INTER-ISLAND DIFFERENCES IN CETACEAN SPECIES COMPOSITION IN THE MAIN HAWAIIAN ISLANDS

Daniel J. McSweeney[1], Robin W. Baird[2,3], Daniel L. Webster[4], Allan D. Ligon[4], Alice I. Mackay[5], La'Ren K. Antoine[1], and Antoinette M. Gorgone[2]

[1]Wild Whale Research Foundation, Holualoa, HI USA
[2]NOAA Fisheries, Beaufort, NC, USA
[3]Dalhousie University, Halifax, NS, Canada
[4]Hawaii Wildlife Fund, Volcano, HI, USA
[5]Sea Mammal Research Unit, University of St. Andrews, St. Andrews, Fife, Scotland

The main Hawaiian islands comprise eight volcanic pinnacles rising from the ocean floor to elevations of up to 4,000m. The "4-island area" (Maui, Lana'i, Moloka'i, Kaho'olawe) has a broad plateau with >3,800km^2 of shallow water (<200m deep) habitat, but the four other main islands all have relatively little shallow water habitat (<~1,000km^2 each), dropping quickly to 500-2,000m deep. Surveys in 2000-2002 off the three eastern-most areas (the 4-islands, O'ahu, and Hawai'i) demonstrated similar cetacean species composition among islands. However, no extensive boat-based efforts had examined odontocetes in the western islands (Kaua'i/Ni'ihau) prior to this study. During May/June 2003 we spent ~520 hours surveying ~8,500km of trackline around all these islands, in depths from 20-3,000m. Approximately 1,700km were covered off each of Hawai'i, the 4-island area, and O'ahu, with 3,200km off Kaua'i/Ni'ihau. We observed 14 odontocete species (140 groups - 137 identified to species/genus). The five most frequently observed (bottlenose, pantropical spotted, spinner and rough-toothed dolphins, and short-finned pilot whales) accounted for ~84% of sightings. For these five, a variety of differences in species densities (measured as # groups/100km) between islands were documented. Spotted dolphins and short-finned pilot whales were regularly observed off all three eastern-most study areas (0.40 and 0.29 groups/100km, respectively), but were uncommon off Kaua'i/Ni'ihau (0.12 and 0.06 groups/100km, respectively). Rough-toothed dolphins were found frequently off Kaua'i/Ni'ihau (0.34 groups/100km), but were rare elsewhere (0.04 groups/100km). Bottlenose dolphins were abundant off Kaua'i/Ni'ihau, O'ahu, and Maui/Lana'i (0.56 groups/100km), but were rare off Hawai'i (0.06 groups/100km). Only spinner dolphin densities were relatively similar (range 0.12-0.28 groups/100km) among islands. Differences in species composition likely reflect differences in prey availability. It is also possible that shooting of rough-toothed and bottlenose dolphins off the island of Hawai'i, due to their tendency to steal fish from fishermen, has resulted in population reductions in that area.

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