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 2013-2015 Progress Report

J. Michael Hudson and David Wills

U.S. Fish and Wildlife Service
Columbia River Fish and Wildlife Conservation Office
Vancouver, WA 98683

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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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WILLAMETTE RIVER MANAGEMENT: BULL TROUT RECOVERY ACTION IMPLEMENTATION, MONITORING 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 Fish Passage Team (FPT) 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 FPT 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 will be 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.

The chair for the Steering Team (Ian Chane, ACOE) stated in early 2014 that development of the COP would proceed in 2014, with input and review from all WATER participants. There was no progress made during 2014. In early 2015, several meetings were held among Federal Family participants (NMFS, FWS, ACOE, Bonneville Power Association (BPA)) of WATER to develop the COP. This collaborative process ended in June 2015, but development of the COP continued by the ACOE and BPA, excluding all non-action agencies. The COP was finalized in October 2015 and shared with participants of WATER in April 2016. It provides direction and funding for implementation of the NMFS BiOp's Reasonable and Prudent Alternative (RPA) (NMFS 2008).

The process associated with the development of the COP is indicative of a larger systemic problem in the WATER process. The process does not function as envisioned by the FWS and NMFS when included as part of the RPA; see Appendix A for additional detail on structure and function of WATER. Specifically, the WATER process should be collaborative and transparent as outlined in Appendix A. Many WATER participants are frustrated with the lack of focus on priority issues, lack of transparency, and inability to come to consensus, which has led to inability to make decisions on some issues.

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 bull trout recovery planning (USFWS 2015a) in 2014 and 2015. Participants provided input and review towards the development of 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.

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. Analysis of initial data collected from that effort will provide information for a continued discussion in 2016 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 is currently focused on the McKenzie River and MF Willamette River watersheds. Necessary information for the analysis has largely been compiled to date. The Analytical Services group of CRFWCO is automating the process as this project proceeds so that the approach may be more readily applied elsewhere across the range of bull trout, and also be applied to other species (e.g., Pacific lamprey). A final report documenting the process as applied to the McKenzie River and MF Willamette River watersheds and the results will be compiled in 2016.

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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Appendix A: WATER GUIDELINES, ORGANIZATION, AND PROCEDURES

December 2008

I. Purpose, Background, and Scope

Purpose: The purpose of the Willamette Action Team for Ecosystem Restoration (WATER) is to provide a forum for coordination and recommendations among the sovereign governments (federal/state/tribal) working to implement strategies for Endangered Species Act (ESA) compliance associated with the Willamette Project, which consists of 13 federal dams operated and maintained by the U.S. Army Corps of Engineers, Portland District (USACE) in the Willamette River Basin (Willamette Project), 42 miles of revetments, and the hatchery mitigation program. Establishment of this organization is a core feature of the adaptive management strategy in the Reasonable and Prudent Alternative (RPA) developed during consultation on the Willamette Project (NOAA Fisheries 2008).[1]

Background and Scope: The 2008 Willamette Project Biological Opinions[2] (Willamette BiOps) and RPA identified numerous actions to reduce and minimize the effects of continued operation and maintenance of the Willamette Project on species listed and critical habitat designated under the ESA. WATER's responsibilities are directed at making recommendations to the Federal Action Agencies (Action Agencies, consisting of USACE, Bonneville Power Administration (BPA), and Bureau of Reclamation (USBR)) in implementing certain measures in the RPA and the Willamette BiOps. General topics to be addressed by WATER include flow management, water quality and temperature control below dams; fish passage; hatchery management; habitat restoration; environmental coordination for construction projects; and research, monitoring and evaluation of proposed actions.

The Willamette BiOps and RPA also include the Configurations Operations Plan (COP), which is a study mechanism the USACE will use to evaluate a range of potentially beneficial actions for listed species, some of which are prescribed as specific RPA measures with deadlines. The WATER, and its various technical teams, will be integral to guiding research, reviewing information, and making recommendations regarding the biological benefits associated with actions evaluated within the COP.

WATER will also serve as a forum to integrate the Willamette BiOps and RPA implementation with development and implementation of Recovery Plans associated with ESA-listed species addressed in the Willamette BiOps. The extent of this involvement will evolve as actions are identified within the COP and as Recovery Plans are completed.

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[1] NOAA Fisheries. 2008. Endangered Species Act Section 7(a)(2) consultation biological opinion & Magnuson-Stevens Fishery Conservation & Management Act essential fish habitat consultation: Consultation on the Willamette River basin flood control project. July 11, 2008.

[2] Willamette BiOps refers to both NOAA Fisheries 2008, above, and USFWS' July 11, 2008 biological opinions.

