

Baseline Highlights from California's South Coast Seabird Surveys

Monitoring Sentinels of the Sky



About This Snapshot Report

This report highlights some key scientific findings from the Seabirds Project, one of ten baseline projects in California's South Coast region.¹ This project characterized populations of focal seabird species at selected locations around the time of marine protected area (MPA) implementation. Facts and figures are derived from the [project's peer-reviewed technical report](#) and [associated references](#),² which can be found, along with the related data, at [OceanSpaces.org](https://oceanspaces.org).

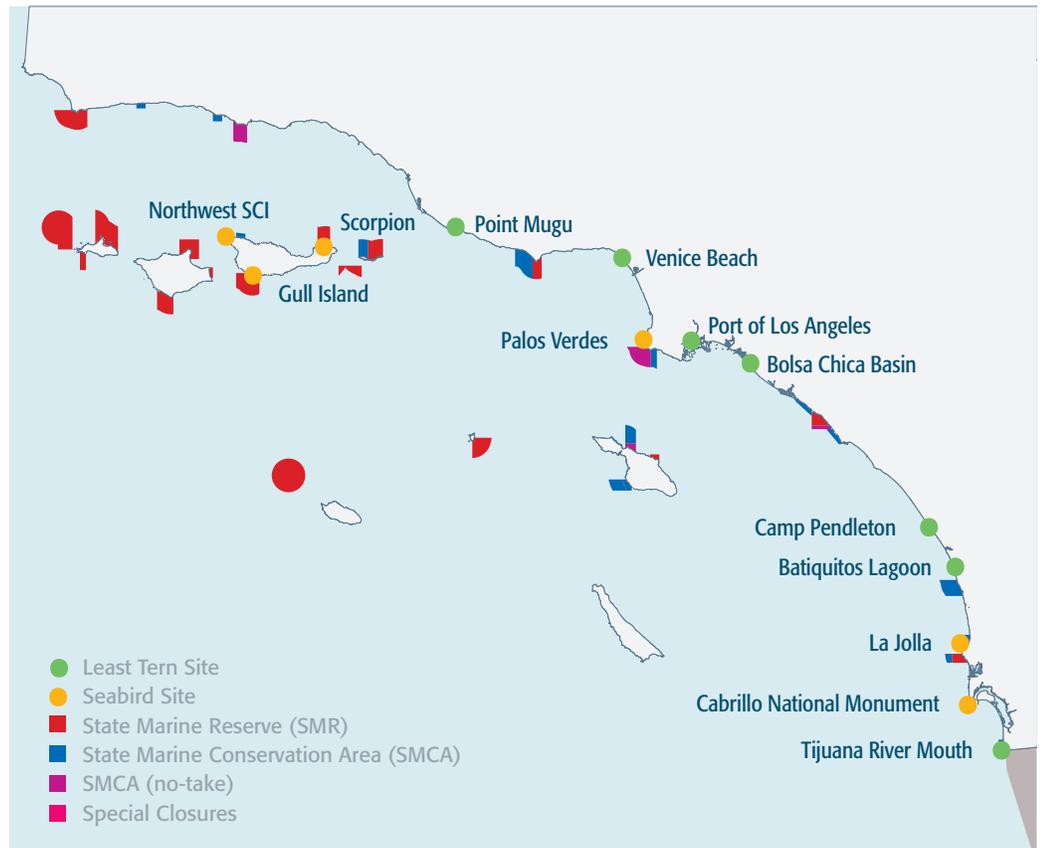
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Sentinels of the Sky

Seabirds are long-lived predators with key roles in coastal and marine ecosystems. Many species return to the same area each year, and often have very specific habitat requirements for breeding, roosting, and foraging. As such, they may experience direct and indirect benefits when MPAs encompass part or all of their preferred habitat, such as reduced disturbance from human interaction and potential increases in prey availability. Because seabirds often use multiple habitats, they serve an important role in connecting coastal ecosystems. In this baseline project, researchers from Point Blue Conservation Science³ monitored the use of nearshore habitats by species inside and outside of MPAs in three areas within the South Coast, and analyzed diets of endangered California Least Terns from seven colonies. Refer to the map on this page for study locations, and to the back page for details on the species: California Least Tern, Brandt's Cormorant, Pelagic Cormorant, Pigeon Guillemot, Western Gull, California Brown Pelican, and Black Oystercatcher.



Map of seabird study locations in the South Coast. Not all MPAs and Special Closures are visible.

