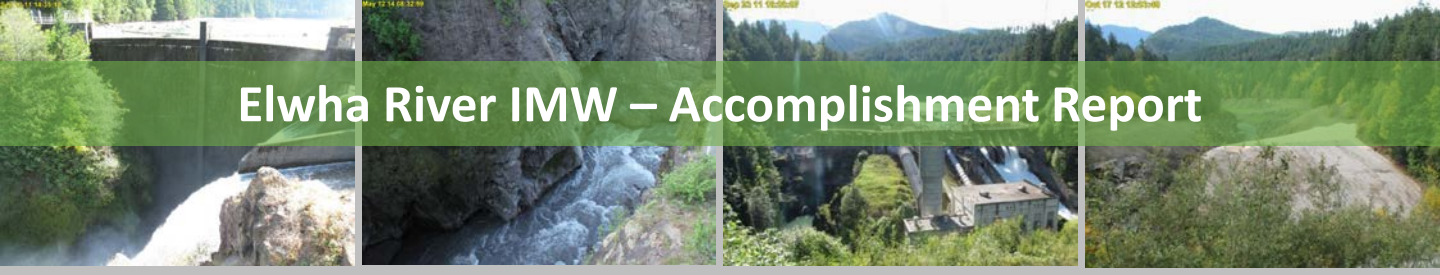


Elwha River IMW – Accomplishment Report

Elwha River Intensively Monitored Watershed Overview

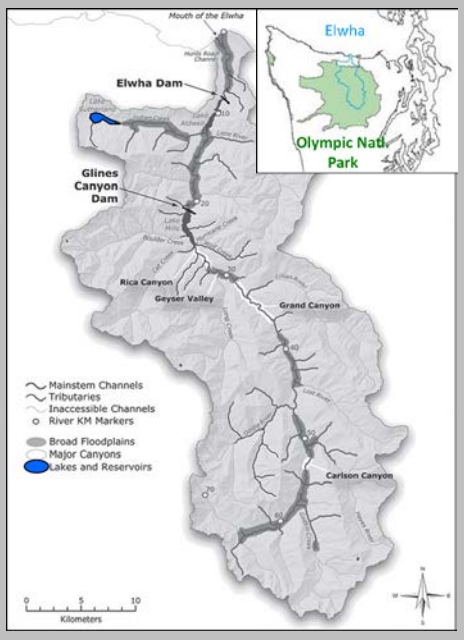
Focal Species: Chinook salmon, Coho salmon, Pink salmon, Chum salmon, Sockeye salmon, steelhead, Bull trout, Cutthroat trout, and Pacific Lamprey
Limiting factors: Connectivity due to Glines Canyon Dam and Elwha Dam blocking ~90% of the habitat
Restoration strategy: Restore connectivity to the entire watershed

Experimental Design

Before-After (BA) and Before-After-Control-Impact (BACI) design depending upon ecosystem metric. Metrics include:

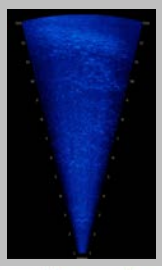
- Fish - anadromous fish abundance, productivity, distribution and diversity.
- Habitat - % fines, residual pool depth, proportion of side channels functioning, braiding and sinuosity index
- Food web – benthic invertebrate density, diversity, and composition, functional feeding groups, proportion of aquatic & terrestrial in diet.
- Water quality – turbidity, suspended sediment, & water chemistry

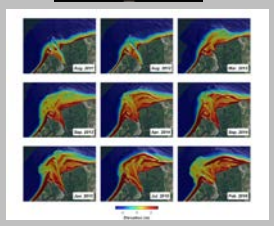
Monitoring ongoing since 2000. Restoration of passage for Elwha dam occurred in 2012 at Rkm 8.0. Restoration of passage for Glines Canyon dam occurred in 2015 at Rkm 22.0.



