

HABITAT COMMITTEE ADDENDUM TO THE LOWER COLUMBIA RIVER HARVEST MATRIX

The Habitat Committee (HC) was asked to provide the Council with a status report on habitat conditions for the LCR Coho salmon ESU. Specifically, the HC was asked:

“Is the habitat for the lower Columbia coho ESU better, worse, or roughly the same as it was around 2005?”

HC members from ODFW and WDFW provide their respective agency’s response to this question.

ODFW Response:

At this time, ODFW’s Conservation and Recovery Program does not have sufficient repeat monitoring events for a statistically-meaningful trend analysis of habitat conditions. Although habitat restoration efforts have been underway for many years, it may take years to decades before habitat is restored to functional order. To answer this question for the Council in the interim, we performed a modeling exercise using habitat restoration monitoring data to quantify habitat restoration, along with coho parr (juvenile) abundance as a proxy for habitat quality. The model estimates the capacity of the habitat (based on habitat quality) to support juvenile coho salmon. Annual comparison since 2006 is provided.

Coho Habitat Quality

The ODFW Aquatics Inventory Program has conducted statistically randomized sampling events in the LCR salmon ESU to monitor habitat conditions since 2006. Habitat variables (stream morphology, substrate composition, in-stream rugosity, riparian structure, and channel complexity) are then modeled to provide an estimate of the habitat’s capacity to support juvenile coho salmon. The habitat is classified as high or low quality, with high quality habitat believed to support roughly twice as many parr per km of stream as low quality habitat (1,850 and ≤ 900 parr, respectively).

The conclusion from this limited assessment is that habitat quality has consistently and statistically remained within the low to moderate range for supporting juvenile coho since 2006 (Figure 1). These findings are consistent with NOAA’s 5-Year Review (2012):

Summary and Evaluation of listed LCR fish populations for habitat condition:

“New information available since the last status review indicates that many restoration and protection actions have been implemented in freshwater and estuary habitat but does not reveal overall trends in habitat quality, quantity and function. In addition, we remain concerned with threats to habitat through the range of LCR salmon and steelhead, particularly with regard to activities that affect the quality and accessibility of habitat and

habitat forming processes, on private lands and considering the likelihood of continuing land use and development. We therefore conclude that the risk to the species persistence because of habitat destruction or modification has not changes since the last status review.”

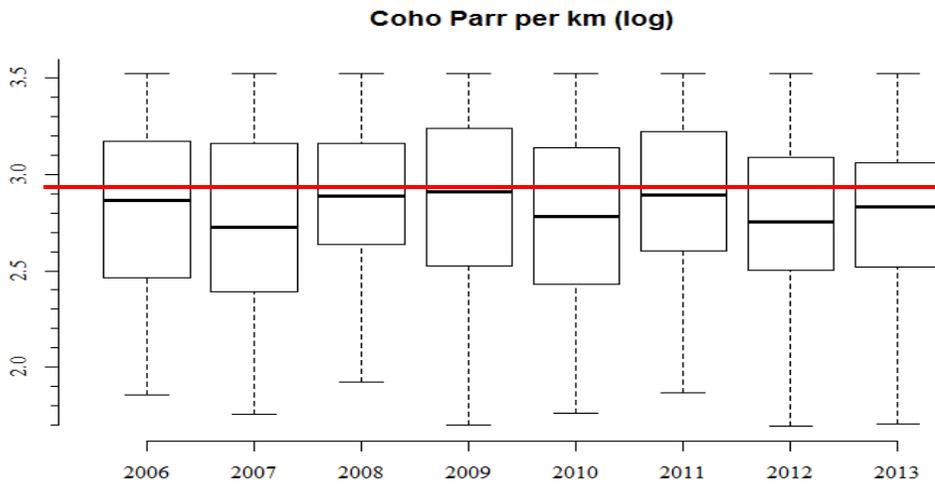


Figure 1. Habitat quality is indicated by the habitat’s ability to support juvenile (parr) coho salmon, using parr abundance as a proxy for habitat quality. Y-axis is log-transformed salmon parr per kilometer of stream. Red line indicates threshold for low quality habitat (< 900 parr per km, log transformed = 2.95).

LCR Recovery Plan: ESU-wide Habitat Restoration Goal Tracking and Progress

The Oregon Lower Columbia River Salmon and Steelhead Recovery Plan (Recovery Plan) identifies six general threats to LCR Coho ESU that are central to Recovery Plan goals of delisting and “broad sense recovery”¹. Two identified threats are habitat-specific: estuaries and tributary mortality. With respect to reducing tributary mortality for the ESU, ODFW established habitat restoration goals and “functional habitat” goals based on ODFW benchmark standards of: (1) miles of large woody debris (LWD), (2) miles of riparian planting, (3) square meters of off-channel habitat, and (4) miles of side channel habitat.

