

RECLAMATION

Managing Water in the West

Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds: Emigrant Creek 1.5 and Neil Creek 2.97 and 3.04 Projects

FINDING OF NO SIGNIFICANT IMPACT AND ENVIRONMENTAL ASSESSMENT

**Rogue River Basin Project, Oregon
Pacific Northwest Region**

PN FONSI 19-6

PN EA 19-6



U.S. Department of the Interior
Bureau of Reclamation
Columbia-Cascades Area Office
Yakima, Washington

June 2019

MISSION STATEMENTS

U.S. Department of the Interior

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The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Acronyms and Abbreviations

BA	biological assessment
BiOp	biological opinion
Coho Salmon	Southern Oregon and Northern California Coast Coho Salmon
EA	environmental assessment
ESA	Endangered Species Act
ESU	evolutionary significant unit
FONSI	finding of no significant impact
IDP	Inadvertent Discovery Plan
ITA	Indian Trust Assets
LWM	large woody material
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
ODFW	Oregon Department of Fish and Wildlife
RDG	River Design Group
Reclamation	Bureau of Reclamation
Rogue River Project	Rogue River Basin Project
RPM	reasonable and prudent measures
SHPO	State Historic Preservation Office
T&C	terms and conditions
TCP	traditional cultural property
TFT	The Freshwater Trust
USFWS	U.S. Fish and Wildlife Service
WUA	weighted usable area

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Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds: Emigrant Creek 1.5 and Neil Creek 2.97 and 3.04 Projects

FINDING OF NO SIGNIFICANT IMPACT

**U.S. Department of the Interior
Bureau of Reclamation
Columbia-Cascades Area Office**

PN FONSI 19-6

INTRODUCTION

The Bureau of Reclamation has prepared this Finding of No Significant Impact (FONSI) to comply with Council on Environmental Quality regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA). This document briefly describes the proposed action, the alternatives considered, Reclamation's consultation and coordination activities, and Reclamation's findings. The final *Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds: Emigrant Creek 1.5 and Neil Creek 2.97 and 3.04 Projects Environmental Assessment* (EA) documents the analysis.

BACKGROUND

Reclamation's Rogue River Basin Project (Rogue River Project) is located near the cities of Medford and Ashland in southwest Oregon in two tributary basins to the Rogue River: Bear Creek and Little Butte Creek, and the tributaries of Jenny Creek in the Klamath Basin. Originally, a network of privately owned facilities, Congress authorized rehabilitation, reconstruction, and expansion of the Rogue River Project to serve multiple purposes including irrigation, flood control, fish and wildlife, recreation, and the generation and transmission of hydroelectric power in the Act of August 20, 1954 (68 Stat. 752, Public Law 83-606).

Section 7(a)(2) of the Endangered Species Act (ESA) requires Federal agencies to consult with the National Marine Fisheries Service (NMFS) to ensure their actions are not likely to jeopardize ESA-listed species or adversely modify designated critical habitat. On March 15, 2012, Reclamation issued the *Biological Assessment on the Future Operation and Maintenance of the Rogue River Basin Project and Effects on Essential Fish Habitat under the Magnuson-Stevens Act* (Reclamation, 2012a). The proposed action included several ecological conservation measures to reduce the potential for adverse effects on Southern Oregon/Northern California Coast Coho Salmon (Coho Salmon; *Oncorhynchus kisutch*) evolutionary significant unit (ESU). These conservation actions included increasing

minimum instream flows to benefit Coho Salmon habitat in Bear Creek and South Fork Little Butte Creek, while increasing instream habitat (large wood additions).

On April 2, 2012, the National Marine Fisheries Service (NMFS) issued the *Endangered Species Act Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Future Operation and Maintenance of the Rogue River Basin Project (2012-2022), Rogue and Klamath River Basins (HUCs: 18010206, 17100308, 17100307), Oregon and California (BiOp -NMFS, 2012)*. NMFS reviewed the following: the status of the ESA-listed species affected by the proposed action; the environmental baseline for the action area; the effects of the proposed action; and the cumulative effects. NMFS concluded that the proposed action is not likely to jeopardize the continued existence of the Coho Salmon. Specifically, NMFS concluded that despite some adverse effects, benefits to habitat afforded by the proposed action will allow an increase in the abundance and productivity of the Upper Rogue River population of Coho Salmon, a core independent population located in the Interior Rogue diversity strata. Further, NMFS concluded that the proposed action will allow the Upper Rogue River population to fulfill its role in the recovery of the Coho Salmon ESU. NMFS also concluded the proposed action is not likely to adversely modify designated critical habitat for Coho Salmon. NMFS reached this conclusion because “the proposed action’s minimum flow requirements, combined with large wood additions, fish passage improvements, and ramping rate procedures offset the adverse effects on a watershed scale” (NMFS, 2012).

The NMFS BiOp identifies the installation of large woody material (LWM) habitat structures as a reasonable and prudent measure (RPM) to minimize take of threatened Coho Salmon. The BiOp also identifies Reclamation’s commitment to meeting the weighted usable area (WUA) uplift requirement for both median and dry flow years in Bear Creek, Emigrant Creek, South Fork Little Butte Creek, and Little Butte Creek within the Rogue River basin for winter and summer rearing habitat, as identified in Table 1.

Table 1. Proposed instream habitat uplift targets for Emigrant, Bear, South Fork Little Butte, and Little Butte creeks

Reach Name	Increase in Habitat (ft ² WUA)		Targeted Life Stage
	Median Flow (50% exceedance)	Low Flow (80% exceedance)	
Emigrant Creek/Neil Creek	7,100	15,700	Winter rearing
Bear Creek/Ashland Creek	8,600	3,000	Winter rearing
Bear Creek below Oak Street	5,100	No uplift required	Summer rearing
South Fork Little Butte Creek	6,500	No uplift required	Winter rearing
Little Butte Creek	36,000	No uplift required	Summer rearing

ALTERNATIVES CONSIDERED

One action alternative (Alternative 2) was considered and evaluated in the EA. The No Action Alternative was also evaluated as required by NEPA.

