

PACIFIC BROWN PELICAN SURVEY



Photo: S. Carpenter

Summary Results - 2016-19

PROJECT BACKGROUND

Started in 2016, the Pacific Brown Pelican Survey is a joint effort of the West Coast Audubon network, U.S. Fish & Wildlife Service, and other partners. The goal is to conduct biannual surveys to help define distribution and abundance of Brown Pelicans and track shifts in population structure.



Photo:
F. Buchanan

WHY COUNT BROWN PELICANS?

The California Brown Pelican subspecies (*Pelecanus occidentalis californicus*) was removed from the Endangered Species list in 2009. In recent years Brown Pelican productivity at the Channel Islands and across the range has been poor, and key forage species including anchovy have collapsed raising questions and concerns about recruitment to the breeding population and ultimately the health of the subspecies.

**THIS PROJECT RELIES ON VOLUNTEER
"COMMUNITY SCIENTISTS" TO
COLLECT DATA.**



SUMMARY

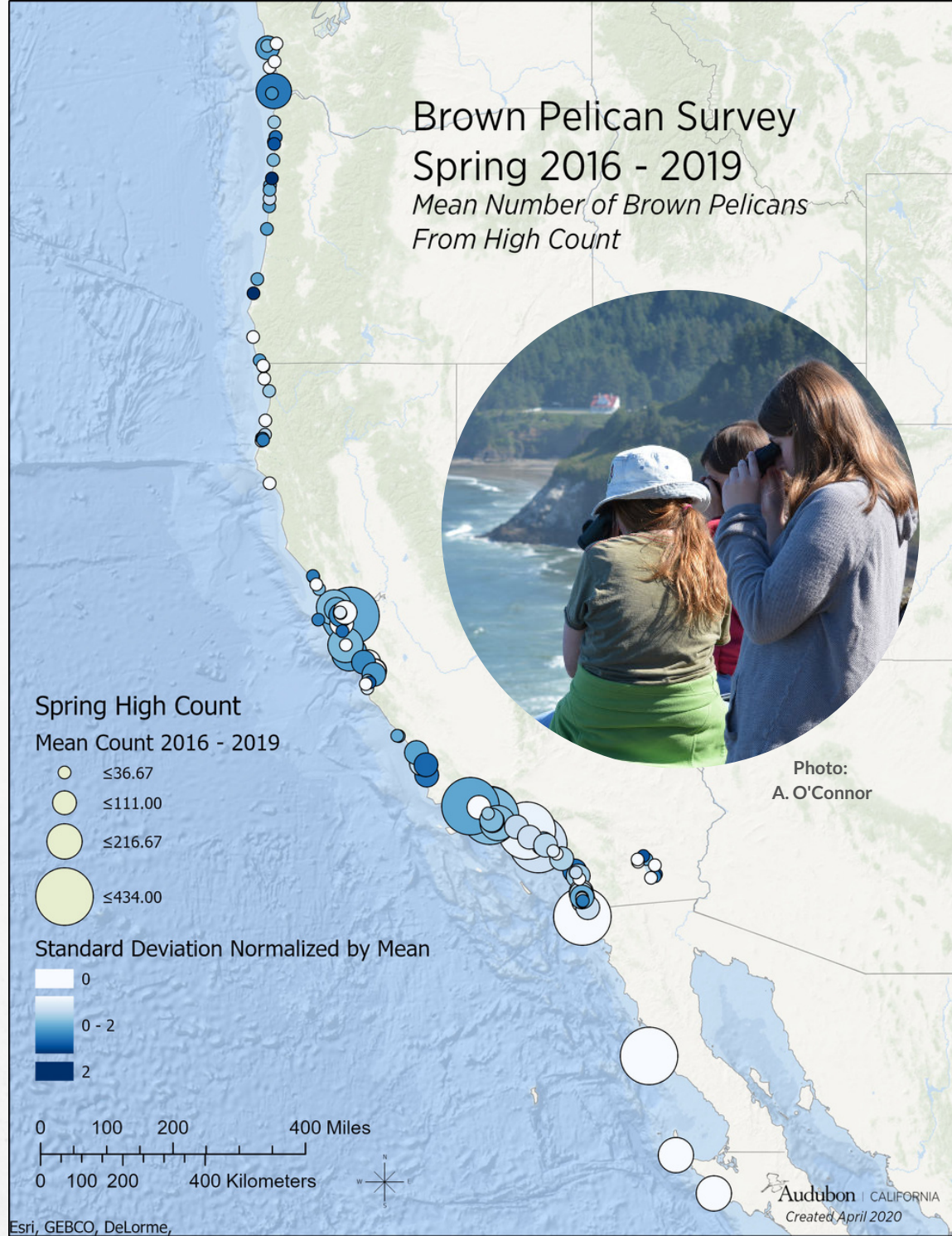
Coast-wide Results:
2016-19

EFFORT & SITE COVERAGE