Tributary habitat restoration efforts began in 2010, with a desired outcome of total restoration implementation by 2025. In order to meet this long-term goal, tributary habitat restoration must stay on a steady annual trajectory. After 4 years on this 15-year trajectory, tributary restoration (measured as stream miles) should be at 25% of the goals for each independent population. Only a few (Sandy River, Youngs Bay, Clackamas, Scappoose, Hood) of the nine ESU independent populations are on course for meeting one or more benchmarks, and only in a few cases have they

¹ Recovery Plan definition of Broad Sense Recovery: “Having Oregon populations of naturally produced salmon and steelhead sufficiently abundant, productive, and diverse that the ESU as a whole will be self-sustaining and will provide significant ecological, cultural and economic benefits”.

reached 25%. Figures 2 - 5 indicates restoration progress for each population for 2010-2013. This interim analysis does not evaluate the effectiveness of restoration projects. The next federal status assessment is planned for 2017.

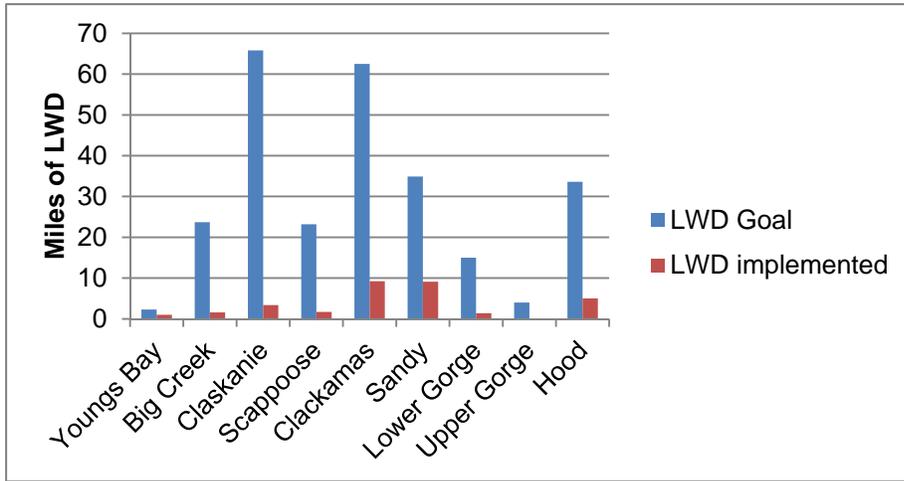


Figure 2. For **LWD goals** only the Sandy and Youngs Bay populations are on a trajectory to accomplish the long term goal (due to maintaining the populations status at very high risk for Youngs Bay population the restoration quantities needed are very low).

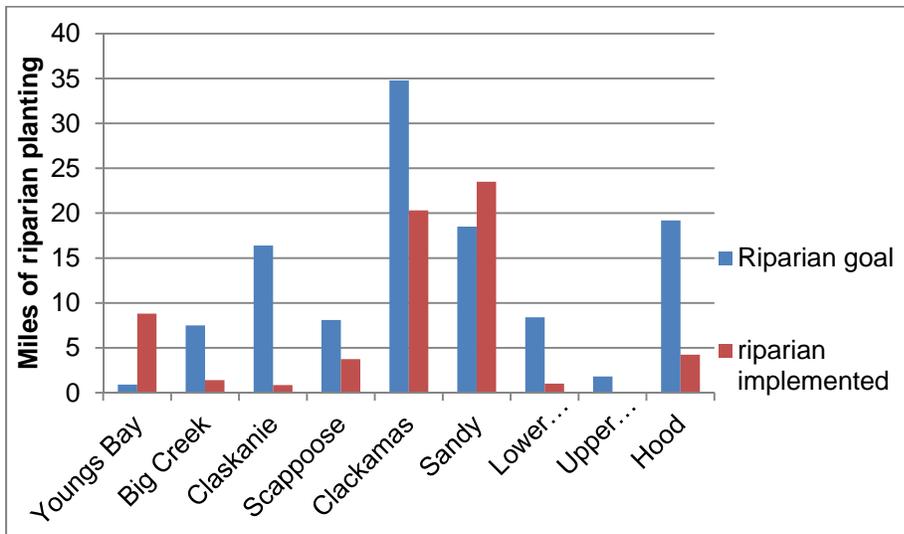


Figure 3. For **riparian goals** the Sandy and Youngs Bay populations have exceeded the goals and the Clackamas, Scappoose and Hood are tracking closely to the long term goals.