Alternative 1 - No Action: Under the No Action Alternative, instream habitat restoration projects will not be constructed within the Bear Creek and Little Butte Creek watersheds. Incidental take of juvenile Coho Salmon will continue because of Talent, Medford, and Rogue

River Valley irrigation districts' operations and maintenance of the Rogue River Project. Avoiding the risk of incidental take for non-authorized (covered) activities by the districts will result in additional operating constraints, which will limit the availability and reliability of water supplies within the Rogue River Project.

Alternative 2 - (Preferred Alternative): Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds: Emigrant Creek 1.5 and Neil Creek 2.97 and 3.04

Projects: Instream habitat projects will be implemented in the Bear Creek watershed, consistent with the proposed WUA requirements for the reaches identified in Table 1 and the terms and conditions of the BiOp.

Proposed Action

Under Alternative 2, through a financial assistance agreement with The Freshwater Trust (TFT), three instream habitat projects will be implemented in the Bear Creek watershed, consistent with the *Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds Environmental Assessment and Finding of No Significant Impact* (Instream Habitat Restoration EA/FONSI) issued on July 8, 2015. The three proposed projects are: Emigrant Creek 1.5, Neil Creek 2.97, and Neil Creek 3.04. The work will be accomplished through Reclamation's Cooperative Agreement R18AC00056.

The proposed projects will add a moderate amount of stable large wood to their respective creeks to enhance winter rearing habitat for juvenile Coho Salmon and increase channel complexity for all aquatic species. Logs for the habitat projects will be retrieved from TFT's storage area and hauled to the project locations. These logs were harvested during Reclamation's Hyatt Dam Safety of Dams Project completed in 2018 and were hauled to TFT's storage site in the summer of 2018.

The instream construction will occur in the summer of 2019 during the Oregon Department of Fish and Wildlife (ODFW) established work window for Bear Creek, which is June 15 through September 15. A silt curtain will be installed along the channel edge to trap silt and sediment within the disturbed work zone, if needed.

As stipulated in the Instream Habitat Restoration EA/FONSI, a Public Safety Risk Matrix and Property Damage Risk Matrix were completed by TFT and River Design Group (RDG) and was reviewed by Reclamation's River Systems Analysis Group. Review of and comment on the matrices occurred at each design phase (concept, 30 percent, 60 percent, 90 percent, and 100 percent), and comments were submitted to TFT and RDG by a hydraulic engineer in the Pacific Northwest Region Geology and River Systems Analysis Group.

Emigrant Creek 1.5 Project

This project will enhance winter rearing habitat for juvenile Coho Salmon and increase channel complexity for aquatic species through placement of LWM structures. Located on Emigrant Creek, construction actions will occur along approximately 877 linear feet of stream. Disturbed areas will be seeded and replanted with native vegetation sourced onsite and from local nurseries. Access routes and staging areas for materials will be on previously disturbed land and restored to pre-project conditions after construction of the habitat structures. TFT will provide monitoring and stewardship of the habitat structures and riparian plantings.

Neil Creek 2.97 Project

This project will enhance winter rearing habitat for juvenile Coho Salmon, improve upstream and downstream migration, and increase channel complexity for aquatic species through placement of LWM structures and replacement of a fish passage barrier. Located on Neil Creek, construction actions will take place along approximately 120 linear feet of stream. The work area will be isolated and de-fished with guidance from ODFW. Disturbed areas will be seeded and replanted with native vegetation sourced onsite and from local nurseries. Access routes and staging areas for materials will be on previously disturbed land and restored to pre-project conditions after construction of the habitat structures. TFT will provide monitoring and stewardship of the habitat structures and riparian plantings.

Neil Creek 3.04 Project

This project will enhance winter rearing habitat for juvenile Coho Salmon, improve upstream and downstream migration, and increase channel complexity for aquatic species through placement of LWM structures and replacement of a fish passage barrier. Located on Neil Creek, construction actions will occur along approximately 75 linear feet of stream. The work area will be isolated and de-fished with guidance from ODFW. Disturbed areas will be seeded and replanted with native vegetation sourced onsite and from local nurseries. Access routes and staging areas for materials will be on previously disturbed land and restored to pre-project conditions after construction of the habitat structures. TFT will provide monitoring and stewardship of the habitat structures and riparian plantings.

Findings

This Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds: Emigrant Creek 1.5 and Neil Creek 2.97 and 3.04 Projects Environmental Assessment tiers from the Instream Habitat Restoration EA issued on July 8, 2015 and provides project-specific information as necessary.

Since specific actions in specific locations were not identified in the Instream Habitat Restoration EA, the environmental effects determinations represented the typical effects associated with the implementation of LWM structures. Reclamation committed to evaluate site-specific projects individually to determine if the typical effects described in the Instream Habitat Restoration EA were adequately analyzed. In addressing cumulative effects of the proposed activities, the assessment assumes compliance with the BiOp regarding the WUA required within each identified reach, according to Table 1.

Reclamation has determined that the analysis present in the Instream Habitat Restoration EA sufficiently analyzed the project's impacts on the following resources: climate change, water quality, riparian vegetation, fish and wildlife, Indian Trust Assets (ITA), and environmental justice; therefore, these sections are incorporated by reference from the Instream Habitat Restoration EA and not further analyzed. This EA discusses the existing environment and the environmental consequences of the two alternatives on the following resources: threatened and endangered species and cultural resources.

Based on the following summary of the implementation effects of the Preferred Alternative (as discussed in the attached Emigrant Creek 1.5 and Neil Creek 2.97 and 3.04 Projects EA) there will be no significant impacts on the quality of the human environment; therefore, an environmental impact statement is not necessary and will not be prepared.

THREATENED AND ENDANGERED SPECIES

The effects of the proposed projects on federally listed threatened and endangered species were analyzed in Reclamation's BA and NMFS' BiOp. The Coho Salmon is the only ESA-listed species that may be affected by implementation of the proposed projects.

The NMFS BiOp identified terms and conditions (T&C) to minimize incidental take of Coho Salmon caused by implementation of these projects. Reclamation and its contractors must comply with the T&C to implement the reasonable and prudent measures included in the BiOp.

