Northwest **Power** and **Conservation** Council

August 5, 2025

MEMORANDUM

TO: **Council Members**

FROM: Windy Schoby, Fish and Wildlife Policy Analyst- Idaho
Kate Self, Fish and Wildlife Program Scientist

SUBJECT: **Avian Predation on Salmon and Steelhead in the Columbia River Basin- Annual report update on lessons learned, successes, emerging issues, challenges, and potential next steps.**

BACKGROUND:

Presenters: Allen Evans, Scientist with Real Time Research, Inc.
James Lawonn, Oregon Department of Fish and Wildlife, Informal Columbia Basin Avian Predation Workgroup Facilitator/Chair
Dr. Rachael Orben, Assistant Professor, Oregon State University

Summary: Allen Evans has been involved with studies of avian predation on ESA-listed salmonids in the Columbia River Basin for over two decades. Evans will provide a brief history of the avian predation RM&E that Oregon State University, Real Time Research, and U.S. Geological Survey have conducted and will summarize the implementation of three avian predation management plans; assess the efficacy of each plan in achieving management goals and will highlight lessons learned and emerging issues.

James Lawonn is an avian biologist and predation specialist for Oregon Department of Fish and Wildlife. Lawonn has been working on avian predation in the Columbia River Basin for over a decade. He is currently facilitating an informal Columbia Basin Avian Predation Workgroup consisting of diverse state, federal, private, and tribal stakeholders. He will be reporting on the work of the group, emerging issues, challenges, and some potential next management steps.

Relevance: One of the Council's emerging priorities from the 2014 Fish and Wildlife Program calls for "preserving program effectiveness by supporting expanded management of predators." The 2020 Fish and Wildlife Program Addendum also highlights the concern about the impacts of avian predators on Columbia River salmon and steelhead and calls for adequate funding to implement activities to reduce avian predation on juvenile salmon and steelhead. During the call for recommendations for the 2025 FWL Program amendment the Council received a range of recommendations on predator management. There was a call for basin wide and regional coordination strategies that lead on agreed-upon metrics and adaptive management when dealing with predation on salmonids and other native species, in addition to more immediate actions to reduce predation rates.

Background: To address concerns about the impact of avian predation on the survival of smolts, the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers (USACE), and their management partners developed and implemented three separate management plans to reduce predation on smolts by piscivorous colonial waterbirds nesting at four breeding colonies in the Columbia River basin: the largest Caspian tern and double-crested cormorant breeding colonies in the world (those on East Sand Island in the Columbia River estuary), and the two largest Caspian tern colonies in the Columbia Plateau region (those on Crescent Island in McNary Reservoir and on Goose Island in Potholes Reservoir).

The primary goal of these management initiatives was to reduce predation rates (proportion of available smolts consumed) on ESA-listed salmonid populations by reducing the size or eliminating the colonies identified in management plans. As part of the management plans, adaptive management actions have been conducted at various other colony locations where birds that were displaced from the managed colonies have relocated to nest.

The primary objectives of the study Evans will report on were to evaluate the efficacy of management actions to reduce predation on smolts by terns and cormorants and to assess the magnitude of predation by other, unmanaged predator species and colonies, including predation by California gulls, Ring-billed gulls, and American white pelicans.

Specifically, the project goals were to:

(1) locate and estimate the size of tern, cormorant, gull, and pelican colonies that were within foraging range of smolts in the middle Columbia River, lower Snake River, lower Columbia River, and Columbia River estuary.

(2) estimate colony-specific and cumulative (all colonies combined) predation rates on smolts as part of a system-wide evaluation of predation.

(3) evaluate the efficacy of tern and cormorant management plans to reduce predation.

(4) identify emerging predation issues and make recommendations for adaptive management.

Some of the lessons learned that will assist in adaptive management include:

1. Predation/consumption rates on salmonid smolts by piscivorous waterbirds are highly variable, depending on predator species, colony location, colony size, and year and that not all predator species and colonies pose a threat to smolt survival in the CRB.
2. Predation on smolts by Caspian terns on East Sand Island, Crescent Island, and Goose Island have been reduced as result of management actions. Target goals regarding colony sizes and predation rates have been achieved at several, but not all, tern colonies.
3. Management of double-crested cormorants on East Sand Island in the lower estuary has increased the size of cormorant colonies in the upper estuary, where cormorants have higher per capita (per bird) predation impacts on smolts. Adaptive management will be necessary to reduce predation by cormorants in the upper estuary to achieve the goals of the cormorant management plan.

   Predation by California gulls, ring-billed gulls, and American white pelicans on smolts can be substantial, depending on the size and location of the colony. Pelicans are also capable of consuming adult-sized fishes and predation on Sockeye Salmon can exceed 8% of returning adults (upward of 40,000 fish) in some years. Additional research is needed to better understand the factors that influence fish susceptibility to gull and pelican predation and to what degree predation limits fish survival in the CRB.
4. Although management actions have successfully reduced predation at some tern and cormorant colonies, the cumulative or system-wide effects of avian predation/consumption (predation by all predator species and colonies combined) remains a substantial source of smolt mortality in the CRB, particularly for steelhead smolts.

5. Since management of Caspian terns in the estuary started in 2008, the Pacific Flyway population of terns has decreased by more than 70%. Adaptive management may now be necessary to ensure the long-term viability of terns, including providing new and improved nesting opportunities for terns outside of the basin.

Taken together, results suggest that continued system-wide avian predation RM&E, coupled with adaptive management actions, will be necessary to achieve the goals and objective of management plans and to address emerging predation issues and concerns in the future.

A diverse group of state, tribal, and federal managers from around the basin have been meeting monthly, working together to utilize the results of this and other RM&E to formulate actions and adaptively manage in-season hazing efforts. The group has also identified additional emerging issues including predation concerns in the tributaries that may be impacting the efficacy of other off-site mitigation actions including habitat improvements and hatchery releases.

Another current update is that the state of Washington recently completed the *Avian Salmon Predation Working Group* (ASPWG)'s *Report* to the state legislature and we may bring them in at a later date to present their findings.

More information:

Avian Predation Synthesis Report

Avian Predation in the Columbia River Basin 2024 Annual Report

Caspian Tern Management Plan

Double Crested Cormorant Management Plan

Inland Avian Predation Management Plan

OPB Interview with James Lawonn on Astoria-Megler Bridge Cormorants

OPB Interview with James Lawonn on American White Pelicans

Washington Avian Salmon Predation Working Group (ASPWG)'s 2025 report to the legislature