WATER will also serve as a forum to integrate the Willamette BiOps and RPA implementation with development and implementation of Recovery Plans associated with ESA-listed species addressed in the Willamette BiOps. The extent of this involvement will evolve as actions are identified within the COP and as Recovery Plans are completed.

WATER will serve as a recommendation-making body only; the Action Agencies retain responsibility for the continued operation and maintenance of the Willamette Project to meet authorized purposes and to ensure compliance with the actions described in the Willamette BiOps and RPA. If the Services disagree with an Action Agency's decision, they may elevate the issue, if appropriate. Although the Action Agencies retain decision-making authority with respect to implementing and ensuring compliance with the Willamette BiOps and RPA, the WATER process and structure does not take away existing authorities of other Federal and State agencies and Tribes.

II. Goals

The goals of WATER are to:

A. provide a forum for information sharing and discussion of operation and configuration of the Willamette Project as they relate to compliance with the ESA and the Willamette BiOps and RPA;
B. provide information and guidance to the USACE's COP study;
C. ensure broad technical and policy input into planning, funding, and implementing decisions regarding operation of the Willamette Project related to implementation of the Willamette BiOps and RPA or other applicable biological opinions;
D. seek consensus on actions implemented related to the Willamette BiOps and RPA, including system configuration and water quality;
E. provide a vehicle for elevating disputes associated with the operation and configuration of the Willamette Project to appropriate levels of the involved governmental bodies;
F. promote coordination between implementation of the Willamette BiOps and RPA and actions taken under other related regional plans to restore Willamette River Basin fish, such as ESA Recovery Plans or state Conservation Plans;
G. identify opportunities for improved coordination and partnerships to increase efficiencies and avoid unnecessary duplication;
H. increase awareness and include consideration of the implementation of the Willamette BiOps and RPA actions on non-listed species, cultural and other resources, and the multi-purposes of the Willamette Project;
I. facilitate open and transparent communication in making decisions, as well as to track progress and the rationale for decisions;
J. ensure an adaptive management strategy is used to implement actions for the recovery of ESA-listed species.

III. Organization

WATER has a three tiered structure of teams, as depicted in Figure 1 (attached) and briefly described below.

The Manager's Forum (Manager's Forum) provides senior management level oversight to the Willamette Project ESA implementation. The Manager's Forum serves as the regional policy and management level body.

The Steering Team is the second tier of WATER comprised of senior project and program managers representing the federal agencies responsible for the ESA Section 7 consultation for the Willamette Project, as well as other key federal and state agencies, and Tribes with natural resource management responsibilities critical to implementation of ESA measures. The Steering Team is responsible for overseeing and coordinating the activities of the technical teams engaged in implementation of the Willamette BiOps and RPA. It is also the level at which the participating entities will seek to resolve disagreements.

Technical teams oversee implementation of the Willamette BiOps and RPA and related resource management activities. The technical teams are the level at which much of the detailed work of implementing Willamette BiOps and RPA activities are staffed, planned, scoped, designed, and implemented. The technical teams are established by the Action Agencies working in collaboration with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) (Services). The composition of the teams will reflect the scope of each team's areas of responsibility.

Initially, the following technical teams are needed: flow management; fish passage; hatchery management; environmental coordination for construction projects; research, monitoring and evaluation; and habitat restoration. Other technical teams may be formed on an ad hoc or permanent basis as the Steering Team deems necessary.

IV. Membership

The following lists the entities that will participate in the various teams of WATER and briefly summarizes their interest, responsibilities, and authorities.

A. Participation
   1. The Manager's Forum consists of senior level management from federal and state agencies and Tribes with fisheries and water resource management responsibilities in the Willamette River Basin.
      a. USACE – Deputy District Engineer for Program and Project Management (DPM). The USACE will chair the Manager's Forum;
      b. BPA – Vice President of Generation Asset Management;
      c. USBR – Lower Columbia Area Office Area Manager;
      d. NMFS – Assistant Regional Administrator, Hydro Division;
      e. USFWS – State Supervisor;
      f. USFS – Willamette Forest Supervisor or R-6 Director of Natural Resources;
      g. BLM – TBD
      h. State of Oregon, Policy Advisor, Governor's Natural Resources Office;

i. Confederated Tribes of the Grand Ronde Community of Oregon (CTGR) – Cheryle A. Kennedy, Tribal Council Chairwoman, Chris Mercier, Tribal Council, Jack Giffen, Jr., Tribal Council Secretary, Wink Soderberg, Tribal Council.