Monitoring Approach

Fish: Sonar for adult enumeration, screw trap for smolt enumeration, electroshocking for parr estimates, spawner surveys for spatial distribution.
Habitat: Combination of Lidar, aerial photographs, longitudinal profiles, bulk samples at spawning locations, and general habitat surveys.
Food web: Kicknet samples, diet content in O. mykiss
Water quality: Turbidity, suspended sediment concentration, bedload, and water chemistry





Restoration Approach

- Restore connectivity: remove barriers and constraints to flows of water, sediment, and fish.
- Increase complexity: restore stream roughness elements (LWD) and processes that will lead to future wood recruitment (riparian restoration).
- Reduce invasive vegetation and fish species

Elwha River IMW – Accomplishment Report

Restoration Accomplishments

Dam removal:

The Elwha dam and Glines Canyon Dam were removed in 2012 and 2015, opening up over 70km of habitat.

Log jam construction:

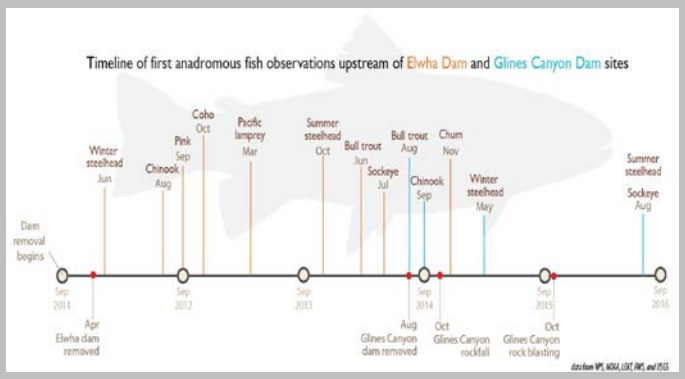
Approximately 40 constructed log jams have been placed in the Lower Elwha below Rkm 8.0

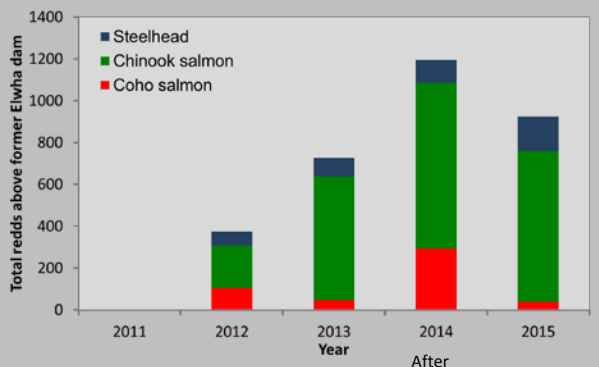
Combating invasive species:

Removal of invasive vegetation has occurred throughout the Lower and Middle Elwha floodplain and newly created surfaces in the former Mills and Aldwell reservoir areas.

Fish Population Responses

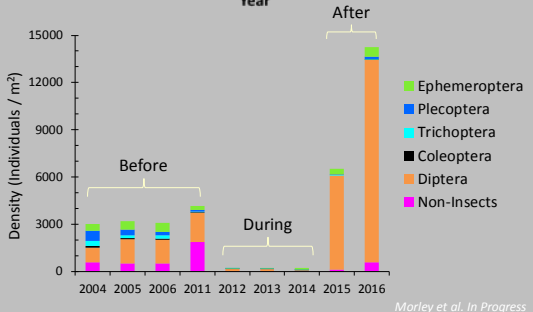
- Adult salmonids making it above former Elwha Dam and Glines Canyon Dam.
- Coho, steelhead & Chinook salmon redds are increasing each year in the middle Elwha River.
- New species are being seen.
- Salmonids are adapting to the local environmental conditions resulting in differences in life history strategies





Foodweb responses

- Benthic invertebrates reduced over 95% in lower Elwha, now making a comeback
- Juvenile salmon relying more on terrestrial food sources



Future Direction

- Continue to implement the Elwha monitoring and adaptive management plan.