

'Citizen science' reveals positive news for Puget Sound seabirds

January 20 2015



A new analysis of volunteer bird sightings found increasing trends for several Puget Sound seabirds including brants. Credit: Enrique Patino/NOAA Fisheries

A new analysis of seven years of bird sightings by volunteer birdwatchers from the Seattle Audubon Society has found positive trends in several Puget Sound seabird species that had been in historic decline.

The study tracked the occurrence of 18 seabird species at 62 sites around Puget Sound and found increased presence of 14 species, including cormorants, loons, rhinoceros auklets, and harlequin ducks. It also documented local hotspots for certain species, which may reflect especially important habitat or prey the birds depend on.

"This means that all other things being equal, if someone goes out now they're more likely to see these birds than they would have been seven years ago," said Eric Ward, an ecologist at NOAA Fisheries' Northwest Fisheries Science Center in Seattle and lead author of the research.

Many seabird species are thought to have declined around Puget Sound since the 1960s and 1970s but the new results suggest the trends have turned up for many species. The Puget Sound Partnership lists some of the species as barometers of the health of Puget Sound.

"Seeing positive trends here is good news," said Scott Pearson, a seabird research scientist at the Washington Department of Fish and Wildlife and a coauthor of the research. "What we may be seeing is that a number of species may be turning the corner."

The research published in the peer-reviewed online journal *PeerJ* is unusual because it's based on "citizen science," specifically Seattle Audubon's Puget Sound Seabird Survey that began in 2007. Researchers noted that the new analysis offers a model for how citizen observations can provide important data for wildlife agencies with limited budgets to collect it themselves.



Volunteers participating in the Puget Sound Seabird Survey record bird species and other details that have revealed increasing trends in several seabird species. Credit: Toby Ross/Seattle Audubon Society

Several of the research authors helped develop the Seabird Survey, which assesses the presence of seabirds during the winter when many species are most abundant. More than 250 experienced volunteers have participated in the survey through the years, returning to the same sites on the first Saturday of each month from October to April. They identify birds and collect details such as how long they spent searching for birds and the bearing and distance to each bird, which helps calculate the density of each species.

"The beauty of working with birds is that there are so many people who love birding and who are very skilled at it," said Toby Ross, Science Manager at Seattle Audubon and a coauthor of the study. "You could never do this with staff people. You'd never have the budget to send out

this many people so consistently for so many years, but volunteers make it possible."

The analysis focused on 18 seabird species that are indicators of the environmental health of Puget Sound because they are relatively abundant and depend on Puget Sound for food and habitat. It examined their presence over time at 62 public sites such as parks and piers from the northern end of Whidbey Island south to Olympia. Researchers used statistical models to translate observations by Seabird Survey volunteers into trends in the presence of each of the 18 species.

Of the 18 species, 14 demonstrated positive trends since the survey began in 2007. They include marbled murrelet, rhinoceros auklets, loons and bufflehead and harlequin ducks. The results dovetail with other recent results, such as nesting surveys that have also found increases in rhinoceros auklets. However researchers cautioned that positive trends in sightings do not necessarily reflect increasing populations. For example, federally listed marbled murrelet populations continue to decline across Washington. The Seabird Survey will continue tracking bird sightings.

"Every year we add more data and we can do more analyses and we'll see if the trends continue," Ross said.

The study found declines in the occurrence of four species: white-winged scoter, brant, western grebe and red-necked grebe. Researchers suggested the declines might result from geographical shifts or prey declines in Puget Sound or the Salish Sea or environmental threats to their nesting grounds elsewhere. Similar citizen-science data from other areas have indicated that western grebes appear to have shifted to the south, out of the Puget Sound region.

Provided by NOAA Headquarters

Citation: 'Citizen science' reveals positive news for Puget Sound seabirds (2015, January 20)
retrieved 25 April 2024 from
<https://phys.org/news/2015-01-citizen-science-reveals-positive-news.html>

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