

Avian Salmonid Predation Work Group: Orientation to Challenge

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Director of External Affairs

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Washington
Department of
**FISH &
WILDLIFE**

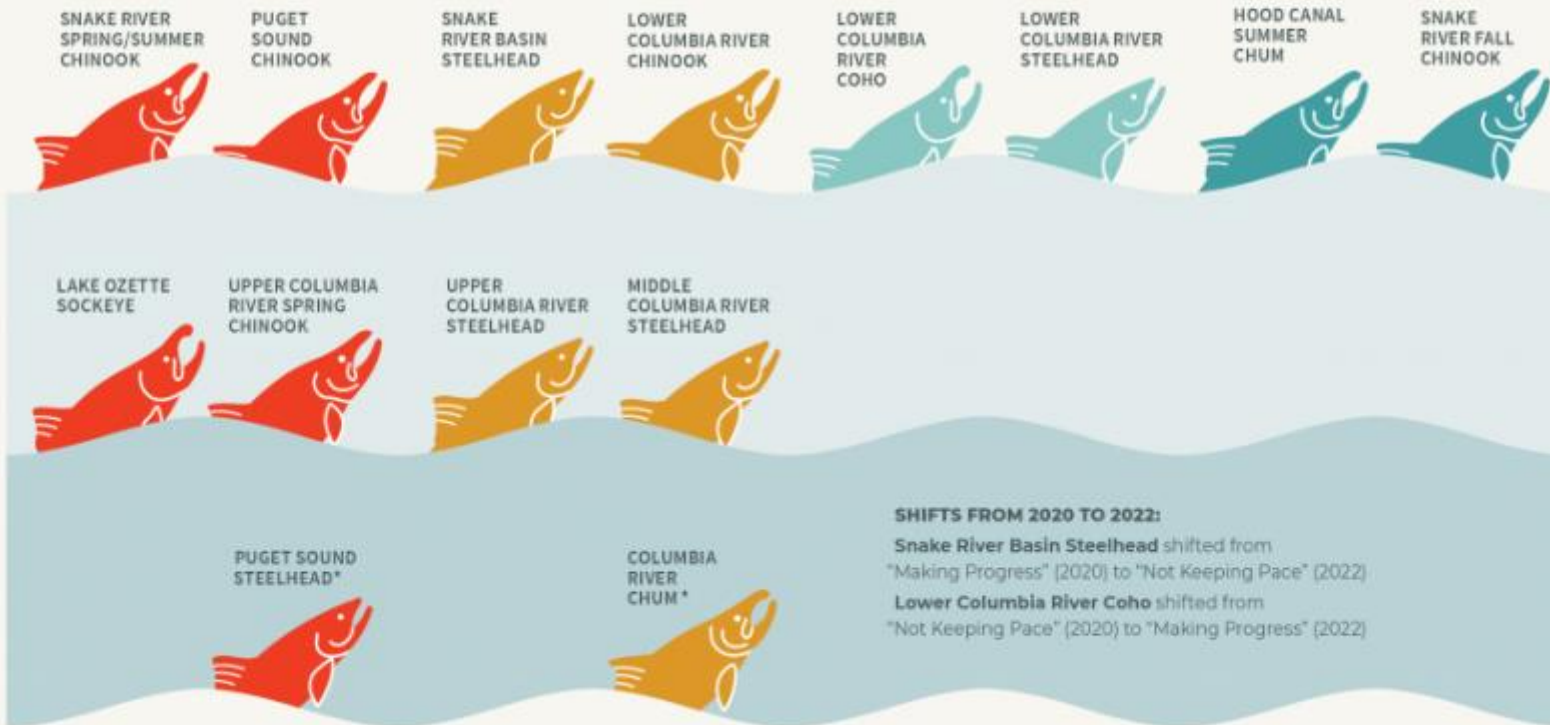
Salmon Abundance | 2022

IN CRISIS

NOT KEEPING PACE

MAKING PROGRESS

APPROACHING GOAL



SHIFTS FROM 2020 TO 2022:

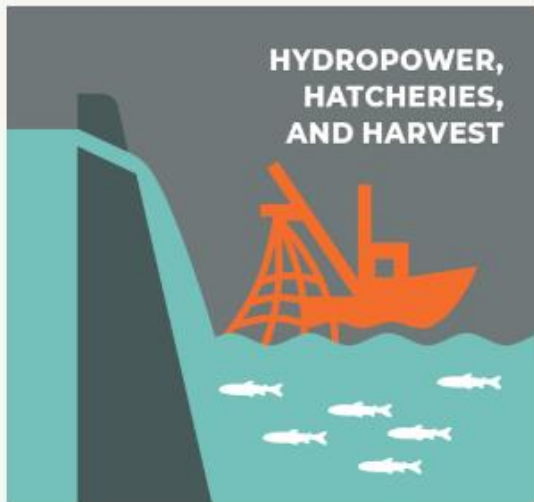
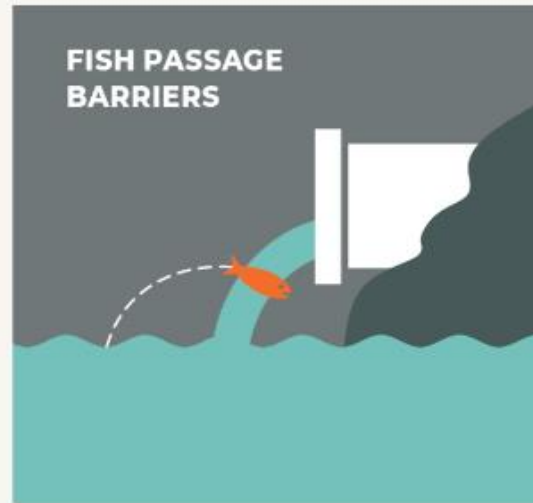
Snake River Basin Steelhead shifted from "Making Progress" (2020) to "Not Keeping Pace" (2022)

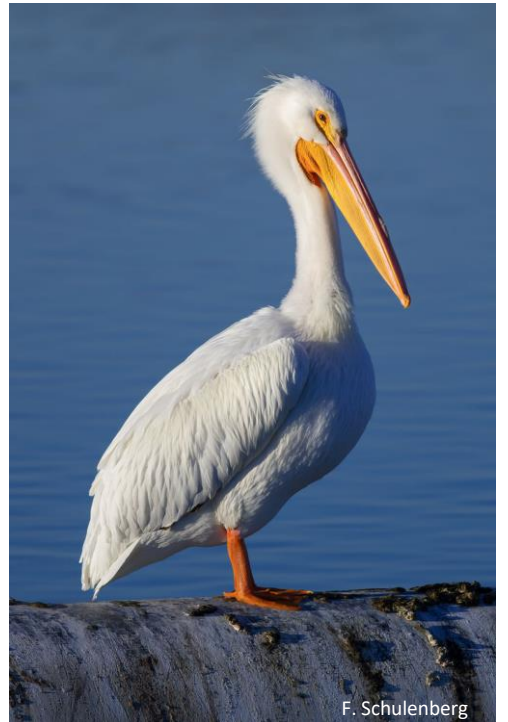
Lower Columbia River Coho shifted from "Not Keeping Pace" (2020) to "Making Progress" (2022)

* Lacks complete data

Data and analysis by Washington Department of Fish and Wildlife

<https://stateofsalmon.wa.gov/>





SHB 2293 (2024)

The department of fish and wildlife shall convene an avian salmon predation work group to:

- Identify all avian species that contribute to predation of juvenile salmon at a population level;
- Determine whether such species are adversely impacting the recovery of any threatened or endangered salmon species; and
- Identify remedies.

Work group submits report to the Legislature, due June 30.