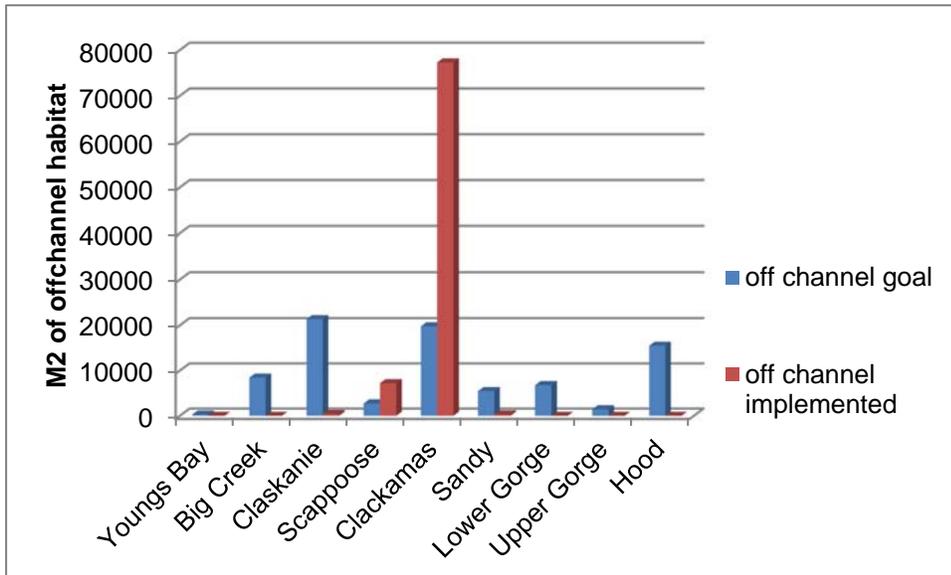


Figure 4. For **meters squared of off-channel habitat** both the Clackamas and the Scappoose implemented one or two extremely large projects and have met the goal, the remainder of the populations are at a very low level.

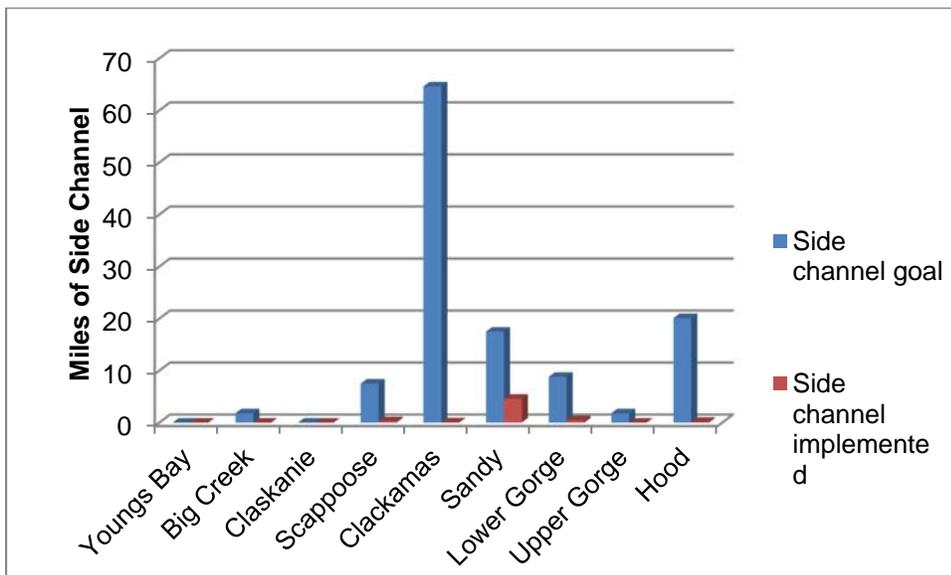


Figure 5. For **miles of side channel habitat** only the Sandy population is on a trajectory to meet the goal.

Emerging Threats

Habitat conditions are not worsening, per se, but there are new threats to consider. Most notable are climate change, human population growth and the Columbia River treaty. Several Coho salmon populations are located in the rain/snow dominated precipitation pattern that is likely to change to rain-only in the future. The change in precipitation pattern will affect all life history

stages. As municipalities begin to address climate change there may be an increased effort to build water storage facilities, which could potentially impact high flow sediment regimes (discussions are already underway). The suburban areas of Portland are expanding and putting more pressure on natural resources affecting the Sandy and Clackamas populations.

