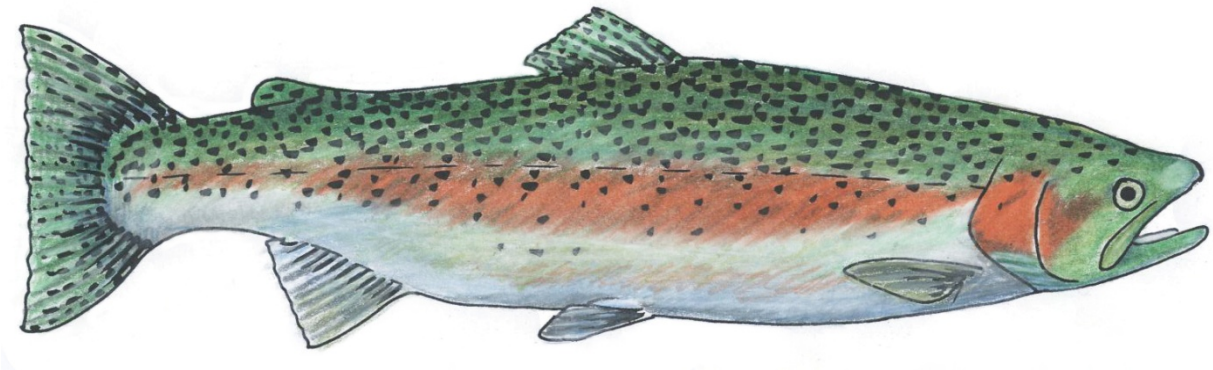
FINAL ENVIRONMENTAL ASSESSMENT

for

Non-essential Experimental Population Designation for Middle Columbia River Steelhead Reintroduced above the Pelton Round Butte Hydroelectric Project



Prepared by:

National Marine Fisheries Service, Northwest Region

National Oceanic and Atmospheric Administration

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TITLE OF ENVIRONMENTAL REVIEW	Final Environmental Assessment for Non-essential Experimental Population Designation for Middle Columbia River Steelhead Reintroduced above the Pelton Round Butte Hydroelectric Project
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LOCATION OF PROPOSED ACTIVITIES	The upper Deschutes River, Crooked River, and Metolius River watersheds located in central Oregon and upstream of the Pelton Round Butte Hydroelectric Project
PROPOSED ACTION	NMFS proposes to designate the continuing release of Mid-Columbia River (MCR) steelhead to historically occupied areas above the Pelton Round Butte Hydroelectric Project as a non-essential experimental population (NEP) and to expire the NEP designation 12 years from the publication date of the final NEP rule.~~after three successive adult generations (approximately 12 years) have passed upstream of the Pelton Round Butte Hydroelectric Project.~~
ABSTRACT	The proposed action supports the reintroduction and reestablishment of a self-sustaining population of MCR steelhead by encouraging the cooperative and comprehensive development of measures important to the conservation of this species in a defined timeframe. The NEP designation would allow the needed time to attain information and to develop meaningful long-term conservation actions focused on reintroduction success.

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Acronyms and Abbreviations

BLM	Bureau of Land Management
cfs	cubic feet per second
CRITFC	Columbia River Intertribal Fish Commission
CTWSR	Confederated Tribes of the Warm Springs Reservation of Oregon
DBBC	Deschutes Basin Board of Control
DPS	distinct population segment
EA	Environmental Assessment
EFH	essential fish habitat
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
HCP	Habitat Conservation Plan
HGMPs	Hatchery and Genetic Management Plans
ICTRT	Interior Columbia Basin Technical Recovery Team
IRMP I	Integrated Resources Management Plan I
IRMP II	Integrated Resources Management Plan II
ITP	Incidental take permit
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MCR	Mid-Columbia River
NEP	nonessential experimental population
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPCC	Northwest Power and Conservation Council

ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
Oregon Plan	Oregon Plan for Salmon and Watersheds
PFMC	Pacific Fishery Management Council
Pelton Round Butte	Pelton Round Butte Hydroelectric Project
PGE	Portland General Electric Company
RM	river mile
Secretaries	Secretaries of Interior and Commerce
Services	USFWS and NMFS
USC	U.S. Code of Federal Regulations
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey

EXECUTIVE SUMMARY

Since 2007, annual releases of juvenile Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss*) have occurred in the upper Deschutes River and its tributaries in Jefferson, Crook and Deschutes Counties, Oregon. These releases are part of an anadromous fish reintroduction commitment under a regional settlement agreement and new Federal license for the Pelton Round Butte Hydroelectric Project. The licensees, Portland General Electric Company (PGE) and the Confederated Tribes of the Warm Springs Reservation of Oregon (Tribes), are conducting the reintroduction program in cooperation with the State of Oregon; National Marine Fisheries Service; the U.S. Forest Service; the U.S. Fish and Wildlife Service; U.S. Bureau of Land Management; Jefferson and Deschutes Counties, Oregon; and 10 other stakeholder groups. The geographic boundaries of the reintroduction area extend upstream from Round Butte Dam and include the Metolius River and tributaries, Deschutes River and tributaries from Lake Billy Chinook upstream to Big Falls and the Crooked River and tributaries upstream to Bowman and Ochoco Dams. The long term goal is to establish a self-sustaining population of MCR steelhead in the reintroduction area. PGE and the Tribes as well as the Oregon Department of Fish and Wildlife and U.S. Forest Service, are conducting the monitoring activities.

On May 18, 2011, the National Marine Fisheries Service (NMFS) published a proposed rule and draft Environmental Assessment (EA) to designate the MCR steelhead that are part of the on-going reintroduction effort as a nonessential experimental population (NEP) under section 10(j) of the Endangered Species Act (ESA) (76 Fed. Reg. 28715). The NEP area encompasses the same geographic boundaries as the ongoing reintroduction area. This final EA addresses NMFS's issuance of a final rule to designate MCR steelhead in the NEP area as a nonessential experimental population. The designation will expire after 12 years from the published date of the final NEP rule. NMFS will publish a notice of the NEP's expiration in the Federal Register approximately 1 year before it expires, to ensure adequate notice to the public.

Introduction

The final EA reflects changes from the draft EA based on public comments and new information collected since the draft was published. All new text is indicated in redline/strikeout format to assist the reader by demonstrating changes from the draft EA.

Proposed Action

NMFS would use rulemaking to designate all MCR steelhead released into historically occupied habitat above Round Butte Dam as an NEP. The NEP action area would extend upstream from Round Butte Dam and would include the Metolius River and tributaries, Deschutes River and tributaries from Lake Billy Chinook upstream to Big Falls and the Crooked River and tributaries upstream to Bowman and Ochoco Dams (Figure 1-4). This action area is the same as the steelhead reintroduction area (Subsection 1.6, Description of the Action Area). Although currently listed as threatened under the ESA, for purposes of ESA section 7 consultation, MCR steelhead that occur in areas upstream of Round Butte Dam would be considered a species proposed to be listed. The NEP will expire 12 years from the date of publication of the final NEP rule. The Proposed Action is described in detail in Subsection 1.4, Description of the Proposed Action.

Public Comment Period

NMFS published a proposed rule and notice of availability for the draft EA in the Federal Register on May 18, 2011 (76 Fed. Reg. 28715). The public comment period for review of the draft EA closed on July 18, 2011. NMFS received one EA comment letter.

Changes to the Draft Environmental Assessment

Revisions from the draft EA are illustrated in redline/strikeout text format. This final EA includes the following revisions based on public comments and new information since the draft EA was published.

- The phrase “MCR steelhead were not listed at the time” under Subsection 1.2.1, MCR Steelhead Reintroduction, has been corrected to read “The Deschutes River steelhead hatchery stock was not listed at the time.”

- The word “candidate” under Subsection 1.4, Description of the Proposed Action, has been changed to “proposed” in this final EA.

- The context of the discussion under Subsection 1.5.2, Need for Action, in the draft EA concerns the viability of the Eastern Slope Cascades major population group of MCR steelhead and not the demographically independent populations that comprise this major population group. In this final EA, some text has been deleted and additional text added to make the context more evident to the reader.

- The correct section of the ESA statute has been added to Subsection 2.1, Alternative 1, No-action Alternative.

- The Proposed Action has been updated. NMFS is retaining a limited timeframe for the NEP designation of three successive generations (about 12 years) of adult steelhead released into the NEP area. However, the NEP designation's time period is now more certain because adult steelhead are now being released into the NEP area. At the time of the draft EA's publication, criteria establish by the Pelton Fish Committee for adult passage into the NEP area had been satisfied, but it was not known when adult steelhead would first be released into the NEP area. Adult MCR steelhead that were outplanted as fry in the NEP area 3 to 4 years ago are now returning to the Pelton fish trap, and some of these fish are being released into the NEP area. Consequently, the first generation of adults has been moved to the NEP area, so the NEP designation will be in effect for 12 years from the publication date of the final NEP rule.

- Under Subsection 3.1.1, MCR Steelhead, subheading Distribution, there was a mischaracterization of the Deschutes Eastside overall population status as a "moderate risk" by confusing it with the "moderate risk" rating for this population's *spatial structure* and *diversity* parameters. The overall risk rating for the Deschutes Eastside population is "viable" under the Interior Columbia Technical Review Team criteria. This has been corrected in this final EA.

- The phrase "Alternative 4" under Subsection 4.2.1.5, Alternative 4, subheading Status, has been corrected to "Alternatives 2 and 3" in this final EA.

1 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 NMFS Responsibilities for Conservation, Protection and Management under the Endangered Species Act

When Congress enacted the Endangered Species Act (ESA) (16 USC ~~Code of Federal Regulations [USC]~~ 1531 *et seq*.), it vested responsibilities for management and conservation of species listed as threatened and endangered to the Secretaries of Interior and Commerce (Secretaries). ~~Nearly all of the~~Certain ESA mandates require the Secretaries to manage species and listed populations through promulgation of protective regulations and establishment of prohibited acts; development and implementation oversight of recovery plans; management of listing determinations and subsequent management decision-making; review, approval, and oversight of applicant-requested program and permit approvals and hardship exemptions; and management of inter-agency consultations related to the conservation of listed species[1]. As an agency within the Department of Commerce, the National Marine Fisheries Service (NMFS) (within the National Oceanic and Atmospheric Administration) implements the agency's responsibilities under the ESA ~~conservation~~ for ~~programs related to~~ marine and anadromous ~~fish~~ species (http://www.nmfs.noaa.gov/pr/laws/esa/)[2]. Under the ESA section 10(j), NMFS may choose to designate a population as experimental if it furthers the conservation of the species and the experimental population is geographically separate from the rest of the listed animals.

Conservation management of listed species occurs at many levels including Federal oversight of marine and anadromous species by NMFS, and state and local level development and implementation of on-the-ground measures to further NMFS' conservation objectives. ~~The ESA requires that NMFS cooperate with states for the purpose of conserving listed species (16 USC 1535(a)). In turn,~~ The

[1] Examples of Department of Commerce management responsibilities for listed species conservation can be found throughout the ESA, including the critical habitat program definition ("…those physical or biological features… (II) which may require special management considerations or protection…") (16 USC1532 (5)(A)(i)), the basis for listing determinations ("the Secretary shall implement a system to monitor effectively the status of all species…")(16 USC 1533 (b)(3)(C)(A)(iii)), and recovery planning (The Secretary shall develop and implement plans…for the conservation and survival of endangered species and threatened species…") (16 USC 1533 (f)(1)).

[2] The mission statement for the NMFS Northwest Region is to conserve, protect, and manage Pacific salmon, groundfish, halibut, and marine mammals and their habitats under the Endangered Species Act (ESA) and other federal laws (http://www.nwr.noaa.gov/).

~~management of~~ conservation measures for listed species ~~becomes~~ can be a joint effort, while NMFS retains overall ~~management~~ responsibility vested by Congress.

1.2 Middle Columbia River Steelhead Listing

On March 25, 1999, NMFS published a final rule listing the Mid-Columbia River (MCR) steelhead distinct population segment[3] (DPS) under the ESA as threatened (NMFS 1999). It is one of 15 Pacific Coast steelhead distinct population segments extending from southern California to the Canadian border in Washington State. Eleven of the 15 Pacific Coast steelhead DPSs are now listed under the ESA. The MCR steelhead DPS covers an area of approximately 35,000 square miles in the Columbia plateau of eastern Oregon and eastern Washington (Figure 1-1). It includes all populations of steelhead in Columbia River tributaries upstream of the Wind River (excluded) in Washington and the Hood River (excluded) in Oregon to, and including, the Yakima River in Washington. Snake River steelhead are excluded. Seven artificial propagation programs, including the Deschutes River hatchery programs, were included in the MCR distinct population segment in 2006 (71 Fed. Reg. 834, January 5, 2006).

In the Deschutes subbasin, MCR steelhead currently range from its mouth at the Columbia River up to the Pelton Round Butte Hydroelectric Project (hereafter Pelton Round Butte) at river mile (RM) 100, including east and west side tributaries. Before hydroelectric and irrigation development, steelhead used the Deschutes River up to Big Falls (RM 132), Whychus Creek (a Deschutes River tributary above Pelton Round Butte), and the Crooked River watershed. Within the Crooked River watershed, steelhead were documented in McKay, Ochoco (below Ochoco Dam), Horseheaven, Newsome, Drake, Twelvemile and Beaver Creeks and the North Fork Crooked River (Figure 1-2) (Nehlsen 1995). The completion of Ochoco Dam east of Prineville in 1920 blocked steelhead access into most of the Ochoco Creek watershed. In 1961, Bowman Dam was completed on the Crooked River at RM 70, about 20 miles southeast of Prineville, which precluded fish passage into the upper Crooked River watershed. On the Deschutes River, the Pelton and Reregulating Dams (RM 103 and RM 100, respectively) were completed in 1958. Even though these dams had fish passage, steelhead numbers in the upper Deschutes River basin had substantially declined by that time (Nehlsen 1995).

[3] NMFS listed steelhead runs under the joint NMFS-U.S. Fish and Wildlife Service (USFWS) Policy for recognizing DPSs (DPS Policy: 61 Federal Register 4722, February 7, 1996). This policy adopts criteria similar to those in the NMFS Pacific Salmon ESU policy, but applies to a broader range of animals to include all vertebrates (See Glossary).