Examples of Predator/Prey Interventions by WDFW: Non-Lethal Actions

- Removal of artificial haulout sites for pinnipeds; steel grates installed at fish ladders to exclude pinnipeds
- Acoustic deterrence of pinnipeds
- Physical barriers/lines/fencing to exclude birds at hatchery ponds; hatchery outfalls
- Columbia Basin pygmy rabbit on-site breeding enclosures



Examples of Predator/Prey Interventions by WDFW: Lethal Removal

- Corvid removal to reduce predation of nesting snowy plovers
- Removing sea lions to recover Columbia River salmon and steelhead
- Bull frog removal to recover western pond turtles
- Coyote removal to benefit Columbia Basin pygmy rabbits near enclosures
- Northern pike minnow bounty program



Examples of Predator/Prey Interventions

For each scenario:

- Highly modified habitat
- Intervening to protecting vulnerable life stage of listed prey species
- Actions are pursued in concert with multiple other recovery actions
- Actions are monitored for effectiveness
- Expensive and multi-year
- Public attitudes towards predator control
- Unintended consequences

Authorities

Federal:

- Endangered Species Act (USFWS)
- Migratory Bird Treaty Act (USFWS) - prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the U.S. Fish and Wildlife Service.

State:

- RCW 77.15.130 // WAC 220-610-110 – Endangered, threatened and sensitive wildlife
- “Take” of Protected wildlife requires an authorization letter from WDFW Director
- Scientific Collection Permit: it is unlawful to collect fish, shellfish, or wildlife or their nests and/or eggs for the purpose of research or display without first obtaining a Washington state scientific collection permit (RCW 77.32.240; WAC 220-200-150; WAC 220-450-030)

Avian predation guiding principles

Pacific Flyway Council policy statement, 2011

- 1) Vision and values are clearly and objectively defined.
- 2) Avian predation issues are best addressed within the context of population and distribution objectives established for the Flyway.
- 3) Dialogue between states, provinces, federal, and Tribal partners is critical.
- 4) Responses to perceived avian predation issues are based on sound science.
- 5) Important considerations when evaluating the need for management action in response to avian predation on fish resources: population-level impacts for birds and fish; T&E species conflicts; cost-benefit analysis; etc.
- 6) Methods for reducing avian predation on fish resources are always implemented within existing regulatory frameworks.

Predation and predators in the Columbia River Basin

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Avian

Adkins, J. Y., D. E. Lyons, P. J. Loschl, D. D. Roby, K. Collis, A. F. Evans, and N. J. Hostetter. 2014. Demographics of piscivorous colonial waterbirds and management implications for ESA-listed salmonids on the Columbia Plateau. *Northwest Science* 88(4):344-359. <https://doi.org/10.3955/046.088.0408>

Investigates colony size, productivity, and limiting factors for five piscivorous waterbird species nesting at 18 locations on the Columbia Plateau during 2004–2010 with emphasis on species with a history of salmonid depredation.

Adrean, L. 2013. Oregon Department of Fish and Wildlife Avian Predation Program 2012 final report. Oregon Department of Fish and Wildlife, Tillamook, Oregon. <https://www.dfw.state.or.us/conservationstrategy/docs/2012AvianPredationReport.pdf>

Report on the Oregon Department of Fish and Wildlife’s Avian Predation Program work, which includes population monitoring, foraging surveys, hazing projects, diet studies, and band resighting.

Anchor QEA, LGL Limited, and Turnstone Environmental Consultants. 2017. Double-crested cormorant (DCCO) monitoring report: avian predation program monitoring. Report to U.S. Army Corps of Engineers, Portland, Oregon. <https://usace.contentdm.oclc.org/utis/getfile/collection/p16021coll3/id/788>

Evaluates the status of the double-crested cormorant’s impacts on juvenile salmonids in the Lower Columbia River Estuary, outlines the plan to reduce the colony on East Sand Island.



