

Seabird monitoring in Oregon's Marine Reserves a community science project

Background: The Audubon Society of Portland and partners including U.S. Fish and Wildlife, Sea Lion Caves, OSU, Haystack Rock Awareness Program, and Friends of Cape Falcon are monitoring seabird nesting colonies adjacent to 2 of Oregon's 5 Marine Reserve/Marine Protected Area complexes:

- Since 2014 at Cape Perpetua marine Protected Area & reference area (Yaquina Head)
- Since 2016 at the Cape Falcon Marine Reserve & reference area (Haystack Rock)

Objectives:

Science: Establish a baseline of information on nearshore, piscivorous (fish-eating) seabird populations in the Cape Falcon and Cape Perpetua Marine Reserve/Marine Protected Areas and compare breeding success to nearby seabird colonies outside of the MR/MPAs (reference areas).

Outreach: Promote wider recognition of Oregon's marine reserves and seabird conservation through local community participation and associated outreach and education. Recruit new volunteers and activists.

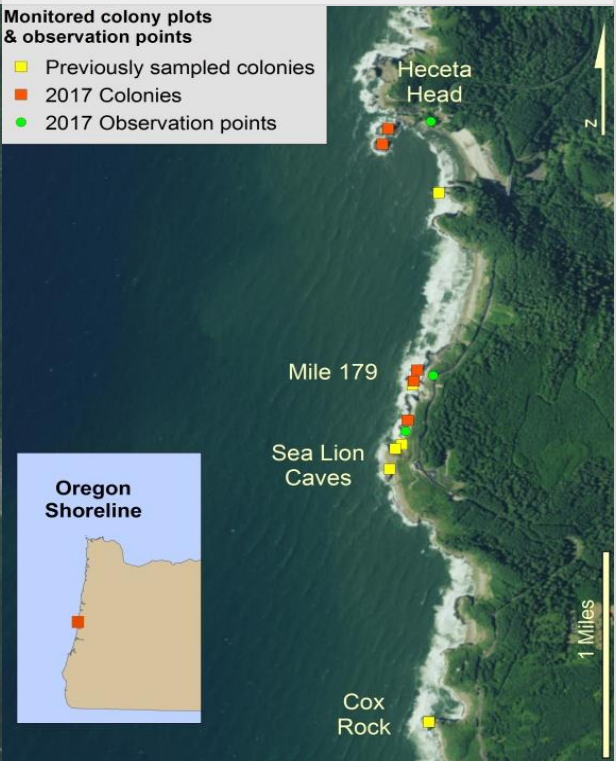
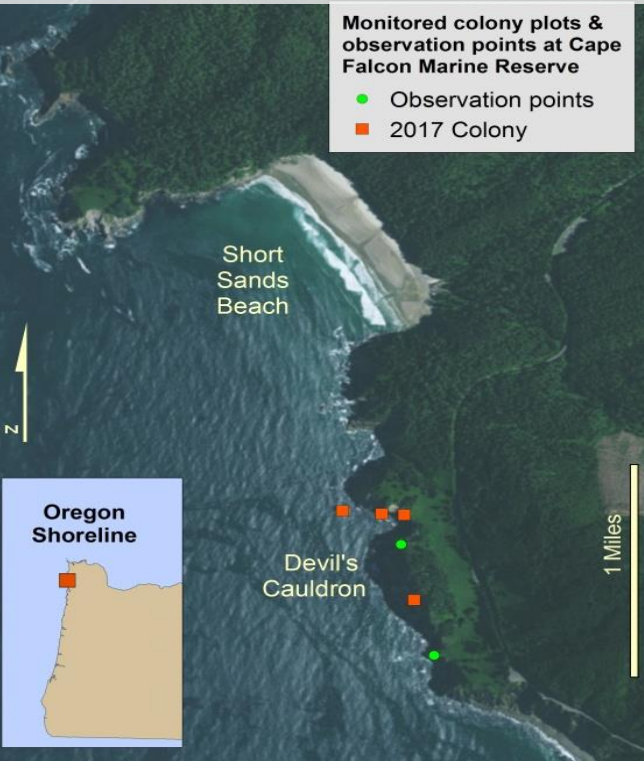


Marine Reserves are areas that prohibit any extractive uses (e.g. fishing) in order to support stable populations of marine life and protect key nearshore habitats.

Marine Protected Areas allow for some extractive uses. Non-consumptive uses (e.g. kayaking, surfing) are welcome in the reserves.



In 2017, we monitored seabird nests at 4 colonies at Cape Falcon and 5 colonies at Cape Perpetua



Study Species

At both sites we monitor nests of **3 cormorant species** (see photos below). Cormorants are common nesters and build grass or stick nests.

At Cape Perpetua we count **Rhinoceros Auklets** and **Pigeon Guillemots** in Sea Lion Caves. These birds nest in rock crevices so we can't see their nests.



How do we monitor seabird nests?

- We select a subset of cormorant nests in a colony to monitor. We label these nests on photos so they are easy to relocate (see photo to right).
- Colonies are monitored weekly from June to September by trained volunteers.
- When adult birds get off their nests we count the eggs or chicks in the nest. This takes patience but its rewarding! Nests that fail (don't produce chicks) are recorded as well.
- We estimate chick size so we can determine the expected date they will be able to fly (fledge).
- Breeding productivity is calculated as the average number of fledglings produced per nest.
- We also monitor avian predators, whales that pass by, and weather conditions.