The construction of the LWM structures will result in immediate juvenile Coho Salmon habitat formation including the following:

- Pool formation to provide slower, deeper water as an insulator to high water temperatures from direct solar radiation and to provide areas of rest
- Overhead cover for protection against predation and to provide shade
- Refugia from high-velocity flows, as the LWM will slow flows around and through the structure
- Sorting gravel, including the deposition of spawning gravel, will increase and develop a more complex habitat

Reclamation anticipates that the Emigrant Creek 1.5 Project will provide a gross WUA of 925 ft², and the Neil Creek 2.97 and 3.04 projects will each provide a gross WUA of 350 ft². The benefits will begin to accrue in the short term and persist in the long term. Implementation of the proposed projects will result in a substantial increase of winter and summer instream rearing habitat and stream complexity conditions that are beneficial to juvenile Coho Salmon. Reclamation anticipates that long-term beneficial impacts of LWM installations will aid in the recovery of the Coho Salmon population to a viable level.

Reclamation has determined that implementation of the proposed projects will not affect ESA-listed species under the jurisdiction of the U.S. Fish & Wildlife Service (USFWS).

Cultural Resources

On March 26, 2019, Reclamation sent pre-project consultation letters notifying the following Tribes as to the location and intent of the cultural resource inventories by Cascade Research, LLC: Confederated Tribes of Grand Ronde, Confederated Tribes of Siletz, Cow Creek Band of Umpqua Indians, Quartz Valley Indian Reservation, and Tolowa Dee-ni' Nation.

Reclamation developed an inadvertent discovery plan (IDP) at the request of the Cow Creek Band of Umpqua Indians, prior to implementation of BiOp projects. The IDP will be provided to TFT. TFT will be responsible to ensure that onsite contractors have a copy of the IDP on-hand at all times.

Emigrant Creek 1.5 Project

Reclamation initiated consultation with the Oregon State Historic Preservation Office (SHPO) in a letter dated March 27, 2019. Reclamation determined that Emigrant Creek 1.5 Project will have no effect on any significant archaeological objects or sites and that additional archaeological research is not anticipated for this project. Reclamation received a letter of concurrence from the SHPO on April 23, 2019.

Neil Creek 2.97 and 3.04 Projects

Reclamation initiated consultation with the Oregon SHPO in a letter dated April 10, 2019. Reclamation determined that Neil Creek 2.97 and 3.04 projects will have no effect on historic properties or on any significant archaeological objects or sites and that additional archaeological research is not anticipated for these projects. Reclamation received a letter of concurrence from the SHPO on May 6, 2019 (regarding the built environment), and on May 8, 2019 (regarding the archaeological investigation).

Traditional Cultural Properties (TCPs). Reclamation consulted with area Tribes to determine if TCPs are present in the projects' vicinity. Reclamation did not receive responses from the Tribes.

Permits

Per the Instream Habitat Restoration EA/FONSI, the following permit, authorization, review, and exemption applications have been submitted for the three projects:

- U.S. Army of Corps of Engineers Nationwide Permit No. 27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities)
- Jackson County Type 1 Land Use Permit-Floodplain Development Permit
- Oregon Department of State Lands Removal/Fill Exemption with notice for voluntary habitat restoration activities
- Oregon Department of Fish and Wildlife concurrence on Procedures for Generating Shade Credits

These projects will not commence until all applicable permits, authorizations, reviews, and exemptions have been received by TFT and forwarded to Reclamation.

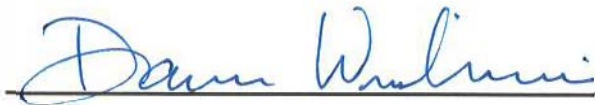
DECISION

It is my decision to authorize the Preferred Alternative, the implementation of *Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds: Emigrant Creek 1.5 and Neil Creek 2.97 and 3.04 Projects*.

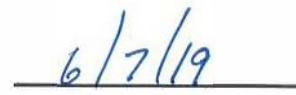
Finding of No Significant Impact

Based on the analysis of the environmental impacts presented in the final EA and implementation of all environmental commitments, Reclamation has concluded the implementation of the Preferred Alternative will have no significant impacts on the quality of the human environment or natural and cultural resources of the area. Reclamation concludes that preparation of an environmental impact statement is not required, and that this EA and FONSI satisfy the requirements of NEPA.

Approved:



Dawn Wiedmeier, Area Manager
Columbia-Cascades Area Office
Yakima, Washington



Date

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RECLAMATION

Managing Water in the West

Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds: Emigrant Creek 1.5 and Neil Creek 2.97 and 3.04 Projects

ENVIRONMENTAL ASSESSMENT

Rogue River Basin Project, Oregon

PN EA 19-6



**Bureau of Reclamation
Pacific Northwest Region
Columbia-Cascades Area Office
Yakima, Washington**

June 2019

MISSION STATEMENTS

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Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds: Emigrant Creek 1.5 and Neil Creek 2.97 and 3.04 Projects

ENVIRONMENTAL ASSESSMENT

PN EA 19-6

Chapter 1. PURPOSE OF AND NEED FOR ACTION

Introduction

The Bureau of Reclamation's Rogue River Basin Project (Rogue River Project) is located near the cities of Medford and Ashland in southwest Oregon in two tributary basins to the Rogue River: Bear Creek and Little Butte Creek, and the tributaries of Jenny Creek in the Klamath basin. Originally a network of privately-owned facilities, Congress authorized rehabilitation, reconstruction, and expansion of the Rogue River Project to serve multiple purposes including irrigation, flood control, fish and wildlife, recreation, and the generation and transmission of hydroelectric power, in the Act of August 20, 1954 (68 Stat. 752, Public Law 83-606).

Section 7(a)(2) of the Endangered Species Act (ESA) requires Federal agencies to consult with the National Marine Fisheries Service (NMFS) to ensure their actions are not likely to jeopardize ESA-listed species or adversely modify designated critical habitat. On March 15, 2012, Reclamation issued the *Biological Assessment (BA) on the Future Operation and Maintenance of the Rogue River Basin Project and Effects on Essential Fish Habitat under the Magnuson-Stevens Act* (Reclamation, 2012a). The proposed action included several ecological conservation measures to reduce the potential for adverse effects on Southern Oregon/Northern California Coast Coho Salmon (Coho Salmon, *Oncorhynchus kisutch*) evolutionary significant unit (ESU). These conservation actions included increasing minimum instream flows to benefit Coho Salmon habitat in Bear Creek and South Fork Little Butte Creek, while increasing instream habitat (large wood additions).