Question: Is the habitat for the lower Columbia coho ESU better, worse, or roughly the same as it was around 2005?

Lower Columbia Fish Recovery Board is the regional organizations is responsible for coordinating and facilitating the Lower Columbia River Salmon Recovery Plans in Washington state. The have provided most of the information below.

No comprehensive habitat monitoring program currently exists or is funded for the Washington portion of the Lower Columbia coho Evolutionarily Significant Unit (ESU). Accordingly, the LCFRB has no monitoring data or analyses that provide a statistically-meaningful picture of coho habitat trends. However, while habitat status and trends information may be lacking, efforts to restore and protect salmon and steelhead habitat in the Lower Columbia have been ongoing for over 15 years. Protection actions are intended to prevent or minimize further habitat degradation. Restoration actions provide near-term habitat improvements, but their full potential may not be achieved for decades.

Habitat protection and restoration efforts are guided by the Lower Columbia Salmon Recovery and Fish & Wildlife Subbasin Plan (LCFRB 2010). The Plan identifies habitat restoration needs and priorities for each of 17 river subbasins. In doing so, it takes into consideration population priorities, key life history stages, and existing reach conditions to assess the restoration potential of each reach within a subbasin.

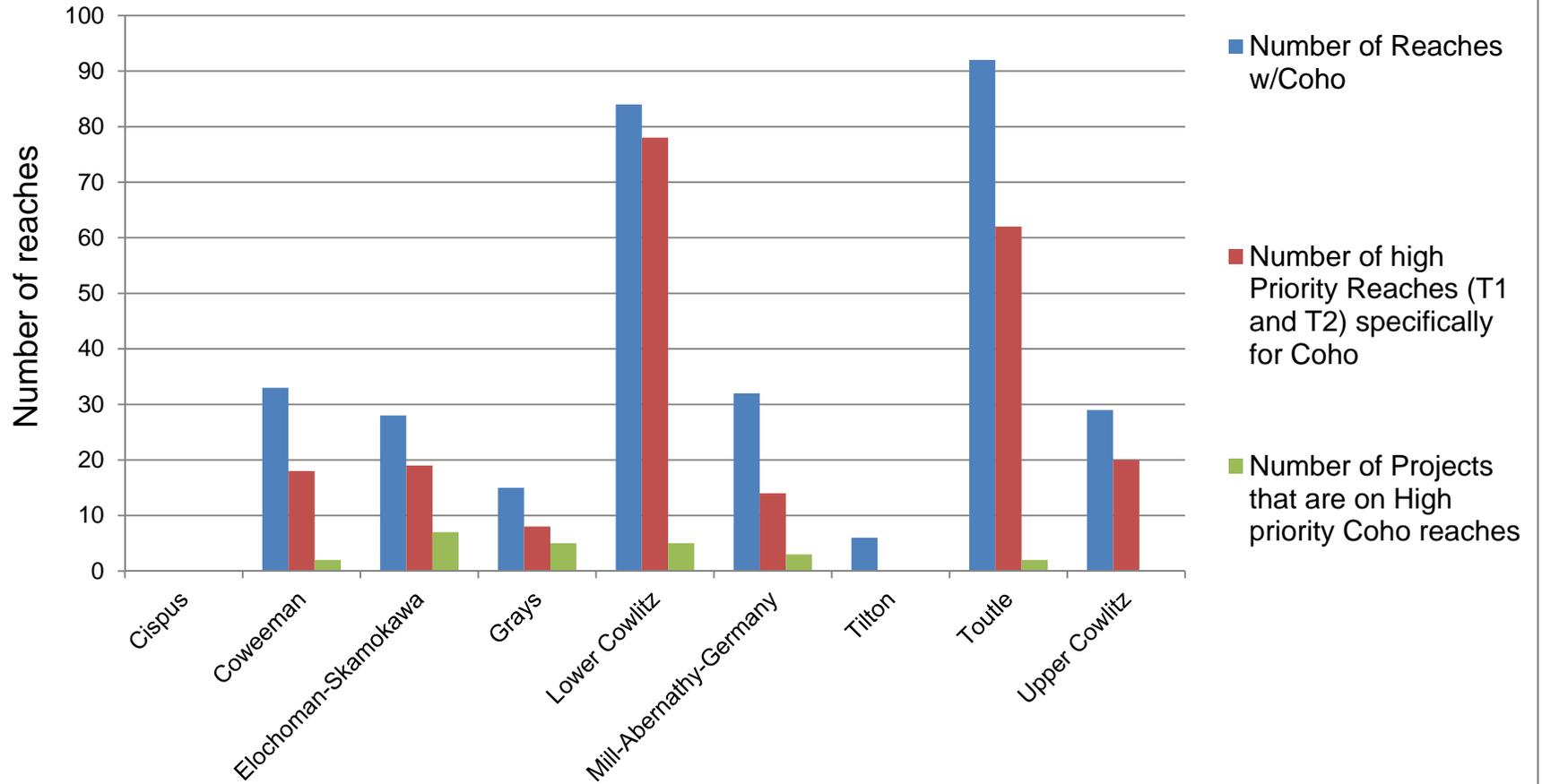
Habitat restoration and protection actions benefitting coho include:

