

ABOUT THESE MAPS

Maps a, b and c show the at-sea density (birds/km²) of California Gull (*Larus californicus*) 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 California Gulls 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.

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.

Data on colony sizes were obtained from Carter *et al.*, (1992).

RESULTS AND DISCUSSION

The California Gull is the second most abundant gull species in the study area, after Western Gull. Surveys in CDAS recorded 4,210 sightings of 18,034 individuals. Like the Western Grebe, California gulls breed primarily on inland lakes from Nevada to South Dakota and the Canadian prairie provinces. A breeding population was established in San Francisco Bay in the early 1980s, where numbers have grown dramatically in recent years (see Strong *et al.* 2004). California Gulls from all these breeding locations migrate to the Pacific Coast after nesting.

Large numbers are present in the study area during the Oceanic Season, although their densities are highest during the Davidson Current Season. A multiple-regression model of nine independent variables explained 24.0% of variation in density for this species; important variables were season, latitude (more abundant in the north), and an inverse relationship to year (i.e., they declined slightly in abundance from 1985 to 2002 over the years). This species occurs primarily over waters from the continental shelf to those of the mid-slope (mean depth of 319 ± 17 m), thus, in the study area, mainly in waters bounded by the central California National Marine Sanctuaries. This species occurs in the study area during all three ocean seasons.

The California Gull is a generalist feeder, consuming anything edible that it finds at the surface. See Tables 3.5, 3.7, 3.8, 3.9, 3.10 and 3.11 for related summary information.