

Lake Washington, Cedar, Sammamish Watershed (WRIA 8) – Prioritization for
Monitoring & Assessment Funding

Background - Each year, the Lake Washington/Cedar/Sammamish Watershed (WRIA 8) solicits proposals for the King County Flood Control District's Cooperative Watershed Management (CWM) grant program. WRIA 8 recommends funding for projects that align with salmon recovery priorities described in the watershed's Chinook Salmon Conservation Plan ([link: WRIA 8 2017 Plan Update](#)). In 2020, the WRIA 8 Salmon Recovery Council approved an increase in the amount of funds available for monitoring and assessment activities, which help advance our understanding of critical limiting factors in salmon recovery. The funding availability increase will take effect beginning with the 2021 CWM grant cycle, and proposals should align with the funding principles and address one or more monitoring and assessment priorities identified in this document.

Funding Principles – The WRIA 8 Technical Committee encourages grant applications that align with one or more of the following principles:

1. Addresses critical data/information gaps and priority monitoring and assessment needs (listed in the next section).
2. Directly informs on-the-ground management actions and best practices to recover salmon in WRIA 8.
3. Leverages multi-agency collaboration, cooperative partnerships, in-kind resources, or other support to advance salmon recovery. We are particularly interested in encouraging new partnerships and broadening perspectives and expertise informing salmon recovery in WRIA 8.
4. Takes an additive approach that aligns with existing knowledge and monitoring/assessment efforts to strengthen the scientific understanding needed to make better, more informed decisions. This includes proposals that support ongoing and long-term monitoring efforts, particularly instances in which a failure to implement the proposed work would result in a meaningful data gap.
5. Considers impacts of changing climate conditions, urban development, and interactions between multiple aspects of anthropogenic change on recovery of salmon and their habitats.

6. Communicates outcomes of monitoring/assessment in ways that promote awareness of salmon recovery; encourages environmental stewardship in the watershed; or guides integration of salmon recovery priorities into local and regional planning, regulations, and permitting.

High Priority Monitoring and Assessment Needs

Topic 1: Salmon status and trends

This topic focuses on evaluating salmon populations over time in priority systems throughout the watershed. There is also a need to supplement baseline monitoring information with additional, more targeted assessments of populations parameters and potential survival bottlenecks.

Research and Data Needs

- Spawner surveys on Chinook bearing (tier 1 and 2) systems, prioritizing the Cedar River.
- Juvenile outmigrant surveys on Chinook bearing (tier 1 and 2) systems.
- Studies to determine juvenile habitat use, and survival bottlenecks in Lake Washington and the Ship Canal.
- Studies of factors critical to improving instream juvenile salmon rearing and refuge habitat and outmigrant survivorship.

Topic 2: Factors affecting salmon survival in Lake Washington, Lake Sammamish, and the Lake Washington Ship Canal

Many of the key constraints to salmon recovery in WRIA 8 cannot be addressed through capital actions that protect and restore habitat alone. For example, issues including predation, high water temperatures and low dissolved oxygen in the Lake Washington Ship Canal, artificial light at night, toxins, and disease must be better understood to make informed conversation decisions and will require novel solutions. Specific stressors and associated information needs will develop and evolve over time and in uncertain ways. We seek to better understand and address these key emerging issues and limiting factors to salmon recovery.

Research and Data Needs

- Identify and evaluate solutions to improve temperature and dissolved oxygen conditions in the Lake Washington Ship Canal, which may contribute to salmon stress, mortality, and reduced resistance of salmonids to disease/parasites.

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- Quantify effects of direct and indirect artificial light at night on juvenile salmonid survival and predation rates.
 - Using information on the effects of artificial light at night on juvenile salmonid survival, test strategies to reduce negative impacts on salmon recovery.
 - Quantify effects of fish predation on juvenile salmonid survival, particularly by nonnative warmwater piscivores. Provide increased understanding of these effects at different temporal and spatial scales.
 - Using information on the effects of piscivorous fish on juvenile salmonid survival, test strategies to reduce predator abundance and negative impacts of predation on salmon recovery.
 - Develop and test strategies to reduce pinniped predation on adult salmon returning to the Ballard Locks.
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Topic 3: Habitat status and trends

Data needed to track progress toward the watershed's habitat goals identified in the 2017 WRIA 8 Monitoring and Assessment Plan.

Research and Data Needs

- Wood volume surveys in priority (Tier 1 and 2) systems – conducted every 5 years (next cycle 2022).
- Lakeshore surveys in Lake Washington and Sammamish – conducted every 5 years (next cycle 2022).
- Remote sensing surveys of riparian tree cover and impervious surfaces.

Topic 4: Project effectiveness

Assessments to determine whether specific projects or restoration approaches are achieving their intended outcomes for habitat and salmon recovery, particularly for a novel approach or when outcomes are uncertain or not well understood. Priority will be given to assessments focused on quantifying effects of restoration actions on improving juvenile salmon rearing and refuge. We are particularly interested in specialized monitoring that fills key knowledge gaps and/or opportunities that support partners with otherwise limited resources needed to conduct this work.

Research and Data Needs

- Restoration project effectiveness in improving juvenile rearing and refuge (e.g. food availability, shallow-water habitats, channel complexity, floodplain connectivity).