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An opportunistic passive acoustics study of the spatial and temporal distribution and vocal behavior of Blainville's beaked whale ('Mesoplodon densirostris') in the presence of mid-frequency active sonar

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The effect of mid-frequency active sonar, has increasingly become an issue with navies worldwide. The U.S. navy ranges have been used to develop passive acoustic algorithms and tools to detect, classify, and localize marine mammal vocalizations which have been applied to an opportunistic passive acoustic study of Blainville's beaked whales. Based on Woods Hole Oceanographic Digital Tags (Dtags), these animals are known to produce echo-location clicks only during deep foraging dives. Using passive acoustics detection of vocalizations, foraging groups of animals were isolated and the duration of vocalizations was used as a measure of foraging behavior. The animals' vocal behavior and spatial and temporal distribution were characterized during periods with no active sonar on range. These results are compared to those derived from opportunistic data obtained during multi-ship active mid-frequency sonar operations.