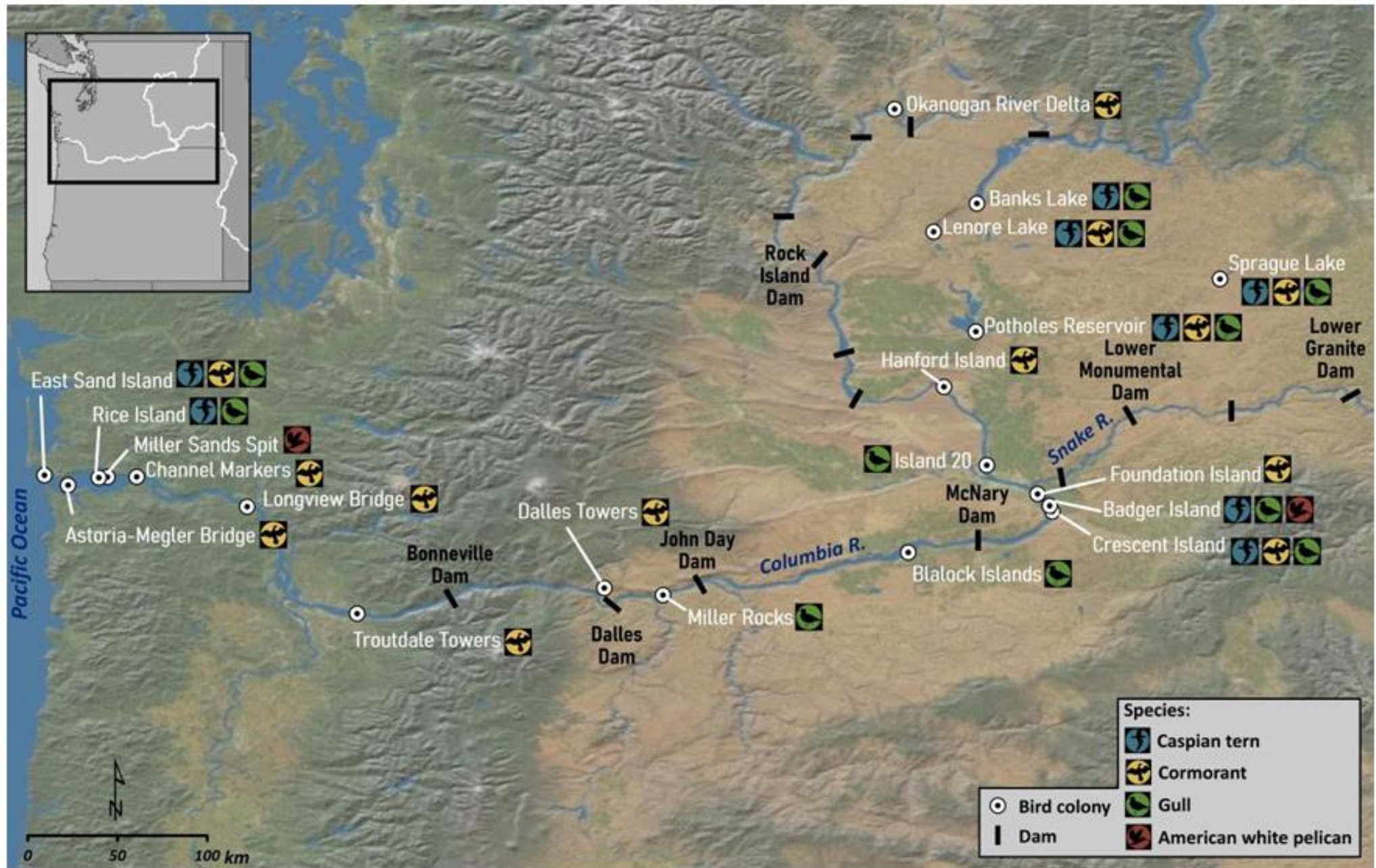
AVIAN PREDATION IN THE COLUMBIA RIVER BASIN

2023 Final Annual Report

Submitted To: Bonneville Power Administration (Contract No. CR-362209, Project No. 1997-024-00) and Grant County Public Utility District and the Priest Rapids Coordinating Committee (Agreement No. 430-HFA 601-41H)

Submitted By: Real Time Research, Inc., and Oregon State University





Map 1. Study area in the Columbia River basin in 2023.