Each year up to 200 surveyors monitored up to 119 pre-identified sites from Baja California (8), California (87), Oregon (18), to Washington (6). Most unsampled sites were in California though all known "megaroosts" were sampled. See Table for breakdown

PELICAN TOTAL

The sum of all pelicans observed on the highest count ranged from 4,783 bird in the spring of 2019 to 18,209 in fall of 2018. See Table for breakdown:



Year	Total Surveyors	Total sites monitored (spring / fall)
2016	205	71 / 80
2017	216	42 / 83
2018	304	94 / 83
2019	276	79 / 86
Average	250.3	72 / 83

Total of all pelicans on highest count		
Year	Spring	Fall
2016	3,979	12,823
2017	2,127	8,820
2018	5,415	18,209
2019	4,783	10,144



SUMMARY

Coast-wide Results:
2016-19

ABUNDANCE PATTERNS

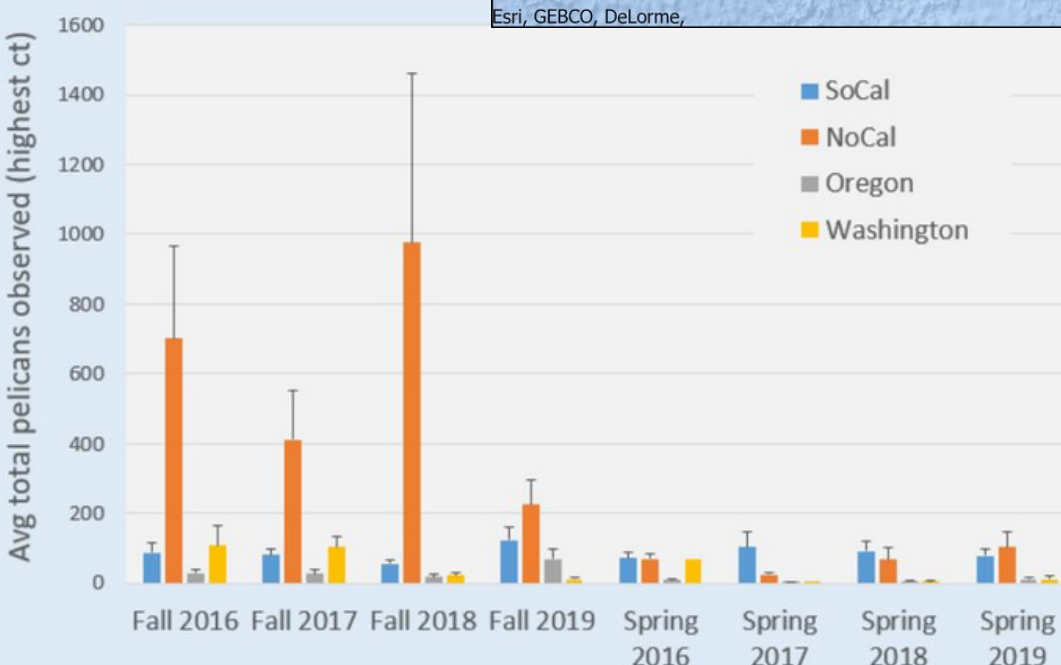
Overall, the average number of pelicans observed was 4-fold higher in the fall compared to the spring. In fall, most pelicans were reported in northern California (Monterrey Bay and north) See map & graph for details.

COLOR-BAND RESIGHTS

Since 2016 19 color-marked pelicans have been resighted: 16 in California and 3 in Oregon contributing to on-going seabird rehabilitation research.

