

Salmon Habitat Limiting Factors

Report

for the

**PUYALLUP RIVER BASIN
(Water Resource Inventory Area 10)**

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Executive Summary

The Puyallup River Basin was one of the earliest areas settled in the Puget Sound area. Arriving Euro-American immigrants prized this basin for its deep-water embayment, large tracts of pristine old growth forests, fertile river valley soils and abundant runs of salmon. Homesteads and settlements began appearing as early as 1850 and the new arrivals initiated a series of actions to modify the landscape to fit their needs. The dredging and filling of the estuary, started in the late 1800's, was largely completed by 1930. Two hydroelectric dams that are impassable to salmonids were completed shortly after 1900. An extensive system of levees, dikes and revetments were started in the early 1900's and continue to be maintained today. In 1906 the White River was diverted into the Puyallup River Basin almost doubling the flows in the lower Puyallup River.

All of these actions have impacted the biological processes necessary for the natural production of salmonids in the Puyallup River Basin. Commencement Bay, once a highly productive estuarine environment, has lost in excess of 98% of its historical intertidal and subtidal habitat. The remaining habitat is separated and in places contaminated with chemicals that further reduces its value to organisms and their biological processes. The Puyallup, White and Carbon Rivers are all contained within a revetment and levee system for their lower 26, 8 and 5 miles respectively. These channel containment structures have removed the natural sinuosity of the rivers and the spawning and rearing habitats that were once present. The two hydroelectric dams, and later a flood control project on the White River, have blocked salmon from their historical habitat and reduced their geographical distribution. Numerous other impassable barriers exist on smaller tributary stream that further reduce available spawning and rearing habitats. Land use practices have eliminated the opportunities for large and small woody debris recruitment and heavily impacted riparian buffers.

This report examines these process changes and their associated functional implications in the Puyallup River Basin. Four fundamental lessons are evident within this basin. First, the methods employed for mitigating the biological and hydrologic functions in the surface water systems have been ineffective. There has been dramatic loss of estuarine, riverine and wetland habitat processes and their associated functions. Second, the cost associated preserving the remaining functioning habitats and attempting to restore portions of lost habitats will be substantial. Third, the biological functions historically present in the Puyallup River basin cannot be fully restored. Fourth, fundamental changes in land use will be necessary to restore self-sustaining populations of salmonids in this basin. Finally, while the Puyallup River basin is faced with many critical issues, it is the opinion of the Technical Advisory Group that it is still capable of naturally producing self-sustaining runs of salmonids.

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Purpose of Report

The 1998 Washington State Legislature passed Engrossed Substitute House Bill (ESHB) 2496 popularly called “An Act Relating to Salmon Recovery”. As a portion of the Conservation Commission responsibilities set forth ESHB 2496 the agency was directed to form regional technical advisory groups to complete a statewide salmon habitat limiting factors project. Under ESHB 2496, limiting factors were defined to mean, “conditions that limit the ability of habitat to fully sustain populations of salmon. These factors are primarily fish passage barriers and degraded estuarine areas, riparian corridors, stream channels and wetlands.” Completion of this project will provide a consistent approach for identifying habitat functions that require protection and restoration to maintain and increase naturally spawning and self-sustaining populations of salmonids. This report meets the legislative requirement for the Puyallup River Watershed (Water Resource Inventory Area 10).

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