- Habitat protection and restoration efforts funded primarily through the LCFRB and Washington Salmon Recovery Funding Board (SRFB) and implemented through local governments, the Cowlitz Indian Tribe, state and federal agencies, nonprofit organizations. Since 1998, 176 projects with a total value of \$48.7 million have been implemented or funded by the SRFB on Lower Columbia tributary rivers and streams. Many of these benefit coho. Within the region there are a total of 466 stream reaches that are high priority to the recovery of Coho salmon. Since 1998, 36 projects have been implemented across 297 high priority coho reaches. Thirty-six (36) restoration projects have been built across 135 high priority reaches to improve and protect coho salmon habitat. See Tables Below.
- Pursuant to provisions of the Federal Columbia River Power System (FCRPS) habitat restoration efforts in the Columbia River mainstem and estuary are being undertaken by the Washington Department of Fish and Wildlife, the Cowlitz Indian Tribe, and several nonprofit organizations.
- The USFS has worked to improve instream habitat and watershed conditions in the Cowlitz, Cispus, North Fork Lewis, East Fork Lewis, and Wind Rivers. These efforts include road abandonment and upgrades, riparian restoration, side channel improvements, and large wood structures enhancing instream habitat complexity and quantity.
- State forest lands are managed by the Washington Department of Natural Resources (DNR) pursuant to a Habitat Conservation Plan (HCP) approved by the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The Plan provides protection of riparian areas and unstable slopes as well as road maintenance actions needed to reduce fine

sediments reaching fish bearing streams. DNR has also worked with local organizations to implement stream habitat restoration projects on state forest lands.

- Forest management activities on private forest lands are regulated by DNR pursuant to the state Forest Practices Act and an HCP approved by the USFWS and NMFS. These regulations provide for the protection of riparian areas, channel migration zones, and forested wetlands. They also require the maintenance or abandonment of forest roads in order to reduce stream sediment inputs.
- Hydro-electric utilities are implementing fish passage measures to allow the reintroduction of coho above dams on the Cowlitz and North Fork Lewis Rivers. Pursuant to their federal licenses, the utilities are also funding habitat restoration in the Cowlitz and Lewis River watersheds. Removal of Condit Dam will allow coho to recolonize the White Salmon River.
- Counties and cities have adopted Critical Area Ordinances with provisions to protect fish habitat, riparian areas and wetlands. Clark County's updated Shoreline Master Plan draws upon the Lower Columbia recovery plan to identify habitat protection measures. Other jurisdictions are also updating their shoreline plans.
- The Washington Department of Ecology has adopted water management rules to protect stream flows in the Kalama, Lewis, and Washougal watersheds. Clark Public Utilities with funding support from the Department of Ecology is developing a regional water supply that will avoid impacts on stream flows of the East Fork Lewis. Water management plans for meeting future demands while protecting stream flows for fish have been adopted by local governments for the Grays, Elochoman, Skamokawa, Mill/Abernathy/Germany, Cowlitz, Toutle, Cispus, and Tilton subbasins.
- The Washington Department of Fish and Wildlife (WDFW) administers the Hydraulic Project Approval (HPA) permits for Washington State. Since 1943, anyone planning certain construction projects or activities in or near state waters has been required to obtain an HPA permit. Between 2006 and today, HPAs have been issued for 154 projects in Clark, Cowlitz, Lewis, Skamania, and Wahkiakum counties (that covers the majority of waters encompassed by the Lower Columbia River Coho ESU). In general these projects are for habitat improvement in those waters and can be broken down as follows:
 - Large wood installation or other structures that benefit naturally reproducing fish stocks = ~75%
 - Fish passage improvement = ~21%
 - Bioengineered bank protection = ~5%

Western Lower Columbia Region Subbasin Habitat Statistics for Coho



Eastern Lower Columbia Region Subbasin Habitat Statistics for Coho