Brown Pelican Survey Fall 2016 - 2019

Mean Number of Brown Pelicans
From High Count



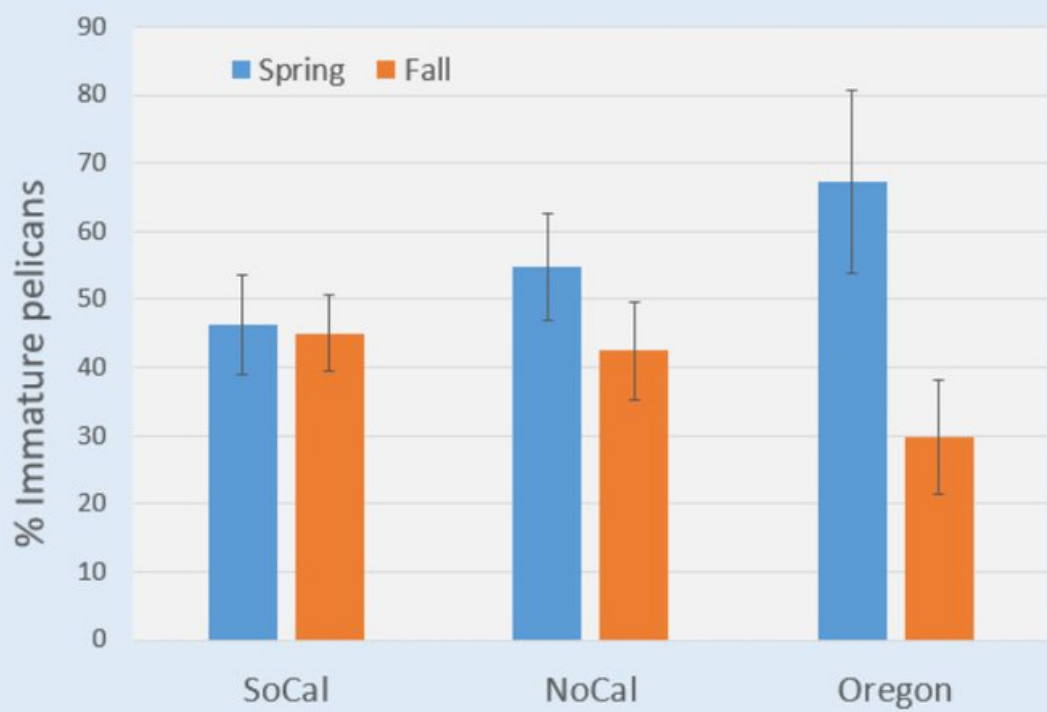
- Top 10 Megaroots** (sites that traditionally host >500 pelicans) with average fall count numbers:
- Alameda Breakwater, CA (3,183)
 - Pillar Point Harbor, CA (1,481)
 - East Sand Island, OR (1,121)
 - Ano Nuevo State Park, CA (1,068)
 - Salinas River mouth, CA (762)
 - Bolinas Lagoon, CA (755)
 - Morro Rock, CA (725)
 - Moss landing, CA (570)
 - Crescent City Harbor, CA (514)
 - Bird Rock Tomales, CA (514)

SUMMARY

Coast-wide Results:
2016-19

AGE RATIOS

~77% of surveyed pelicans were aged as “adult” or “immature” with overall percentages of 43.4% to 56.6% respectively. In the spring, % immatures increased northward while the opposite was true in the fall. See graph



HOW RELIABLE IS THE MONITORING?

In 2019 pelican researcher Deb Jacques compared counts done by professional surveyors and community scientist volunteers and found volunteer effort performed very well at capturing distribution and abundance at most roost sites and at quantifying age ratios although at the large “megarost” sites the volunteer effort did not provide representative data.

Depending on project support we aim to make these surveys a hybrid effort where professionals and specially trained volunteers survey the traditional megaroosts while volunteers cover the rest of the coast.



Photo: S. Carpenter

CONCLUSIONS & NEXT STEPS

Preliminary results point to interesting patterns in both abundance and age ratio distribution along the West Coast. Our next step is to examine how abundance of forage fish species that Brown pelicans rely on for food (most importantly anchovies) and annual pelican nesting success at their breeding grounds are influencing the movement patterns we are revealing. This information will help provide new information to better manage and protect this amazing bird!

For more information visit: <https://audubonportland.org/get-involved/community-science/brown-pelican/>
Get involved! California contact: Anna Weinstein (aweinstein@audubon.org) | Oregon contact: Joe Liebezeit (jliebezeit@audubonportland.org) | Washington contact: Teresa Anderson (tanderson@audubon.org) | Baja California contact: Yuliana Bedolla (yuliana.bedolla@islas.org.mx)