Regional Management Plans

- DCCO plan, AWPE plan (Pacific Flyway Council/USFWS, 2012)
- Caspian Tern Management Plan for the Columbia River Estuary (USFWS/USACE/NMFS 2006) – East Sand Island
- Double-crested Cormorant Management Plan for the Columbia River Estuary
- Inland Avian Predation Management Plan (Caspian terns)

Case study: East Sand Island

Double-crested cormorants

Goals

- Reduce cormorant predation in the estuary by about 55%
- ~7% → 3% predation on steelhead

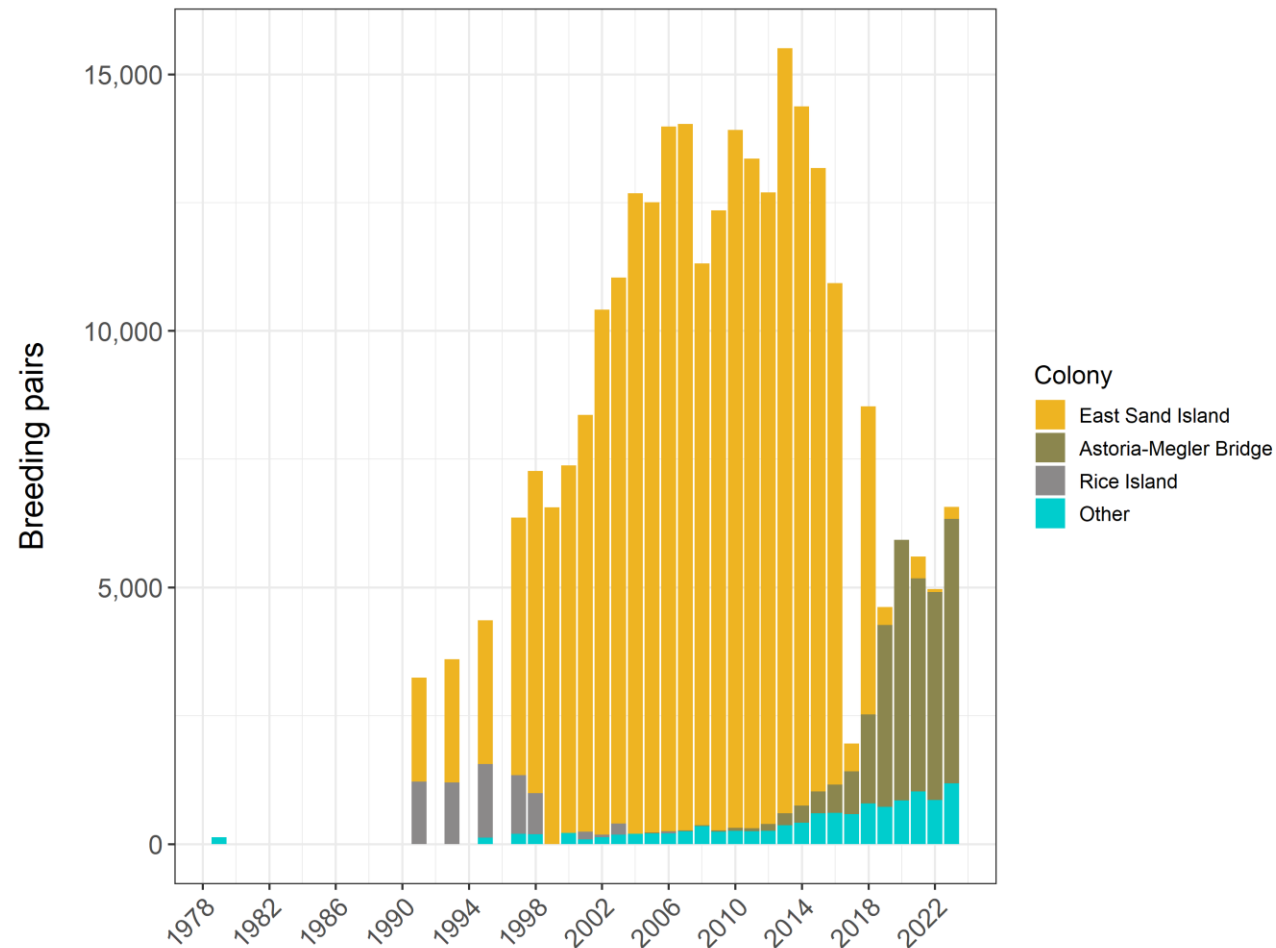
Outcome

- Cormorant predation estimated 169% of pre-management level (ODFW)
- ~7% → 12% predation on steelhead

