SALMON AND STEELHEAD HABITAT LIMITING FACTORS

IN THE

WASHINGTON COASTAL STREAMS OF WRIA 21

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Carol J. Smith, Ph.D.
Washington State Conservation Commission
300 Desmond Drive
Lacey, Washington 98503

And

Jean Caldwell
Caldwell and Associates
Olympia, Washington

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Bill Armstrong, Quinault Indian Nation
Jean Caldwell, Caldwell and Associates
Scott Chitwood, Jamestown S'Klallam Tribe
John Cornell, Quinault Indian Nation
Phil DeCillis, U.S. Forest Service
Brian Erickson, Columbia Pacific RC&D
Craig Graber, WA Department of Ecology
Lee Hansmann, Grays Harbor County
Anthony Hartrich, Quinault Indian Nation
John Kendig, NRCS
Rich McConnell, U.S. Forest Service
Osa Odum, NWIFC
John Sims, Quinault Indian Nation
Dr. Carol Smith, WA Conservation Commission
Chad Stussy, WA Dept. Fish and Wildlife
Ron Wisner, Grays Harbor Conservation District

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Several maps have been included with this report for your reference. The maps are appended to the report, either as a separate electronic file (for the electronic copy of this report) or separate printed section (for hard copy). The maps are included as a separate electronic file to enable the reader to utilize computer multi-tasking capabilities to simultaneously bring up the map and associated text. Below is a list of maps that are included in the WRIA 21 map appendix/file:

EXECUTIVE SUMMARY

As directed under Engrossed Substitute House Bill 2496 and Second Engrossed Second Substitute Senate Bill 5595, the habitat conditions of salmonid-producing watersheds within WRIA 21 are reviewed and rated. This includes conditions within the Queets, Quinault, Kalaloch, Raft, Moclips, and Copalis Basins in addition to other smaller streams within WRIA 21. The worst habitat problems are summarized here, but an overview of all the habitat ratings is provided in the Assessment Chapter. The Assessment Chapter also specifies the criteria used to rate habitat conditions. Other components of this report include detailed discussions for each of the habitat conditions, which can be found within the Habitat Limiting Factors Chapter. Also, maps of updated salmon and steelhead trout distribution and riparian conditions are located in a separate electronic file on this disc. This first round report examines salmon and steelhead trout habitat conditions. Later versions will address habitat issues for other salmonids.

One major impediment to assess habitat conditions in this WRIA is the lack of detailed field information. Some data were available in the Quinault, Salmon, and Sams Rivers and the Matheny Creek watershed analyses as well as in an off-channel habitat report for the Clearwater River, but habitat data for other streams were lacking or found only at a coarse scale. New data are expected from the Raft River watershed analysis, as well as from road and culvert assessments conducted by the Washington Department of Natural Resources, but many data needs remain, especially regarding blockages to fish habitat, floodplain conditions, sedimentation, riparian conditions, and water quality measurements.

In the Quinault Basin, little is known about blockages to fish habitat, including lateral blockages to off-channel habitat in the lower Quinault WAU. However, one major concern regarding floodplain conditions is the bank hardening and floodplain road impacts along the Quinault River upstream of Lake Quinault. This area has experienced road washouts and numerous channel changes. It is also an important spawning reach for sockeye salmon, a stock at risk in the Quinault Basin. In addition, sediment problems associated with road fills and undersized culverts are a noteworthy problem in the timber-managed areas of the Quinault Basin. Riparian conditions are mostly “fair” to “good”, with more impacts in the Lake Quinault WAU, and this area also rated “poor” for warm water temperatures. Lake Quinault acts as a buffer to flood events, and flow analysis indicates no trends in peak flows over time. However, the lower Quinault and Cook/Elk Creek WAUs have experienced a considerable loss of hydrologic maturity. The oligotrophic lake is rated “good” for habitat conditions with the exception of nutrient cycling, which is rated “poor” due to declining returns of sockeye salmon.

In the Queets Basin, three watershed analyses provided data for Matheny Creek, the Salmon River, and the Sams River. Extensive habitat surveys for some Clearwater and lower Queets River tributaries were also available. Other than that, recent fine-scale data were generally lacking for the Clearwater sub-basin and for watersheds other than Matheny Creek, the Salmon River, and the Sams River. Access conditions are rated “good” for lands within the Olympic National Park and in the Salmon River. Elsewhere

in the Queets Basin, access conditions are a data need. Floodplain impacts such as bank hardening and roads are minimal; however, loss of off-channel habitat is a major concern, especially in the Clearwater, Salmon, and Sams Rivers and in Matheny Creek.

Excess sediment inputs are likely in the timber-managed areas, particularly in the Clearwater sub-basin where road densities are high. Large road fills with small culverts and mid-slope roads in high mass wasting potential areas are the major current concerns, and these problems have been identified throughout the Clearwater, Salmon, and Sams Rivers and in Matheny Creek. Riparian conditions are mostly "good" throughout the Queets Basin, except in the lower Queets and lower Clearwater WAUs, where conditions are mixed. Water temperatures greater than the State AA standard were found in the lower Queets mainstem, lower Sams River, lower Matheny Creek, and the Salmon River, with even warmer temperatures (up to 20.1^{o}C) in the lower Clearwater River. Flow data are insufficient to provide a good analysis, but land cover data indicate that most of the Matheny Creek, the lower Queets WAU, and the entire Clearwater sub-basins rated "poor" for hydrologic maturity.

There are many smaller streams in this WRIA that drain to the Pacific Ocean. The larger ones include Kalaloch and Joe Creeks, and the Raft, Copalis, and Moclips Rivers, in addition to the smaller watersheds, such as Duck, Whale, Camp, Conner, Boone and Wreck Creeks. Data for habitat conditions were generally lacking for all of these basins except for coarse-level data on the WAU level.

Little is known regarding fish habitat access and floodplain conditions in any of these smaller watersheds. Road density is high in Kalaloch Creek and the Raft River WAU, with "fair" road densities in the Moclips River/Joe Creek and Copalis WAUs. Riparian conditions in Kalaloch Creek, the Moclips River and Joe Creek WAU, and the Copalis WAU are mostly "fair" to "good", while predominately "fair" riparian conditions exist in the Raft River. Warm water temperatures have been documented in the Raft and Moclips Rivers, and low dissolved oxygen levels have led to a 303(d) listing for Joe Creek. Hydrologic maturity is "good" in Kalaloch Creek and the Copalis River WAUs and "poor" in the Raft River and Moclips River/Joe Creek WAUs.

Most estuarine areas within WRIA 21 have no bank hardening, although there has likely been a loss of LWD compared to historic levels. Generally, the estuarine habitat is rated "good". One exception is the more extensive bank armoring along lower Joe Creek, but quantification is needed to provide a rating. Much of the near shore habitat is part of the Copalis Rock National Wildlife Sanctuary and is rated "good". One concern is the recent decline in giant kelp, but the cause (natural or human-caused) of the decline is unknown.