal events were detected both day and night and on each day of recorder deployment. A cursory review of the acoustic data revealed several instances of unidentified odontocetes apparently mimicking sonar signals with whistles of similar frequencies. These recorders yield important information about the presence of odontocetes during these naval sonar exercises in Onslow Bay.