On April 2, 2012, the NMFS issued the *Endangered Species Act Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Future Operation and Maintenance of the Rogue River Basin Project (2012-2022), Rogue and Klamath River Basins (HUCs: 18010206, 17100308, 17100307), Oregon and California (BiOp)*.

NMFS reviewed the following:

- Status of the ESA-listed species affected by the proposed action
- The environmental baseline for the action area
- The effects of the proposed action
- The cumulative effects

NMFS concluded that the proposed action is not likely to jeopardize the continued existence of the Coho Salmon. Specifically, NMFS concluded that despite some adverse effects, benefits to habitat afforded by the proposed action would allow an increase in the abundance and productivity of the Upper Rogue River population of Coho Salmon, a core independent population located in the Interior Rogue diversity strata. NMFS concluded that the proposed action would allow the Upper Rogue River population to fulfill its role in the recovery of the Coho Salmon ESU. NMFS also concluded the proposed action is not likely to adversely modify designated critical habitat for Coho Salmon because, “the proposed action’s minimum flow requirements combined with large wood additions, fish passage improvements, and ramping-rate procedures, offset the adverse effects on a watershed scale” (NMFS, 2012).

The NMFS BiOp identifies the installation of large woody material (LWM) habitat structures as a *reasonable and prudent measure* (RPM) to minimize take of threatened Coho Salmon. The BiOp also identifies Reclamation’s commitment to meeting the *weighted usable area* (WUA) uplift requirement for both median and dry flow years in Bear Creek, Emigrant Creek, South Fork Little Butte Creek, and Little Butte Creek within the Rogue River basin for winter and summer rearing habitat, as identified in Table 1.

Reclamation issued a Finding of No Significant Impact (FONSI) for the, *Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds Environmental Assessment* (Instream Habitat Restoration EA/FONSI) on July 8, 2015. Based on the analysis of the environmental impacts presented, Reclamation concluded that the implementation of instream habitat restoration projects would have no significant impact on the quality of the human environment or natural and cultural resources of the area. This *Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds: Emigrant Creek 1.5 and Neil Creek 2.97 and 3.04 Projects Environmental Assessment* tiers from the July 8, 2015 EA above and provides project-specific information.

The Instream Habitat Restoration EA/FONSI (Reclamation, 2015) states that Reclamation would complete projects within the two identified watersheds to increase the quality of instream habitat and habitat complexity by placing LWM in targeted areas. These LWM projects intend to increase pool habitat for juvenile rearing. Project activities would also improve geomorphic forms and processes and create more hydraulic diversity. The LWM projects would be designed to increase WUA winter or summer rearing habitat within the Bear Creek and Little Butte Creek watersheds for juvenile Coho Salmon (Table 1).

In addition, the Instream Habitat Restoration EA/FONSI stated that prior to individual project implementation, a cultural resource survey would be completed, and site-specific protection measures would be implemented to preserve the integrity of all recorded sites determined to be eligible to the National Register of Historic Places (National Register) or considered unevaluated. Such cultural resource sites would be buffered, avoided, or otherwise protected as determined in consultation with the Oregon State Historic Preservation Office (SHPO). This may include oversight by an archaeologist during project implementation.

Table 1. Proposed instream habitat uplift targets for Emigrant, Bear, South Fork Little Butte, and Little Butte creeks.

Increase in Habitat (ft² WUA)

Reach Name	Median Flow (50% exceedance)	Low Flow (80% exceedance)	Targeted Life Stage
Emigrant Creek/Neil Creek	7,100	15,700	Winter rearing
Bear Creek/Ashland Creek	8,600	3,000	Winter rearing
Bear Creek below Oak Street	5,100	No uplift required	Summer rearing
South Fork Little Butte Creek	6,500	No uplift required	Winter rearing
Little Butte Creek	36,000	No uplift required	Summer rearing

Purpose and Need

Purpose. The purpose of these proposed instream habitat restoration projects is to aid in the recovery of the Coho Salmon population to a viable level. This would be accomplished by increasing quality instream habitat and habitat complexity through targeted LWM placement. These projects seek to form pool habitat for juvenile rearing by increasing channel complexity. Project activities are also intended to improve geomorphic forms and processes and create more hydraulic diversity.

Need. The proposed instream habitat restoration actions are needed to rehabilitate Bear Creek and Little Butte Creek to enhance natural populations of anadromous fish in these degraded stream systems. Water temperature and flow, sedimentation, and the lack of instream habitat (pools, cool water refugia, and instream complexity) limit aquatic life in the system (Bredikin et al., 2006). In addition, this conservation action is necessary to obtain the RPM requirements of the BiOp as outlined in Table 1.

Project Location and Descriptions

Emigrant Creek 1.5 Project

The Emigrant Creek 1.5 project area is located on the private property of a single landowner within Section 12 of Township 39 South, Range 1 East in Jackson County, Oregon. The property is east of the southern city limits and 4.1 miles from downtown Ashland, Oregon.

The project is on a historically dynamic floodplain that contains multiple stream channels. Some channels are seasonally activated during high flows, and some are currently abandoned. The site has a partially intact riparian habitat. The active channel is currently from 70 to 160 feet wide. The historical floodplain is approximately 650 feet wide with remnant channel scars; it is constrained by steep bedrock hills on both sides of the valley. Much of the historical floodplain has been converted to pasture; although, there is a thin riparian buffer

covering the south bank and remnant forest on the north bank. The south bank is a large cobble bar and old, rectangular “borrow pit” excavations, potentially used for water storage at one time.

Neil Creek 2.97 Project

The Neil Creek 2.97 Project area is located on two, private landowner properties within Section 12 of Township 39 South, Range 2 East in Jackson County, Oregon. The properties are east of the southern city limits and 5.1 miles from downtown Ashland, Oregon.

