

Response by Coastal Dolphins to Naval Mine Exercise (MINEX) Training Activities off Virginia Beach, US

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The naval forces of many nations conduct mine detonation exercises in coastal waters as part of their regular training. These exercises have the potential to disturb, injure, or even kill marine mammals occurring in the same area. To address concerns about this possibility at the US Navy's Virginia Capes (VACAPES) Range Complex, an effort was conducted to monitor odontocete activity at the mine exercise (MINEX) training range using passive acoustic methods. The objectives of the project were to document the daily and seasonal patterns of occurrence of dolphins in the VACAPES MINEX training area, to detect explosions related to MINEX activities, and to investigate potential behavioral and acoustic responses of dolphins to MINEX events. Up to four ecological acoustic recorders programmed to achieve continuous monitoring were deployed at various distances from the known "epicenter" of training events and were refurbished approximately every two months. Dolphins were detected near the training area year-round, with ~97% of monitored days containing some dolphin acoustic signals. However, there was also clear seasonal variability, with a consistent period of low occurrence or reduced acoustic activity during the winter months. The results also indicate that dolphins exhibit an acoustic and/or behavioral response after a MINEX event. Acoustic activity levels ~1 km from the epicenter of training were examined for 34 training events and were found to be, on average, lower during both the day of and the day after the event, suggesting that the animals either reduced their signaling, left the area, or both. Conversely, dolphin acoustic activity levels during the second day after a training event were higher than either the day before, the day of, or the first day after an event. In addition, the data examined to date suggest that dolphins may follow a pattern of redistribution away from the epicenter after a MINEX training event. There is evidence that dolphins are more acoustically active or abundant 3 km from the epicenter during the day of and the day after an event than the day before it. These results underscore the value of long-term monitoring to inform the military on the potential impacts on marine mammal populations from training activities involving underwater detonations.

CONFERENCE PROGRAM & ABSTRACTS



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A white rounded rectangular box containing blue iconographic elements. At the top left is a silhouette of a bird in flight. Below it are silhouettes of two dolphins. To the right is a target symbol consisting of three concentric circles. The text 'Dublin 2016' and '10-15 July' is at the top right, and 'The Effects of Noise on Aquatic Life' is at the bottom.

Fourth International Conference: 10 -15 July 2016, Dublin, Ireland