2. The Steering Team consists of senior project and program managers representing the federal agencies involved in the ESA Section 7 consultation for the Willamette Project, as well as other key federal and state agencies and Tribal governments with land and water resource management responsibilities critical to implementation of ESA measures, including but not limited to the NMFS, USFWS, USACE, BPA, USBR, and USFS.
    a. USACE – Willamette Basin Program Manager and the Willamette Valley Projects, Operations Project Manager. The Steering Team will be chaired by the USACE
    b. BPA – Program Analyst, Willamette Basin
    c. USBR – ESA Program Manager
    d. NMFS – Willamette Project Leader
    e. USFWS – Willamette Fisheries Biologist
    f. USFS – Willamette Forest Fish Biologist
    g. BLM – TBD
    h. ODFW – South Willamette Watershed Manager
    i. OWRD – Deputy Director
    j. ODEQ – Watershed Management Section Manager
    k. CTGR – Natural Resources Department Manager
3. The Technical Teams consist of key technical experts from federal and state agencies and tribes including the Action Agencies, NMFS, USFWS, and other key participants including other federal agencies [USFS, U.S. Geological Survey (USGS)], state agencies [Oregon Department of Fish and Wildlife (ODFW), Oregon Water Resources Department (OWRD), Oregon Department of Environmental Quality (ODEQ), and others], and Tribal governments. Other Federal, State, or local agencies and other entities with specific expertise in the selected topics may also be invited to participate in technical team activities, as needed. The makeup of the teams will be reflective of the scope of their respective areas of responsibility. Technical teams will be chaired by the USACE, who may designate other team members as chairs, after agreement by the applicable technical team.

B. Interest, Responsibilities, and Authorities
1. Federal Action Agencies
    a. The USACE manages the Willamette Valley Project as a system to reduce flood damages, produce hydroelectric power, steward fish and wildlife resources and water quality and provide for recreation, irrigation, water supply and navigation benefits. The project is comprised of 13 dams and reservoirs and 8 hydroelectric power plants, fish collection facilities, public lands and park resources and operate to balance competing demands and optimize public benefits within authorized purposes.

b. The BPA is a Power Marketing Agency within the U.S. Department of Energy. BPA is responsible for marketing and distributing the electrical power generated by the Federal Columbia River Power System (FCRPS) which includes hydroelectric dams owned and operated by the U.S. Bureau of Reclamation and the U.S. Army Corps of Engineers. The FCRPS includes eight hydroelectric dams in the Willamette Valley. Pursuant to Congressional authorization and other legal mandates, BPA is responsible for costs at these dams that are associated with power operations. These costs may include a share of the operation and maintenance expenses and fish mitigation expenses. In certain circumstances fish mitigation expenses may include costs associated with the Corps' Willamette Basin hatcheries. The Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act) directs BPA to protect, mitigate, and enhance fish and wildlife impacted by the development and operation of the FCRPS, in a manner consistent with the purposes of the Act, the fish and wildlife program adopted by the Northwest Power and Conservation Council, and other environmental laws.

c. The USBR administrates a water marketing program whereby water users may contract for a supply of stored water from the Willamette Project to be used for irrigation purposes. Section 8 of the Flood Control Act of 1944 (Act of December 22, 1944; 58 Stat. 887, 891; 43 U.S.C. ' 390) authorizes the Secretary of Interior to market water for irrigation from USACE reservoirs when the Secretary of the Army determines that a reservoir may be utilized for irrigation. USBR contracts for the irrigation water made available by the USACE pursuant to Reclamation law, in particular Section 9(e) of the Act of August 4, 1939 (53 Stat. 1187).

2. Federal Fish Agencies (the Services)

a. NMFS is a federal agency within the Department of Commerce, National Oceanic and Atmospheric Administration. NMFS' authorities for work on the Willamette Project are related primarily to fulfilling the mandates of two federal laws- the Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA). When Action Agencies consult with NMFS pursuant to section 7 of the ESA, NMFS determines if the proposed action is likely to jeopardize the continued existence of listed salmon and steelhead, or result in destruction or adverse modification of their critical habitat, and provides measures to minimize incidental take. NMFS is also developing Recovery Plans (ESA section 4) for these listed fish, and works on hatchery issues (ESA sections 4(d) and 10). Under the MSA, NMFS provides recommendations to conserve Essential Fish Habitat in the Willamette Basin in order to protect habitat necessary to maintain salmon production that provides for long-term, sustainable fishery harvest.

b. The U.S. Fish and Wildlife Service (USFWS) is a federal agency within the Department of Interior. The USFWS' authorities for work

on the Willamette Project are related primarily to fulfilling the mandates of the federal Endangered Species Act (ESA). When Action Agencies consult with USFWS pursuant to section 7 of the ESA, USFWS determines if the proposed action is likely to jeopardize the continued existence of listed species, or result in destruction or adverse modification of critical habitat (if designated) and provides measures to minimize incidental take. An additional authority for work on the Willamette Project is the Fish and Wildlife Coordination Act (FWCA). USFWS has completed Recovery Plans (ESA section 4) for some federally listed species impacted by the Willamette Project and is developing Recovery Plans for remaining federally listed species impacted by the Willamette Project.