The project is located on a low-gradient stream segment and contains heavily impacted riparian habitat. The active channel is from 20 to 50 feet wide and incised in many places as a result of channel straightening and extensive bank armoring from riprap projects. The historical floodplain has been severely altered as modern development has occurred. Much of the historical floodplain has been converted to rural residential with houses, buildings, and small acre agricultural operations along the banks.

Neil Creek 3.04 Project

The Neil Creek 3.04 Project area is located on two, private landowner properties within Section 12 of Township 39 South, Range 2 East in Jackson County, Oregon. These properties are east of the southern city limits and 5.2 miles from downtown Ashland, Oregon.

This project is located on a low-gradient stream segment and contains heavily impacted riparian habitat. The active channel is from 20 to 50 feet wide and incised in many places as a result of channel straightening and extensive bank armoring from riprap projects. The historical floodplain has been severely altered as modern development has occurred. Much of the historical floodplain has been converted to rural residential with houses and buildings along the banks and small acre agricultural operations.

Authorities and Related Laws

This section is incorporated by reference from the Instream Habitat Restoration EA.

Chapter 2. ALTERNATIVES

This chapter describes basic features of the alternatives analyzed in this document.

Alternative 1 - No Action

The No Action Alternative represents a continuation of the existing conditions and provides a comparative baseline for evaluating changes and impacts of the proposed action. Under the No Action Alternative, Reclamation would take no action to improve Bear Creek and Little Butte Creek watershed resources for juvenile Coho Salmon. The following natural process would proceed without intervention:

- Stream reaches would continue to lack habitat complexity that provides juvenile salmon with refuge from high-velocity flows, predation, and high temperatures.
- Streams would continue to be disconnected from their floodplains, resulting in sediment fines remaining in channel.
- Invasive weeds would continue to proliferate, choking out native riparian vegetation.
- Direct solar radiation would continue to increase stream temperatures that can be fatal to juvenile Coho Salmon.
- Riparian vegetation would continue to be degraded and would not be enhanced along the existing riparian corridor.

The No Action Alternative would not minimize take according to the requirements of the NMFS BiOp. Incidental take of juvenile Coho Salmon would continue as a result of Talent, Medford, and Rogue River Valley irrigation districts' operation and maintenance of the Rogue River Project. Avoiding the risk of incidental take for non-authorized (covered) activities by the districts would result in additional operating constraints, which would limit the availability and reliability of water supplies within the Rogue River Project. Environmental conditions under the No Action Alternative would diminish species recovery efforts, and the basic goal to maintain or aid recovery of the basin's native Coho Salmon population at a genetically viable level would not be achieved.

Alternative 2 - Preferred Alternative

Instream Habitat Restoration in the Bear Creek and Little Butte Creek Watersheds: Emigrant Creek 1.5 and Neil Creek 2.97 and 3.04 Projects

Under Alternative 2, through a financial assistance agreement with The Freshwater Trust (TFT), three instream habitat projects would be implemented in the Bear watershed, consistent with the Instream Habitat Restoration EA/FONSI. The three proposed projects are Emigrant Creek 1.5, Neil Creek 2.97, and Neil Creek 3.04. The work would be accomplished through Reclamation's Cooperative Agreement R18AC00056.

These three proposed projects aim to add a moderate amount of stable large wood to their respective creeks to enhance winter rearing habitat for juvenile Coho Salmon and increase channel complexity for all aquatic species. Logs for the habitat projects would be retrieved

from TFT's storage area and hauled to project locations. These logs were harvested during Reclamation's Hyatt Dam Safety of Dams Project completed in 2018 and were hauled to TFT's storage site in the summer of 2018.

The instream construction is expected to occur in the summer of 2019 during the Oregon Department of Fish and Wildlife's (ODFW) established work window for Bear Creek, which is June 15 through September 15. A silt curtain would be installed along the channel edge to trap silt and sediment within the disturbed work zone, if needed.

As stipulated in the Instream Habitat Restoration EA/FONSI, a Public Safety Risk Matrix and Property Damage Risk Matrix were completed by TFT and River Design Group (RDG) and were reviewed by Reclamation's River Systems Analysis Group. Review of and comment on the matrices occurred at each design phase (concept, 30 percent, 60 percent, 90 percent, and 100 percent), and comments were submitted to TFT and RDG by a hydraulic engineer in the Pacific Northwest Region Geology and River Systems Analysis Group.

Emigrant Creek 1.5 Project

This project would enhance winter rearing habitat for juvenile Coho Salmon and increase channel complexity for aquatic species through placement of LWM structures. Located on Emigrant Creek, construction actions would take place along approximately 877 linear feet of stream. Specific project construction components include grubbing of habitat structure area and removing invasive blackberry, while preserving and protecting as much existing vegetation as possible; excavating within and around the channel to place wood and create pool habitat (bank-line foundation would conform to structure dimensions to avoid excavation and disturbance of in-situ materials outside of the structure footprint); strategically placing wood among existing anchor points (e.g., trees); burying a large portion of wood pieces into the riverbank to act as ballast; incorporating boulder ballast and vertical pile members to secure wood; grading bank lines; seeding all exposed surfaces with erosion control seed mix; and replanting disturbed areas with native vegetation sourced onsite and from local nurseries. Access routes and staging areas for materials would be on previously disturbed land. After construction, these areas would be restored to pre-project conditions. TFT would provide monitoring and stewardship of the habitat structures and riparian plantings.

Neil Creek 2.97 Project

This project would enhance winter rearing habitat for juvenile Coho Salmon, improve upstream and downstream migration, and increase channel complexity for aquatic species through placement of LWM structures and replacement of a fish passage barrier. Located on Neil Creek, construction actions would occur along approximately 120 linear feet of stream. Specific project construction components include grubbing of habitat structure area, while preserving and protecting as much existing vegetation to the extent possible; excavating within and around the channel to place wood and create pool habitat (bank-line foundation would conform to structure dimensions to avoid excavation and disturbance of in-situ materials outside of the structure footprint); burying a large portion of wood pieces into the riverbank to act as ballast; incorporation of boulder ballast and vertical pile members to secure wood; grading bank lines; removing perched, concrete-box bridge and installing concrete bridge with natural stream bottom; seeding all exposed surfaces with erosion control

seed mix; and replanting disturbed areas with native vegetation sourced onsite and from local nurseries. The work area would be isolated and de-fished with guidance from ODFW. Access routes and staging area for materials would be on previously disturbed land and restored to pre-project conditions after construction of the habitat structures. TFT would provide monitoring and stewardship of the habitat structures and riparian plantings.

