

SITE FIDELITY AND MOVEMENTS OF CUVIER'S AND BLAINVILLE'S BEAKED WHALES AT THREE SPATIAL/TEMPORAL SCALES: COMBINING VHF RADIO TRACKING, SATELLITE TAGGING AND LONG-TERM PHOTO-IDENTIFICATION

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The Ziphiidae are the second-most speciose family of cetaceans, yet little is known of movements or site fidelity of any species. This lack of information has hampered efforts to understand and potentially mitigate anthropogenic impacts. Our study focuses on Cuvier's and Blainville's beaked whales, both known to be impacted by navy sonar. Based on site fidelity patterns in other mammals, we hypothesize that females show fidelity to foraging areas and males move between areas. We use three methods to study site fidelity and movements at different temporal and spatial scales: VHF radio tracking, satellite tracking, and photo-identification. The study area encompassed ~5,000 km² off the west coast of the island of Hawai'i. Short-term movements (over hours/days) were examined using suction-cup attached VHF transmitters deployed on 11 individuals in 2002-2006. Medium-term movements (over weeks) were studied using satellite tags that were deployed on three Blainville's beaked whales and one Cuvier's beaked whale in November/December 2006. Long-term site fidelity (over years) was assessed using a 21-year photographic dataset (1986-2006). Short-term horizontal rates of movements were low, from 1.52-1.94 km/hour for Cuvier's and Blainville's beaked whales, respectively. Satellite data collection is ongoing (as of 8 December 2006) but locations received in the first two weeks from two adult male Blainville's indicate movements out of our study area. Photographic re-sighting rates of both species were high (~25% of individuals were seen more than once) and re-sightings spanned 15-years, suggesting long-term fidelity to the area. Long-term re-sightings were documented primarily from adult females of both species, suggesting adult males may not be long-term residents. Individuals seen on multiple occasions were typically documented in multiple months/seasons, suggesting they may use the study area throughout the year. Such long-term site-fidelity has implications both for potential population structure and for susceptibility of beaked whale populations to anthropogenic impacts.