3. Other Federal Agencies
    a. The U.S. Forest Service (USFS) is a Federal agency responsible for management of the resources, lands and waters that are part of the National Forest System. The Forest Service is interested in increasing the public's knowledge, awareness, enjoyment, appreciation and responsible use of National Forest System lands. The Willamette National Forest is committed to the recovery of all endangered, threatened, and sensitive species.
    b. BLM
4. Tribes
    a. Warm Springs
    b. The Confederated Tribes of the Grand Ronde Community of Oregon (CTGR) manage the fish, wildlife and water resources of the Grand Ronde Reservation in the Willamette Basin. Many of the antecedent tribes and bands of the Tribe lived, fished, hunted and gathered in and around the Willamette and its tributaries from time immemorial. The Tribe retained certain rights in the Willamette River and Basin through the Treaty with the Kalapuya, Etc. of January 22, 1855.
    c. Siletz
    d. Others TBD
5. State of Oregon
    a. The Governor's Natural Resources Office (GNRO) provides policy analysis and advice to the Governor of Oregon. The GNRO works with state natural resource agencies to implement the Governor's natural resource and environmental agenda, serves as a liaison between the Governor and federal natural resource and environmental protection agencies, and provides leadership in issues where multiple authorities is essential.
    b. The Oregon Department of Fish and Wildlife (ODFW) is charged by statute (ORS 496.012) to manage the state's wildlife species to prevent serious depletion of any indigenous species, and to provide the optimum recreational and aesthetic benefits for present and future generations. ODFW management responsibilities are further framed by species and Fisheries Management Plans adopted by the Fish and Wildlife Commission (FWC), the Fisheries Management and

Evaluation Plan, Native Fish Conservation Policy, Fish Hatchery Management Policy, and works in coordination with USFWS or NMFS to ensure consistency with recovery plans and other ESA-related requirements. ODFW maintains their fish and wildlife management authority while participating in the WATER process.

c. The Oregon Department of Environmental Quality (ODEQ) is interested in management activities that affect water quality and the beneficial uses supported by ODEQ's water quality standards. According to ORS 468B, the Environmental Quality Commission is given authority for protection and restoration of water quality in the State of Oregon and for implementation of the Clean Water Act, unless otherwise specified in statute.
d. The Oregon Water Resources Department (OWRD), as authorized under Oregon law (ORS Chapters 536-543), is the state agency responsible for administration and management of the surface and ground water resources of the state to ensure maximum beneficial instream and out-of-stream use of these resources and the protection of water rights in a manner consistent with Oregon law.
e. The Oregon Watershed Enhancement Board (OWEB) is a state agency that promotes and funds voluntary actions for enhancing Oregon's watersheds. OWEB fosters the collaboration of citizens, agencies, and local interests and its programs support Oregon's efforts to restore salmon runs, improve water quality, and strengthen ecosystems that are critical to healthy watersheds and sustainable communities.

V. Participation and Representation

A. Member agencies and Tribes may participate, through designated representatives or their alternates, in all discussions of the various WATER teams; present proposals; register objection, concurrence, or abstention on recommendations; and request that a recommendation be elevated to the next level of WATER. The members will make efforts to enable all represented members to have a meaningful opportunity to participate in the work of WATER.
B. Members of the WATER teams must be represented by a designated representative or alternate to make or put forth recommendations. USACE office in Portland. The Steering Team Chair shall maintain the list in a current state and available to all member agencies.
D. Participation on the WATER teams does not grant decision making authority. Decision making responsibilities regarding implementation of the Willamette BiOps and RPA remain with the Action Agencies.
E. The public may attend and participate in Technical and Steering Team meetings but are not considered members. (Refer to section VII.)
F. Manager's Forum meetings are limited to designated managers, representatives, and appropriate staff only. Member agencies and Tribes may bring additional staff to meetings as appropriate depending on the issue.

VI. Roles and Responsibilities

A. Manager's Forum
   1. General
      a. Maintain ongoing oversight of Steering Team.
      b. Ensure coordination and collaboration between the various technical committees and vertically with the Steering Team.
      c. Resolve issues related to the configuration and operation of the Willamette Project and compliance with the Willamette BiOps and RPA.
   2. Issue Resolution
      a. Resolve issues elevated from the Steering Team.
      b. Address longer-term management and policy issues related to the deliberations of the Steering Team.
   3. Planning
      a. Provide review, input, and policy guidance related to the development and implementation of actions as they relate to the Willamette BiOps and RPA.
      b. Facilitate adaptive management through evaluation and review of the Action Agencies' actions and plans.

