

Protected species monitoring in Onslow Bay, NC: January – December 2009

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The protected species monitoring program, initiated in response to Onslow Bay, NC being identified as a potential site for the US Navy's Undersea Warfare Training Range (USWTR), is now into its third year. To estimate marine mammal density, distribution, and seasonality, a multi-platform approach was implemented using traditional visual line transect survey methods from aerial and vessel platforms along with passive acoustic monitoring from vessels and moored instruments. From January through December 2009, 20 aerial surveys were completed, covering 15,187 km of trackline, and 22 vessel surveys were completed, covering 1,630 km of trackline. Species sighted included *Tursiops truncatus*, *Stenella frontalis*, *Grampus griseus*, *Globicephala macrorhynchus*, *Physeter macrocephalus*, and *Steno bredanensis* in order of abundance. *T. truncatus* and *S. frontalis* comprised the majority of cetacean groups sighted in both aerial (*T. truncatus* 48 of 94, *S. frontalis* 37 of 94) and vessel (*T. truncatus* 24 of 45, *S. frontalis* 15 of 45) surveys. Approximately 1,275 digital images were taken for species ID and individual recognition during January - December 2009 from the vessel-based surveys. No individuals of any species (*T. truncatus*, *S. frontalis*, *G. griseus*, and *G. macrorhynchus*) have been re-sighted in the USWTR from photo-identification images. Passive acoustic monitoring techniques have included towing an array during vessel surveys and deploying High-frequency Acoustic Recording Packages (HARPs) in the USWTR. Towed array results during this time suggested we visually detected approximately 60% of the dolphin groups that were acoustically detected. We have found hundreds of vocal detections in the HARP data, which will provide insights into daily and longer-term vocal variability of marine mammals. This project represents a long term data set used to assess residency and abundance patterns of this offshore area in the waters off North Carolina.

Protected species monitoring in the proposed Under Sea Warfare Training Range Off-Shore of Jacksonville, FL: January – December 2009

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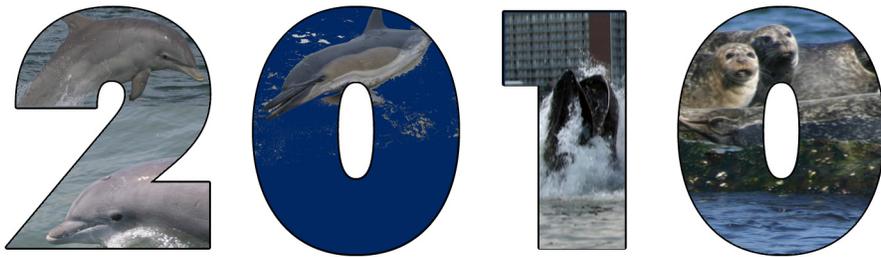
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A multi-institutional, marine protected species monitoring program, involving aerial, vessel and acoustic surveillance techniques, has been implemented at the proposed Under Sea Warfare Training Range (USWTR) offshore of Jacksonville, Florida. Here we report on aerial and vessel visual line-transect and acoustic towed array surveys conducted between January – December 2009 to investigate cetacean and sea turtle species occurrence, distribution and abundance at the USWTR site. Ten 87 km track-lines spaced 6.5 km apart transect the 1295 km² USWTR box, which is located between 60 and 150 km offshore. Aerial surveys were flown in a Cessna Skymaster at an altitude of 300m and 185 km/h. A total of 155 track-lines (13,485 km) were surveyed, the majority flown in low Beaufort Sea State (BSS) conditions (92 % in BSS 3 or lower) to maximize sighting conditions. A total of 1,622 cetaceans were recorded in 130 separate sightings. *Stenella frontalis* were most frequently encountered, followed by *Tursiops truncatus*, unidentified delphinids, *Grampus griseus*, *Balaenoptera acutorostrata*, *Kogia* spp. and *Steno bredanensis*. *T. truncatus* were encountered throughout the range whereas *S. frontalis* and *S. bredanensis* were recorded exclusively in shallow, shelf waters, and *G. griseus*, *B. acutorostrata*, and *Kogia* spp. were found offshore of the shelf break. Between July and October, 11 vessel surveys were conducted on a 12m Duffy. There were 24 cetacean sightings while on-effort. Sightings consisted of *S. frontalis*, *T. truncatus*, and *G. griseus* in order of abundance. Furthermore, two off-effort groups of *Globicephala macrorhynchus* were encountered. The towed acoustic array was deployed during nine vessel surveys, generating a total of 10.5 hrs of recordings. Two high frequency acoustic recording packages (HARPs) were also deployed in the study region during this time for long-term acoustic monitoring. Surveys are scheduled to continue through 2010 to provide long-term habitat usage patterns in the USWTR.

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