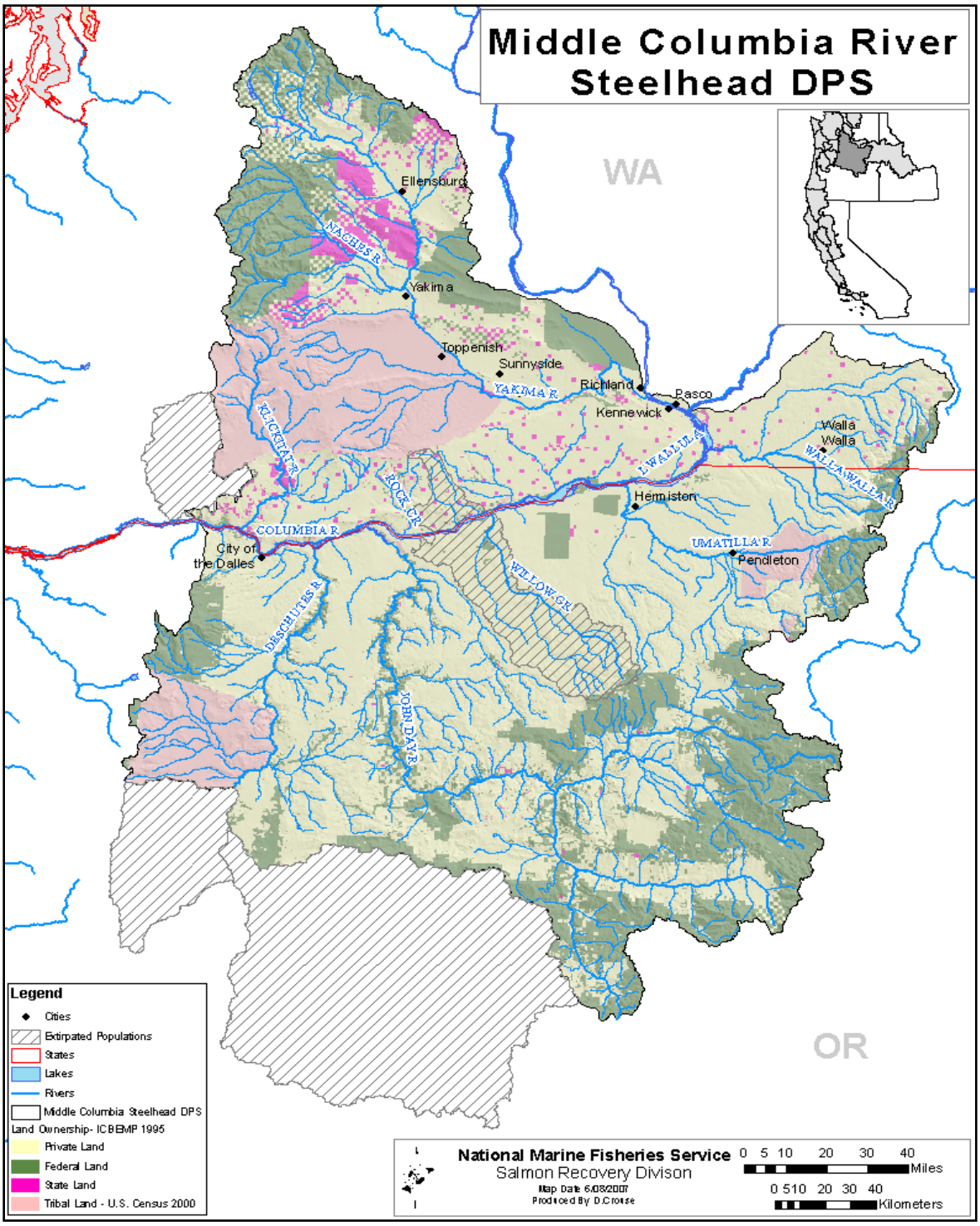


Figure 1. MCR steelhead DPS

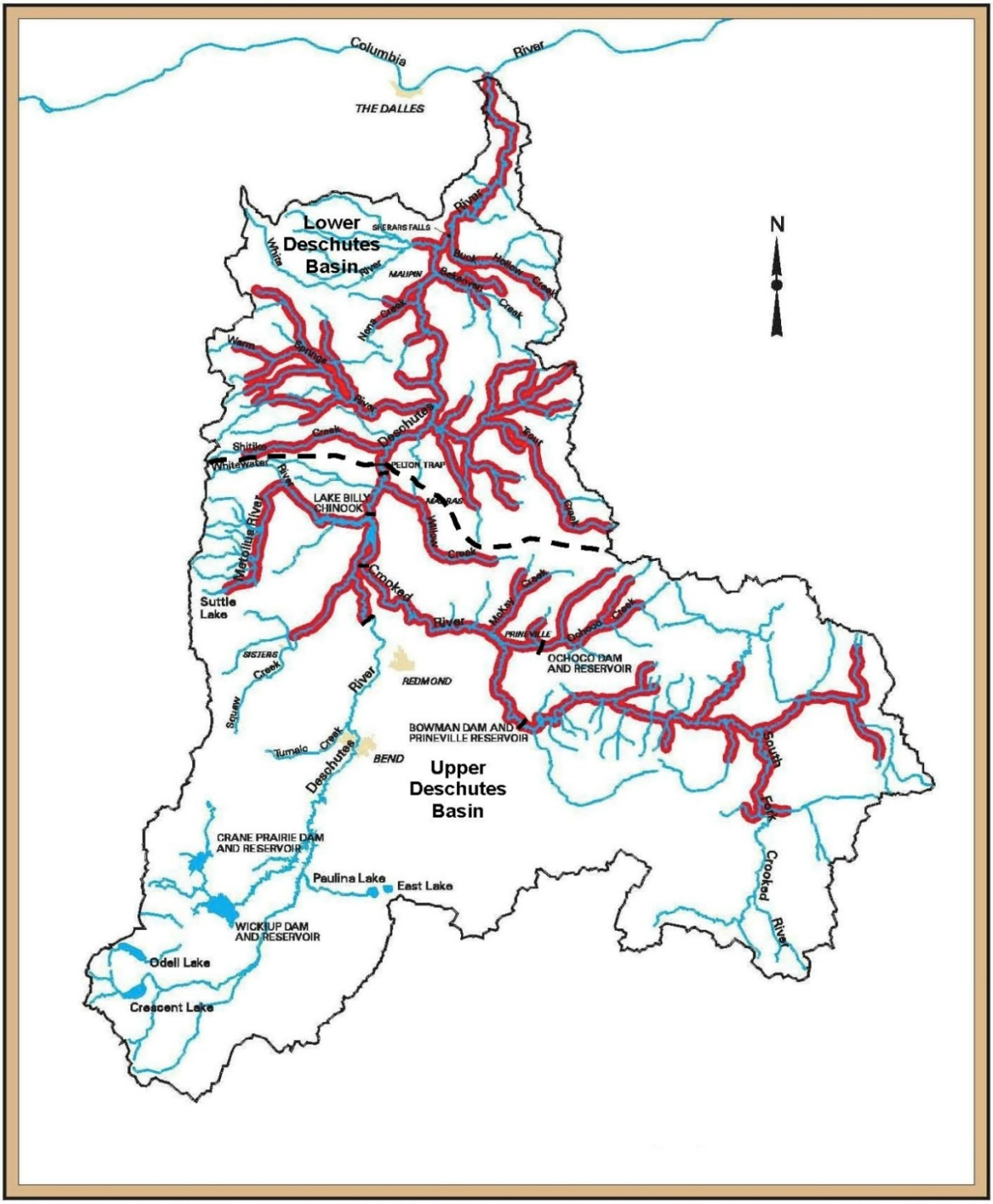


Figure 1-2- Historic distribution (above and below dashed line) and current distribution (above dashed line) of spring-run Chinook salmon and MCR steelhead in the Deschutes subbasin (Source: Lichatowich 1998).

In 1964, Portland General Electric Company (PGE) completed construction of Round Butte Dam at approximately RM 110 of the Deschutes River, forming Pelton Round Butte (Figure 1-3). Though fish passage was provided at Round Butte Dam, by 1968, it was concluded that fish passage was not working due to the inability to collect juvenile fish from the reservoir (Lake Billy Chinook) behind Round Butte Dam. To mitigate for lost passage and habitat, PGE constructed a fish hatchery at Round Butte Dam to produce spring-run Chinook salmon and steelhead (Ratliff and Shulz 1999).

Since terminating fish passage at Pelton Round Butte in 1968, innovations in techniques to study fish behavior combined with substantial advancements in fish passage design resulted in a renewed interest in fish passage at Pelton Round Butte. With its Federal license expiring in 2001, work on relicensing issues began in about 1996 with the intent to relicense Pelton Round Butte and to evaluate reestablishing fish passage for MCR steelhead, spring-run Chinook salmon, and sockeye salmon. This effort culminated in a license application to the Federal Energy Regulatory Commission (FERC) in 2001. PGE and the Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSR), co-owners of Pelton Round Butte, developed the license application, which proposed to pass anadromous fish. In 2004, PGE, CTWSR, and 20 other stakeholder groups signed a settlement agreement. This agreement addressed Pelton Round Butte operations and mitigation measures for the term of a new 50-year license. Reintroduction of anadromous fish, including MCR steelhead, to historic habitat above Pelton Round Butte was central to the agreement. The stakeholder groups included Federal, state, and local government entities, as well as environmental groups, that all agreed on the need for passage and reintroduction of MCR steelhead, spring-run Chinook salmon, and sockeye salmon in the upper Deschutes River basin. This agreement was submitted to FERC for consideration in its decision on issuing a new license, ultimately resulting in a new 50-year Federal license issued in 2005 that largely incorporated the 2004 agreement. The license includes a requirement for construction and operation of a fish collection and selective water withdrawal facility, which will protect fish in Lake Billy Chinook from being entrained into power-generating turbines. This facility was completed in 2010 and is now in operation at Round Butte Dam for fish passage and temperature control.

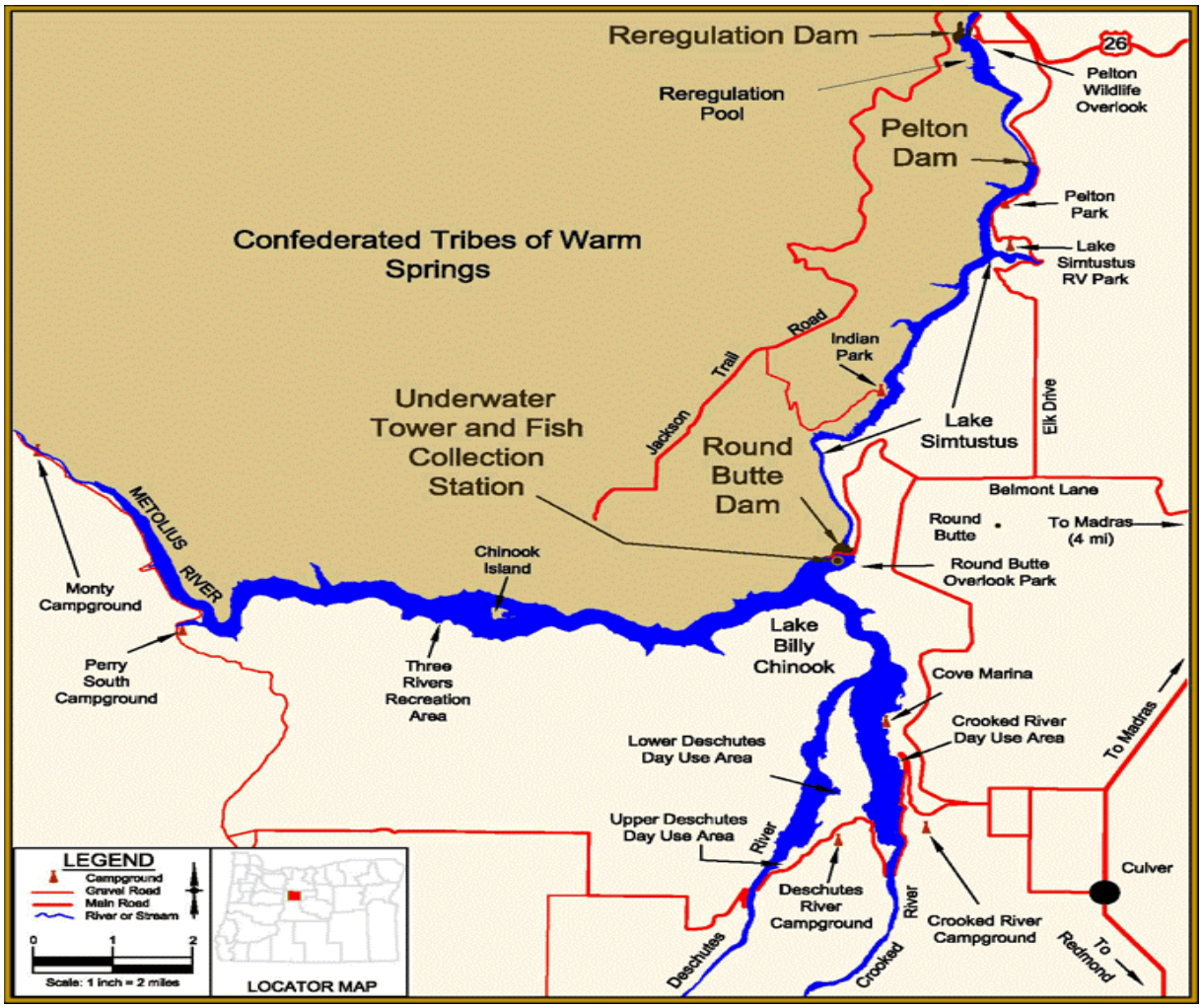


Figure 1-3 Pelton Round Butte Hydroelectric Project (Source: PGE)

1.2.1 MCR Steelhead Reintroduction

During the relicensing period (1996 to 2005), PGE and CTWSR, together with Federal and state resource agencies, including Oregon Department of Fish and Wildlife (ODFW), and non-governmental organizations (Fish Committee) determined that the long-term goal of reintroduction is to have self-sustaining and harvestable populations of anadromous fish, including MCR steelhead, in their historic habitat above Pelton Round Butte. To that end, the Fish Committee developed and organized the technical details for reintroducing anadromous fish. The Fish Committee uses an adaptive management decision-making process; and considers extensive monitoring and evaluation, reintroduction timing, identification of potential future habitat, release locations, fish life stage (age of fish to be reintroduced), and passage criteria. To initiate reintroduction of MCR steelhead, the Fish Committee

decided to use offspring of excess hatchery-origin adults from the Round Butte Hatchery for the following reasons (PGE & CTWSR 2004):

1. The experimental nature and uncertainty associated with the collection of juvenile salmon and steelhead from Lake Billy Chinook (Figure 1-3) created too much risk to use valuable natural-origin steelhead.
2. It was reasonably certain that an annual supply of excess adults at Round Butte Hatchery would be available to spawn, thereby creating offspring for annual releases in the reintroduction area.
3. The Deschutes River steelhead hatchery stock ~~MCR steelhead were~~ was not listed at the time.

Other important elements of reintroduction included the following:

1. The reintroduction area (Figure 1-4) for MCR steelhead would be geographically limited in the Crooked River watershed to the mainstem Crooked River below Bowman Dam, Ochoco Creek below Ochoco Dam, and McKay Creek; in the Deschutes River watershed to the mainstem Deschutes River below Big Falls (RM 132) and Whychus Creek; and the Metolius River watershed (steelhead would not be released in the Metolius River, but could move into this watershed voluntarily).
2. Releases of MCR steelhead fry would begin in the Whychus Creek watershed in 2007 and in the Crooked River watershed in 2008.
3. The new juvenile fish collection and selective water withdrawal facility was to be ready for operation in time for the 2009 outmigration (steelhead typically rear 2 years in freshwater, with a range of 1 to 4 years in the Deschutes River subbasin, before emigrating to the ocean).
4. All outmigrating juvenile anadromous fish, including MCR steelhead, would receive a unique mark when collected at the fish passage facility so they could be readily identified as having come from above Round Butte Dam when they return as adults.
5. Initially, only returning spawners that had reared above Round Butte Dam would be released upstream when returning from the ocean. In later phases, if the reintroduction program meets escapement goals, upstream releases of fish without hatchery-origin marks will be explored, following the process outlined in the Pelton Round Butte Fish Passage Plan (PGE and CTWSR 2004).

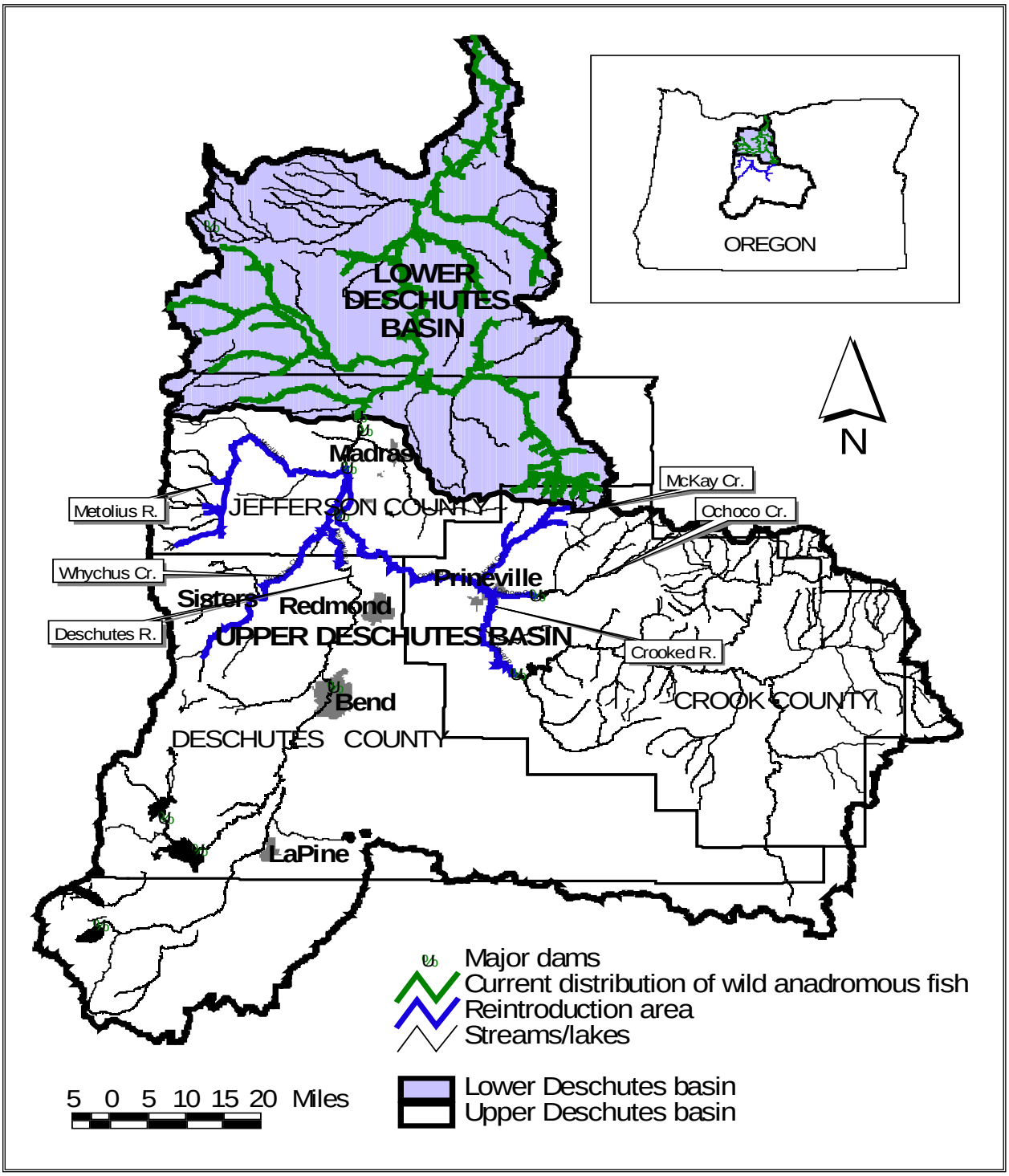


Figure 1-4 Reintroduction area in the upper Deschutes River Basin, Oregon

6. Adult passage above Round Butte Dam will only be considered when a minimum of 50 percent of tagged outmigrating MCR steelhead or spring Chinook salmon from one tributary arm (Metolius, Deschutes, or Crooked River) of Lake Billy Chinook are collected at the fish passage facility at Round Butte Dam. This was established to give fish managers a measure of confidence that the juvenile fish passage facility was working as intended before moving adults above to spawn naturally.
7. Only disease-free adults would be passed above Round Butte Dam.