B. Steering Team
   1. General
      a. Maintain ongoing oversight of the technical teams.
      b. Ensure coordination and collaboration among the technical teams and with the Manager's Forum.
      c. Develop policy guidelines and resolve issues related to the configuration and operation of the Willamette Project and compliance with the Willamette BiOps and RPA.
      d. Provide updates from the Action Agencies regarding progress toward implementing actions required of each Action Agency in the Willamette BiOps and RPA, including describing projects that have been completed, delayed, or modified.
      e. Reach consensus on the prioritization and implementation of actions related to the Willamette BiOps and RPA.
   2. Issue Resolution
      a. Resolve issues elevated from the technical teams.
      b. Address longer-term management and policy issues related to the deliberations of the technical teams.
      c. Assign issues for further investigation/deliberation by technical teams.
   3. Planning
      a. Provide a forum for participants to address new and ongoing policy initiatives related to the configuration and operation of the Willamette Project, and compliance with the Willamette BiOps and RPA.
      b. Provide review, input, and policy guidance related to the development and implementation of actions as they relate to the Willamette BiOps and RPA.

c. Facilitate adaptive management through evaluation of the Action Agencies' actions, plans, and information gathered through studies and monitoring.

C. Technical Teams
1. General
   a. Accomplish work related to Fish Passage and Hatchery Management, Flow Management, Habitat Restoration, and Environmental Coordination for Construction Projects.
   b. Develop and implement actions to ensure compliance with the Willamette BiOps and RPA requirements, the ESA, and other applicable regulations.
   c. Incorporate research, monitoring, and evaluation components into their work and use this information in future actions.
   d. Recommend actions within the area of expertise and identify actions that need to be elevated to the Steering Team for approval or resolution.
   e. Develop research, monitoring, and evaluation (RM&E) requirements for technical areas of expertise.
   f. Establish subgroups as needed on an ad-hoc or permanent basis.
   g. Coordinate with other Technical Teams on overlapping issues to ensure consistency and efficiency of effort. (e.g., water quality is both a structural and flow management issue; some RM&E could be designed to answer both fish passage and flow questions).
   h. Provide alternative review and feedback to USACE COP studies.
   i. Compile information necessary to guide the USACE COP studies.
   j. Coordinate activities and priorities with other regional programs and provide a mechanism to share information.
2. Planning
   a. Provide a forum for participants to address new and ongoing measures related to the configuration and operation of the Willamette Project, and compliance with the Willamette BiOps and RPA.
3. Technical Areas of Responsibility
   a. Fish Passage and Hatchery Management
      - Assist the USACE in addressing issues related to fish passage at USACE dams, including development and evaluation of fish passage designs and construction, operation, and modification of fish passage features.
      - Ensure operation of USACE-funded hatcheries minimizes impacts to, and supports recovery of, ESA-listed species while maintaining hatchery mitigation requirements.
      - Coordinate efforts to evaluate the feasibility of reintroduction in areas upstream of the dams.
      - Assist the USACE in annually developing and updating the Willamette Fish Operation Plan (FOP).
      - Evaluate the results of fish passage and hatchery-related RM&E efforts (and refine RM&E efforts accordingly).

- Develop a thorough implementation plan for the research and monitoring program that specifies which RM&E tasks related to fish passage and hatchery management will be funded and/or carried out by the State of Oregon, the Action Agencies, or other entities.
- Develop criteria for prioritizing water temperature control (WTC) proposals. (This issue may also be appropriate to be addressed in the Flow Management group).

b. Flow Management
- Develop the annual Willamette Conservation Plan.
- Review and evaluate reservoir operating criteria, including mainstem and tributary flow targets and revise operating manuals where appropriate.
- Design and implement flow monitoring and evaluation studies needed to determine the effects of reservoir operations on downstream habitat conditions, aquatic species, and water quality conditions.
- Develop the annual operating plan for the conservation storage and release season.
- Make recommendations to inform USACE determination on availability of water for irrigation contracts.
- Review status of USBR's water marketing program.
- Provide advice and coordination during real-time operations, particularly, but not limited to, the conservation storage and release season.
- Conduct annual reviews of Willamette Project operations and document issues, concerns, and opportunities associated with improving operations to better meet ESA compliance requirements where possible.
- Ensure integration of water quality improvement actions undertaken by the Action Agencies to address the needs of ESA-listed species.

c. Environmental Coordination for Construction Projects
- Ensure a mechanism exists for coordinating implementation of all future construction activities undertaken to address ESA requirements and related needs including fish collection and handling, fish passage, hatchery and water temperature control facilities, within the scope of the Willamette BiOps and RPA.
- Carry out the protocol that this team develops for ensuring coordination and review on future actions.

d. Habitat Restoration
- Review and synthesize regional habitat restoration plans, habitat assessments, recovery plans, biological opinions, limiting factor information, and other available information to support the development of a Willamette Basin habitat restoration strategy.
- Identify potential restoration opportunities and opportunities to leverage different sources of habitat restoration funding.
- Assess progress towards the various habitat reasonable and prudent alternatives and compile information for reporting as needed.

