

**U.S. Fish and Wildlife Service
Columbia River Fish and Wildlife Conservation Office**

Willamette River Management:
Bull Trout Recovery Action Implementation, Monitoring and
Evaluation, and Pacific Lamprey Passage Assessment

FY 2016 Progress Report



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May 11, 2017

***On the cover:** Cougar Dam and Reservoir, South Fork McKenzie River, Oregon. Cougar Dam is one of 13 dams operated by the U.S. Army Corps of Engineers in the Willamette Valley, providing flood risk management, power generation, water quality improvement, irrigation, fish and wildlife habitat, and recreation on the Willamette River and many of its tributaries. Photo credit: U.S. Army Corps of Engineers – Portland District.*

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The correct citation for this report is:

Hudson, J.M. 2017. Willamette River management: bull trout recovery action implementation, monitoring and evaluation, and Pacific lamprey passage assessment. FY 2016 Progress Report. U.S. Fish and Wildlife Service, Columbia River Fish and Wildlife Conservation Office, Vancouver, WA. 6 pp.

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AND EVALUATION, AND PACIFIC LAMPREY PASSAGE ASSESSMENT

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Abstract – The U.S. Fish and Wildlife Service (Service) recognizes the value of the Willamette River to bull trout and Pacific lamprey. To this end, the Service has been an active participant in the Willamette Action Team for Ecosystem Restoration (WATER), the process through which the Reasonable and Prudent Alternative (RPA) from the Willamette River Biological Opinion for salmon and steelhead is implemented. Through Section 7 consultation, there is currently a “no jeopardy” finding for bull trout listed under the Endangered Species Act (ESA) in the Willamette River basin, and Pacific lamprey are not listed. This “no jeopardy” finding is supported by conservation measures, as modified by the National Marine Fisheries Service’s (NMFS) RPA. However, projects managed by the Army Corps of Engineers (ACOE) have the potential to impact full expression of these species’ life histories. The Service participates in WATER forums to coordinate actions implemented under the Service’s biological opinion and NMFS’ RPA, and to influence fish passage solution outcomes that may benefit and protect bull trout and Service trust species (anadromous fish). In addition, the Service is implementing actions and developing tools to benefit conservation and management of these species. The Service is exploring the feasibility of expanding bull trout distribution through a reintroduction effort in the North Santiam River, and development of a GIS tool that will provide options for correcting limiting factors for bull trout/lamprey passage and survival.

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Introduction

Bull trout, lamprey, salmon, and steelhead are all affected by the construction and operation of the flood control/hydropower projects in the Willamette Basin, and solutions to fish passage and instream flow issues will benefit multiple species/populations. There is a need to identify population status and limiting factors, implement actions consistent with existing recovery plans, and develop a Monitoring and Evaluation (M&E) plan. Development of the Willamette Basin water resources for flood control and hydropower benefits have had unanticipated effects on bull trout, lamprey, salmon, and steelhead by cutting off access to historic spawning and rearing habitat and altering connectivity between local populations of bull trout. Recovery of listed species in the Basin, and conservation actions for non-listed species like Pacific lamprey, will not occur without the development and implementation of viable solutions.

Willamette Action Team for Ecosystem Restoration

A large part of Columbia River Fish and Wildlife Conservation Office (CRFWCO) activities in the Willamette River basin involves coordination with the Ecological Services program of the U.S. Fish and Wildlife Service (Oregon Fish and Wildlife Office, Portland, Oregon) and attending technical meetings of the Willamette Action Team for Ecosystem Restoration (WATER). WATER guides implementation of actions required under the FWS and NMFS Biological Opinions (“BiOps”) to minimize effects from operation and maintenance of the Willamette Project system of dams and reservoirs (NMFS 2008; USFWS 2008), that should also benefit bull trout (USFWS 2008) and could provide benefits to Pacific lamprey (USFWS 2011) and other native fishes. Generally, WATER is organized with a Manager’s Forum overseeing the Steering Team, which provides oversight for a number of technical teams (Appendix A).

The CRFWCO is actively engaged in the Willamette Fish Facility Design Work Group (WFFDWG; formerly the Fish Passage Team) and the Research, Monitoring and Evaluation Team (RME), both of which fall under the Steering Team. Both of these teams hold standing monthly meetings. There are ad hoc meetings/workshops scheduled as needed to discuss specific projects (e.g., Fish Benefits Workbook, Salmon Life-cycle Analysis Model). CRFWCO’s role in WATER is to provide technical expertise with respect to bull trout and Pacific lamprey. More specifically, expertise and input is provided to the WFFDWG and RME teams toward implementing the BiOp, and influence outcomes to benefit bull trout/Pacific lamprey passage and connectivity throughout the basin. To be influential in WATER, we must be participate in the process as outlined above, thus, establishing and maintaining our scientific credibility, and allowing us to build relationships among the partner organizations.

Through the course of our involvement in these forums, the majority of CRFWCO activity has been review and feedback to WATER on RME projects. Many of these projects are aimed at clarifying uncertainties associated with juvenile downstream passage, for which answers are needed to proceed with development of preferred alternatives for downstream passage solutions at Foster, Detroit/Big Cliff, Cougar, and Lookout Point/Dexter dams. Ultimately, these preferred alternatives were incorporated into the U.S. Army Corps of Engineers’ (ACOE) Configurations and Operations Plan (COP) for the Willamette River, the vehicle by which the ACOE is using

for Congressional authorization and funding to implement modifications to these four hydro projects.