Neil Creek 3.04 Project

This project would enhance winter rearing habitat for juvenile Coho Salmon, improve upstream and downstream migration, and increase channel complexity for aquatic species through placement of LWM structures and replacement of a fish passage barrier. Located on Neil Creek, construction actions would occur along approximately 75 linear feet of stream. Specific project construction components include grubbing of habitat structure area, while preserving and protecting as much existing vegetation to the extent possible; excavating within and around the channel to place wood and create pool habitat (bank-line foundation would conform to structure dimensions to avoid excavation and disturbance of in-situ materials outside of the structure footprint); burying a large portion of wood pieces into the riverbank to act as ballast; incorporating boulder ballast and vertical pile members to secure wood; grading bank lines; removing perched, metal culvert and installing concrete bridge with natural stream bottom; seeding exposed surfaces with erosion control seed mix; and replanting disturbed areas with native vegetation sourced onsite and from local nurseries. The work area would be isolated and de-fished with guidance from ODFW. Access routes and staging of materials would be on previously disturbed areas and restored to pre-project conditions after construction of the habitat structures. TFT would provide monitoring and stewardship of the habitat structures and riparian plantings.

Chapter 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Introduction

Reclamation issued the Instream Habitat Restoration EA/FONSI on July 8, 2015. This *Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds: Emigrant Creek 1.5 and Neil Creek 2.97 and 3.04 Projects Environmental Assessment* tiers from the Instream Habitat Restoration EA and provides project-specific information, as necessary.

Since specific actions in specific locations were not identified in the Instream Habitat Restoration EA, the environmental effects determinations represented the typical effects associated with implementation of LWM structures. Reclamation committed to evaluate site-specific projects individually to determine if the typical effects described in the Instream Habitat Restoration EA were adequately analyzed. In addressing cumulative effects of the proposed activities, the assessment assumes compliance with the BiOp regarding the WUA required within each identified reach, according to Table 1.

This chapter describes the affected environment, including the following: existing conditions and future anticipated conditions if the No Action Alternative is selected; the anticipated

effects to the environment if the proposed activities are implemented; and the cumulative impacts of the proposed activities.

Reclamation has determined that the analysis present in the Instream Habitat Restoration EA sufficiently analyzed the project's impacts on the following resources: climate change, water quality, riparian vegetation, fish and wildlife, Indian Trust Assets (ITA), and environmental justice; therefore, those sections are incorporated by reference from the Instream Habitat Restoration EA and were not further analyzed. This EA discusses the existing environment and the environmental consequences of the two alternatives on the following resources: threatened and endangered species and cultural resources. Where applicable, mitigation measures are recommended to reduce adverse environmental effects.

Threatened and Endangered Species

Affected Environment

Coho Salmon is the only ESA-listed species that may be affected by implementing the proposed project. Please see the evaluation of the Rogue River Project's over-arching effects on Coho Salmon at <http://www.usbr.gov/pn/programs/esa/oregon/rogue/rogueba.pdf>.

Other ESA-listed species in the Jackson County area under the jurisdiction of NMFS include the North American green sturgeon and Pacific eulachon.

The ESA-listed species for Jackson County under the jurisdiction of the U.S. Fish & Wildlife Service (USFWS) are the following (USFWS, 2015):

- Birds: Northern Spotted owl (*Strix occidentalis caurina*)
- Crustaceans: Vernal Pool fairy shrimp (*Branchinecta lynchi*)
- Mammals: Gray wolf (*Canis lupus*)
- Amphibians: Oregon spotted frog (*Rana pretiosa*)
- Flowering Plants: Cook's lomatium (*Lomatium cookie*), Gentner's Fritillary (*Fritillaria gentneri*), and large-flowered woolly Meadowfoam (*Limnanthes floccosa* ssp. *grandiflora*)

Environmental Consequences

No Action

If the proposed action was not implemented, Reclamation would not satisfy the required conservation actions of the BiOp and would trigger another consultation with NMFS.

The lack of pools within the project area limits resting and rearing habitat for juvenile and adult salmonids. The poor pool quality would continue to have direct and indirect negative effects on the production of adult and juvenile salmon, trout, and other species.

Coho Salmon would continue to be subject to warm temperatures and predation because of shallow water and scattered riparian shade.

Proposed Action

The analysis in the *Instream Habitat Restoration EA* provides a broader statement of effects of the proposed action and is incorporated by reference. This first part of this section describes details relevant to the three proposed projects as it relates to the affects to Coho Salmon, followed by site-specific details of the affects to Coho Salmon.

All Three Projects

The Freshwater Trust and its contractor would consult with ODFW to determine if fish salvage is necessary. If fish salvage is determined necessary, TFT would coordinate with ODFW to remove existing fish at the project site prior to dewatering of the area. Fish salvage would be conducted by trained fisheries biologists per ODFW rules and BiOp terms and conditions (T&C) for LWM installations. Fish would be allowed to migrate out of the work area, if possible. If necessary, electrofishing or use of a seine net may be used to remove fish from the isolated work area. In cofferdam work areas and other isolated areas, water would be drawn down to help consolidate fish and improve salvage efforts, if deemed necessary. If reduction in water volume is necessary, pumps would be fitted with approved fish screens that prevent impingement or entrainment of fish. For the period between capture and release, all captured aquatic life would be immediately put into clean 5-gallon buckets filled with clean river water. Fish species and life stage would be documented, and fish would be released in a safe environment as determined by ODFW or the contractor's biologists.

The large- and medium-tiered habitat wood structures would deflect the hydraulic forces away from the streambank, while providing habitat to juvenile Coho Salmon. Willow clumps would be placed along the bank face to provide quick-growing riparian cover and, eventually, increase the stability of the large wood habitat structure. As these willows and other riparian tree species mature, they would provide additional woody material to the stream.

The smaller large wood structures function as barbs. Barbs provide complex hydraulics and erosion and sedimentation patterns that ultimately lead to more complex instream habitats with beneficial protective cover. Barbs help develop distinct pools, tail-outs, thalweg, and other complex habitat patterns in an otherwise homogenous reach of the creek.

