

INVESTIGATING THE RESPONSE OF COASTAL DOLPHINS TO MINE EXERCISE (MINEX) TRAINING ACTIVITIES

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The naval forces of many countries 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 U.S. Navy's Virginia Capes (VACAPES) Range Complex, an effort was begun in August 2012 to monitor odontocete activity at the mine exercise (MINEX) training range using passive acoustic methods. The objectives of the project were to establish the daily and seasonal patterns of occurrence of dolphins in the VACAPES MINEX training area, to detect explosions related to MINEX activities, and to determine whether dolphins in the area show evidence of a response to MINEX events. Up to four Ecological Acoustic Recorders programmed to achieve continuous monitoring were deployed and refurbished approximately every two months. The data were analyzed for the daily presence/absence of dolphins and their acoustic activity was quantified in detail for the period prior, during and after MINEX activities, as well as at various distances from the training site. The results indicate that dolphins are present daily in or near the MINEX range, a finding that supplements limited visual survey information due to restricted regular access to the MINEX area. The data also reveal that dolphins exhibit a short-term acoustic response immediately following an explosion event. Acoustic activity increases briefly and then declines substantially. There is also evidence of a decrease in overall acoustic activity lasting several hours following the exercise. Current analyses aim to establish whether the observed response represents a shift in acoustic behavior or a spatial redistribution of the animals. These results underscore the value of long-term monitoring to inform the military on the potential impacts on marine mammal populations from training exercises involving underwater explosions.