- Establish criteria for implementation and compliance monitoring.
- Update restoration strategy to reflect new information including accomplishments, lessons learned, and relevant RM&E.

e. RM&E Oversight Team
- Develop a basin-wide, long term RM&E plan to implement and refine the actions associated with the Willamette BiOps and RPA.
- Coordinate RM&E strategies, actions, and priorities among the Technical Teams and identify and implement RM&E activities not being accomplished by one of the Technical Teams.
- Convey RM&E priorities developed by the Technical Teams to the Steering Team and information needs from the Steering Team to the Technical Teams.
- Develop guiding principles, based on the Willamette BiOps, RPA, and other relevant documents, for basin-wide RM&E priorities, including ability to detect large-scale habitat and water quality changes resulting from the cumulative RPA improvements in these elements.
- Prioritize RM&E efforts within and among the subbasins, ensuring that efforts contribute to development and refinement of estimates for viable salmonid population (VSP) parameters, and the ability to detect their change.
- Ensure RM&E efforts support development of the COP.
- Coordinate with other basin-wide RM&E efforts, such as those associated with ESA recovery planning and implementation of other actions with biological opinions.
- Coordinate activities and priorities with other regional research programs, i.e., work being done by entities not involved with implementation of the Willamette BiOps and RPA.

VII. Conduct of Meetings

A. Manager's Forum
1. The Manager's Forum is chaired by the USACE.
2. All members are allowed full participation in discussions and have an equal opportunity to participate. Meetings may be facilitated by an impartial facilitator if necessary.
3. Only designated representatives or their alternates may register objection, concurrence or abstention on a recommendation or request that a recommendation be elevated to the next level.
4. Meetings of the Manager's Forum are limited to members or their designated alternate. Additional staff may attend depending on the issues being addressed.

B. Steering Team
1. The Steering Team is chaired by the USACE.
2. All members are allowed full participation in discussions and have an equal opportunity to participate. Meetings may be facilitated by an impartial facilitator if necessary.

3. Only designated representatives or their alternates may register objection, concurrence or abstention on a recommendation or request that a recommendation be elevated to the next level. The Chair, a designated representative, or alternate may call upon others to participate in discussions or make proposals. Designated representatives or their alternates, identified at the start of the meeting, are seated at the table, and additional staff depending on the issues being addressed.
4. Meetings of the Steering Team are open to the public. The Chair will reserve time at the end of the meeting for public comment.
5. The Chair will reserve the right to call for a members only session for discussion of sensitive subjects.

C. Technical Teams

1. Technical team meetings will be chaired by the USACE, who may designate other team members as chairs, after agreement by the applicable technical team.
2. When recommendations are proposed for adoption by one of the technical teams, the Chair will identify, and the meeting notes will reflect, the member making the proposal. If an issue is to be decided, the chair will poll the members for their concurrence, objection or abstention and the basis for their position. If an issue is to be postponed or is otherwise resolved, the Chair will identify the further action or the resolution. The meeting notes will reflect the above information.
3. The technical teams will attempt to work out most solutions at the technical level, minimizing the need to seek resolution at a higher level.
4. Meetings of the Technical Teams may be open to the public depending on the topics of discussion. The Chair may call for public comment as appropriate during the meetings. Time will be reserved at the end of each meeting for members of the public to comment.
5. The Chair will reserve the right to call for a members only session for discussion of sensitive subjects.

D. General

1. Meeting agendas will be developed by the Chair, with member input, and distributed to the members at least one week prior to the meeting. Members wishing to include an issue for discussion on the agenda should provide a statement of the issue to be distributed with the agenda. Materials to be handed out at the meeting will be emailed to members participating by phone before the meeting starts. The agenda will clearly identify discussion items.
2. The USACE will take meeting notes at all meetings. The notes will be approved at the next meeting. The notes will be provided to members within 14 days after the meeting. Members will be provided at least 14 days to submit comments on meeting notes. For Steering Committee and Managers Forum, the meeting notes will be reviewed and approved within 30 days of the meeting. For Technical Team meetings, the meeting notes may be approved at the next meeting, provided members have had sufficient time to review the notes before the meeting. The Chair will send out the agenda and materials for the next meeting one week prior to

the meeting. Meeting notes will be available for inspection and copying at the USACE office in Portland and posted on USACE Willamette BiOps' website.