ODFW and CTWSR are involved in co-managing implementation of the Fish Committee's reintroduction goals and objectives with NMFS and other entities under the co-manager's reintroduction plan (ODFW and CTWSR 2008). In addition, other Federal- and state-funded actions are occurring in the same action area as described in Subsection 1.7, Relationship to Other Plans and Policies, to support the reintroduction plan.

1.2.2 Species Listings under the Endangered Species Act

The 2006 final ESA listing determination for MCR steelhead as threatened included the Round Butte Hatchery stock as part of the DPS, (71 Fed. Reg. 834, January 5, 2006)[4]. Consequently, the MCR steelhead from the Round Butte Hatchery that are reintroduced above Round Butte Dam are an ESA-listed threatened species.

1.2.2.1 Development of a Habitat Conservation Plan

In response to the presence of ESA-listed MCR steelhead above Pelton Round Butte, Central Oregon municipalities and landowners affected by the reintroduction began to evaluate their potential take liabilities under section 9 of the ESA. Central Oregon irrigation districts that are members of the Deschutes Basin Board of Control (DBBC) and the City of Prineville are jointly developing an application for an ESA section 10 incidental take permit including developing a habitat conservation

[4]In 2001, the U.S. District Court in Eugene, Oregon, set aside the 1998 listing of the Oregon Coast coho evolutionarily significant unit (*Alsea Valley Alliance v. Evans*) (*Alsea*). In the Oregon Coast coho listing, NMFS did not include 10 hatchery stocks it determined to be part of the Oregon Coast coho evolutionarily significant unit. The court ruled that once NMFS had delineated a distinct population segment, the ESA did not allow listing only a subset of that distinct population segment. In response to the *Alsea* decision and several listing and delisting petitions, NMFS conducted status reviews of all 27 West Coast salmonid evolutionarily significant units and 10 listed steelhead distinct population segments. NMFS then listed the Round Butte Hatchery stock of MCR steelhead as a result of the *Alsea* decision and its status review.

plan (HCP). In addition, several irrigation districts have implemented a number of important water conservation measures and continue to pursue opportunities to help conserve listed species.

1.2.2.2 Federal MCR Steelhead Recovery Plan

ESA section 4(f) requires the USFWS and NMFS (together the Services) to develop and implement recovery plans for the conservation and recovery of listed salmonid species. Recovery plans must describe specific management actions, establish objectives and measurable criteria for delisting, and estimate the time and cost to carry out measures needed to achieve recovery. Recovery plans are intended to address all salmonid species within a given geographic area and to involve stakeholders at a local level.

The recovery plan for MCR steelhead that NMFS completed in 2009 identifies limiting factors and threats to the species (NMFS 2009). The intent of the MCR steelhead recovery plan is to increase distribution of MCR steelhead and to meet a long-term goal of improved tribal, recreational, and commercial fishing opportunities.

The recovery plan includes actions to reduce or mitigate the limiting factors and threats to steelhead survival throughout their life cycle by improving steelhead habitat conditions for tributary habitats, helping support their movements through the Columbia River basin, including the Deschutes subbasin, by providing passage at dams, ensuring best use of hatcheries, minimizing predation, managing harvest, and ensuring agency coordination of these activities. Primary factors limiting steelhead survival were identified as degraded tributary habitats, impaired fish passage in the mainstem Columbia River and tributaries, hatchery-related effects, and predation/competition/disease (NMFS 2009).

As described in the plan, recovery of the MCR steelhead DPS requires that both of the Deschutes River populations, Eastside and Westside, be viable (i.e., less than a 5 percent risk of extinction within 100 years) (NMFS 2009). At present, the Deschutes Eastside population is considered viable, but the Deschutes Westside population is at high risk of extinction due, in part, to blocked passage to historically productive habitat above Pelton Round Butte, which restricts its spatial distribution, diversity, and abundance. Oregon’s MCR steelhead recovery plan (NMFS 2009, Appendices A through J) has a goal of rebuilding both Deschutes River populations and reestablishing a Crooked River population. This plan was recently revised (Carmichael and Taylor 2010).

1.3 Experimental Populations under Section 10(j) of the ESA

1.3.1 Congressional History and Intent

When Congress enacted the ESA, it intended that Federal agencies would cooperate with states and other interested parties (through Federal financial assistance and a system of incentives) to develop and maintain conservation programs and to resolve water resource issues in concert with the conservation of listed species (16 USC 1531(5)(c)(2); (16 USC 1535(a)) ~~(Subsection 1.1, NMFS Responsibilities for Management under the Endangered Species Act)~~. When Congress amended the ESA in 1982, it added section 10(j) to reduce opposition to release of listed species outside their current range, and to give the Secretaries flexibility in ESA management for species conservation purposes. Section 10(j) provides for the designation of specific reintroduced populations of listed species to be released as "experimental populations." Previously, the Secretaries had authority to reintroduce populations into unoccupied portions of a listed species' historical range when doing so would foster the conservation and recovery of the species. However, public and private entities were concerned that once ESA listed species were present in their vicinity, Federal agencies would place restrictions on development projects (*Forest Guardians v. U.S. Fish and Wildlife Service*, 611 F.3d 692 (10th Cir. 2010); *Wyoming Farm Bureau Federation v. Babbitt*, 199 F.3d (10th Cir. 2000). Local opposition to reintroduction efforts from parties concerned about potential restrictions and liability, and prohibitions on Federal and private activities contained in sections 7 and 9 of the ESA, reduced the Service's[5] use of such reintroduction ~~designations~~ actions. In response to these concerns, Congress designed section 10(j) to provide Federal agencies with more flexibility and discretion in managing listed populations by limiting listing status restrictions and to encourage the recovery of species through population reestablishment with the cooperation of state and local entities (*Forest Guardians v. U.S. Fish and Wildlife Service*, 611 F.3d 692 (10th Cir. 2010); *Wyoming Farm Bureau Federation v. Babbitt*, 199 F.3d (10th Cir. 2000); Wolok 2002).

1.3.2 Section 10(j) Regulations

The Departments of Interior and Commerce share statutory authority to authorize the release of populations of listed species as experimental. While the ESA does not require promulgation of

[5] Both the Secretary of Commerce (NMFS) and the Secretary of the Interior (USFWS) are responsible for administering the ESA.

regulations before authorizing the release of a listed population as experimental, the Department of Interior did issue regulations in 1984 (50 CFR 17.8). Since then, the Department of Interior has issued numerous regulations designating experimental populations. The Department of Commerce has not issued regulations, and this designation of the continuing release of a listed species as experimental would be the first for NMFS. NMFS considered the relevant parts of the U.S. Fish and Wildlife Service (USFWS) rule when developing its proposed rule.

Congress intended to encourage the recovery of species through population reestablishment with the cooperation of state and local entities (H.R. Rep. No. 97-567 at 34 [1982] and S. Rep. No. 97-418, *supra* note 2 at 9 [1982] *in* Wolok 2002). In enacting section 10(j) of the ESA, Congress stated that a rule issued for a designated experimental population "should be viewed as an agreement among the Federal agencies, the state fish and wildlife agencies, and any landowners involved" (H.R. Rep. No. 97-567, *supra* note 2 at 34 [1982], *in* Wolok 2002). Further, the House Report on the section 10(j) amendment anticipated that incidental take of individuals of experimental populations may occur during the designation period while landowners are engaging in otherwise lawful activities (e.g., fishing) (*Forest Guardians v. U.S. Fish and Wildlife Service*, 611 F.3d 692 (10th Cir. 2010)).

1.3.3 Experimental Population Designation Criteria

The statutory criteria for designating an experimental population are in section 10(j) of the ESA, and state that the population, including any offspring, may be designated as experimental only when, and at such times as, the population is wholly separate geographically from nonexperimental populations of the same species (16 USC 1539(j)(1)). Additionally, the release must further the conservation of the endangered or threatened species. An additional consideration under section 10(j) is that an endangered or threatened species should be released to an area outside the species' current range, but within its historical range.

Designating anadromous fish as an experimental population has certain constraints due to the life cycle of these fish that migrate from freshwater streams to the ocean and back. The fish separate when returning to natal tributaries, but may mingle during downstream migration and in the ocean. Geographic separation can be achieved when a barrier such as a dam provides a means for physical separation.

In this potential designation, NMFS determined that the MCR steelhead reintroduced above Pelton Round Butte would be completely separate geographically for the part of their life spent above the dams. This is because the only way for anadromous fish to access habitat above the dams is through trap and haul measures for upstream passage. Conversely, once steelhead are moved below the dams,

they intermingle with other MCR steelhead in the ~~upper~~ lower Deschutes River basin, making it impossible to differentiate the fish. Therefore, NMFS would consider all MCR steelhead above Round Butte Dam to be in the experimental population, while all MCR steelhead below the dam would not be part of the experimental population and would receive the same treatment as fish listed as threatened under the ESA. Round Butte Dam provides a clear geographic separation, and ~~this~~ the area above the dam constitutes the action area described in Subsection 1.6, Description of the Action Area.

1.3.4 Essential and Nonessential Designations

When NMFS designates a population as experimental, it must identify the population and determine whether it is essential or nonessential to the continued existence of the listed species, based on best available information (16 USC 1539(j)(2)(B)). Although NMFS has not yet established ESA Section 10(j) regulations, it will consider the Department of Interior's regulatory definition of essential as an experimental population whose loss would be likely to appreciably reduce the likelihood of the survival of the species in the wild (50 CFR 17.80(b)). All of the USFWS's experimental populations are nonessential (16 USC 1539(j)) and are referred to as a nonessential experimental population (NEP).

Before authorizing the release of a population as an experimental population, the Secretary determines whether the population is essential to the continued existence of the species. The recovery scenario described in the MCR steelhead recovery plan states that the Deschutes Eastside and Westside populations should reach a viable status (NMFS 2009). A portion of the Westside population's habitat is blocked by Pelton Round Butte. Reintroduction of the experimental population would improve spatial structure for the Westside population because it would increase the amount of spawning habitat available to this population by releasing them into their historic habitat. Over time, NMFS expects that this would improve population numbers and help alleviate risk to their survival and recovery. While this release is a benefit to the overall recovery of the population, it is not necessary for this reintroduction to occur for the Westside population to reach viable status because sufficient spawning habitat is available in downstream tributaries such as the Warm Springs River and Shitike Creek. Additionally, the fish being released upstream of the dams are excess hatchery fish and are a composite of both Eastside and Westside populations. Therefore, they are not, on their own, considered to be necessary for the survival and recovery of the MCR DPS. In summary, steelhead being released are important in terms of strengthening the Cascades Eastern Slope major population group of MCR steelhead (Subsection 1.5.2, Need for Action), but are not essential to the survival and recovery of the DPS as a whole. Therefore, the population released above Round Butte Dam will be designated as nonessential.

1.3.5 Non-essential Experimental Population Designation ~~Criteria~~ and Regulatory Restrictions

Regulatory restrictions can be reduced under an NEP designation. Under the ESA, species listed as endangered or threatened are afforded protection primarily through the prohibitions of section 9 and the requirements of section 7. Section 9 of the ESA prohibits the take of endangered wildlife and also prohibits the violation of any 4(d) protective regulation established for a threatened species. The ESA defines take as to harass, harm, pursue, hunt, shoot, wound, trap, capture, or collect, or attempt to engage in any such conduct. ESA section 10(j) and section 4(d) provide authority to develop take prohibitions for nonessential experimental populations. These prohibitions, referred to in the implementing regulations as "special rules" provide a level of protection the Secretary deems necessary for each specific experimental population. As such, these prohibitions limit or restrict activities within the NEP designation area. Section 7 of the ESA outlines the procedures for Federal interagency cooperation to conserve listed species and to protect designated critical habitats. It mandates that all Federal agencies determine how to use their existing authorities to further the purposes of the ESA to aid in recovering listed species. It also states that Federal agencies will, in consultation with NMFS or USFWS, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Section 7 of the ESA does not affect activities undertaken on private lands unless they are authorized, funded, or carried out by a Federal agency.

In accordance with section 10(j) of the ESA, there would be no section 7(a)(2) consultation requirement for Federal actions (i.e., no consultation on Federal actions that may adversely affect individuals of the species). The NEP would be treated as a ~~candidate~~ proposed species, and the ESA consultation requirement for Federal actions would be for a conference, under section 7(a)(4) (i.e., triggered by Federal actions that may jeopardize the continued existence of the species). Additionally, no critical habitat can be designated for an NEP.

NMFS currently has implemented section 4(d) rules that include MCR steelhead. ~~These rules~~ This section of the ESA would ~~be modified~~ provide the basis for ~~by~~ the proposed section 10(j) rule to allow for incidental take of steelhead released above Round Butte Dam as long as the take is incidental to otherwise lawful activities.

1.4 Description of the Proposed Action

NMFS proposes to designate the continued release of MCR steelhead reintroduced to historically occupied areas above Round Butte Dam in the upper Deschutes River basin, Oregon, as an NEP. NMFS also proposes to terminate the NEP designation 12 years from the published date of the final

NEP rule ~~after three successive generations~~ (approximately three successive generations of adult steelhead passed above Round Butte Dam ~~12 years~~)[6] ~~of adult MCR steelhead have passed Pelton Round Butte~~. After the NEP designation is expired, steelhead in the reintroduction area would return to the protections of their threatened status under the ESA. It is assumed for purposes of EA analysis that MCR steelhead status would remain threatened during the NEP designation timeframe.

The donor MCR steelhead population in the action area is the captive-bred Round Butte Hatchery stock, which is propagated to support sport fisheries downstream of Pelton Round Butte, and is the source population for reintroducing the species to historical areas above Pelton Round Butte (ODFW 2003; ODFW and CTWSR 2008). Surplus Round Butte Hatchery steelhead stock that return to the hatchery are readily available for use in the reintroduction effort in the upper basin.

1.5 Purpose and Need for the Proposed Action

1.5.1 Purpose of the Action

The purpose of the proposed action is to support the ongoing release, reintroduction, and reestablishment of a self-sustaining population of MCR steelhead by encouraging the cooperative and comprehensive development of measures important to the conservation of this species in a defined, established timeframe (Subsection 1.3.1, Congressional History and Intent). This action will contribute to the recovery of MCR steelhead in the upper Deschutes River basin, and to overall recovery goals provided in the recovery plan for MCR steelhead (NMFS 2009).

1.5.2 Need for the Action

The need for the proposed action is to further the conservation of MCR steelhead by increasing the abundance, productivity, spatial structure, and diversity of a part of the major population group of MCR steelhead so that it becomes self-sustaining and contributes to recovery of the DPS. This need can be further defined from the perspectives of both the local landowners (non-Federal public and other private entities in the action area) and NMFS as the Federal agency responsible for the conservation of listed MCR steelhead.

[6] Based on 2 years of freshwater rearing, 1 year in saltwater, and up to 9 months of adult migration and holding in freshwater before spawning. NMFS recognizes that other life history patterns will be expressed by individuals released in the NEP area.

