

Lower Columbia IMW – 2016 Accomplishment Report

Overview

Focal Species: coho and fall Chinook salmon, steelhead trout

Limiting factors: riparian and upland forests, stream habitat complexity, floodplain connectivity, sediment and flow processes

Restoration Strategy: treatment plans and collaborative work group to adaptively manage restoration and monitoring plans; address connectivity and habitat complexity needs in the short-term; restore sediment and flow processes at the watershed-scale in the long-term

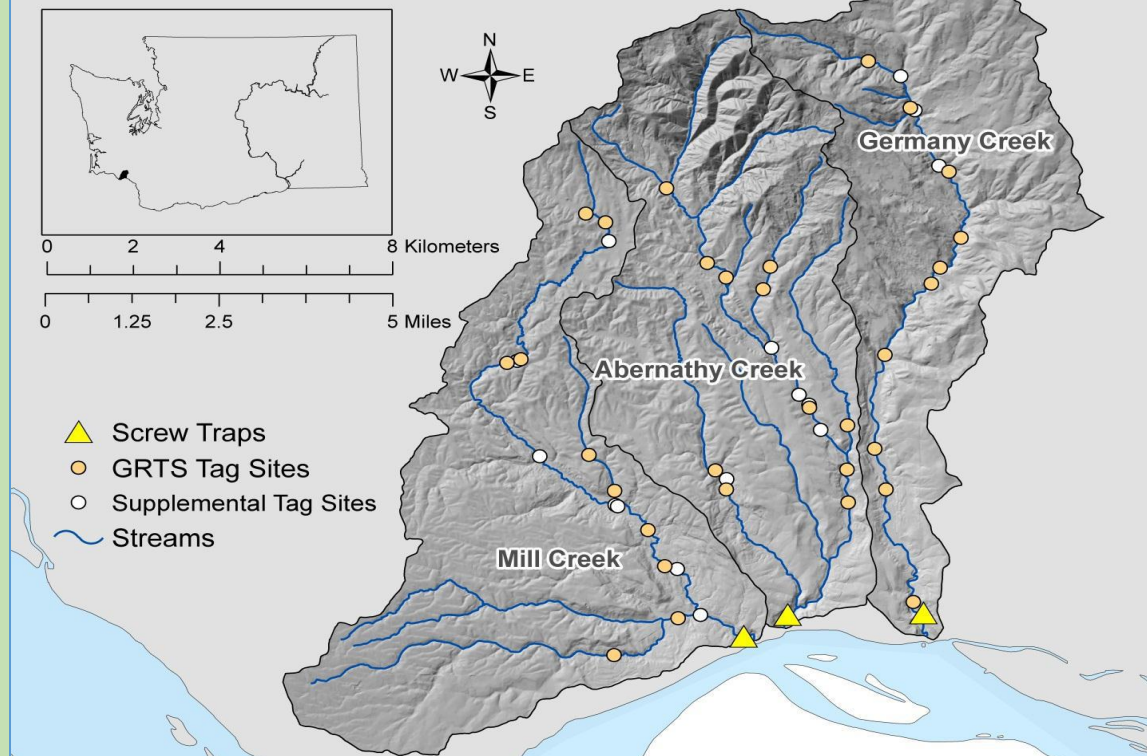
Experimental Design

Objectives: Do habitat restoration actions result in measurable increases in freshwater survival, diversity, and production of salmon and steelhead?

Reference Stream: Mill Creek (75 km² watershed)

Treatment Streams: Abernathy Creek (75 km²) and Germany Creek (59 km²). The majority of habitat treatment has occurred in Abernathy Creek, with treatment limited to nutrient and riparian projects in Germany Creek.

Lower Columbia Intensively Monitored Watersheds



The Lower Columbia IMW, including smolt screw trap locations, and summer fish and habitat sample sites. Sample sites are spatially distributed throughout the watersheds (GRTS and Supplemental Tag Sites). Map by Washington Department of Fish and Wildlife (WDFW).

Monitoring Approach

Salmon and Steelhead: PIT-tagged coho and steelhead summer parr are captured and monitored to estimate seasonal abundance, density, growth, and survival; smolt production, and outmigration and spawn timing are monitored for all three species with screw traps and spawner surveys.

Habitat: daily water quantity and quality are measured at stream mouth gages and summer low flow instream habitat conditions (substrate size and large wood frequency, etc.) are measured at random, spatially distributed sites throughout the watershed.

Rapid Assessment: two independent surveys were conducted in Summer 2014 to determine habitat needs for salmon and steelhead.



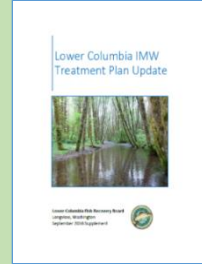
Photos courtesy of WDFW



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Treatment Plan (2009) and Update (2016)

The Lower Columbia Fish Recovery Board collaborated with a work group that included monitoring and restoration representatives to update knowledge of fish and habitat conditions, restoration accomplishments, and next steps in restoration and monitoring.