The individual logs function like barbs but on a smaller scale. Individual logs protect the streambank by increasing the resistance of the bank and pushing the higher velocity flow toward the center of the channel, while providing instream habitat through scour and cover.

The construction of the LWM structures would result in the following immediate, juvenile Coho Salmon habitat formation:

- Pool formation to provide slower, deeper water as an insulator to high water temperatures from direct solar radiation and to provide areas of rest.
- Overhead cover for protection against predation and to provide shade.
- Refugia from high-velocity flows as the LWM would slow the flows around and through the structure.
- Sorting of gravel, including the deposition of spawning gravel, would increase and develop a more complex habitat.

Emigrant Creek 1.5 Project

Reclamation anticipates this project to provide a gross WUA of 925 ft². The benefits would begin to accrue in the short term and persist in the long term. Implementation of the proposed project would result in a substantial increase of winter and summer instream rearing habitat and stream complexity conditions that are beneficial to juvenile Coho Salmon. Reclamation anticipates that long-term beneficial impacts of LWM installations would aid in the recovery of the Coho Salmon population to a viable level.

Neil Creek 2.97 Project

The removal of the perched, concrete-box bridge and installation of a concrete bridge with a natural stream bottom would restore upstream and downstream volitional passage to all life stages of anadromous fish at all creek flows, while continuing to provide vehicle access to a private residence. Impervious surfaces constructed as part of this project would contribute stormwater into Neil Creek. The proposed surface grading and shoulder treatment would route stormwater from constructed impervious surfaces onto a vegetated swale. The swale would be approximately 5 feet wide and 10 feet long with a less than 1 percent slope; it would be located between the constructed impervious surface and Neil Creek receiving waters.

Reclamation anticipates that this project would provide a gross WUA of 350 ft². The benefits would begin to accrue in the short term and persist in the long term. Implementation of the proposed project would result in a substantial increase of winter and summer instream rearing habitat and stream complexity conditions beneficial to juvenile Coho Salmon. Reclamation anticipates that long-term beneficial impacts of LWM installations would aid in the recovery of the Coho Salmon population to a viable level.

Neil Creek 3.04 Project

The removal of the perched, metal culvert and installation of a concrete bridge with a natural stream bottom would restore upstream and downstream volitional passage to all life stages of anadromous fish at all creek flows, while continuing to provide vehicle access to a private residence. Impervious surfaces constructed as part of this project would contribute stormwater into Neil Creek. The proposed surface grading and shoulder treatment would route stormwater from constructed impervious surfaces onto a vegetated swale. The swale would be approximately 5 feet wide 10 feet long with a less than 1 percent slope; it would be located between the constructed impervious surface and Neil Creek receiving waters.

Reclamation anticipates the project to provide a gross WUA of 350 ft². The benefits would begin to accrue in the short term and persist in the long term. Implementation of the proposed projects would result in a substantial increase of winter and summer instream rearing habitat and stream complexity conditions beneficial to juvenile Coho Salmon. Reclamation anticipates that long-term beneficial impacts of LWM installations would aid in the recovery of the Coho Salmon population to a viable level.

Cumulative Effect

Reclamation has assessed past, present, and reasonably foreseeable future projects in the Bear Creek and Little Butte Creek watersheds for cumulative impacts. Several reasonably foreseeable actions near the three projects have beneficial effects to Coho Salmon.

Reclamation's biological assessment (BA) and the NMFS BiOp address Reclamation's conservation actions within both watersheds and includes instream flows, ramping rates, fish passage modifications, riparian zone restoration (without LWM placement), and water conservation projects.

Mitigation

No mitigation is needed. The effects of the proposed project on federally listed threatened and endangered species were analyzed in Reclamation's BA and the NMFS BiOp. In accordance with the NMFS BiOp, the proposed action has non-discretionary T&C associated with it. Reclamation must comply with the T&C to implement the RPM included in the BiOp (See Appendix B in the NMFS BiOp for the RPM and T&C associated with construction of the proposed project.).

Reclamation has determined that implementation of the proposed project would not affect ESA-listed species under the jurisdiction of USFWS.

Cultural Resources

This section provides a summary of cultural resource identification completed for the proposed action including anticipated impacts on cultural resources under NEPA. Cultural resources are locations of human activity, occupation, or use. They include expressions of human culture and history in the physical environment, such as precontact or historic archaeological sites, buildings, structures, objects, districts, or other places. Cultural resources can also include natural features, plants, and animals that are considered important to a culture, subculture, or community or that allow the group to continue traditional lifeways and spiritual practices.

Historic properties as defined by 36 CFR 800, the implementing regulations of Section 106 of the National Historic Preservation Act (NHPA; 54 USC § 300101 et seq.), are cultural resources eligible for inclusion in the National Register of Historic Places (National Register). Historic properties may be districts, sites, buildings, structures, artifacts, ruins, objects, works of art, natural features important in human history at the National, state, or local level or properties of traditional religious and cultural importance to an Indian Tribe.

Affected Environment

Emigrant Creek 1.5

The cultural resource survey of the area of potential effect included all temporary access and staging routes and projected areas of disturbance by placement of large wood structures. Pursuant to Section 106 of the NHPA, TFT contracted with Cascade Research, LLC, of Ashland, Oregon, to conduct the cultural resource inventory. Fieldwork was accomplished January 24 and March 11, 2019.

Neil Creek 2.97 and 3.04

With these projects being proximal to each other, the cultural resource survey combined both projects' area of potential effect and included all temporary access/staging routes and projected areas of disturbance by placement of large wood structures. Pursuant to Section 106

of the NHPA, TFT contracted with Cascade Research, LLC of Ashland, Oregon, to conduct the cultural resource inventory. Fieldwork was accomplished January 26 and 27, and April 3, 2019.

Environmental Consequences

No Action

Cultural Resources. No impacts on cultural resources would occur, since there would be no construction.

Traditional Cultural Properties. No impacts on traditional cultural properties (TCPs) would occur, since there would be no construction.