From the landowner's perspective, the NEP designation would meet the purpose and need to support reintroduction by providing a temporary reduction in regulatory restrictions and an incentive to complete and implement conservation plans and other conservation measures during a defined timeframe while the NEP designation is in effect (Subsection 1.3.1, Congressional History and Intent). From the Federal perspective, the NEP designation would meet the purpose and need to further conservation of the species through supporting reintroduction by affording NMFS flexibility and discretion to manage the conservation of this experimental. These combined landowner and Federal needs for the proposed action would be accomplished through incentive driven cooperative, comprehensive planning related to land management impacts on listed MCR steelhead in a defined timeframe, rather than relying on the uncertain timeframe.

The NEP designation would relieve the immediate burden of potential ESA liabilities for non-Federal public and private entities and the requirement to commit resources to achieve short-term conservation measures. It would also allow the time needed to attain resources and to develop meaningful long-term conservation actions focused on reintroduction success. The NEP designation would, thus, give NMFS more flexibility to develop comprehensive, long-term solutions for MCR steelhead in the action area and more discretion to help public and private entities create solutions for management of listed species.

The MCR steelhead DPS includes four major population groups based on ecoregion characteristics, life history types, and other geographic and genetic considerations. The major population groups are the Cascade Eastern Slope Tributaries, John Day Basin, Umatilla/Walla Walla, and Yakima Basin. Within the major population groups are 17 demographically independent extant (existing) populations and three extirpated (extinct) populations (Interior Columbia Basin Technical Recovery Team [ICTRT] 2003). The Cascade Eastern Slope Tributaries major population group contains two extirpated and five extant, demographically independent, populations. Three of the seven populations in the Cascade Eastern Slope Tributaries major population group occur in the Deschutes subbasin: Deschutes Eastside, Deschutes Westside, and the Crooked River (extirpated).

~~The ICTRT stated that a population must have a 5 percent or less chance of extinction over 100 years to be viable (ICTRT 2003). All the extirpated and existing populations are critical for proper functioning of the DPS, and they must be viable to contribute to recovery. None of the MCR steelhead major population groups are currently viable. Thus, all of the major population groups need recovery actions to achieve a 5 percent or lower risk of extinction over 100 years~~ The viability ratings of the component populations of each MCR steelhead major population group demonstrate that none of the four groups as a whole reach a low risk rating under the ICTRT criteria. For the Cascade Eastern Slope

Tributaries major population group to be considered at low risk, four of the five extant populations must be viable, but at present only two (Fifteen Mile and Deschutes Eastside) are viable (NMFS 2009).

The Cascade Eastern Slope Tributaries major population group has to have a 21 percent increase in its survival rate to achieve viability. While the Fifteenmile Creek and Deschutes Eastside demographically independent populations currently meet viability criteria with a low risk of extinction in a 100-year period, the Deschutes Westside demographically independent population has a 78 percent gap. The recovery plan states that MCR steelhead passage at Pelton Round Butte would help contribute to viability of the Deschutes Westside population (NMFS 2009).

The potential increase in abundance and productivity as a result of reintroduction above Round Butte Dam is needed to further the conservation of the species by increasing the viability of the Eastern Cascade major population group and contributing to recovery of the MCR steelhead DPS.

1.5.3 Purpose and Need Summary

The purpose and need for the proposed action of designating the continued release of MCR steelhead as a NEP can be summarized as supporting the release, reintroduction, and reestablishment of a self-sustaining population of MCR steelhead by encouraging the cooperative and comprehensive development of measures important to the conservation of this species in a defined timeframe. To meet the purpose and need to further the conservation of MCR steelhead and to support reintroduction, the proposed action would provide landowners with an incentive to complete and implement conservation measures and plans ~~during a defined timeframe~~ by a set time while the NEP designation is in effect. The NEP designation would meet the Federal need to support reintroduction by giving NMFS flexibility and discretion to manage the conservation of this reintroduced population.

1.6 Description of the Action Area

The action area includes those streams and associated watersheds above Round Butte Dam in central Oregon that historically supported MCR steelhead, excluding once-occupied portions of the Crooked River system above Bowman and Ochoco Dams (Figure 1-2). The action area is the same as the steelhead reintroduction area, which lies within the 7,820 mi^2 Upper Deschutes River basin, and is upstream of Round Butte Dam on the mainstem Deschutes River (Subsection 1.1.4, Experimental Populations under Section 10(j) of the ESA, Experimental Population Designation Criteria). Pelton Round Butte is a three-dam complex (Round Butte Dam, Pelton Dam, Reregulating Dam) located on the Deschutes River between RM 100 and RM 111, with Round Butte Dam at the upstream end.

The action area includes three watersheds: upper Deschutes, Crooked River, and Metolius River (Figure 1-5). Land ownership in the upper Deschutes watershed is predominantly public and is managed by the U.S. Forest Service (USFS) Deschutes National Forest (including the Three Sisters Wilderness Area) and Bureau of Land Management (BLM) Prineville District. Other public lands include city, county, and Oregon state parks. Land uses are primarily agriculture, wood products manufacturing, recreation, and tourism. Reservoirs within the upper Deschutes River include the Crane Prairie and Wickiup Reservoirs (Nelson and Kunkel 2001; Northwest Power and Conservation Council [NPCC] 2004). Land ownership in the Crooked River watershed is evenly split between public (the USFS Ochoco National Forest, the USFS Crooked River National Grasslands, and the BLM Prineville District) and private ownership. Land use is approximately 73 percent rangeland with grazing as the primary use; 21 percent forest; 4 percent irrigated agriculture; and 2 percent water, roads, and other types of uses (Crooked River Watershed Council 2008). The USFS (Deschutes National Forest) manages 68 percent of the Metolius River watershed, 28 percent is within the CTWSR, and 4 percent is within private ownership. Use of the watershed includes recreation, timber farming, and residential.

Historical records indicate that MCR steelhead used the Deschutes River up to Big Falls at approximately RM 132 and its tributary Whychus Creek; the Crooked River up to about RM 120; and two of that river's largest tributaries, Ochoco Creek and McKay Creek, before construction of Pelton Round Butte (Nehlsen 1995), Ochoco Dam, and Bowman Dam. Reintroduction using young hatchery-origin MCR steelhead has already begun in Whychus Creek and the lower Crooked River system. Past levels of MCR steelhead use of the Metolius River system are uncertain (NPCC 2004) and, unlike other species of anadromous fish being reintroduced above Pelton Round Butte (e.g., spring Chinook and sockeye salmon), any use of the Metolius system by steelhead will depend on natural colonization by fish straying from other areas.

In summary, the action area is the same as the geographic boundaries for the NEP, which represents the reintroduction area. This area includes the Deschutes River above Round Butte Dam, as well as the Crooked River between Round Butte and Bowman Dams, and the Metolius River.

1.7 Relationship to Other Plans and Policies

Many Federal, state, and local regulations and policies affect MCR steelhead in general, and those found in the Deschutes subbasin in particular. These policies also aid in meeting the goals of the recovery plan by addressing limiting factors (NMFS 2009). Major policies and plans are summarized below to assist the reviewer by adding additional context for the proposed NEP designation.

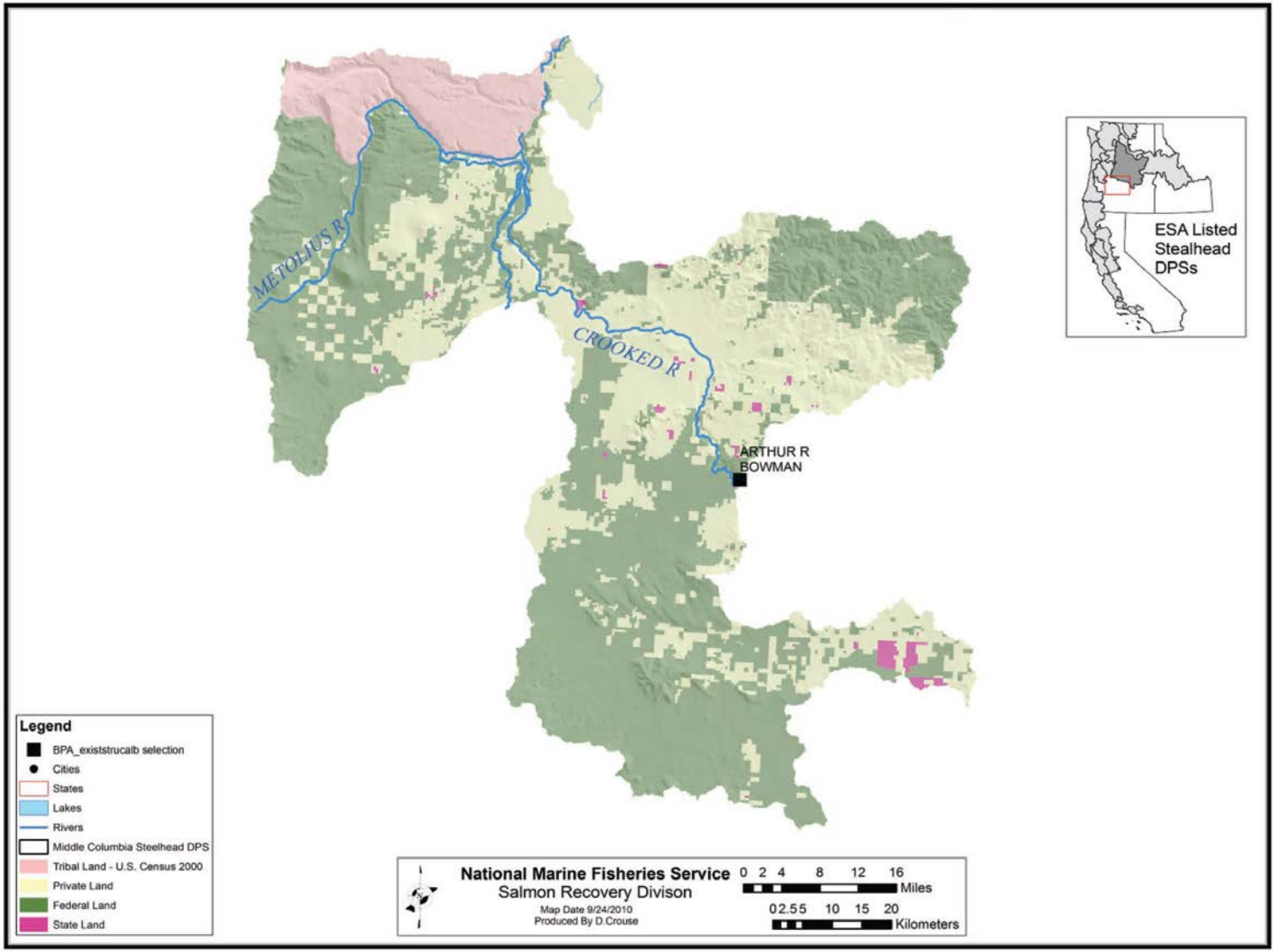


Figure 1-5 Land ownership in the MCR steelhead reintroduction area

Central Oregon Municipality Assessments

Central Oregon municipalities have undertaken assessments of actions they must implement under city codes and regulations (e.g., water use, road maintenance, storm runoff, noxious weed control, etc.) that may affect listed species including MCR steelhead. To date, these assessments have not resulted in formal plans or regulatory actions.

Deschutes Subbasin Plan (NPCC 2004)

The Deschutes Subbasin Plan[7] was developed to help direct Bonneville Power Administration funding of projects that protect, mitigate, and enhance fish and wildlife adversely impacted by the development and operation of the Columbia River hydropower system. The plan includes strategies to protect and restore the functions of natural processes within the subbasin and include direction to protect, restore, and expand core production areas for focal fish and wildlife species in the watershed. The strategies focus on restoring and reconnecting fragmented stream reaches; increasing instream flows and returning seasonal flows to more natural flow regimes; restoring overall watershed health to increase water infiltration, retention and permeability rates, and soil stability; and protecting critical habitats that currently provide high quality habitat conditions. The five aquatic focal species include Chinook salmon, MCR steelhead, redband trout, bull trout, sockeye salmon, and Pacific lamprey.

Pelton Round Butte Fish Passage Plan (PGE and CTWSR 2004)

PGE and CTWSR, co-owners of Pelton Round Butte, developed the Fish Passage Plan for evaluating the feasibility and implementation of a program to reestablish passage for anadromous and resident fish species at Pelton Round Butte. The Fish Passage Plan was developed in conjunction with relicensing Pelton Round Butte with FERC. The fish passage program is intended to accomplish specific goals and objectives consistent with Federal, state, and CTWSR fish and wildlife management plans relevant to the Deschutes River watershed. The 2004 Fish Passage Plan was further developed in FERC settlement negotiations concluded in 2004, and implements requirements set forth under sections 4(e), 10(j), and 18 of the Federal Power Act.

[7] Source: http://www.nwcouncil.org/fw/subbasinplanning/deschutes/plan/

Deschutes Water Alliance

The Deschutes Water Alliance was formed in 2004 to plan for long-term water resource management in the Deschutes subbasin. The Alliance includes the DBBC, CTWSR, Deschutes River Conservancy, and Central Oregon Cities Organization. The intent of the Alliance is to move stream flows toward a more natural hydrograph while securing and maintaining improved instream flows, securing and maintaining a reliable and affordable supply of water to sustain agriculture, and securing a safe, affordable, and high quality water supply for urban communities. The Alliance regularly meets to carry out its mission.

Deschutes Groundwater Mitigation Program

The Deschutes groundwater mitigation program was developed by the Oregon Water Resources Commission in 2002 as Oregon rules (Oregon Administrative Rules 690-505). It was intended to allow for water development while mitigating for the effects of groundwater withdrawals on surface water flows in the Deschutes subbasin. The program's rules govern the program and the allocation of new groundwater permits in the Deschutes subbasin. The approach taken is to offset withdrawals on a long-term volumetric basis. Groundwater permit applicants must obtain groundwater mitigation credits to receive a groundwater permit, thus mitigating for the applicants' annualized consumptive water use. The program recommends that credits be established through instream transfers, aquifer recharge, storage release, conserved water projects, and a mitigation bank. The mitigation rules set a cap on final orders for new groundwater permits in the Deschutes subbasin.

Oregon Department of Fish and Wildlife Fishing Regulations (http://www.dfw.state.or.us/fish/)

The mission of the ODFW is to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations. ODFW is charged by statute (ORS 506.036) to protect and propagate fish in the state. This includes direct responsibility for regulating harvest of fish, protection of fish, enhancement of fish populations through habitat improvement, and the rearing and release of fish into public waters. ODFW maintains hatcheries throughout the state to provide fish for program needs. Operation of these facilities is governed by the following:

- The Oregon Plan for Salmon and Watersheds, a comprehensive plan for the conservation of salmon and the protection of their habitat which coordinates the actions of all state agencies that affect aquatic resources.
- The Native Fish Conservation Policy, which provides a basis for managing hatcheries in balance with sustainable production of naturally produced native fish.

- The Fish Hatchery Management Policy, which provides general fish culture and facility guidelines and measures to maintain genetic resources of native fish populations spawned or reared in captivity.
- The Fish Health Management Policy, which describes measures that minimize the impact of fish diseases on the state's fish resources.

1.7.1 Hatchery and Genetic Management Plans (HGMPs)

HGMPs are described in NMFS's final salmon and steelhead 4(d) rule as a mechanism for addressing take of ESA-listed species that may occur as a result of artificial propagation activities. NMFS uses the information provided by these plans to evaluate effects on salmon and steelhead listed under the ESA. Completed HGMPs may also be used for regional fish production and management planning by Federal, state, and tribal resource managers.

1.7.2 Secretarial Order 3206

Secretarial Order 3206 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the ESA), issued by the Secretaries of Interior and Commerce, clarifies the responsibilities of the Departments of Interior and Commerce when actions taken under ESA and its implementing regulations affect, or may affect, tribal lands, tribal trust resources, or the exercise of tribal rights. Secretarial Order 3206 acknowledges the trust responsibility and treaty obligations of the United States toward recognized tribes and tribal members, as well as its government-to-government relationship with tribes. The order requires NMFS to carry out its ESA responsibilities in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and statutory missions of the Department of Commerce, and that strives to ensure that tribes do not bear a disproportionate burden for the conservation of listed species to avoid or minimize the potential for conflict and confrontation.

Under Secretarial Order 3206, NMFS must support tribal measures that preclude the need for conservation restrictions. The order requires that when restriction of tribal activity is necessary for conservation purposes NMFS must notify the tribal government and the notice shall include an analysis and determination that all of the following conservation standards have been met:

- The restriction is reasonable and necessary for conservation of the species at issue.
- The conservation purpose of the restriction cannot be achieved by reasonable regulation of non-tribal activities.
- The measure is the least restrictive alternative available to achieve the required conservation purpose.

- The restriction does not discriminate against tribal activities, either as stated or applied.
- Voluntary tribal measures are not adequate to achieve the necessary conservation purpose.