Tracking Ocean Conditions Through Seabird Monitoring

By analyzing seabirds' diets and reproductive success, researchers can gain important insights into oceanographic and ecological conditions in coastal and marine ecosystems. Previous research suggests that the abundance and recruitment patterns of particular fishes are reflected in the diet of some seabird species, and that reproductive success of seabirds tends to be higher when preferred prey fish are available near breeding sites.

In this project, diet analysis showed that California Least Terns from a successful colony (Port of Los Angeles) tended to eat large quantities of Northern Anchovies and young-of-year (YOY) rockfish. In contrast, birds at less successful colonies (e.g., Batiquitos Lagoon, Bolsa Chica, Point Mugu) had a more varied diet that suggested feeding at multiple sites and at greater distances from their colonies. This suggests that Northern Anchovies and YOY rockfish were relatively more abundant in the waters near the Port of Los Angeles colony compared to other colonies in the study. It is important to note that the Port of Los Angeles colony site is within a land based protected area designated specifically for Least Tern nesting. Understanding the dynamics of these fish populations serves an important role in interpreting the effects of MPAs and changing ocean conditions.

Sensitive Species Inside & Outside MPAs

Some seabird species are known to be sensitive to human disturbance, and may temporarily or permanently abandon nesting sites if a threat is perceived. For this this reason, researchers were interested in monitoring disturbance rates at seabird study sites. Seabirds at Matlahuayl State Marine Reserve (SMR), in the San Diego study area, experienced high disturbance levels, mostly from people on foot. In contrast, the seabirds at Santa Cruz Island experienced low levels of disturbance both inside and outside of MPAs, primarily from recreational boaters.

Researchers found that the majority of breeding populations for the focal species were found outside of MPAs. Matlahuayl SMR was the only MPA on the mainland where focal species were breeding. Roost utilization (number of birds roosting) was the same inside and outside of MPAs for all focal species except Pelagic Cormorants, which were observed roosting more often outside of MPAs. Roost utilization was highest at Santa Cruz Island for all species. Overall abundance and species diversity of foraging seabirds was also the same inside and outside of MPAs.



California Least Terns nest on sandy beaches and in estuaries.
Photos: Dan Robinette

Ecosystem Use by Focal Seabird Species



California Least Tern (endangered species)

Breeding: Sandy beach, estuaries

Foraging: Estuary, nearshore pelagic, kelp and shallow rock



Brandt's Cormorant

Breeding: Flat portions of rocky cliffs and islands

Foraging: Subtidal soft-bottom, nearshore pelagic, kelp and shallow rock



Pelagic Cormorant

Breeding: Crevices on rocky cliffs

Foraging: Kelp and shallow rock



Pigeon Guillemot

Breeding: Crevices on rocky cliffs, islands, offshore rocks

Foraging: Kelp and shallow rock, subtidal soft bottom, nearshore pelagic



Western Gull

Breeding: Rocky cliffs, islands, offshore rocks

Foraging: Rocky intertidal, nearshore pelagic



California Brown Pelican

Breeding: Slopes, canyons, and bluff tops at Anacapa and Santa Barbara Islands

Foraging: Nearshore pelagic



Black Oystercatcher

Breeding: Coastal rocks

Foraging: Rocky intertidal

Photos, from top: Dan Robinette (1-3), Annie Schmidt, Emily Knight, Charlotte Stevenson, Jason Thompson

About South Coast MPA Baseline Monitoring

California Ocean Science Trust, California Department of Fish and Wildlife (CDFW), California Ocean Protection Council (OPC), and California Sea Grant coordinated and collaborated in the implementation of baseline monitoring, which was funded by OPC. Results from this work will inform CDFW management recommendations to the California Fish and Game Commission from the first five years of MPA implementation in the region, anticipated in 2017. MPA monitoring results can also inform the management of fisheries, water quality, and climate change.

Footnotes

1. To learn more about the seabirds monitoring project, visit oceanspaces.org/sc-seabirds
2. Daniel Robinette, Julie Howar, Meredith L. Elliott, and Jaime Jahncke. 2015. Use of Estuarine, Intertidal, and Subtidal Habitats by Seabirds Within the MLPA South Coast Study Region. California Sea Grant. San Diego, CA. 77pp. goo.gl/l4bwP7
3. Point Blue Conservation Science <http://oceanspaces.org/organization/point-blue-conservation-science>