

2025 WRIA 8 Monitoring and Assessment Priorities

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 and other funding opportunities focused on monitoring priorities. WRIA 8 recommends funding for projects that align with the watershed's Chinook Salmon Conservation Plan (link: [WRIA 8 2017 Plan Update](#)), advance understanding of critical issues in salmon recovery, and inform science-based management actions. WRIA 8 welcomes proposals that align with our funding principles and address the high priority monitoring and assessment needs identified in this document.

WRIA 8 Monitoring & Assessment Funding Principles

1. Prioritize proposals that directly inform or advance actions and best management practices to recover Chinook salmon in WRIA 8. Proposals should demonstrate Chinook recovery benefits, but WRIA 8 is also interested in proposals that inform or advance multi-species benefits and best management practices to recover other salmon species and support overall watershed health.
2. Leverage multi-agency collaboration, cooperative partnerships, in-kind resources, or other support to advance salmon recovery. We encourage new partnerships and expertise informing salmon recovery in WRIA 8.
3. Maintain ongoing and long-term monitoring efforts, particularly where a failure to implement the proposed work would result in a meaningful data gap.
4. Communicate findings with WRIA 8 partners and interested parties to promote use of best available science in salmon recovery strategies; encourage awareness and environmental stewardship; and guide integration of salmon recovery priorities into local and regional planning, regulations, and permitting.
5. Demonstrate careful project planning through a robust study design and data management plan to facilitate future uses and application of findings; clearly defined and measurable goals and objectives; appropriate sequencing relative to other monitoring work; and the use of reliable methods with a high likelihood of achieving objectives.

2025 WRIA 8 Priority Monitoring & Assessment Needs

Salmon Population Status, Habitat Use, and Survival

This topic focuses on evaluating salmon populations over time and in priority systems. Along with baseline monitoring, we need targeted assessments of population parameters including the timing and location of survival bottlenecks in Lake Washington, Lake Sammamish, Sammamish River, and the Lake Washington Ship Canal.

Monitoring & Assessment Needs

- Spawner surveys on Chinook bearing systems, prioritizing the Cedar River.
- Investigate the growing discrepancy between adult Chinook counts at the Ballard Locks and spawner counts to improve monitoring practices and our understanding of adult freshwater survival.
- Expand the network of PIT tagging and tag detection antennas to improve annual estimates of freshwater survival and help identify locations of high juvenile mortality during outmigration through Lake Sammamish, the Sammamish River, Lake Washington, the Lake Washington Ship Canal, and Ballard Locks. Additional PIT tag antennas could also help improve understanding of the migration patterns and survival of adult salmon returning to freshwater.
- Enhance monitoring of juvenile passage (e.g. using acoustic tagging technology) in and around the Ballard Locks and smolt passage flumes. Assess potential delayed juvenile mortality following outmigration of the Ballard Locks.
- Develop a life cycle model (LCM) for WRIA 8 Chinook to evaluate which stages and habitats are most limiting and weigh the effects of restoration and management actions on recovery.

Impacts and Mitigation of Poor Water Quality on Salmon Health and Survival

We seek to better understand and mitigate poor water quality and its effects on salmon health and survival. High water temperatures and low dissolved oxygen can impede migration and cause stress responses that affect reproductive success, increase vulnerability to disease and parasites, and increase levels of pre-spawn mortality in adult salmonids. High water temperatures and low dissolved oxygen can also block juvenile outmigrants or change their patterns of migration and increase vulnerability to predators.