1.7.3 Federal Water Pollution Control Act (Clean Water Act)

The Clean Water Act (33 USC 1251 *et seq*.) is the principal Federal legislation directed at protecting water quality. States may implement certain provisions, as well as approve and review National Pollutant Discharge Elimination System applications, and establish total maximum daily loads for rivers, lakes, and streams. The states are responsible for setting the water quality standards needed to support all beneficial uses, including protection of public health, recreational activities, aquatic life, and water supplies.

For projects that result in a discharge of dredged or fill material into waters of the United States, a Clean Water Act section 404 permit from the U.S. Army Corps of Engineers permit is required. If a listed species may be affected by a project needing a section 404 permit, ESA section 7 consultation is required for the proposed permit to ensure that such actions are not likely to jeopardize the continued existence of any endangered or threatened species, including harm to habitat of listed species.

In Oregon, the Oregon Department of Environmental Quality (ODEQ) is responsible for carrying out its assumed Clean Water Act responsibilities. ODEQ manages its responsibilities through its water quality program rules adopted by the Environmental Quality Commission as part of Oregon Administrative Rules Chapter 340 and 468b.

1.7.4 Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act)

The Magnuson-Stevens Act (16 USC 1801 *et seq*.) is the principal law governing marine fisheries conservation and management in the United States. It was adopted to extend control of U.S. marine waters to 200 nautical miles beyond the U.S. coastline, to phase out foreign fishing within this zone, to prevent over-fishing, to allow over-fished stocks to recover, and to conserve and manage fishery resources. Under the Magnuson-Stevens Act, conservation and management measures are intended to prevent over-fishing while achieving optimum yield. In addition, the importance of fishery resources to fishing communities must be considered in fishery management decisions and these decisions should provide for the sustained participation of, and minimization of adverse impacts to, such communities (consistent with conservation requirements).

The Sustainable Fisheries Act of 1996 (Public Law 104-267) amended the Magnuson-Stevens Act to establish procedures that identify, conserve, and enhance essential fish habitat (EFH) for those species

regulated under a Federal fisheries management plan (i.e., commercially harvested species). Pursuant to the Magnuson-Stevens Act, the Pacific Fishery Management Council (PFMC) described and identified EFH for groundfish (PFMC 2005), coastal pelagic species (PFMC 1998), and Chinook, coho, and Puget Sound pink salmon (PFMC 1999). EFH is not designated for steelhead because they are not part of a fishery management plan. Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999).

1.7.4.1 Federal Forest and Land Management Plans

Administration of Federal lands within the action area is carried out under resource plans that include standards for restoration and protection of aquatic habitat. These plans include the Deschutes National Forest Land and Resource Management Plan (USFS 1990), Ochoco National Forest and Crooked River National Grassland Land and Resource Management Plan (USFS 1989), and the Two Rivers Land and Resource Management Plan (BLM 1986). Furthermore, where aquatic conservation standards in these plans were less protective, amendments by the Northwest Forest Plan (USDA and USDI 1994) or PACFISH (USDA and USDI 1995) served to strengthen fisheries habitat protection.

1.7.4.2 National Wild and Scenic River Plans

The Metolius, Deschutes, and Crooked Rivers are all classified as National Wild and Scenic Rivers in the reaches upstream of Round Butte Dam. The management plans for each of these federally managed segments support the goal of reintroducing anadromous fish to the area (USFS et al. 1996a, 1996b; BLM et al. 1992). The entire 100-mile length of the lower Deschutes River is a component of the Oregon State Scenic Waterways System, as well as a National Wild and Scenic River, Recreation River area. The Lower Deschutes River Wild and Scenic River Management Plan (BLM 1993) identifies recreation management goals for the lower Deschutes River. The recreation management goals for all segments of the lower river include management to maintain or enhance recreational fisheries values. The Metolius River from Head Springs down to Candle Creek and the Deschutes River from Market Road downstream to Lake Billy Chinook have also been given State Scenic Waterway designations and have similar management goals.

1.7.5 State Endangered, Threatened, and Sensitive Species Acts

Oregon has a state ESA (Oregon Administrative Rules 635-100-0001-0180) and a list of threatened and endangered fish and wildlife species separate from the Federal ESA list, which is posted on the ODFW website. ODFW is responsible for fish and wildlife under the Oregon ESA, and the Oregon Department of Agriculture is responsible for plants. The Oregon ESA identifies the agencies responsibility and

authority for preventing species extinctions. The Oregon ESA affects only the actions of state agencies on state-owned or leased lands.

1.7.6 ODFW Native Fish Conservation Policy (2002)

The purpose of this policy (Oregon Administrative Rules 635-007-0502 through -0509) is to ensure the conservation and recovery of native fish in Oregon, and focus on naturally produced native fish. This emphasis is designed to help support progress toward ESA delisting and to provide for long-term sustainability of native species and hatchery programs. The policy is based on the premise that "…locally adapted populations provide the best foundation for maintaining and restoring sustainable naturally produced native fish" (Oregon Administrative Rules 635-007-0505(2)). The intent of this policy is to provide a basis for managing hatcheries, fisheries, habitat, predators, competitors, and pathogens in balance with sustainable production of natural-origin fish.

1.7.7 Oregon Fish Hatchery Management Policy (2007)

The Oregon Fish Hatchery Management Policy (Oregon Administrative Rules 635-007-0542 through -0548) directs ODFW to develop hatchery program management plans for all hatchery programs consistent with Oregon's Native Fish Conservation Policy (Oregon Administrative Rules 635-007-0502 through 0509), which establishes the process for determining the use of hatcheries in specific watersheds. Hatchery management plans describe the program's objectives and type (harvest and/or conservation), fish culture operations, facilities operations, and monitoring and evaluation criteria. State hatchery HGMPs, developed under the July 2000 4(d) limit number five, are considered ODFW fish hatchery management plans, where applicable.

1.7.7.1 Oregon Department of Fish and Wildlife Fisheries Management Plans

ODFW Fisheries Management Plans for the management of the Metolius River (Fies et al. 1996a), Upper Deschutes River (Fies et al. 1996b), and Crooked River (Stuart et al. 1996) watersheds, including Lake Billy Chinook, all include policy statements in support of an anadromous fish reintroduction effort (see ODFW 2003 below). These management plans also include policy statements to protect, restore, and enhance fish habitat in the Deschutes River subbasin and tributaries. On December 12, 2003, the Oregon Fish and Wildlife Commission adopted amendments to these plans to provide management direction for anadromous fish species in the Deschutes, Crooked, and Metolius River systems, including areas upstream of Pelton Round Butte (ODFW 2003).

1.7.7.2 CTWSR Fisheries and Land Management Plans

The Deschutes River Subbasin Salmon and Steelhead Production Plan (ODFW and CTWSR 1990) was developed in accordance with the Northwest Power Planning and Conservation Council's Columbia River Basin Fish and Wildlife Plan. Its purpose is to guide the Northwest Power Planning and Conservation Council's adoption of future salmon and steelhead enhancement projects in the Deschutes River system. The plan also summarizes agency and tribal management goals and objectives, documents current management efforts, identifies problems and opportunities associated with increasing salmon and steelhead numbers, and presents preferred and alternative management strategies.

The Integrated Resources Management Plan I for the Forested Area (IRMP I) (CTWSR and Bureau of Indian Affairs 1992) was created to guide the development and use of the forested sections of the CTWSR. One goal of the plan, the riparian resource management goal, identifies the need to "manage watersheds to protect the unique and valuable characteristics of riparian areas and improve water quality, aquatic habitat, and other water-dependent resources." Several other resource goals in the plan are intended to guide the management of fish and aquatic resources on forested lands off the CTWSR to protect specific resource components, including biological diversity; threatened, endangered, and sensitive species; and wild and scenic rivers. The Integrated Resources Management Plan for the Non-forested Areas (IRMP II) (CTWSR and Bureau of Indian Affairs 1999) also identifies specific goals for the protection and management of water quality, riparian areas, and resident and anadromous fish. The IRMP II contains elements intended to provide for the protection and enhancement of threatened and endangered fish and aquatic species.

CTWSR has also developed the Warm Springs National Fish Hatchery Operation Plan (CTWSR and USFWS 2007). The goals of this operational plan are to operate the Warm Springs National Fish Hatchery cooperatively to protect remaining wild fish populations and preserve their genetic integrity, maintain the existing physical characteristics of Warm Springs River anadromous fish stocks and their production above the hatchery, and not impact fish populations below the hatchery.

The Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs, and Yakima Tribes (Columbia River Intertribal Fish Commission [CRITFC] 1995) provides a framework to restore Columbia River salmon, describing the cultural, biological, legal, institutional, and economic context for the region's salmon restoration efforts. Goals of the tribal salmon restoration plan include the following:

1. Restoring anadromous fishes to the rivers and streams that support the historical cultural and economic practices of the tribes
2. Emphasizing strategies that rely on natural production and healthy river systems
3. Protecting tribal sovereignty and treaty rights
4. Reclaiming the anadromous fish resource and the environment on which it depends for future generations

Anadromous Fish and Bull Trout Management in the Upper Deschutes, Crooked, and Metolius River Subbasins (ODFW 2003)

The purpose of this document is to amend the Upper Deschutes, Crooked, and Metolius River subbasin plans with regard to anadromous fish management; specifically, the plan addresses the reintroduction of anadromous fish into the upper Deschutes River basin above Pelton Round Butte. The plan provides fish management direction within the upper Deschutes, Crooked, and Metolius River watersheds through specific actions including restoring and improving habitat, developing angling regulations, and hatchery operations. This plan modifies these watershed plans by presenting specific management operations for managing summer steelhead, spring Chinook, sockeye salmon, bull trout, and Pacific lamprey in the upper Deschutes River basin upstream from Pelton Round Butte.

The Oregon Plan for Salmon and Watersheds

The Oregon Plan for Salmon and Watersheds (Oregon Plan) (http://www.oregon.gov/OPSW/archives/archived.shtml#Anchor-Plan) is a statewide initiative that relies on volunteerism and local watershed councils to restore healthy watersheds that support the economy and quality of life of Oregon. It has four key elements, with success depending on the strong implementation of each. These elements include the following:

- Coordinated state and Federal agency and tribal actions to support private and voluntary restoration efforts, effectively implement regulatory programs, soundly manage public lands, and promote public education and awareness about watersheds and salmon
- Voluntary restoration actions by private landowners with support from citizen groups, businesses, and local government
- Monitoring watershed health, water quality, and salmon recovery to document existing conditions, track changes, and determine the impact of programs and actions
- Scientific oversight to evaluate effectiveness and guide needed changes

Multiple local groups are currently active in the areas where anadromous fish are to be reintroduced, and are working with landowners to improve habitats that will be important to these fish over the long run. These groups include, but are not limited to, the Upper Deschutes Watershed Council and the Crooked River Watershed Council.

2 ALTERNATIVES

This Environmental Assessment (EA) describes and evaluates four alternatives for NMFS to consider prior to designating the continued release of MCR steelhead into areas above Round Butte Dam as an NEP under section 10(j) of the ESA. This EA assesses the environmental impacts of the alternatives relative to the affected environment (Section 3), and relative to the No-action Alternative. Three additional alternatives were considered, but were not analyzed because they did not meet the purpose and need for the action. These are discussed in Subsection 2.5, Alternatives Considered but not Analyzed in Detail. Finally, a table summarizing the key components of each alternative is provided at the end of this section (Table 2-1).

2.1 Alternative 1, No-action Alternative

Under the No-action Alternative, NMFS would not designate MCR steelhead released into areas above Round Butte Dam as an NEP, which means that their threatened listing would remain in effect throughout the DPS both upstream and downstream of Round Butte Dam. ESA section 9 and section 4(d) take prohibitions for the MCR steelhead DPS would remain in effect. Section 7 requirements of Federal agencies to consult with NMFS to ensure that their actions are not likely to jeopardize the continued existence of the MCR steelhead or to result in destruction or adverse modification of their critical habitat would also apply. Restoration of a self-sustaining population of MCR steelhead through fish passage and other mitigation measures in the Pelton Round Butte license, the co-manager's reintroduction plan (ODFW and CTWSR 2008), and the Federal MCR steelhead recovery plan (NMFS 2009) would continue through use of hatchery-origin fish in the upper Deschutes River basin for reintroduction above Pelton Round Butte under the No-action Alternative.

NMFS expects no changes or modifications to planned or ongoing Federal actions or actions associated with implementation of the Pelton Round Butte license in the action area under Alternative 1. As described in Subsection 1.2.2, Species Listings under the Endangered Species Act, the central Oregon irrigation districts that are members of the DBBC and the City of Prineville (HCP proponents) are developing an HCP for MCR steelhead. The HCP would include conservation measures to address impacts of HCP proponent actions on MCR steelhead and their habitat, and would be part of the basis for a potential ESA section ~~7~~10 incidental take permit (ITP) issued by NMFS. Because of the current level of interest and effort to develop an HCP to be included with an ITP application, NMFS assumes that the HCP would continue to be developed under the No-action Alternative, but that scheduled completion and ITP issuance would remain uncertain. With no NEP designation, it is less likely that the

HCP would be completed ~~in a defined timeframe~~ by a set time in contrast to the expected outcome under the action alternatives.

Several irrigation districts have already completed a number of important water conservation measures and would likely continue to pursue available opportunities to limit potential liabilities and to implement these measures under Alternative 1. Additionally, Central Oregon municipalities are assessing their potential ESA liabilities from activities implemented under city codes and regulations (e.g., water use, road maintenance, storm water runoff, and noxious weed control). These assessments would continue under the No-action Alternative due to their ongoing, potential ESA liabilities; however, scheduled completion would remain uncertain. When completed, such assessments should lead to development of conservation measures that would help conserve aquatic resources, including MCR steelhead habitat, and would support the reintroduction effort.

In contrast to the lack of incentive to prepare an HCP or other comprehensively developed, meaningful conservation measures focused on reintroduction success within a defined timeframe as under the action alternatives, Alternative 1 would provide NMFS with an opportunity to measure the progress of reintroduction over both the long and short terms. This is because Alternative 1 provides an undefined timeframe to measure the success of reintroduction absent a defined, NEP designation period as under the action alternatives. While the listing status remains constant during this timeframe, NMFS would continue to monitor reintroduction success with the assistance of other agencies, which would result in an understanding of what modifications and/or additional conservation efforts may be needed to improve the status, distribution, and life history factors of MCR steelhead in the action area. This outcome under Alternative 1 would continue to support the ongoing reintroduction effort, thereby promoting conservation of the species.

It is likely that without the NEP designation, there would be local opposition to the ongoing reintroduction. Additionally, the lack of an NEP designation would provide less incentive to develop conservation measures for MCR steelhead in a defined timeframe. This lack of incentive would hinder NMFS's flexibility and discretion in managing MCR steelhead recovery and conservation under Alternative 1 because entities would have no incentive to conduct comprehensive, long-term planning and implementation of conservation measures integrated and cooperatively planned with other measures in the action area within a defined timeframe, as opposed to the timeframe provided by a defined NEP designation period under the action alternatives.

2.1.1 Take

Under the No-action Alternative, ESA section 9 take prohibitions and associated section 4(d) take ~~prohibitions~~ limits for MCR steelhead would remain in effect throughout their range.

2.1.2 Monitoring

As a requirement under its Federal license to operate Pelton Round Butte, PGE and CTWSR of Oregon will conduct monitoring over the 50-year term of the license. They will collect data to gauge long-term progress of the reintroduction program and to provide information for decision-making and adaptive management for directing the reintroduction program. Fish passage, fish biology, aquatic habitat, and hatchery operations will be the primary focus of the monitoring (PGE and CTWSR 2004; ODFW and CTWSR 2008).

Fish passage monitoring will focus on addressing a variety of issues important to successful reintroduction. These issues consist of measuring fish passage efficiency, which includes smolt reservoir passage, collection efficiency at the fish collection facility, smolt injury and mortality rates, adult collection, and adult reservoir passage to spawning areas. Passive integrated transponder tags and radio tags will be used to evaluate and monitor fish passage effectiveness. Biological evaluation and monitoring will concentrate on adult escapement and spawning success, competition with resident species, predation, disease transfer, smolt production, harvest, and sustainability of natural runs. Habitat monitoring will focus on long-term trends in the productive capacity of the reintroduction area (e.g., habitat availability, habitat effectiveness, riparian condition) and natural production (the number, size, productivity, and life history diversity) of steelhead in the reintroduction area above Round Butte Dam.

Monitoring at the fish hatchery will focus on multiple issues important to the quality of fish collected and produced for use in the reintroduction program. ODFW will be primarily responsible for monitoring hatchery operations. This will consist mainly of broodstock selection; disease history and treatment; pre-release performance such as survival, growth, and fish health by life stage; the numerical production advantage provided by the hatchery program relative to natural production; and success of the hatchery program in meeting conservation program objectives.