In an effort to make the WATER a more collaborative and transparent process, DS Consulting was employed in 2016 to formally facilitate the Steering and RME teams. Progress was made on revision to the WATER guidelines, the RME project prioritization process and dispute resolution. Significant progress was made on the development of the Middle Fork RME Plan, which will provide a model for RME plans to be developed for the other subbasins (i.e., McKenzie, South Santiam and North Santiam) in 2017 and beyond.

Upper Willamette Bull Trout Working Group

The Upper Willamette Bull Trout Technical Workgroup guides on-the-ground actions relative to bull trout recovery in the upper Willamette basin. The working group is led by the Oregon Department of Fish and Wildlife (ODFW), with participation from FWS, CTGR, U.S. Forest Service (USFS), ACOE, Eugene Water and Electric Board, and Oregon State Police. It is not part of WATER, but is related because actions implemented through WATER have the potential to affect bull trout and bull trout critical habitat. The working group meets annually to review the past year's work and provide direction for coming year's work. CRFWCO's role in this working group is to provide technical expertise with respect to bull trout, bringing knowledge and experience from a broader geographic scope for the species, and informing management and recovery of bull trout in the upper Willamette River.

There are currently bull trout populations in the McKenzie River and Middle Fork (MF) Willamette River watersheds. The MF Willamette River population is a reintroduced population that has a low estimated size. The working group agreed to discontinue translocations to the MF Willamette River from the mainstem McKenzie River population in 2014. ODFW continues to monitor all bull trout populations in the upper Willamette River.

The working group was involved in implementation of recovery actions in 2016 to address threats identified in bull trout recovery plan (USFWS 2015a) and the Coastal Recovery Unit Implementation Plan (RUIP) (USFWS 2015b). Moving forward, the working group is ensuring that annual work plans are consistent with the Recovery Plan for the Coterminous United States Population of Bull Trout (*Salvelinus confluentus*) and the associated Coastal RUIP, and will be involved with annually updating the threats assessment matrix for the core area.

North Santiam Bull Trout Reintroduction Feasibility

Bull trout historically occupied portions of the Willamette River basin including the Clackamas River, North Santiam River, South Santiam River, McKenzie River, and Middle Fork Willamette River watersheds. They were extirpated from all but the McKenzie River over the past 70 years. There is currently one fluvial population occupying the mainstem McKenzie River. In addition, the McKenzie River watershed supports two adfluvial populations of bull trout above Trail Bridge Dam on the mainstem McKenzie and above Cougar Dam on the SF McKenzie. These two dams have fragmented what was historically a single spawning population of bull trout in

the watershed. Efforts to reintroduce bull trout to the Middle Fork Willamette watershed began in 1997 and to the Clackamas River watershed in 2011. It is unknown what the current abundance is for these populations, but it is likely the Middle Fork Willamette population is less than 30 adults according to monitoring being conducted by ODFW. Bull trout continue to be absent from the South Santiam and North Santiam rivers.

Given the preliminary successes of the reintroduction of bull trout to the Clackamas River watershed (Barry et al. 2013, 2014; Hudson et al. 2015; Barrows et al. 2016), reintroduction of bull trout to other watersheds within the Willamette River subbasin is being discussed with partners (e.g., ODFW, USFS). The first watershed being considered is the North Santiam River. To this end, an initial meeting was held in January 2014 that included participants from FWS, USFS, ODFW, USGS, and others. Available temperature information, an initial indicator of bull trout habitat suitability, for the upper extremities of the watershed was incomplete, and thus, inconclusive. In summer 2015, CRFWCO coordinated with USFS to expand the network of temperature monitoring occurring in the watershed, and temperature monitoring continued through 2016. Analysis of initial data collected from that effort will provide information for a continued discussion in FY2017 on bull trout reintroduction feasibility in this watershed.

Willamette Bull Trout GIS Habitat Analysis

CRFWCO is also developing a GIS-based analysis of bull trout habitat in the Willamette River basin above Willamette Falls to assess barriers and connectivity for bull trout, identify areas that may support spawning and early life rearing of both resident and migratory forms, and determine what impediments exist for expression of migratory life-history strategies. This analysis is being conducted by collecting information from a variety of sources on bull trout population status, trend and distribution; water temperature; the locations of instream physical structures (i.e., dams, culverts, natural barriers); stream gradient; and land ownership. The approach follows that taken by CRFWCO for the Walla Walla River subbasin (Schaller et al. 2014). Specific watersheds in the Willamette River basin for which this analysis will be conducted are the North Santiam, South Santiam, McKenzie, and MF Willamette rivers.

This project began in 2015, and focused on the McKenzie River and MF Willamette River watersheds. Necessary information for the analysis has been compiled and the analysis completed. A final report documenting the process as applied to the McKenzie River and MF Willamette River watersheds and the results will be completed in 2017.

Management Implications and Next Steps

CRFWCO involvement in the Willamette River Basin will continue into the future. The goal is to continue to gain a better understanding of the life history and habitat needs of bull trout and Pacific lamprey in the Willamette River Basin, and to relate those biological needs to flood control/hydropower project management and other impacts on fish passage, habitat and instream flows and the connectivity between local bull trout and Pacific lamprey populations within the Willamette River basin. Data and tools resulting from this project will be useful for bull trout recovery plan implementation, development and implementation of the Pacific

lamprey Regional Implementation Plan for the Willamette Basin, and developing M&E programs for both species.

Acknowledgements

We thank the multiple partners involved in the continued implementation of this project, especially, Oregon Department of Fish and Wildlife, NOAA Fisheries, U.S. Fish and Wildlife Service-Oregon Fish and Wildlife Office, U.S. Forest Service, the Confederated Tribes of the Grand Ronde, U.S. Army Corps of Engineers, and Bonneville Power Administration.

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**May 2017
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