Proposed Action

Cultural Resources. On March 26, 2019, Reclamation sent pre-project consultation letters notifying the following Tribes as to the location and intent of the cultural resource inventories by Cascade Research, LLC: Confederated Tribes of Grand Ronde, Confederated Tribes of Siletz, Cow Creek Band of Umpqua Indians, Quartz Valley Indian Reservation, and Tolowa Dee-ni' Nation. Reclamation developed an inadvertent discovery plan (IDP) at the request of the Cow Creek Band of Umpqua Indians prior to implementation of BiOp projects. The IDP would be provided to TFT. TFT would be responsible to ensure that onsite contractors have a copy of the IDP on-hand at all times.

Emigrant Creek 1.5 Project

Reclamation initiated consultation with the Oregon SHPO in a letter dated March 27, 2019. Reclamation determined that Emigrant Creek 1.5 Project would have no effect on any significant archaeological objects or sites and that additional archaeological research is not anticipated for this project. Reclamation received a letter of concurrence from the SHPO on April 23, 2019.

Neil Creek 2.97 and 3.04 Projects

Reclamation initiated consultation with the Oregon SHPO in a letter dated April 10, 2019. Reclamation determined that Neil Creek 2.97 and 3.04 Projects would have no effect on historic properties or on any significant archaeological objects or sites and that additional archaeological research is not anticipated for this project. Reclamation received a letter of concurrence from the SHPO on May 6, 2019 (regarding the built environment) and on May 8, 2019 (regarding the archaeological investigation).

TCPs. Reclamation consulted with area Tribes to determine if TCPs are present in the project vicinity. Reclamation did not receive responses from the Tribes.

Mitigation

No mitigation is needed.

Chapter 4. CONSULTATION AND COORDINATION

Reclamation consulted Federal agencies, Tribes, and State agencies during the preparation of this EA.

ESA Section 7 Consultation

The effects of activities related to this action are addressed in Reclamation's BA and NMFS' BiOp. The increase in WUA in Bear Creek and Little Butte Creek watersheds is an RPM of the BiOp and addressed with specific T&C. Both the BA and the BiOp can be accessed online at <http://www.usbr.gov/pn/programs/esa/oregon/rogue>.

NHPA Section 106 Consultation

On March 26, 2019, Reclamation sent pre-project consultation letters to the Confederated Tribes of Grand Ronde, Confederated Tribes of Siletz, Cow Creek Band of Umpqua Indians, Quartz Valley Indian Reservation, and Tolowa Dee-ni' Nation.

Emigrant Creek 1.5 Project

Reclamation initiated consultation with the Oregon SHPO in a letter dated March 27, 2019. Reclamation determined that Emigrant Creek 1.5 Project would have no effect on any significant archaeological objects or sites and that additional archaeological research is not anticipated for this project. Reclamation received a letter of concurrence from the SHPO on April 23, 2019.

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Coordination

Reclamation used an interdisciplinary approach to prepare this EA to comply with the mandate of the NEPA to "...utilize a systematic, interdisciplinary approach which would ensure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man's environment" (40 CFR 1501.2(a)). The following principal disciplines and resource specialists were involved with preparation of the EA:

- Elizabeth Heether, Environmental Protection Specialist; Reclamation
- Christine Horting-Jones, Archaeologist; Reclamation
- Scott Willey, Fisheries Biologist; Reclamation
- Christopher Cuhaciyar, Hydraulic Engineer; Reclamation

Reclamation or TFT worked with the following agencies during the development of this EA:

- National Marine Fisheries Service
- Oregon State Historic Preservation Office
- Oregon Department of Fish and Wildlife
- Confederated Tribes of Grand Ronde Community
- Confederated Tribes of Siletz
- Cow Creek Band of Umpqua Indians
- Quartz Valley Indian Reservation
- Tolowa Dee-ni' Nation

Permits and Authorizations Needed

Per the Instream Habitat Restoration EA/FONSI, the following permit, authorization, review, and exemption applications have been submitted for the three projects:

- U.S. Army of Corps of Engineers Nationwide Permit No. 27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities)
- Jackson County Type 1 Land Use Permit-Floodplain Development Permit
- Oregon Department of State Lands Removal/Fill Exemption with notice for voluntary habitat restoration activities
- Oregon Department of Fish and Wildlife concurrence on “Procedures for Generating Shade Credits”

The project would not commence until all applicable permits, authorizations, reviews, exemptions have been received by TFT and forwarded to Reclamation.

Chapter 5. LITERATURE CITED

Reference	Description
Bredikin et al. 2006	Bredikin, T., T. Atzet, and J. MacLeod. 2006. <i>Watershed Health Factors Assessment: Rogue River Basin, Jackson, Josephine and Curry counties, Oregon</i> . Prepared for the Rogue Basin Coordinating Council. March 2006. http://www.oregon.gov/OWEB/docs/pubs/Rest_Priorities/WHFA_5-4-06Final.pdf
NMFS 2012	National Marine Fisheries Service. 2012. <i>Endangered Species Act Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Future Operation and Maintenance of the Rogue River Basin Project (2012-2022), Rogue and Klamath River Basins (HUCs: 18010206, 17100308, 17100307), Oregon and California</i> . p. 102. NMFS, Northwest Region, Seattle, Washington. April 2012.
Reclamation 2015	Bureau of Reclamation. 2015. <i>Instream Habitat Restoration in Bear Creek and Little Butte Creek Watersheds Finding of No Significant Impact and Environmental Assessment, PN FONSI 15-05 and PN EA 15-05</i> . Pacific Northwest Region. Columbia-Cascades Area Office, Yakima Washington. July 2015.
Reclamation 2012a	Reclamation. 2012. <i>Biological Assessment on the Future Operation and Maintenance of the Rogue River Basin Project and Effect on Essential Fish Habitat under the Magnuson-Steven Act</i> . Pacific Northwest Region. U.S. Bureau of Reclamation, Lower Columbia Area Office, Portland, Oregon. March 2012.
Reclamation 2012b	Reclamation. 2012. <i>Decision Document Concerning NOAA Fisheries April 2012 Biological Opinion for the Future Operation and Maintenance of the Rogue River Basin Project, Talent Division</i> . Pacific Northwest Region. Bureau of Reclamation. May 2012.