2.2 Alternative 2, Proposed Action: Designate an NEP for MCR Steelhead for Three Generations (approximately 12 Years) of Fish Returning above Pelton Round Butte

Subsequent to NMFS's May 18, 2011 (76 Fed. Reg. 28715) publication of the proposed rule and notice of the draft EA being available for public comment, a number of adult steelhead that had been outplanted as fry in the NEP area returned to the Pelton fish trap and were transported and released in the NEP area. This prompts the beginning of the 12-year period for the experimental population designation, as described in this subsection. Thus, the 12-year NEP period begins on the date of publication of the final NEP rule. One year before the NEP expires, NMFS will issue a notice in the Federal Register to inform the public that the NEP is nearing expiration.

Under the Proposed Action, NMFS would use rulemaking to designate all MCR steelhead released into historically occupied habitat above Round Butte Dam as an NEP. The NEP action area would extend upstream from Round Butte Dam and would include the Metolius River and tributaries, Deschutes River and tributaries from Lake Billy Chinook upstream to Big Falls and the Crooked River and tributaries upstream to Bowman and Ochoco Dams (Figure 1-4). This action area is the same as the steelhead reintroduction area (Subsection 1.6, Description of the Action Area; Subsection 1.3.3, Experimental Population Designation Criteria). Although currently listed as threatened under the ESA, MCR steelhead that occur in areas upstream of Round Butte Dam would be considered a species proposed to be listed.

As under Alternative 1, threatened status would continue in effect for all MCR steelhead ~~that naturally produce~~ in areas downstream of Pelton Round Butte or are used for broodstock at Round Butte Hatchery and whose offspring are not used for reintroduction purposes. The reintroduction program is independent of the potential NEP designation. Restoration of a self-sustaining population of MCR steelhead through implementation of fish passage and other mitigation measures in the Pelton Round Butte license, the co-manager's reintroduction plan (ODFW and CTWSR 2008), and the Federal MCR steelhead recovery plan (NMFS 2009) would continue through use of hatchery-origin fish in the upper Deschutes River basin for reintroduction above Pelton Round Butte under Alternative 2.

NMFS will terminate the NEP designation 12 years from the publication date of the final NEP rule. This equates to three successive generations of steelhead passed above Round Butte Dam.[8] ~~The 3-generation succession would begin with the first year of adult steelhead passage and would end when adults from the third generation of spawners are passed above Round Butte Dam (Subsection 1.4, Description of the Proposed Action).~~ The criteria for passing adult MCR steelhead are discussed in Subsection 1.2.1, MCR Steelhead Reintroduction.

~~Based on the criteria for adult passage (Subsection 1.2.1, MCR Steelhead Reintroduction), it is not definitely known when adult MCR steelhead will first be passed above Pelton Round Butte. However, the criteria for considering adult passage were satisfied in 2010. Therefore, the Fish Committee could decide to pass adult MCR steelhead as soon as late 2011 or early 2012 when the first adults from releases in the reintroduction area begin returning to the Pelton fish trap below Pelton Round Butte. NMFS assumed that passage of three successive generations, beginning after the first year of adult passage, would require approximately 12 years, based on steelhead taking 4 years from birth to return to rivers to spawn. For this EA, NMFS considers that the term of the NEP that includes three generations of adult steelhead returns would start the year the NEP becomes effective because the criteria for the Fish Committee to begin contemplating adult passage were satisfied in 2010. This means that the term of the NEP under Alternative 2 would be 12 years. However, this may represent a best-case scenario. If, for example, adult steelhead first pass Pelton Round Butte in 2015, the NEP would be designated for 17 years. Therefore, the range of for expiration of the NEP designation would be approximately 12 to 17 years after designation. If, within 5 years of issuance of the NEP final rule, adult steelhead have not yet been passed upstream of Pelton Round Butte, NMFS would then evaluate whether the NEP designation should continue to be in effect.~~

NMFS established ~~the approximate~~ the 12-year timeframe ~~estimate~~ to provide a scientifically reasonable amount of time to collect information on three generations of returning adults. Three generations are expected to account for variable environmental conditions ~~(both ocean and freshwater)~~ experienced by the NEP during the designation. Additionally, three generations would provide a foundation for understanding the type of conservation measures that would provide strong support for the reintroduction effort. For example, once steelhead spawning locations are identified, they can be

[8] This is based on 2 years of freshwater rearing, 1 year in saltwater, and up to 1 year of adult migration and holding.

best protected by developing corollary conservation measures. When the NEP designation expires, steelhead in the experimental population area will have all the protections of the rest of the MCR steelhead DPS. For purposes of this analysis, NMFS assumes that this status would remain as threatened.

During the NEP designation period, no changes or modifications to planned or ongoing Federal actions or actions associated with the Pelton Round Butte license would be expected in the action area. As under Alternative 1, central Oregon municipalities would continue to assess their potential ESA liabilities from activities implemented under city codes and regulations because of their ongoing, potential ESA liabilities (e.g., water use, road maintenance, storm water runoff, and noxious weed control). NMFS anticipates that these assessments will lead to development of measures that, if determined necessary, would help conserve aquatic resources, including MCR steelhead habitat, and would support the reintroduction effort.

This alternative would also provide non-Federal public and private entities with certainty regarding the ~~timeframe~~ set time of the NEP designation so that they can plan to implement conservation measures cooperatively developed ~~measures~~ with NMFS during the ~~in an approximate~~ 12-year period. NMFS anticipates that the ~~approximate~~ 12-year ~~timeframe of the~~ NEP designation would encourage cooperative and comprehensive planning between NMFS and non-Federal public and private entities in the action area so that conservation measures would be developed and implemented while the NEP designation is in effect (Subsection 1.5, Purpose and Need for the Proposed Action).

NMFS assumes that ongoing development of the HCP (Subsection 1.2.2, Species Listings under the Endangered Species Act) would continue under this alternative because there is no reason for the current level of effort on the ITP application to change. Additionally, several irrigation districts have already completed a number of important water conservation measures and would likely continue to pursue available opportunities to implement these measures under Alternative 2 while the NEP designation is in effect

The distinction between Alternative 1 and Alternative 2 in terms of HCP development and completion of the ITP application is the incentive to complete the HCP in a shorter timeframe. NMFS anticipates that the HCP proponents would aim to complete the HCP within the 12-year timeframe of Alternative 2 to avoid potential liabilities when fish in the experimental population area would again return to the protections of their threatened status under the ESA. NMFS also assumes that a 12-year period with limited ESA section 9 liabilities would provide the HCP proponents with enough time to develop and complete the HCP, dependent upon available funding for the HCP completion. In contrast to

Alternative 1, development and implementation of conservation measures under Alternative 2 are more likely to occur in the ~~an approximate~~ 12-year timeframe with the NEP designation.

~~After the third generation of adult MCR steelhead return to Pelton Round Butte and are passed upstream, the NEP designation expires.~~ Upon expiration of the NEP designation, fish in the experimental population area would again return to the protections of their threatened status under the ESA.ESA take prohibitions in general and section 7 consultation requirements of Federal agencies whose activities may affect MCR steelhead will be in effect.

Allowing for three generations of steelhead production above Pelton Round Butte under the NEP designation should allow NMFS to meet the purpose and need for the proposed action by providing a substantial measure of the reintroduction's progress and additional information on conservation measures needed to minimize and mitigate for impacts on MCR steelhead and help support the reintroduction program. The ~~approximate~~ 12-year period based on monitoring reintroduction success would be long enough to complete planning and secure funding for conservation measures to mitigate for the effects of the HCP proponents' actions and other, ongoing conservation efforts in the action area. The ~~approximate~~ 12-year period would also support the ongoing reintroduction effort compared to other action alternatives, thereby promoting conservation of the species. For example, once NMFS and the HCP proponents have an understanding of the conservation measures needed to support the reintroduction, they can develop conservation measures aimed at supporting the reintroduction by mitigating for specific landowner project effects. Consequently, with the timeframe for HCP development under Alternative 2, appropriate conservation measures to address the HCP proponents' potential take would be more focused to support the reintroduced population than under the more limited timeframes of the other action alternatives.

Although it is not certain if Alternative 2 would provide as much time as Alternative 1 to collect adequate information of the success of reintroduction, Alternative 2 would afford NMFS with greater flexibility and discretion to manage MCR steelhead conservation than Alternative 1 because of the incentive to foster cooperative, comprehensive, and integrated conservation planning in a defined timeframe. NMFS does not anticipate that such development of conservation measures would occur in the uncertain timeframe under Alternative 1 because there is no incentive to complete measures by a specific time. Therefore, while conservation measures may be developed in the short term, with no NEP designation, it is less likely that the HCP, or other meaningful conservation measures focused on reintroduction success, would be completed in a defined timeframe in contrast to the expected outcome under the action alternatives.

2.2.1 Take

ESA section 3(19) defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." ~~If~~ Under this alternative, NMFS designates MCR steelhead within the experimental population area as an NEP, and take would be allowed provided that the taking is unintentional, not due to negligent conduct, and incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Examples of otherwise lawful activities include recreation, agriculture, forestry, municipal usage, and other, similar activities, which are carried out in accordance with Federal, state, and local laws and regulations. NMFS expects that levels of incidental take in the NEP designation area would be low because ongoing conservation measures in the action area would minimize adverse effects on steelhead and their habitat and would continue to support ongoing reintroduction efforts and recovery plan goals.

2.2.2 Monitoring

Monitoring activities under Alternative 2 would be the same as those described under Alternative 1.

2.3 Alternative 3: Expire NEP Designation after 7 Years

Under this alternative, NMFS would use rulemaking to designate all MCR steelhead released into historically occupied habitat above Pelton Round Butte as an NEP for 7 years from the date of final NEP designation rule issuance. NMFS chose the 7-year timeframe because it represents a reasonable period to engage in comprehensive and coordinated conservation planning between landowners and NMFS and a possible timeframe to develop and implement conservation measures resulting from such planning. NMFS would terminate the NEP designation after this 7-year period. The NEP action area would be the same as under Alternative 2.

Although currently listed as threatened under the ESA, an NEP designation would change the status of MCR steelhead that occur in areas upstream of Round Butte Dam to a nonessential experimental population, and they would be considered a species proposed to be listed. For purposes of analysis, NMFS assumes that the listing status of MCR steelhead would remain as threatened. This means that ESA section 9 take prohibitions and section 7 consultation requirements of Federal agencies whose activities may result in take of the reintroduced population of MCR steelhead would become applicable after 7 years.

As under Alternative 1, threatened status under the ESA would continue in effect under Alternative 3 for all MCR steelhead ~~that naturally produce~~ in areas downstream of Pelton Round Butte or are used

for broodstock at Round Butte Hatchery and whose offspring are not used for reintroduction purposes. The reintroduction program is independent of the potential NEP designation. Restoration of a self-sustaining population of MCR steelhead through implementation of fish passage and other mitigation measures in the Pelton Round Butte license, the co-manager's reintroduction plan (ODFW and CTWSR 2008), and the Federal MCR steelhead recovery plan (NMFS 2009) would continue through use of hatchery-origin fish in the upper Deschutes River basin for reintroduction above Pelton Round Butte (Subsection 3.1.1.1, MCR Steelhead under Status) under Alternative 3.

As under Alternative 1, NMFS expects no changes or modifications to planned or ongoing Federal actions or actions associated with implementation of the Pelton Round Butte license in the action area under Alternative 3. Also as described under Alternative 1, central Oregon municipalities would continue to assess their potential ESA liabilities from activities implemented under city codes and regulations (e.g., water use, road maintenance, storm water runoff, and noxious weed control). NMFS anticipates that these assessments would lead to development of measures that, if determined necessary, would help conserve aquatic resources, including MCR steelhead habitat, and would support the reintroduction effort.

This alternative would also provide non-Federal public and private entities with certainty regarding the timeframe of the NEP designation so that they can plan accordingly to implement cooperatively developed measures with NMFS in a defined, 7-year period. NMFS anticipates that the 7-year timeframe of the NEP designation would encourage cooperative and comprehensive planning between NMFS and non-Federal and private entities in the action area so that conservation measures would be developed and implemented while the NEP designation is in effect (Subsection 1.5, Purpose and Need for the Proposed Action).

NMFS assumes that the ongoing development of the HCP (Subsection 1.2.2, Species Listings under the Endangered Species Act) would continue under this alternative because there is no reason for the current level of effort on the ITP application to change. Additionally, several irrigation districts have already completed a number of important water conservation measures and would likely continue to pursue available opportunities to limit potential liabilities and to implement these measures under Alternative 3 while the NEP designation is in effect.

The distinction between Alternative 1 and Alternative 3 in terms of HCP development is the timeframe associated with gathering information on the reintroduction, development of conservation measures, and completion of the HCP and ITP application. NMFS anticipates that the HCP proponents would aim to complete the HCP within the 7-yeartimeframe of Alternative 3 to avoid potential ESA liabilities

when the NEP designation expires. In contrast to Alternative 1, development and implementation of conservation measures under Alternative 3 are more likely to occur in a 7-year timeframe with the NEP designation. However, this goal may not be realized if funding is not readily available in the 7-year term for HCP development.

This alternative would meet the purpose and need for the proposed action by encouraging completion of HCP development and ongoing central Oregon municipality assessments of potential impacts within a defined, 7-year timeframe (Subsection 1.5, Purpose and Need for the Proposed Action). This alternative could also return protected status under the ESA to the reintroduced MCR steelhead population faster than Alternative 2 (i.e., after 7 years versus after three successive generations of steelhead have passed Pelton Round Butte, which would be approximately 12 years).

Unlike Alternative 2, the NEP timeframe would have no relationship to the reintroduced population's performance, substantially reducing NMFS's ability to measure the progress of the reintroduction effort and to assess the effect of conservation endeavors by non-Federal private and public entities. Though ESA section 9 take prohibitions and section 7 consultation requirements would be eased for 7 years, this would substantially reduce the time available to complete planning and secure funding for conservation measures. The conservation measures would mitigate for the effects of HCP proponents' actions and other, ongoing conservation efforts in the action area and would support the reintroduction effort compared to Alternative 2 (~~approximately~~ 12 years), thereby promoting conservation of the species. For example, once NMFS and the HCP proponents understand and agree on the conservation measures needed to support the reintroduction, they can develop conservation measures that will minimize specific landowner project effects. Consequently, with the longer timeframe for HCP development under Alternative 2, appropriate conservation measures to address the HCP proponents' potential take would be more focused to support the reintroduced population than under the more limited timeframe of Alternative 3. Alternative 3 would not provide as much time as Alternative 2 to collect adequate information on the success of reintroduction or the effects of the HCP proponents' actions and other actions in the area and to determine how they might support or hinder reintroduction. This would allow a little less than two generations of information to be collected. This may not be a sufficient time to ensure that any short term variability in environmental and biological factors can be addressed. Alternative 2 would afford NMFS with greater flexibility and discretion to manage MCR steelhead conservation than Alternative 3.

The outcome of Alternative 3 would meet the purpose and need for the proposed action by providing support for the reintroduction effort through cooperative and comprehensive development of

conservation measures for MCR steelhead in a defined 7-year timeframe when compared to the No-action Alternative. However, while NMFS would have more flexibility and discretion in managing conservation for the reintroduced MCR steelhead in a defined timeframe when non-Federal public and private entities are motivated to complete conservation measures, there would not be as much time to develop information used as a basis for conservation measures and supporting efforts for reintroduction as under Alternative 2.

2.3.1 Take

Take prohibitions under Alternative 3 would be the same as those described under Alternative 2.

2.3.2 Monitoring

Monitoring activities under Alternative 3 would be the same as those described under Alternative 1.

2.4 Alternative 4: 5-Year NEP Designation and Subsequent Reevaluation

Under this alternative, NMFS would use rulemaking to designate all MCR steelhead reintroduced to historically occupied habitat above Pelton Round Butte as an NEP for 5 years from the date of final designation rule issuance. NMFS would not necessarily terminate the NEP designation after this 5-year period, but would reevaluate the designation's effectiveness for conserving the species at this time. Furthermore, NMFS would consider how much progress is being made on developing and implementing conservation measures at the end of the 5-year NEP designation period. If non-Federal public and private entities are making progress on development of measures, and the measures can be completed in a reasonable amount of time after the NEP designation is extended, then NMFS would be likely to extend the NEP designation to allow completion of work and collaboration with NMFS on conservation measures. This reevaluation could result in returning fish in the experimental population area to the MCR steelhead DPS. As under Alternative 1, NMFS assumes, for purposes of analysis, that this status would remain as threatened.