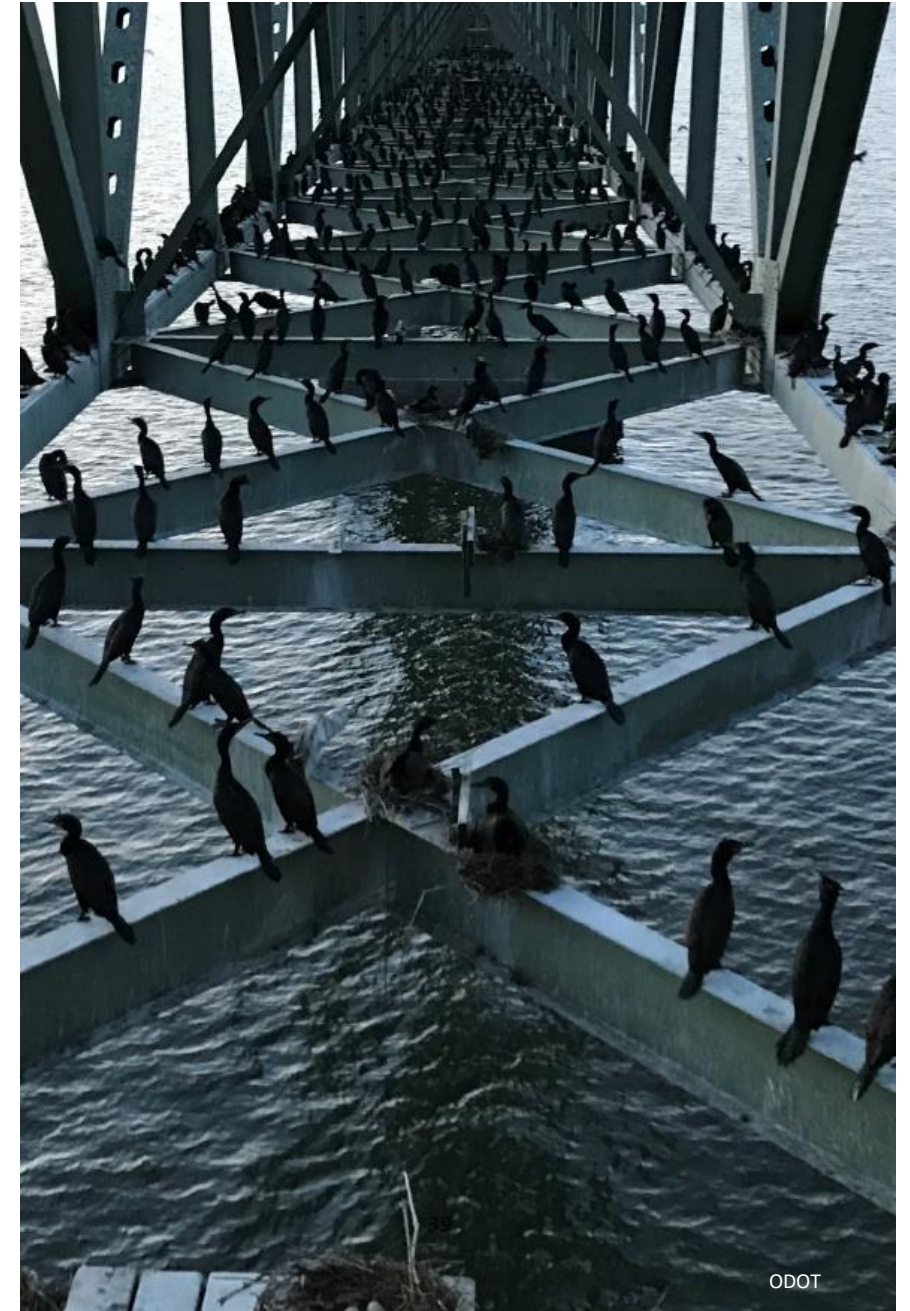


Case study: East Sand Island

Double-crested cormorants



Data from Lawonn 2023a, 2023b; Evans et al. 2023, 2024



ODOT

Case study: East Sand Island

Caspian terns

Goals

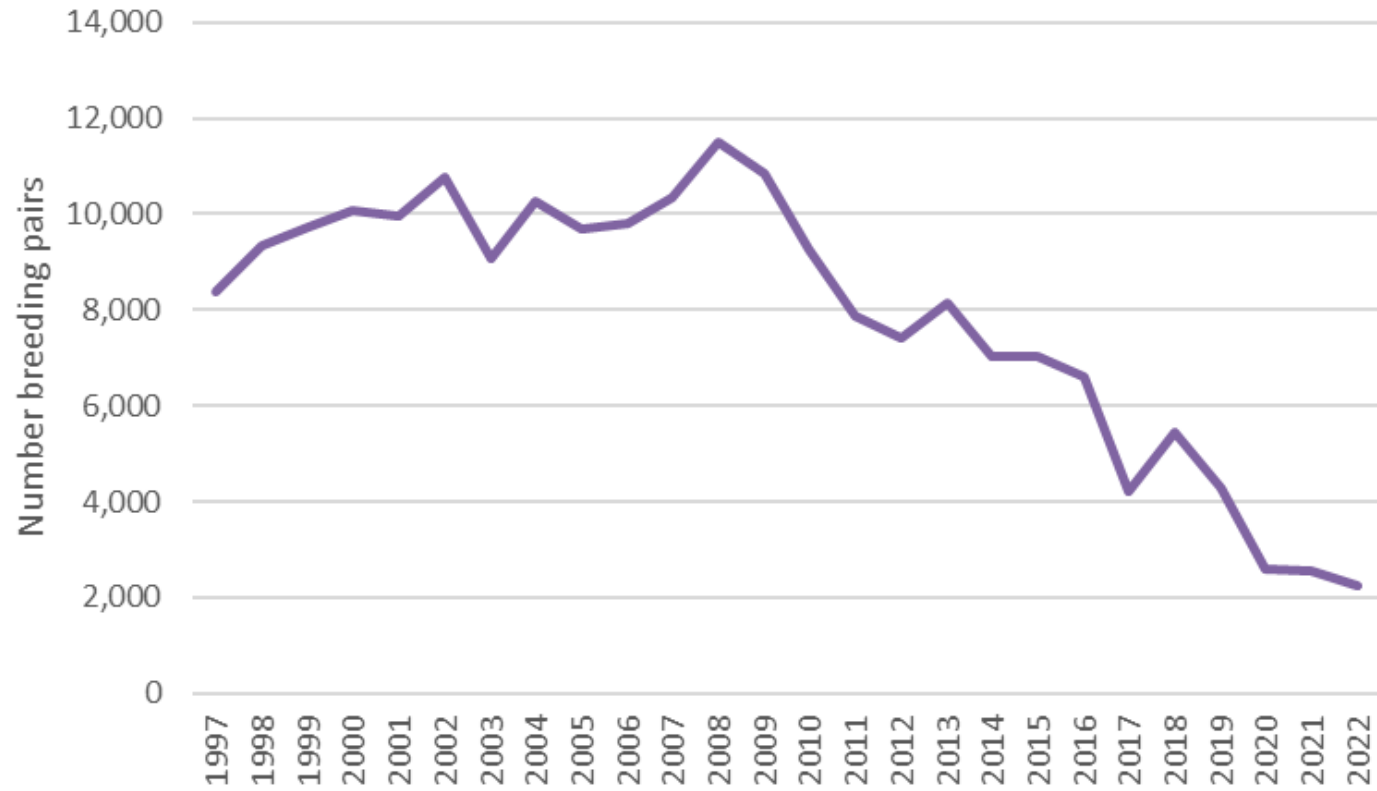
- ~2,800 pairs on East Sand Island (based on 2005 EIS)
- ~5% steelhead predation
- Positive conservation outcomes for terns

Outcomes

- 10,000 → ~1,000 pairs
- 20% → 3-5% (?) steelhead predation
- Functional collapse of colony
- >50% decline in regional tern population



Caspian tern abundance across the Columbia River Basin



East Sand Island - lessons

- Birds are highly motivated to nest where fish are despite management.
- Predation and potential management need to be considered at an ecosystem scale.
- Unintended consequences can be costly.
- Benefits to fish are difficult to quantify.

