

ABOUT THESE MAPS

Maps a, b and c show the at-sea density (birds/km²) of Laysan Albatross (*Phoebastria immutabilis*) in three ocean seasons – Upwelling, Oceanic, and Davidson Current, displayed in cells of 5' latitude by 5' longitude. Densities are based on the combined data sets of several studies; see the Data and Analyses section of this chapter. The color and mapping intervals were selected to show the most structure and highlight significant areas, while allowing comparisons among marine bird species. Cells that were surveyed but in which no Laysan Albatross were observed have a density of zero. Areas not surveyed appear white; no information was available for these areas. Blue lines indicate the boundaries of the National Marine Sanctuaries in the study area: Cordell Bank, Gulf of the Farallones and Monterey Bay. Bathymetric contours for the 200 m and 2,000 m isobaths are shown in light blue.

In order to provide an integrated look at the patterns of a species' spatial and temporal occurrence and abundance in the study area, map d shows seasonal high-use areas, displayed in cells of 10' latitude by 10' longitude, and also breeding colonies (when available). The seasonal high use map provides a further synthesis of densities presented in maps a, b and c, and portrays the relative importance of various areas to the species. Areas with consistently high use are highlighted. See the Data and Analyses section of this chapter for further explanation of high-use areas. Because the sighting data for this species extends significantly beyond the western extent of the standard map frame used in this project, additional maps are provided for this species in Appendix 3J that include a greater western extent.

DATA SOURCES AND METHODS

The at-sea data set is referred to as the CDAS central California data set (1980-2001) and was developed using software called Marine Mammal and Seabird Computer Data Analysis System (CDAS), by the R.G. Ford Consulting Co. The data set extends from Pt. Arena to Pt. Sal in the study area, and the surveys used were conducted between 1980 and 2001. See the Data and Analyses section of this chapter for more information on the at-sea survey data sets and methods.

RESULTS AND DISCUSSION

The Laysan Albatross nests in the Hawaiian Islands, and on other islands in the central Pacific Ocean; small, growing colonies were recently found off Mexico. In the study area, where it qualifies as being rare (90 sightings of 97 individuals in the CDAS data set), it occurs regularly in waters over the continental slope and deeper depths (mean depth was 2,376 m). Average distance from shore of the sightings was 71.3 km. Therefore, it occurs over deeper waters than the black-footed albatross. A multiple regression model of nine independent variables explained 6.9% of the variation in cell density; see Table 3.8. Important variables were a positive relationship to ocean depth, and inverse ones to distance to land, and year.

The Laysan Albatross concentrates along the continental slope off central California and was most abundant during the Davidson Current Season. Abundance in the study area has increased slightly between 1985 and 2002, perhaps reflecting the factors, unknown, that also have led to recent colonization of west coast islands (off Mexico).

Albatrosses are generalists that feed on anything (squid are important prey, but other live or dead prey found at the surface are taken). See Tables 3.5, 3.8, 3.9, 3.10 and 3.11 for related summary information.

