

ONLY 50 KMS APART, YET BOTTLENOSE DOLPHINS DO NOT MOVE BETWEEN ISLANDS IN THE MAIN HAWAIIAN ISLAND CHAIN

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Given their long-distance movements elsewhere, it seemed likely that bottlenose dolphins around the main Hawaiian islands would move between islands, since they are only separated by ~50 km. To test the hypothesis that dolphins around different islands mix freely, we compared photographs of bottlenose dolphins from three areas in the main Hawaiian Island chain (O'ahu, Maui/Lana'i, and Hawai'i). Field work was undertaken off Maui/Lana'i from February 2000-March 2001 (68 individuals documented), and off all three areas in April/May 2002 (58 individuals documented), and May 2003 (69 individuals documented). A total of 170 distinctive individuals were documented, some seen on multiple occasions within or between years. Off Maui/Lana'i, we identified 18 individuals in 2002 and 16 individuals in 2003, and 11 and 13 of these, respectively, had been documented there in a previous year, indicating that individuals are likely resident to the area. Of the individuals identified off O'ahu (29 in 2002, 50 in 2003) and Hawai'i (11 in 2002, 2 in 2003), none have been documented off Maui/Lana'i. Only one between-year resighting was found off O'ahu, suggesting either a low degree of site fidelity or a much larger population size off that island. A lower degree of site fidelity may be related to the size of the habitat, since the Maui/Lana'i area has ~3,800km² of the shallow-water (<200m) habitat apparently preferred by bottlenose dolphins, while O'ahu and Hawai'i each have ~1,000km² of shallow-water habitat. Given a ~70% between-year resighting rate off Maui/Lana'i, we would have expected ~64 of 92 individuals from O'ahu and Hawai'i to have been previously documented if the dolphins were moving freely between islands. These data suggest that movements between these islands are extremely limited, if not absent. Skin biopsies collected (65 to date) will be used to test for genetic differentiation among populations around different islands.

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