

Black-footed Albatross habitat use in central California Sanctuaries

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In order to conserve a species that is constantly on the move, like the black-footed albatross (*Phoebastria nigripes*), we need to understand local and ocean-wide influences on its distribution.

Point Blue and partners studied where and how many black-footed albatross there were within the chick-rearing and post-breeding periods, as well as over the entire year along the central California continental shelf from 2004 to 2008. We used data collected by the Applied California Current Ecosystem Studies Program (ACCESS, www.accessoceans.org).

We assessed how the following environmental factors influenced albatross presence and abundance: (i) topography of the ocean floor, (ii) oceanographic processes, such as ocean currents and (iii) seasonal and yearly variability, such as El Niño versus La Niña.

Models predicting presence/absence were more robust than those for abundance, but both showed that static and dynamic features influence black-footed albatross habitat use. Specifically, occurrence was greatest

near the shelf-break, particularly in months with strong upwelling. High black-footed albatross densities (especially during the chick-rearing season) occurred over the Rittenburg Bank, part of a long rocky underwater ridge on the shelf between the Farallon Islands and Cordell Bank. Black-footed albatross aggregation intensity was greatest within 200 m of the shelf-break. Behavioral observations reinforced predictions that transiting black-footed albatross are widely dispersed near the shelf-break and concentrate in large flocks sitting on the water farther onshore. High density was also associated with periods of positive North Pacific Gyre Oscillation index.

These results underscore the need to consider oceanographic processes at many scales when interpreting changes in black-footed albatross distribution within marine sanctuaries, and highlight the feasibility of implementing protected areas defined by ocean floor features.

Main Points

Over 50% of the albatross visiting central California sanctuaries use the shelf break.

Albatross distribution is influenced by ocean features at multiple space and time scales.

Rittenberg Bank is an important feature for albatrosses in central California.

Upwelling is a dynamic process that influences albatross numbers in central California.

Albatross protection can be achieved by time–area closures when and where the potential for bycatch in fisheries is highest.

Michael, P.E., K.D. Hyrenbach, J. Jahncke. 2013. Balancing act: relative influence of static and dynamic features on black-footed albatross habitat use in central California Sanctuaries. *Fisheries Oceanography*. doi: 10.1111/fog.12039

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