VIII. Reporting and Oversight

A. The Manager's Forum will oversee the work of the Steering Team, which will report on its activities at Manager's Forum meetings.
B. The Steering Team will oversee the work of the various technical teams, which will report on their activities at the Steering Team meetings.
C. All bodies will operate under the same rules of procedure, except that technical teams may propose special rules to address unique circumstances. The Steering Team will review and approve any special rules of the technical teams.

IX. Frequency of Meetings

A. The Manager's Forum will be convened when deemed necessary by any of the participating members and no less frequently than twice per year. The chair will reserve a conference line for participants who cannot meet in person. The Forum may be convened by teleconference call, if appropriate, to consider in-season management disputes elevated by the Steering Team.
B. The Steering Team will meet monthly, but may also meet by teleconference call, as necessary to resolve any disputes elevated by the technical teams.
C. The technical teams will meet as often as necessary to complete their work, or as requested by the Steering Team.
D. The Chair will schedule the meetings and provide a location and conference line if needed. The participants in the steering and technical committees will receive at least one month notice for regular committee meetings, and Manager's Forum members will receive notice at least two months ahead of time, except for in-season meetings, which may be called with less notice, if necessary.
E. At the request of a majority of the members, as demonstrated by the proponents of the meeting, any of the teams may hold meetings in addition to those regularly scheduled. Teams may also cancel meetings at the discretion of the team members.

X. Recommendations and Consensus

A. The Steering Team will identify issues in advance of the salmon and steelhead migration season. The Steering Team will assign technical issues as appropriate to technical teams for advice or additional information. The Steering Team will seek to resolve as many issues as possible in advance of the migration season and to elevate those issues that cannot be resolved to the Manager's Forum meeting.
B. The Action Agencies will prepare initial proposals for operations, studies, or structural changes and seek review and comment by the applicable technical team. In addition, any member of any technical team may make a proposal for review by that team. Members will make all reasonable efforts to discuss, negotiate, develop, and resolve technical proposals in the appropriate technical team. If the team is unable to resolve an issue, the members will frame the issue in dispute

prior to raising it to the Steering Team. The technical teams will provide feedback to the Action Agencies within 60 days or less, depending on the magnitude and complexity of the proposal.

C. Proposals will be made by those designated representatives or their alternates present at a noticed meeting or conference call.

D. Each member is responsible for having a designated representative or alternate present at the meeting (in person or by conference call) to register consent, objection, or abstention on a proposal. Every effort will be made to ensure that those members who feel strongly about an issue can be present at the meeting at which the issue will be discussed. If a member is not present and has not made a reasonable effort to register their concerns, future discussion of such issue will be at the discretion of the Chair. However, if a member is not able to attend, but the team believes that member feels strongly about the issue, the Chair must make reasonable efforts to contact that missing member regarding their position on the issue.

E. The Action Agencies will modify the proposal as they determine necessary to address the technical team member's comments and to meet their ESA responsibilities, while fulfilling the missions of flood control, other authorized project purposes, and public safety. NMFS and/or USFWS will review the final proposal and inform the Action Agencies whether they agree with the decision. If NMFS and/or USFWS do not agree with the decision, the Action Agencies will either modify the proposal to address the Services' concerns, elevate the decision following the process described below, or seek re-initiation of consultation.

F. The goal of the Steering Team and Technical Teams is to reach consensus on technical and policy issues whenever possible. Consensus is defined as the lack of formal objection. NMFS or USFWS will review the final document and inform the Action Agencies whether they agree with it. If consensus cannot be achieved at the technical level, the Action Agencies will modify their proposal, the issue will be elevated according to the procedures contained in Section XI, or the Action Agencies will reinitiate consultation. Participation in a consensus process means that all members are participating in good faith and are searching for an accommodation of those interests represented at the table. The members will make all reasonable efforts to achieve consensus.

XI. Dispute Resolution

When consensus cannot be achieved in one of the technical teams or workgroups, the objecting member(s) may request that the issue be elevated to the Steering Team or Manager's Forum as follows:

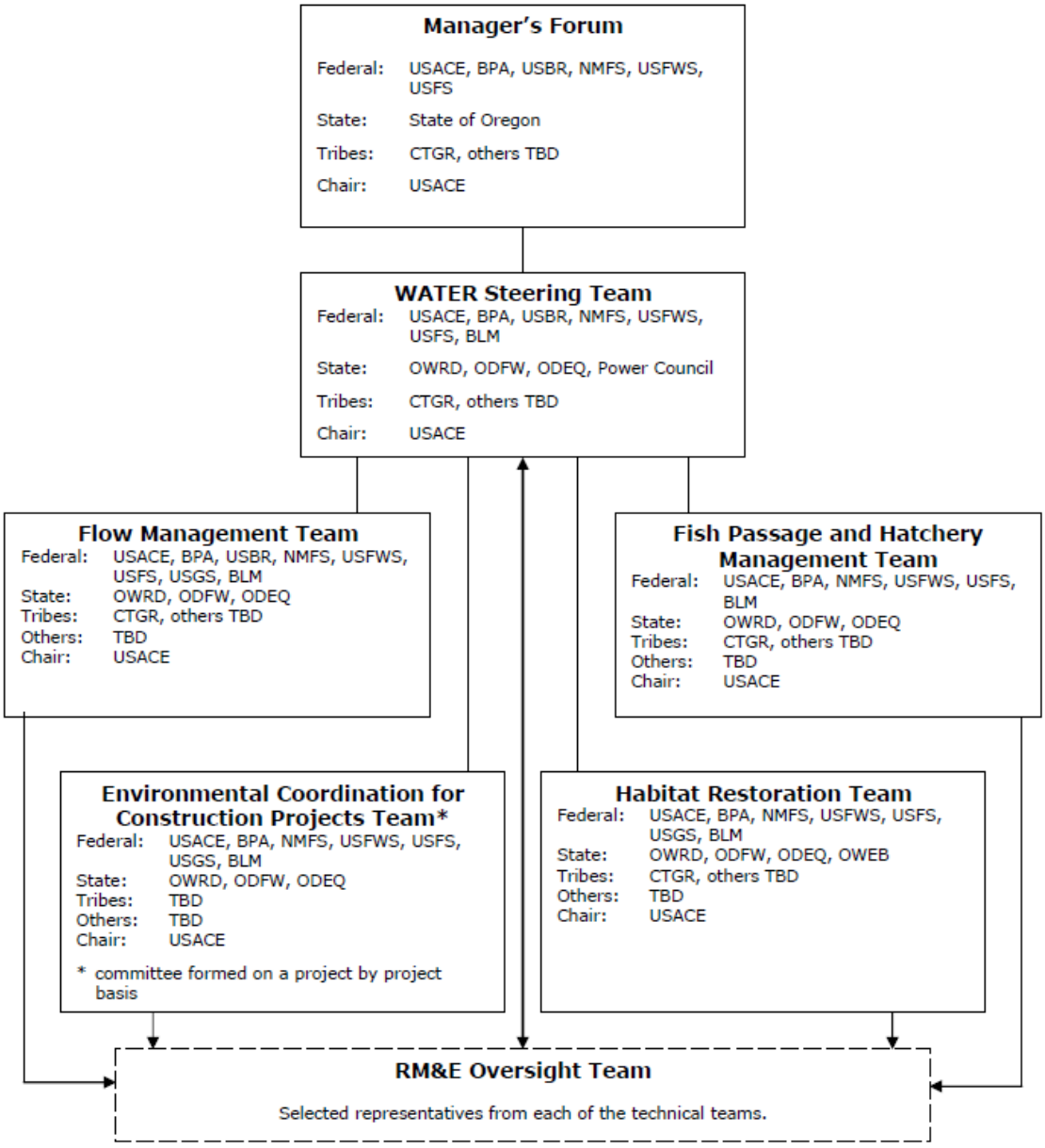
1. When consensus cannot be achieved in a technical team, the federal action agencies will state how they intend to proceed. A member objecting to the proposed action may ask that the issue be raised to the Steering Team for resolution. The technical team will formulate a written description of the disagreement. When disputed issues are raised, any member may make presentations to help clarify the issues.

2. When consensus cannot be reached within the Steering Team, the agency with authority to proceed will state how they intend to proceed. If the decision relates to weekly in-season management, the member with authority to make the decision will make the final decision. However, the issue will be presented to the Manager's Forum at their next meeting to resolve for future similar issues. If the decision is other than a weekly in-season management decision, a member objecting to a proposed federal action may request that the issue be elevated to the Manager's Forum. The Steering Team will formulate a written description of the disagreement. When disputed issues are raised, any member may make presentations to help clarify the issues.
3. Members will make all reasonable efforts to present an issue for resolution by the Steering Team or Manager's Forum *in writing* at least one week prior to the meeting at which they request that the issue be addressed.
4. When all efforts to achieve consensus have been made, the member or agency with authority will make the final decision and explain the rationale for that decision in writing before the next regularly scheduled meeting, or within 30 days, whichever is sooner. Nothing in these procedures alters the legal authorities of any of the parties.

XII. Annual Review of Procedures

A. The Steering Team shall review these procedures annually and make changes based on a consensus decision of the group.

Figure 1. Organizational Structure
Willamette Action Team for Ecosystem Restoration (WATER)



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