Proposal for Skagit Basin Water Task Force Work Group

Submitted by Larry Wasserman on behalf of the Swinomish Indian Tribe

December 13,2021

Project Title: **Updated Skagit River Habitat and Flow Assessment**

What: This project is based on the data gap identified as *"Updated Skagit River Habitat and Flow Assessment"*. **This project proposes to undertake IFIM studies in lower Skagit Tributaries projected to experience the most growth in the future.** The tributaries proposed for study are Nookachamps Creek, Carpenter Creek, and Grandy Creek. This is a departure from the Study report, which suggests reexamining the 4 Cultus Mountain tributary IFIM studies. No Skagit River tributary work has been conducted by the State of Washington since the Duke Study (1999). This study would also incorporate anticipated streamflow changes projected to be associated with global climate change as modelled as part of Skagit Climate Science Consortium streamflow analyses

Why: This statement is taken from the Study Report (StoryMap)

The Skagit River is dynamic, and habitat has likely changed at the sites examined in the Duke report in 1999. An update would provide current data, as recent analyses assume depths and velocity profiles have remained similar. Conditions likely vary across the watershed, so a better understanding of how flow conditions influence spawning and rearing habitat will depend upon better studies of fish, their habitats and patterns of flow that incorporate spatial variation.

Until we can determine streamflows necessary to preserve and restore salmon populations we will be unable to adequately assess whether additional out of steams uses are warranted. These tributaries are projected to experience the most significant growth changes, and none currently are served by Skagit PUD or other Group A purveyors.

How: From the Study Report: The IFIM modeling approach used by Duke Engineering (1999) can readily be applied to other reaches with different cross-sectional areas and associated substrate types. These should be done for both reference reaches (little impacts to the hydrograph, riparian conditions, and aquatic substrates) as well as places associated with various impacts to flow, temperature, and riparian conditions.

Data Uses and Impacts:

Surface Water: **This could fill a critical gap if it expands the IFIM analysis to tributaries that are critical for fish habitat, rather than only the mainstem**. With information about flow levels that are optimum for fish habitat, the DHSVM surface flow modeling and projections could be used to understand the frequency with which these flows are met now and how that would change with climate change. While current DHSVM modeling includes all the tributaries, it is difficult to use this information when it is not known what the optimum flows are for fish in the same locations.

Fish Habitat: Although this work predicts the effects of flow on habitat area for the lower Skagit River, much of the higher quality habitat occurs in areas upstream. **Better knowledge of habitat extent across the basin will improve our understanding of flow-based constraints on fish populations.**