Monitoring & Assessment Needs

- Evaluate interactions between high temperatures, low dissolved oxygen, disease and resulting impacts on salmon behavior, health, and survival. Evaluation should inform potential mitigation of the impacts identified.
- Build off ongoing work of the Lake Washington Ship Canal Roundtable (link:

[Phase 2.1 Report](#)) to identify and evaluate solutions that reduce impacts of high temperatures and low dissolved oxygen conditions on salmon in the Lake Washington Ship Canal. Priority monitoring and assessment needs include the following:

- Refine the understanding of adult and juvenile salmon behavior in response to changes in water temperature, dissolved oxygen, and salinity. This may involve data collection through experiments or tracking fine scale fish movement in response to changes in water quality and flow.
- Refine scenarios to better understand effects and benefits of cold-water supplementation for salmon migration through the Ship Canal.
- Evaluate opportunities in Lake Sammamish and the Sammamish River to reduce or eliminate thermal barriers, create cool water refugia, and enhance or protect existing groundwater resources.
 - Evaluate the thermal influence and migration impacts of invasive aquatic vegetation in the Sammamish River to inform management strategies.
- Test the effects of different restoration techniques on water temperature and dissolved oxygen to identify effective practices and advance efforts to mitigate poor water quality.

Impacts and Mitigation of Predation Risk

We seek to better understand predation impacts on salmon health and survival and test mitigation strategies. We are particularly interested in testing approaches that reduce predation risk from non-native piscivores and improve habitat conditions to reduce predation efficiency and impact. Projects may also focus on strategies to reduce pinniped predation on adult and juvenile salmon at the Ballard Locks.

Monitoring & Assessment Needs

- Develop, evaluate, and monitor mitigation strategies to reduce impacts of predators on juvenile salmon in priority areas, including south Lake Washington, south Lake Sammamish, and the Lake Washington Ship Canal.
- Identify areas suspected to have elevated predation impacts on salmon and where limited information is available, for example the lower Cedar River, lower Issaquah Creek, and Sammamish River.
- Investigate the role of lake nearshore habitat conditions (e.g., invasive aquatic vegetation, human infrastructure) on predator assemblages or predation efficiency to inform management strategies (e.g., removal of invasive aquatic vegetation, shoreline habitat restoration, predator removal efforts).
- Evaluate strategies to reduce artificial light at night (ALAN) impacts on salmon behavior, health, and predation risk. This could include alternative lighting technologies (e.g., the use of different lighting spectra, reducing the amount of lighting, or shielding and shaping to adjust the direction of lighting) or approaches to encourage public behavior

change.

- Evaluate strategies to reduce effects of pinniped predation on adult and juvenile salmon at the Ballard Locks focusing on actions recommended at the 2023 Technical Workshop on pinniped predation on salmon at the Ballard Locks (link: [Recommendations Report](#)).

Project Effectiveness and Monitoring to Support WRIA 8 Habitat Goals

Evaluate whether restoration projects or approaches achieve their intended outcomes for salmon and their habitats. We are particularly interested in monitoring that fills key knowledge gaps and supports partners with otherwise limited resources needed to conduct this work. For example, when a novel approach is used or when outcomes are uncertain or not well understood.

Monitoring & Assessment Needs

- Assess benefits of lake shoreline or other lentic habitat restoration for salmon recovery (e.g., remove bank armor, increase overhanging vegetation, add engineered log jams, reduce lighting impacts, and restore more natural littoral habitat, aquatic vegetation, and flow condition).
- Conduct an opportunity analysis to support the WRIA 8 goal to increase natural lake edge habitats south of Interstate 90 (I-90) in Lake Washington and throughout Lake Sammamish to support juvenile Chinook rearing and migration.
- Evaluate use of constructed large wood features by juvenile Chinook salmon and other juvenile salmonids. Large wood is an important habitat feature for salmon rearing, but large wood is added to restoration and mitigation projects in a variety of different ways. Do certain types of large wood structures provide better salmonid rearing habitat than others?

Other Uncertainties or Emerging Concerns

We will also consider proposals that address critical uncertainties or issues of emerging concern that are not explicitly included in the topics above. Proposals must clearly describe how the project informs or advances salmon recovery efforts. Examples include the impacts of pathogens and diseases, synthetic chemicals, and stormwater discharge on salmonid health and survival.