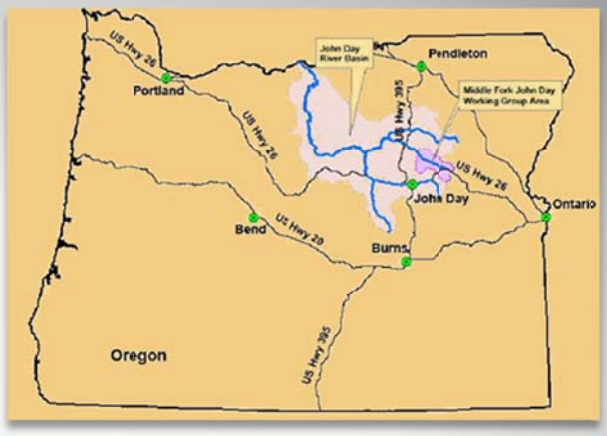
MIDDLE FORK JOHN DAY RIVER IMW ACCOMPLISHMENTS REPORT

Overview

The Middle Fork IMW working group is a diverse consortium of more than 20 restoration implementers, researchers, landowners, and monitoring agencies assembled to measure the effects of river restoration projects on salmon and steelhead at the watershed scale.[1]



Focal Species: Chinook Salmon and *threatened* steelhead trout

Limiting Factors: Water temperature, degraded floodplain habitat and channel structure, and altered hydrology and sediment routing

Restoration Strategy: Since 2008, over 100 restoration projects were successfully implemented in the watershed. These projects include approximately 26 actions called for in the 2009 Middle Columbia River Steelhead Recovery Plan.

Restoration Inventory

- Expanded over 30 miles of useable habitat by removing and/or replacing old culverts
- Implemented over 3 miles of channel realignment to improve channel function and form
- Installed over 50 ELJs to increase habitat complexity
- Planted over 30,000 trees and shrubs to revegetate over 500 acres of riparian habitat
- Completed over 20 actions to improve upland habitats
- Excluded grazing from streamside pastures to passively restore riparian vegetation and increase bank stability

Fish Monitoring Findings

- Chinook surveys documented that warm temperatures and low flows led to significant pre-spawn mortality.
- Chinook and steelhead stock-recruitment curves indicate freshwater rearing habitat is limiting
- Steelhead and Chinook productivity has yet to show a positive response to restoration due to life-cycle lag time (***Figure 1***).

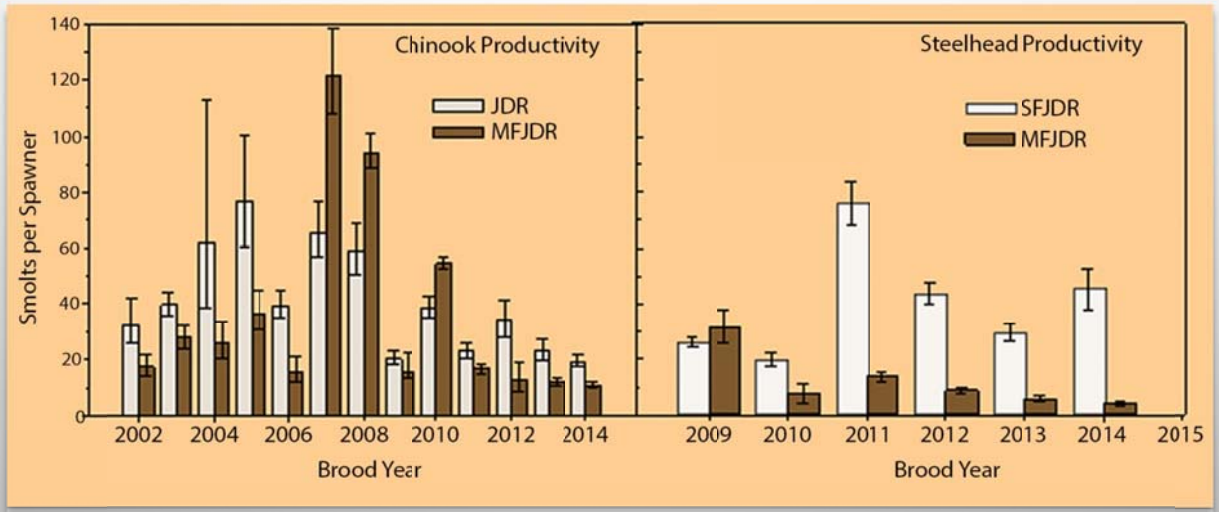


Figure 1. *Freshwater productivity estimates for MFJDR Chinook and Steelhead. The MFJDR estimates are compared to the control watersheds of the Mainstem John Day River (JDR) for Chinook and the South Fork John Day River (SFJDR) for steelhead.*

[1] For more information, visit www.middleforkimw.org or follow us on Twitter @middleforkimw.

Monitoring Accomplishments

- Vegetation monitoring documented that torrent sedge increased after cattle exclusion and is playing an important role increasing fish cover and changing channel morphology.
- Geomorphic monitoring has shown that log structures have increased fish cover and maintained pool depth.
- Fiber Optic Distributed Temperature Sensing (DTS) documented water temperature increases at stream reaches where channel reconstruction occurred.
- Refinement of the Heat Source™ model indicated that riparian shading has the greatest potential to reduce stream temperatures.
- Socioeconomic monitoring in 2010 found that organizations involved with the IMW provided 59 full time restoration-related jobs in Grant County, a 40% increase compared to 2000.

Leveraged Funding

NOAA and PSMFC investments in the IMW have been leveraged by others actively participating in watershed monitoring and restoration. All restoration actions have been funded through coordinated investments. Collaborative funding for monitoring since 2008 has been provided by:

- OWEB
- BPA
- Bureau of Reclamation
- The Nature Conservancy
- US Forest Service
- National Science Foundation

Before and after aerial images of channel realignment restoration actions implemented by the Confederated Tribes of the Warm Springs at the Oxbow Conservation Area.

Future Direction

Priority monitoring of fish, water temperature and streamflow will continue, while a parallel effort focuses on analysis and reporting of past monitoring data to assess the outcomes of restoration. Future restoration actions are in the planning phase. The IMW Working Group is on schedule to provide a final report in October 2017 that synthesizes results and lessons learned from 2008-2017.

Ongoing monitoring is needed to properly document the effects of large scale restoration projects that have been completed recently in the mainstem Middle Fork and its tributaries. This monitoring would leverage the significant data-set that has been collected over the last 10 years to understand how the effects of restoration efforts mature over time at a watershed scale.