The NEP action area under Alternative 4 would be the same as Alternative 2. Although currently listed as threatened under the ESA, and NEP designation would apply to MCR steelhead that occur in areas upstream of Round Butte Dam, and they would be considered a species proposed to be listed. As under Alternative 1, threatened status under the ESA would continue in effect for all MCR steelhead ~~that naturally produce~~ in areas downstream of Pelton Round Butte or are used for broodstock at Round Butte Hatchery and whose offspring are not used for reintroduction purposes. The reintroduction program is independent of the potential NEP designation. Restoration of a self-sustaining population of

MCR steelhead through implementation of fish passage and other mitigation measures in the Pelton Round Butte license, the co-manager's reintroduction plan (ODFW and CTWSR 2008), and the Federal MCR steelhead recovery plan (NMFS 2009) would continue through use of hatchery-origin fish in the upper Deschutes River basin for reintroduction above Pelton Round Butte (Subsection 3.1.1.1, MCR Steelhead under Status) under Alternative 4.

As under Alternative 1, NMFS expects no changes or modifications to planned or ongoing Federal actions or actions associated with impellent the Pelton Round Butte license in the action area. Also as under Alternative 1, central Oregon municipalities would continue to assess their potential ESA liabilities from activities implemented under city codes and regulations (e.g., water use, road maintenance, storm water runoff, and noxious weed control). NMFS anticipates that these assessments will lead to development of measures that, if determined necessary, would help conserve aquatic resources, including MCR steelhead habitat, and would support the reintroduction effort.

This alternative would also provide non-Federal public and private entities with certainty regarding the timeframe of the NEP designation so that they can plan accordingly to implement cooperatively developed measures with NMFS in a defined, 5-year period. The 5-year timeframe of the NEP designation would likely encourage cooperative and comprehensive planning between NMFS and non-Federal and private entities in the action area so that conservation measures would be planned and implemented while the NEP designation is in effect (Subsection 1.5, Purpose and Need for the Proposed Action).

NMFS assumes that ongoing development of the HCP (Subsection 1.2.2, Species Listings under the Endangered Species Act) would continue under this alternative because there is no reason for the current level of effort on the ITP application to change. Additionally, several irrigation districts have already completed a number of important water conservation measures and would likely continue to pursue available opportunities to limit potential liabilities and to implement these measures under Alternative 4 while the NEP designation is in effect.

The distinction between Alternative 1 and Alternative 4 in terms of HCP development is the incentive to complete the HCP and ITP application in a certain timeframe. NMFS anticipates that the HCP proponents would aim to complete the HCP within the 5-year timeframe of Alternative 4 to avoid potential liabilities when the MCR steelhead are returned to the protections of their threatened status under the ESA. In contrast to Alternative 1, development and implementation of conservation measures under Alternative 4 are more likely to occur in an approximate 5-year timeframe with the NEP

designation. However, this goal may not be realized if funding is not readily available in the 5-year term for HCP development.

This alternative is directed to meet the purpose and need for the proposed action by encouraging completion of HCP development and ongoing central Oregon municipality assessments of potential impacts within a defined, 5-year timeframe (Subsection 1.5, Purpose and Need for the Proposed Action). This alternative could result in conservation measures being implemented more quickly than under any of the other alternatives. It is plausible that the HCP would be developed and implemented under ITP issuance within 5 years of an NEP designation and that central Oregon municipalities would complete land management assessments and implement plans to help conserve aquatic resources within this 5-year period. However, such implementation is more uncertain under this alternative than under Alternative 2 or Alternative 3 where more time for completion would be afforded while the NEP designation is in effect, if needed.

NMFS would reevaluate the status of the reintroduced population after 5 years to determine if the NEP designation should be extended. Alternatively, NMFS may find that the status of the released population and progress on conservation efforts are such that protective status under the ESA threatened listing should be restored. If so, this alternative could also return protected status under the ESA to the reintroduced MCR steelhead population more quickly than Alternative 2 or Alternative 3 (i.e., after 5 years and 7 years, respectively, versus after three successive generations of steelhead have passed Pelton Round Butte, or ~~approximately~~ 12 years).

As under Alternative 3, the NEP designation expiration under Alternative 4 would have no relationship to the reintroduced population's performance, even further limiting NMFS's ability to measure the reintroduction progress and providing little time to evaluate the effectiveness of ongoing and recently implemented conservation measures by non-Federal public and private entities. Though ESA section 9 take prohibitions and section 7 consultation requirements would be eased for 5 years, this would substantially reduce the time period to complete planning and secure funding for conservation measures. The conservation measures would mitigate for the effects of the HCP proponents' actions and other, ongoing conservation efforts in the action area and would support the ongoing reintroduction effort compared to Alternative 2 (~~approximately~~ 12 years), thereby promoting conservation of the species. Repeating the example under Alternative 3, once NMFS and the HCP proponents understand and agree on the conservation measures needed to support the reintroduction, they can develop conservation measures aimed at supporting the reintroduction. These measures will mitigate for specific landowner project effects. Consequently, with the longer timeframe for HCP development

under Alternative 2, appropriate conservation measures to address the HCP proponents' potential take would be more focused to support the reintroduced population than under the more limited timeframe of Alternative 4. Alternative 4 would not provide as much time as Alternative 2 to collect adequate information on the success of reintroduction or the effects of the HCP proponents' actions and other actions in the area and how they might support or hinder reintroduction. Alternative 2 would afford NMFS with greater flexibility and discretion to manage MCR steelhead conservation than Alternative 4.

This alternative would allow NMFS to extend the NEP designation for some undefined time. This extension option would give non-Federal public and private entities additional time, if needed, to complete management activity assessments and to develop conservation measures without concerns related to section 9 take liability. The outcome of Alternative 4 would meet the purpose and need for the proposed action by providing support for the reintroduction effort through cooperative and comprehensive development of conservation measures for MCR steelhead in a defined timeframe when compared to the No-action Alternative. However, while NMFS would have more flexibility and discretion in managing conservation for the reintroduced MCR steelhead in a defined timeframe when non-Federal public and private entities are motivated to complete conservation measures, there would not be as much time to develop information used as a basis for conservation measures and supporting efforts for reintroduction as under Alternative 2.

2.4.1 Take

Take prohibitions under Alternative 4 would be the same as those described under Alternative 2.

2.4.2 Monitoring

Monitoring activities under Alternative 4 would be the same as those described under Alternative 1.

2.5 Alternatives Considered But Not Analyzed In Detail

2.5.1 Expire NEP Designation upon First Passage of Adult MCR Steelhead above Pelton Round Butte

Only adult MCR steelhead that are returns from juvenile releases above Pelton Round Butte would be passed above Pelton Round Butte to spawn naturally. NMFS considered the concept of terminating the NEP designation the first time adult MCR steelhead are passed above Pelton Round Butte because this would provide the first adult spawners that return to the action area with some protection under the ESA. However, the first MCR steelhead smolts from releases in the action area were passed below

Pelton Round Butte during the spring of 2010. As a result, adult MCR steelhead could begin returning to the Pelton fish trap and be passed above Pelton Round Butte as soon as the latter half of 2011 or early 2012. NMFS cannot be certain that adult MCR steelhead would be passed at that time, but it is a valid possibility and would potentially limit the NEP designation to just 1 to 2 years. This would be inconsistent with the designation's purpose and need because it would not permit enough time for NMFS to assess the efficacy of the reintroduction. This would limit flexibility and discretion in managing the conservation of listed MCR steelhead. It would also not give non-Federal public and private entities either an incentive or enough time to evaluate the effects of their activities and develop comprehensive conservation measures cooperatively with NMFS to minimize and mitigate for those effects (Subsection 1.5, Purpose and Need for the Proposed Action).

2.5.2 Designation of MCR Steelhead above Round Butte Dam as an Essential Experimental Population

This scenario was not analyzed further as an alternative because information in the recovery plan indicates that this experimental population would not be essential to the continued existence of the species and would, therefore, not meet the purpose of supporting reintroduction efforts (Subsection 1.3.4, Essential and Non-essential Designations). Furthermore, the legal protection provided by the ESA under an essential population designation is effectively the same as the current MCR steelhead threatened status listing protections. Therefore, this potential alternative is analyzed as the No-action Alternative.

2.5.3 Designation of an NEP with Alternative Boundary Areas that are a Subset of the Specific Geographic Area for the NEP Designation

The action area and its boundaries are described in Subsection 1.6, Description of the Action Area. NMFS did not analyze this scenario further as an alternative because MCR steelhead reintroduced above Pelton Round Butte would use the entire habitat upstream of the project, and it is not practicable to confine them to only a portion of the accessible area. Additionally, artificially limiting the range of MCR steelhead would have negative effects on the reintroduction effort because the fish need access to all accessible habitat to improve their abundance in the area. Therefore, limiting the specific geographic range of the NEP would not meet the purpose and need to support reintroduction efforts (Subsection 1.5, Purpose and Need for the Proposed Action).

Table 2-1 Comparison of key components among alterna**tive.**

Alternative	MCR Steelhead Reintroduction	ESA Section 9 Take Prohibitions on MCR Steelhead	NEP Designation for MCR Steelhead	Implement FERC License, Co-manager's Reintroduction Plan, and Federal MCR Steelhead Recovery Plan	Continued HCP Development	Assessment of Potential ESA Liabilities and Development and Implementation of Conservation Measures by Central Oregon Municipalities	Monitoring
Alternative 1 – No-action	Reintroduction would continue.	Section 9 take prohibitions would remain in effect throughout their range.	No NEP designation.	All plans would continue to be implemented.	HCP proponents would continue to develop the HCP and associated ITP application, but there would be no defined timeframe as an incentive for completion when compared to an NEP designation under the action alternatives.	Ongoing measures would continue to be implemented and assessments would continue to occur.	Monitoring would continue as required under the FERC Pelton Round Butte license.
Alternative 2 – NEP for ~~Return of Three Generations of MCR Steelhead (approximately~~ 12 Years~~)~~	Same as No-action Alternative.	The section 9 take liabilities for MCR steelhead in the specified geographic areas above Pelton Round Butte would be limited during NEP designation – ~~approximately~~ 12 years. DPS listing status would be returned when the NEP designation is expired.	NEP designation would continue for ~~approximately~~ 12 years. ~~If, within 5 years of issuance of the NEP final rule, adult steelhead have not yet been passed upstream of Pelton Round Butte, NMFS would then evaluate whether the NEP designation should continue to be in effect.~~	Same as No-action Alternative	HCP proponents would have more incentive to complete the HCP and to work with NMFS to develop conservation measures to minimize and mitigate for the impacts of their activities and to aid recovery of MCR steelhead in a defined timeframe compared to Alternative 1. This would yield the greatest opportunity to incorporate information about reintroduction success of all action alternatives because of the ~~approximate~~ 12-year period to measure success while developing and/or modifying conservation measures. A 12-year period with limited section 9 liabilities would provide the HCP proponents with time to develop and complete the HCP and ITP application.	A 12-year timeframe to monitor effects and to develop conservation measures for the HCP would benefit the reintroduction by providing time to assess information gathered for three generations of steelhead passage. Support for completing all planned conservation measure efforts would be realized under Alternative 2 because of the incentive to complete these measures under the NEP designation and before the DPS listing status is returned.	Same as No-action Alternative.

Table 2-1. Comparison of key components among alternatives, (continued).

Alternative	MCR Steelhead Reintroduction	ESA Section 9 Take Prohibitions on MCR Steelhead	NEP Designation for MCR Steelhead	Implement FERC License, Co-manager's Reintroduction Plan, and Federal MCR Steelhead Recovery Plan	Continued HCP Development	Assessment of Potential ESA Liabilities and Development and Implementation of Conservation Measures by Central Oregon Municipalities	Monitoring
Alternative 3 – NEP for 7 Years	Same as No-action Alternative.	The section 9 take liabilities for MCR steelhead in the specified geographic areas above Pelton Round Butte would be limited during NEP designation – 7 years. The DPS listing status would be returned when the NEP designation is expired.	NEP designation for 7 years.	Same as No-action Alternative.	Same as Alternative 2, but with less opportunity to incorporate information about reintroduction success into conservation measures. A 7-year period would provide enough time to develop and complete the HCP and ITP application.	Same as Alternative 2, except would have a 7-year timeframe to complete assessments, consider reintroduction information, and complete conservation measures.	Same as No-action Alternative.
Alternative 4 – NEP for 5 Years with Consideration of Extended Timeframe	Same as No-action Alternative.	The section 9 take liabilities for MCR steelhead in the specified geographic areas above Pelton Round Butte would be limited during NEP designation during NEP designation – a minimum of 5 years. NMFS would reevaluate the NEP designation period for possible extension at the end of the 5-year period. The DPS listing status would be returned when the NEP designation is expired.	NEP designation for a minimum of 5 years.	Same as No-action Alternative.	Same as Alternative 2, but with less opportunity to incorporate information about reintroduction success into conservation measures than Alternative 2 or Alternative 3. Possibly extending the 5-year designation would not provide as much planning certainty as Alternative 2 or Alternative 3, but 5 years would provide enough time to develop and complete the HCP and ITP application. Any additional time could be a benefit to HCP proponents to complete conservation planning, if needed.	Same as Alternative 2, except would have a 5-year timeframe (with possibly more time) to complete assessments, consider reintroduction information, and complete conservation measures.	Same as No-action Alternative.

3 AFFECTED ENVIRONMENT

Key components of the affected environment important for this EA include ESA-listed fish and other fish species, aquatic habitat, water resources, socioeconomics, environmental justice, and recreation. NMFS did not identify other resources during scoping that could potentially be significantly impacted by this action.

Existing conditions for each of these resources is described in this section. The area reviewed for fish species, aquatic habitat, and water resources is the same as the action area described in Subsection 1.6, Description of the Action Area, and consists of the upper Deschutes, Crooked, and Metolius River watersheds above Pelton Round Butte. The area reviewed for socioeconomics, environmental justice, and recreation consists of the three counties that encompass the action area (Deschutes, Crooked, and Jefferson Counties), which altogether represent the analysis area NMFS reviewed for these three resource areas.

3.1 Fish

Various natural-origin (also known as wild or native) and introduced fish species occur within the action area (Table 3-1). Natural-origin species include salmonids (redband trout and mountain whitefish), suckers, chiselmouth, dace, sculpins, northern pikeminnow, and redside shiner.

As discussed in Chapter 1, Purpose and Need for the Proposed Action, MCR steelhead and spring Chinook salmon are currently being reintroduced to the action area after an absence of more than 40 years when construction and operation of the Pelton Round Butte Hydroelectric Project precluded passage of anadromous fish. Additional anadromous fish runs (including sockeye salmon) may be reestablished above Pelton Round Butte, if feasible (ODFW and CTWSR 2008). Introduced salmonids include hatchery-origin rainbow trout, cutthroat trout, brown trout, brook trout, and kokanee. Introduced game and exotic species include smallmouth bass, largemouth bass, tui chub, blue chub, three-spine stickleback, bluegill, black crappie, redear sunfish, brown bullhead, common carp, and goldfish.

Table 3-1 Fish species present in the upper Deschutes, Crooked, and Metolius River watersheds.

Species	Origin	Upper Deschutes River	Crooked River	Metolius River
Mid-Columbia River Summer Steelhead1 *Oncohynchus mykiss*	Introduced	Extinct, now reintroduced	Extinct, now reintroduced	Extinct, now reintroduced
Spring Chinook Salmon *Oncorhynchus tshawytscha*	Natural-origin	Extinct	Extremely rare	Extinct
Redband Trout2 *Oncorhynchus mykiss*	Natural-origin	Moderately abundant	Moderately abundant	Moderately abundant
Bull Trout1 *Salvelinus confluentus*	Natural-origin	Rare	Rare	Locally abundant
Mountain Whitefish *Prosopium williamsoni*	Natural-origin	Very abundant	Abundant	Abundant
Hatchery-origin Rainbow Trout *Oncorhynchus mykiss*	Introduced	Abundant	Abundant	--
Cutthroat Trout *Oncorhynchus clarki*	Introduced	Moderately abundant	--	--
Brook Trout *Salvelinus fontinalis*	Introduced	Abundant	Rare	Rare
Brown Trout *Salmo trutta*	Introduced	Abundant	Locally abundant	Locally abundant
Kokanee *Oncorhynchus nerka*	Introduced	Abundant	Abundant	Abundant
Sucker spp. *Catostomus* spp.	Natural-origin	Locally abundant	Abundant	Unknown
Chiselmouth *Acrocheilus alutaceus*	Natural-origin	Moderately abundant	Abundant	--
Dace spp. *Rhinichthys* spp.	Natural-origin	Locally abundant	Abundant	Unknown
Sculpin spp. *Cottus* spp.	Natural-origin	Locally abundant	Moderately abundant	Unknown
Northern Pikeminnow *Ptychocheilus oregonensis*	Natural-origin	--	Moderately abundant	--
Redside Shiner *Richardsonius balteatus*	Natural-origin	--	Extremely rare	--
Smallmouth Bass *Micropterus dolomieui*	Introduced	--	Abundant	--
Largemouth Bass *Micropterus salmoides*	Introduced	Moderately abundant	Moderately abundant	--
Tui Chub *Gila bicolor*	Introduced	Very abundant	--	--
Blue Chub *Gila coerulea*	Introduced	Locally abundant	--	--
Three-spine Stickleback *Gasterosteus aculeatus*	Introduced	Very abundant	--	--

Table 3-1. Fish species present in the upper Deschutes, Crooked, and Metolius River watersheds, (continued).