Restoration Accomplishments

Abernathy Creek:

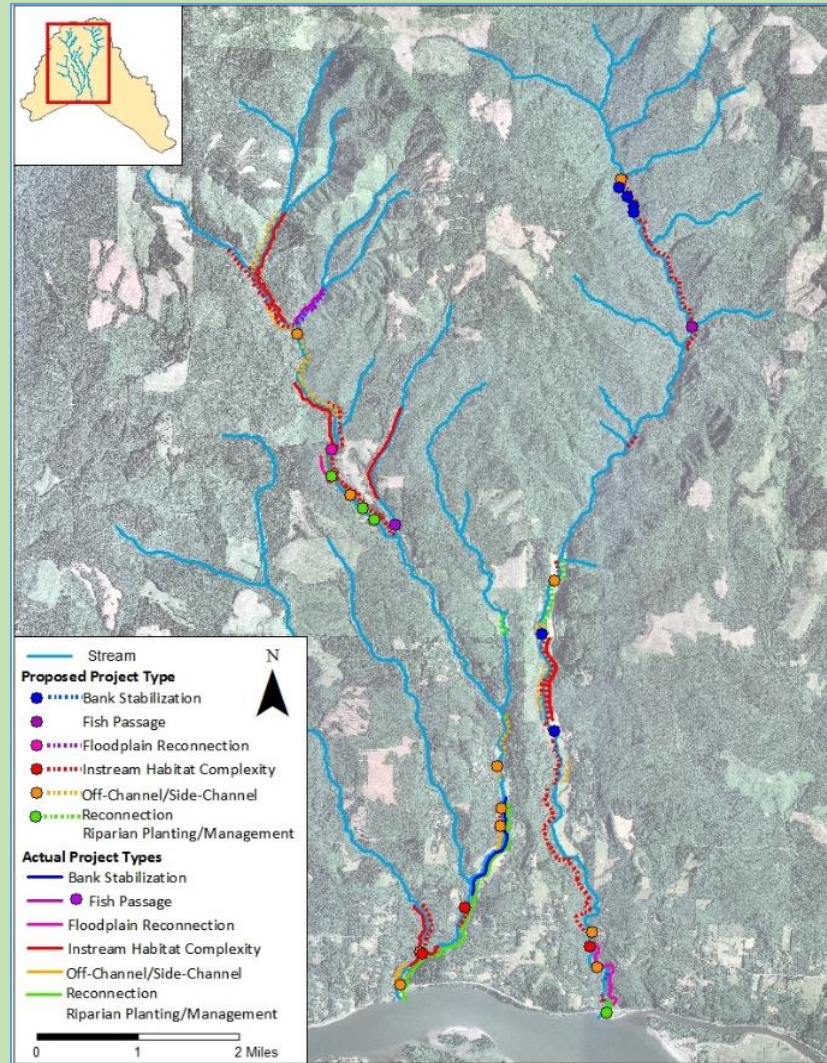
- 19 of 30 Treatment Plan projects implemented
- 5 miles of stream length treated
- 11 acres of riparian area treated
- 3 spring nutrient treatments across watershed

Germany Creek:

- 5 of 30 Treatment Plan projects implemented
- 1.5 miles of stream length treated
- 36 acres of riparian area treated
- 3 fall nutrient treatments across watershed

Preliminary Fish Data

- Minimal response to fall nutrient treatment, short-term response to spring treatment for coho, Chinook, and steelhead.
- Coho are limited by summer and winter rearing habitat conditions in Abernathy.
- Coho smolts in Abernathy are more likely to rear in tributary and headwater habitat in the summer than fall parr outmigrants, which are more likely to rear in lower, mainstem portions of the watershed.
- Chinook fry outmigrants are the most common juvenile life history observed.
- Steelhead smolt production bottlenecks are not well understood.



Map of proposed IMW habitat treatment projects in Abernathy and Germany Creek from the Treatment Plan, and implemented projects through the summer of 2016. Projects are coded by the habitat limitations they are designed to address.

Baseline Monitoring and Treatment Plan
(2004 – 2011/2012)

Project Implementation and
Treatment Update (2011 - Ongoing)

Post-Project Monitoring
(5- 15 years)

Next Steps:

Currently funded construction and design projects are likely to result in measurable coho population responses in Abernathy Creek. More analysis is necessary to determine steelhead population needs.



Key partners: Columbia Land Trust, Cowlitz Conservation District, Cowlitz County, Cowlitz Indian Tribe, Lower Columbia Fish Enhancement Group, Washington Department of Ecology, Department of Natural Resources, WDFW, and Weyerhaeuser Company