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Title : ABUNDANCE AND DISTRIBUTION PATTERNS OF HAWAIIAN ODONTOCETES: FOCUS ON OAHU

Category : Ecology

Student : Not Applicable

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Abstract : Twelve aerial surveys of waters between 50 and 500 meter depth around the Island of Oahu were conducted between July 1998 and June 2000. Surveys included Penguin Banks, a shallow water embankment located 26 miles between Oahu and Molokai. Surveys covered 10 months of the year, 6,916 kilometers and 47 hours of flight time.

The effort resulted in 255 sightings. The majority of these (175) were humpback whales, 1 was a non-identified mysticete, 15 were unidentified odontocetes and 64 were odontocetes representing seven different species. Odontocete sightings included pilot whales (Globicephala macrorhynchus; 30%), spinner dolphins (Stenella longirostris; 16%), bottlenose dolphins (Tursiops truncatus; 14%), false killer whales (Pseudorca crassidens; 9%), spotted dolphins (Stenella attenuata; 6%), beaked whales (Mesoplodon densirostris 4%), and rough-toothed dolphins (Steno bredanensis; 1%).The frequency of sightings was higher during January-April than the rest of the year and peaked in the month of February, and, in general, mirrored the peaks in humpback whale presence. Sightings per kilometer traveled were overall highest around Penguin Banks (3.59), followed by Windward (2.29), North (1.18), West (1.02) and South (0.92) side of Oahu. Most abundant by minimum number of individuals encountered were spotted dolphins (406 animals) and the least rough-toothed dolphins (one animal). School size had the narrowest spread for spinner (=11; SE=2), bottlenose dolphins (=4; SE=1) and pilot whales (=10; SE=2), while larger variations were present for spotted dolphins (=61; SE=16) and false killer whales (=11; SE=6).

Because of small sample size, distance-sampling abundance estimates had a high level of uncertainty. The unavailability of a correction factor for g(0)<1, and the reduced visibility below the aircraft further reduced accuracy and increased the inherent underestimation in the data. The most abundant species according to distance sampling estimates were pilot whales, spotted and spinner dolphins,and false killer whales.