Contribution to science and management

U.S. Fish and Wildlife Service is including data from this project in their seabird catalog database for long-term trend analysis.

Community Scientist power! We rely on volunteers for data collection and outreach to the public

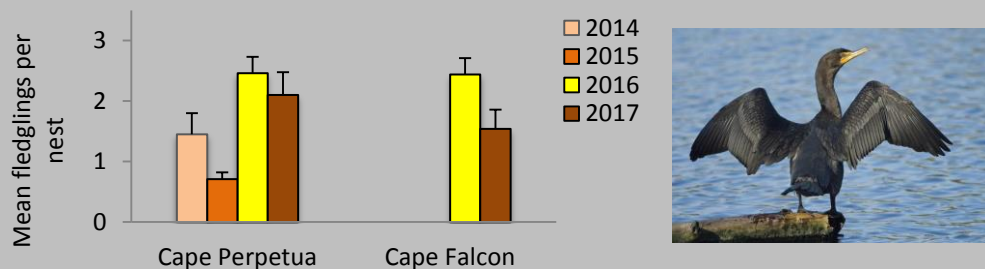
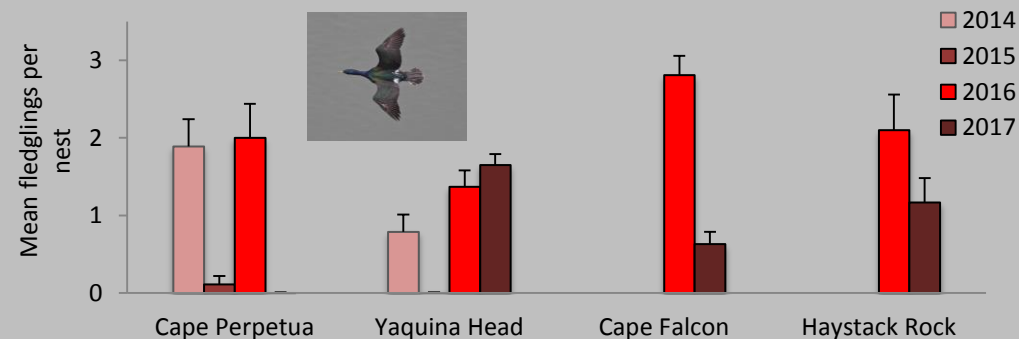
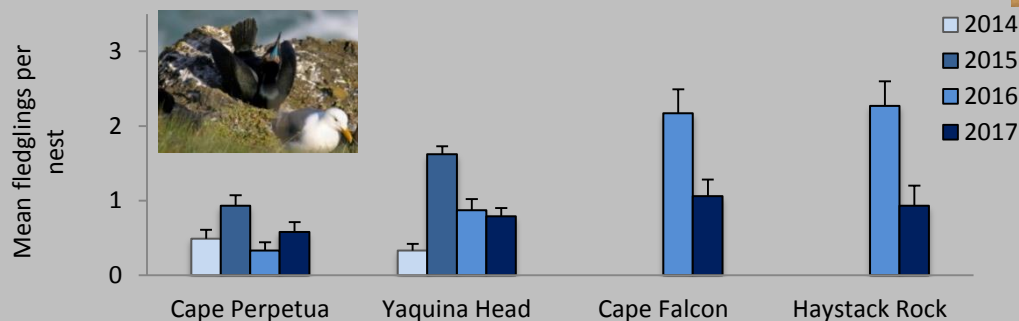
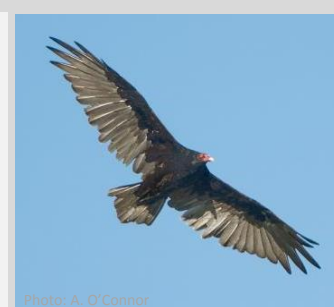
To get involved contact Joe Liebezeit: jliebezeit@audubonportland.org

How successful are the nesting cormorants?

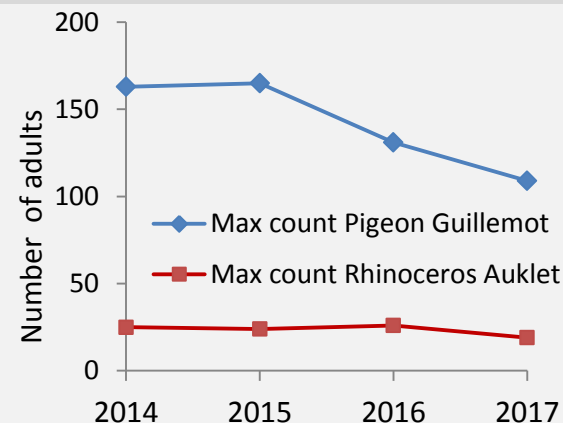
- Over 125 nests monitored each season at Cape Falcon and Cape Perpetua and reference sites
- We've documented relatively high inter-annual variability in fledgling success between all sites and years
- Productivity has been higher on North Coast compared to Central Coast



The most common potential predators we've documented are Turkey Vultures and Brown Pelicans.



The 3 graphs above depict breeding productivity (mean \pm standard error) for Brandt's (top), Pelagic (middle), and Double-crested (bottom) Cormorants, showing variability between years (2016, 2015 and 2014) and locations (Cape Perpetua and Yaquina Head).



Pigeon Guillemot and Rhinoceros Auklet numbers have remained stable to decreasing at Sea Lion Caves



Outreach success

- 39 volunteers participated in 2017
- We have reached ~700 members of the public each year during monitoring sessions