

# Technical Priorities Funding Request

## Science Synthesis: Predation Impacts on Juvenile Chinook in WRIA 8

May 2022

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### Request Summary

	Estimated Cost
WRIA 8 staff requests Salmon Recovery Council approval to direct a portion of available carry forward funds in WRIA 8's budget to support a best-available-science assessment on predation impacts to juvenile Chinook survival in WRIA 8. This technical product would build on prior WRIA 8 funded projects including predator evaluation and diet analysis in the Lake Washington Ship Canal and multiple years of Cooperative Watershed Management grant funding to support predator and management studies in the watershed. Additional resources are needed to supplement U.S. Fish and Wildlife Service (USFWS) and Washington Department of Fish and Wildlife (WDFW) technical staff time to review and synthesize primary data and available literature in cooperation with the WRIA 8 Technical Coordinator. This synthesis will help guide future funding decisions and management actions to reduce predation impacts and improve survival of juvenile Chinook and other salmonids in our watershed.	<b>\$35,000</b>

### Background

Predation by native and non-native fishes is suspected to be a primary constraint to salmon recovery in WRIA 8. Predation is an important source of juvenile mortality, even in undisturbed ecosystems. However, introduction of predatory non-native fishes, urbanization, and habitat degradation can result in predation pressure that far exceeds natural ranges and threatens recovery, particularly for already at-risk salmon populations. Investigations of predation on juvenile Chinook in WRIA 8 have been conducted over the past 20+ years but study findings are dispersed across publications and implications for management have not been synthesized. Impacts of native and non-native fishes on survival of juvenile Chinook salmon in the watershed remain uncertain, particularly in the context of other stressors and impairments. Predation is also suspected to be a primary survival bottleneck for sockeye and kokanee in the watershed.

The 2017 update to the WRIA 8 Plan identifies predation as a top priority research and data need to advance Chinook recovery and support Plan implementation. For the past two years, predation related studies have comprised the most proposals in WRIA 8's monitoring/assessment category of the Cooperative Watershed Management grant round. There is a real and timely need to synthesize available information on predation and target funding in ways that align with existing knowledge to strengthen salmon recovery efforts and improve understanding to make better, more informed funding investments and management decisions.

The proposed report will synthesize existing information to address key gaps in understanding and highlight critical information and management recommendations relevant to juvenile Chinook salmon predation in WRIA 8. Specifically, the synthesis will address four primary questions:

1. What is the status of native and nonnative predatory fish populations in WRIA 8? Include information on predators known or suspected to prey on juvenile Chinook including abundance, and distribution, where/when they are important predators, what is known about changes in populations over time, what life history characteristics and behaviors are indicative of impacts on juvenile Chinook.
2. What do we know about predation impacts on juvenile Chinook salmon by both native and non-native fishes (and birds) in WRIA 8? Incorporate relevant information on prey population status and timing.
3. How can/do habitat modifications in WRIA 8 mediate the impacts of predation on juvenile salmon (e.g., artificial lighting at night, altered shoreline habitat, increased water temperatures, non-native aquatic vegetation, and interactions among these variables)?
4. What management interventions have been or could be implemented to reduce impacts of predation on juvenile salmon within WRIA 8? Is there evidence to indicate whether, or not, these interventions have been effective in WRIA 8 or elsewhere?

This funding request presents a significant opportunity for WRIA 8 to work cooperatively with key partners and leaders in the field to document and expand our understanding of predation impacts to Chinook in the watershed. The information obtained will inform funding decisions and management actions targeting a key limiting factor to salmon recovery. Much of this work will be conducted by Roger Tabor at USFWS and Aaron Bosworth’s technician team at WDFW. WRIA 8 funding will leverage previous and ongoing investments in this topic.

**WRIA 8 Budget Request**

Task - Review and synthesize data and literature	Cost
USFWS – Roger Tabor	\$22,500
WDFW – Technicians	\$12,500
<b>Total funding request</b>	<b>\$35,000</b>

**WRIA 8 Carry Forward Funding Status**

If the Council approves this proposal, approximately \$246,646 in carry forward fund balance would remain.

Beginning unallocated balance (as of 5/10/22)*	\$211,094
Current Funding Request: Predation Synthesis	\$35,000
Remaining unallocated balance	\$176,094

\*NOTE: The beginning carry forward fund balance amount does not include amounts reserved for unanticipated operating/staffing costs and previously approved amounts allocated to priority work items.