

Citizen Science Supporting Seabird Conservation on Public Lands in California

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One of the greatest resources for science on federal public lands is the people who live close to these lands. By engaging in scientific data collection, citizens are extending the scope of the public's stewardship role in public land management. According to [The State of the Birds 2011 Report on Public Lands and Waters of the United States](#), major threats to coastal birds include coastal development, increased human disturbance, and sea-level rise. Information being collected on seabirds by citizen scientists is helping public and private organizations alike better understand and address these challenges.



Black Oystercatcher is considered an indicator for the health of rocky intertidal shorelines. This adult is incubating during a July 2014 re-nest. / Donald Shephard



Black Oystercatcher nest monitoring volunteer at Point Cabrillo State Marine Reserve in northern Mendocino County, California. / Joleen Ossello

One example of this involvement comes from California, where the Bureau of Land Management (BLM) manages the California Coastal National Monument (CCNM). To coordinate seabird data collection using common protocols, the BLM works closely with the Gulf of the Farallones National Marine Sanctuary (NMS), the San Francisco Bay National Wildlife Refuge Complex, coastal national parks, California State Parks, and non-governmental organizations (NGOs) such as Audubon California, Pacific Grove Museum of Natural History, and Point Blue Conservation Science. Agency and NGO staff train interested local residents as volunteers to observe seabirds and collect data on public coastal lands across the length of California.

Since 2011, Audubon California, BLM, and the National Park Service have teamed up to coordinate volunteer observers up and down the California coast to census Black Oystercatchers and study their nesting success. Oystercatchers are very amenable to citizen science monitoring because they are charismatic and inspiring to people, which helps attract and retain volunteers. They are large, easy to identify by sight and sound, and fairly stationary during the breeding season, all of which reduces the chance of double counting. Because the oystercatcher often nests among rocks just a few feet above the high-tide mark, bird biologists believe that the species is especially vulnerable to sea-level rise. The data being collected by citizen scientists will go a long way toward helping biologists test this hypothesis.

For example, creating a geospatial description of breeding habitat for Black Oystercatcher would provide a clearer picture of the importance of California to the global status of the species, and show areas of potential focus for conservation activities, including monitoring and protection. This

map could be the basis for a modeled analysis of the vulnerability of these breeding territories to inundation resulting from the climate change impacts of sea-level rise in combination with increased storm events.

In fact, citizens' findings are already advancing our understanding of the ecology and abundance of Black Oystercatcher populations in California. First, the number of oystercatchers surveyed by citizens is perhaps as much as four times higher than what biologists previously suspected. The data indicate that oystercatchers concentrate in high numbers on the Monterey, Sonoma, and Mendocino County coastlines, and a disproportionate number of them nest on the CCNM rocks and islands.

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Citizen scientists have also initiated their own projects involving the CCNM. For example, residents of Mendocino County initiated a study of Pelagic Cormorants in 2009, focusing on contrasts in cormorant nest success on CCNM rocks and islands in both urban and remote locations. In urban locations, people may approach nests relatively closely for easy observation and study, but other nests remain inaccessible because of their locations on island and coastal ledges, in which case people observe the nests from boats offshore. These data help managers gain a better understanding about how resilient Pelagic Cormorants are when they nest around working harbors or close to people's coast-side homes. Word of mouth has drawn additional involvement from citizen scientists as far south as San Luis Obispo County and north to Humboldt County and as a result the network of citizen observers for Pelagic Cormorants has grown.

One lynchpin of citizen science for seabirds in California has been the creation of the Seabird Protection Network by the Gulf of the Farallones NMS, with the aim of quantifying and reducing human disturbances to seabirds. Since its founding and original focus in the San Francisco Bay Area, the Network has expanded along the coast with the development of regional chapters of BLM, Stewards of the Coast and Redwoods/California State Parks, and the Montrose Settlements Trustee Council. The Network provides the critical function of uniformly reporting and compiling citizen observations of disturbances to seabirds at their roosting, resting, and nesting sites. Agencies use this information to better manage seabird colonies by responding with site-appropriate measures to avert more disturbances. The other role citizens play in the Network is in sharing scientific information about seabirds and their ecology at public lectures, meetings, and personal contacts with shoreline visitors throughout the year.

By gathering scientific data and then communicating with the general public about seabirds—their life history and our role in their conservation—citizen scientists are both helping agencies better manage seabirds and increasing people's awareness and appreciation for these species—two vital steps in promoting seabird conservation in California.

For more information, visit:

The Seabird Protection Network at www.seabirdprotectionnetwork.org/

Gulf of the Farallones National Marine Sanctuary at farallones.noaa.gov/eco/seabird/welcome.html

Stewards of the Coast and Redwoods, Sonoma County at www.stewardscr.org/cms/pages/volunteer_sonoma_coast_seabird_monitoring.html

Audubon California Black Oystercatcher Survey at ca.audubon.org/black-oystercatcher

Mendocino Coast Audubon Society—Pelagic Cormorant Study at www.mendocinocoastaudubon.org/mcas_cons_cormorant.html

BLM California Coastal National Monument - Point Sur to Point Mugu at www.blm.gov/ca/st/en/prog/blm_special_areas/nm/ccnm/spn.html

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The least social of the cormorants, the Pelagic Cormorant nests on steep cliffs along rocky and exposed shorelines, either in loose colonies or far from nearest neighbors. / Mike Baird