Species	Origin	Upper Deschutes River	Crooked River	Metolius River
Bluegill *Lepomis macrochirus*	Introduced	Moderately abundant	Very rare	--
Black Crappie *Pomoxis nigromaculatus*	Introduced	Rare	--	--
Redear Sunfish *Lepomis macrochirus*	Introduced	--	Very rare	--
Brown Bullhead *Ictalurus nebulosus*	Introduced	Locally abundant	--	--
Common Carp *Cyprnus carpio*	Introduced	--	Rare	--
Goldfish *Carassius auratus*	Introduced	--	Rare	--

Source: Nelson and Kunkel 2001

[1]Species is listed as Federal threatened species under the Endangered Species Act (ESA).

[2]Species is listed as Federal species of concern under the ESA.

-- Means not present.

This subsection on the fish resource provides a description of existing conditions for federally listed fish (MCR steelhead and bull trout) and Federal species of concern (redband trout) under the ESA. The focus of this subsection is on MCR steelhead, the subject of this EA. Natural-origin and introduced species are also discussed because these fish may occur in similar, or the same, habitats, may compete for similar prey as MCR steelhead, or may be predators and/or prey of MCR steelhead.

3.1.1 ESA Listed and Sensitive Fish

3.1.1.1 MCR Steelhead

Three stocks of *Oncorhynchus mykiss* occur in the action area: hatchery-origin anadromous MCR summer steelhead (referred to as MCR steelhead), natural-origin resident redband trout, and hatchery-origin rainbow trout (planted in the action area solely for harvest). For this EA, use of the term rainbow trout only refers to hatchery-origin stock and not to redband trout. Each of these stocks is discussed in a separate subsection of this EA. This subsection discusses MCR steelhead, Subsection 3.1.1.3, Redband Trout, discusses redband trout; and Subsection 3.1.3, Introduced Fish, discusses rainbow trout.

Status

The MCR steelhead distinct population segment (DPS) is listed by NMFS as a federally threatened species (64 Fed. Reg. 14517, March 25, 1999), which was later reaffirmed (71 Fed. Reg. 834, January 5, 2006). In its recent determination, the National Marine Fisheries Service (NMFS) concluded that the Deschutes River hatchery-origin MCR steelhead stock (ODFW stock 66) should be considered part of the DPS. Thus, the MCR hatchery-origin steelhead is listed as a federally threatened species. NMFS recently developed a recovery plan for the MCR steelhead DPS (NMFS 2009) (Subsection 1.1.2, Species Listing under the Endangered Species Act). Limiting factors and threats identified in the recovery plan include degraded tributary and mainstem habitat conditions, impaired fish passage, suboptimal water temperatures, loss of thermal refuges, changes in mainstem Columbia River nearshore habitat conditions, introduction of hatchery fish, predation, competition, disease, degradation of estuarine and nearshore marine habitat, harvest, and climate change (NMFS 2009).

MCR steelhead recovery planning efforts for the upper Deschutes River watershed included restoration of a self-sustaining population of MCR steelhead through use of hatchery-origin stock (ODFW and CTWSR 2008; NMFS 2009) (Subsection 1.1.1, MCR Steelhead Reintroduction). The Round Butte Fish Hatchery is the source of the hatchery-origin stock, which was derived from natural-origin fish in the river subbasin. Collection and use of this stock were planned by Portland General Electric and CTWSR

to mitigate for MCR steelhead production lost from areas above Pelton Round Butte (ODFW 2010). All broodstock obtained for the Round Butte Hatchery was collected from the upper Deschutes River watershed and, until 1993, included a substantial fraction of natural-origin adults (NPCC 2004). Beginning in 1993, the hatchery-origin MCR steelhead broodstock included only returning adults of known Round Butte Hatchery origin to guard against inclusion of stray out-of-basin adults that may have maladapted genetic material and diseases to which local fish may have limited resistance (NPCC 2004).

Under the 2004 settlement agreement (FERC 2004) and 2005 FERC license for the Pelton Round Butte Hydroelectric Project, fish passage is being restored at Pelton Round Butte (Subsection 1.1, Background). The new juvenile fish passage facility at Round Butte Dam became operational in early December 2009 and by July 31, 2010 successfully collected over 100,000 salmon and steelhead smolts including 42,233 juvenile spring Chinook salmon, 50,293 yearling kokanee (to return as sockeye) and 7,806 juvenile steelhead. All of these fish were transported and released below Pelton Round Butte. NMFS expects this fish passage facility to pass MCR steelhead as the introduced fish mature and move downstream to reach the Pacific Ocean, as well as when the fish return to spawn in the action area.

Distribution

Three independent natural-origin populations of MCR summer steelhead were identified as present or once present within the Deschutes subbasin, based on historical information, genetic data, geography, life-history traits, morphological traits, and population dynamics (NMFS 2008). These remaining populations are all downstream of Pelton Round Butte. A Deschutes Eastside population spawns in the mainstem and tributaries entering from the east up to and including Trout Creek at RM 87. A Deschutes Westside population now spawns in the mainstem between Trout Creek and the Pelton Reregulating Dam at RM 100, as well as in the Warm Springs River and other tributaries entering this segment of the mainstem from the west. Pelton Round Butte has blocked a substantial portion of the Deschutes Westside population's historical habitat, including the Deschutes River up to Big Falls at RM 132 and additional tributaries including Whychus Creek (Fies et al. 1996). Fulton (1970) suggested that MCR steelhead (apparently from the Deschutes Westside independent population) were native to the Metolius River, but elders of the CTWSR indicate MCR steelhead were not indigenous to that stream (Gauvin 2008).

A once-large Crooked River population, already severely diminished by habitat degradation and construction of impassable Ochoco and Bowman Dams (Nehlsen 1995; Stuart et al. 1996; NPCC 2004), became fully extirpated when fish passage was abandoned at Pelton Round Butte in the 1960s.

Prior to their extirpation, MCR steelhead in the Crooked River watershed were documented in the mainstem Crooked River, McKay Creek, Ochoco Creek, and multiple tributaries that were located above the site of Bowman Dam (Montgomery 1952). Observations made at that time suggested that much of the middle portion of the Crooked River (located on private lands where irrigation dams made passage difficult and irrigation withdrawals contributed to extreme low flows and high summer temperatures) was poorly suited to use by the species.

Formal recovery of the MCR steelhead DPS requires that at least two of the Deschutes subbasin's three historical populations be viable (NMFS 2009) (Subsection 1.1.2, Species Listing under the Endangered Species Act). At present, threats posed by habitat degradation and interbreeding with stray out-of-basin steelhead places the Deschutes Eastside population in the "moderate risk" category for *spatial structure* and *diversity*. However, the most recent 10-year (2000-2009) geomean for abundance is 2,730 natural spawners (the minimum ICTRT threshold is 1,000), and productivity for this same period is 2.31. This ~~the Deschutes Eastside population~~ meets the ICTRT recommendation for viable status, thus the overall rating for this population is "viable." ~~is at moderate risk of extinction due largely to threats posed by habitat degradation and interbreeding with stray out-of-basin MCR steelhead thought to carry maladapted genetic material~~ (Carmichael and Taylor 2010). The Deschutes Westside population faces similar threats, but is at greater risk partly because blocked passage to historically productive habitat above Pelton Round Butte restricts its spatial distribution, diversity, and abundance. Oregon's MCR steelhead recovery plan (which is an appendix to the Federal steelhead recovery plan [NMFS 2009]) has a goal of restoring all three steelhead populations in the Deschutes subbasin, including reestablishment of a Crooked River population (Carmichael and Taylor 2010).

Habitat and Life History

MCR steelhead occurs in aquatic habitat consisting of the following primary components: aquatic connectivity (including fish passage), floodplain function, riparian conditions and woody debris, stream complexity, hydrology, water quality, and sediment routing (Carmichael and Taylor 2010). The relationships between these habitat components and MCR steelhead life history stages are provided in Table 3-2.

Productive steelhead habitat consists of cool water and complex structures typically associated with the presence of large and small wood or boulders (NMFS 2009). The fish require cover in the form of overhanging vegetation, undercut banks, submerged vegetation, and submerged objects (such as logs and rocks, floating debris, deep water, turbulence, and turbidity) (Geiger 1973). Spawning occurs where streambed gravels, water depths, and stream velocities are found suitable by adult fish. Summer

juvenile rearing occurs primarily in the faster parts of pools, although young-of-the-year frequently appear in glides and riffles. Winter rearing occurs more uniformly at lower densities across a wide range of fast and slow habitat types (Bambrick et al. 2004). These habitat requirements are similar to habitat requirements of other natural-origin salmonids, although studies were recently conducted to differentiate microhabitat differences between MCR steelhead and redband trout in the action area (e.g., Cramer and Beamesderfer 2006).

Table 3-2 Habitat components, properly functioning condition, and affected life stages of MCR steelhead

Habitat Component	Properly Functioning Condition	Life Stages Affected
Fish Passage	Requires unimpeded fish access to, through, and from habitats important to completion of their lifecycles.	Smolt migration, adult migration, juvenile movements
Floodplain Connectivity/Function	Fish have access to naturally available habitats such as seasonal wetlands, off-channel areas, and side channels. The stream channel connects to a functional hyporheic zone and the thermal benefits of such.	Egg-to-smolt survival, smolt migration, adult migration, pre-spawning
Riparian Conditions/Woody Debris	Native riparian communities are present, supporting food organisms and providing organic material, shade, bank-stabilizing root networks, nutrient and chemical mediation, erosion control, and the production of large-sized woody material.	Egg-to-smolt survival, smolt migration, adult migration, pre-spawning
Stream Complexity	Requires suitable distribution of riffles, functional pools, spawning gravels, and rearing sites; suitable amounts and sizes of large woody debris or other channel structures, and appropriate presence of multiple channel threads.	Egg-to-smolt survival, smolt migration, adult migration, pre-spawning
Hydrology	Requires natural seasonal patterns of flow as necessary to support the development and survival of salmonids.	Egg-to-smolt survival, smolt migration, adult migration, pre-spawning
Water Quality	Requires normal temperature regimes, levels of fine sediment, and dissolved oxygen, and low effects of nutrients from agricultural runoff, heavy metals, pesticides, herbicides, or other contaminants (toxics).	Egg-to-smolt survival, smolt migration, adult migration, prespawning
Sediment Routing	The stream has appropriate levels of fine and coarse-grained sediments, and a lack of contaminated sediments.	Egg-to-parr survival

Sources: Carmichael and Taylor (2010) and NMFS (2009)

Historically, natural-origin MCR steelhead with diverse life histories likely resided above Pelton Round Butte (Nehlsen 1995). Their residence was a consequence of the presence of diverse habitats and thermal environments in the area (Lichatowich et al. 1998).

MCR steelhead spawning in the lower Deschutes River and westside tributaries usually begins in March and continues through May (Zimmerman and Reeves, 1999). Spawning in eastside tributaries occurs from January through mid-April and may have evolved to an earlier time than in westside tributaries or the mainstem Deschutes River because stream flow tends to decrease earlier in the more arid eastside subbasins (Olsen et al. 1991).

MCR steelhead fry emerge in spring or early summer depending on time of spawning and water temperature during egg incubation. Zimmerman and Reeves (1999) documented summer steelhead emergence in late May through June. Juvenile summer MCR steelhead emigrate from Deschutes River tributaries in spring from age 0 to age 3. MCR steelhead fry from small or intermittent tributary streams experience greater growth than those in the mainstem Deschutes River and may experience a competitive advantage as they move from the tributary environments to the river (Zimmerman and Reeves 1999). Many juveniles that migrate from the tributaries continue to rear in the mainstem lower Deschutes River before smolting. Scale patterns from natural-origin adult MCR steelhead indicate that smolts enter the ocean from age 1 to age 4 (Olsen et al. 1991). Specific information on time of emigration through the Columbia River is not available, but researchers believe that smolts leave the lower Deschutes River from March through June. Natural MCR steelhead in the lower basin typically return to the Deschutes River after 1 to 2 years in the Pacific Ocean. Most MCR steelhead enter the Deschutes River as adults from June through October, with peak movements in September or early October. Most MCR steelhead that passed above the site of Pelton Round Butte from 1957 to 1969 were age 4 (Gunsolus and Eicher 1962) and spawned in March and April (Nehlsen 1995).

Food Resources

The diet of steelhead consists of immature-stage aquatic insects. Steelhead also consume eggs and juveniles of other salmonid species. Larger prey items, such as fish and crayfish, were occasionally observed in stomachs of adult steelhead. However, most prey that steelhead consume are a variety of small aquatic insects and zooplankton (summarized in Merz 2002).

Fisheries

MCR steelhead in the Deschutes subbasin have important cultural, religious, tribal subsistence, ceremonial, and commercial value for the Confederated Tribes of Warm Springs. The fish also support an important recreational fishery for non-tribal fishers. This steelhead fishery is now confined to the Deschutes River downstream from the Pelton Reregulating Dam, with natural-origin fish excluded from intentional harvest. Within the action area, ODFW does not allow fishing of wild MCR steelhead.

However, the goal of the MCR steelhead reintroduction effort above Pelton Round Butte complex has been to expand fishery benefits over the long term by increasing the size and distribution of the Deschutes Westside population, reestablishing a Crooked River population, and contributing to the ultimate recovery (and delisting) of MCR steelhead (ODFW and CTWSR 2008). A long-term goal for MCR steelhead is to improve tribal, recreational, and commercial fisheries (ODFW and CTWSR 2008;

NMFS 2009). When delisting or broad-based recovery goals are achieved, recreational and/or commercial fisheries may be possible (ODFW and NMFS 2009).

3.1.1.2 Bull Trout

Status

The Columbia River bull trout DPS is listed as a federally threatened species (63 Fed. Reg. 31647, June 10, 1998). This DPS was also included in the bull trout listing for the conterminous United States (64 Fed. Reg. 58909, November 1, 1999). A draft recovery plan for the Deschutes Recovery Unit was prepared by the USFWS (USFWS 2002), which states that bull trout in this recovery unit declined due to land and water management activities that depressed bull trout populations and degraded their habitat. These activities included dam and other diversion operation and maintenance activities, introduced species, and the presence of dams and diversion structures that isolated and fragmented bull trout populations and adversely affect water quality and quantity. Introduced brook trout threaten bull trout populations through hybridization, competition, and possibly predation. USFWS' Final Rule (50 CFR 56212, September 26, 2005) identified 78 miles of bull trout critical habitat in the lower Deschutes River watershed (extending from Big Falls above Pelton Round Butte downstream to the confluence with the Columbia River). Critical habitat for the bull trout in action area includes small areas of the lower Deschutes River watershed, Pelton Round Butte reservoirs, and small areas of the Metolius and upper Deschutes River watersheds above Pelton Round Butte. The bull trout is included on the Oregon Sensitive Species List (Oregon Administrative Rules 635-100-040) as a critical species.

Distribution

Within the action area, bull trout occur in Lake Billy Chinook, Metolius River watershed, mainstem Deschutes River up to Big Falls, lower Whychus Creek below Alder Springs at about RM 2, and lower Crooked River below Opal Springs Dam. The species was once relatively common in the upper Deschutes River basin above Big Falls, but has been extirpated from all but a very few sites above that location (Fies et al. 1996). Up until 1960, bull trout were trapped and removed from the Metolius River in conjunction with operation of a weir used to collect salmon for hatchery brood. Weir operators removed bull trout from weir sites because of its predation on spring Chinook salmon eggs and juveniles. As a result, Metolius River bull trout were considered depressed as recently as the early 1980s. Recent redd counts in bull trout known spawning areas within the Metolius River watershed indicate a likely rebound of the population (Nelson and Kunkel 2001). The dams at Pelton Round Butte, which blocked anadromous fish runs, also impacted the bull trout's juvenile salmon food resources. However, the increase in kokanee within the upper Deschutes River watershed has helped

support bull trout populations. Bull trout were extirpated from the Deschutes River mainstem in the 1950s due primarily to flow manipulations and dams that had no upstream fish passage.

Habitat and Life History

Bull trout in the Deschutes subbasin exhibit both fluvial and adfluvial life histories. Fluvial bull trout migrate from smaller natal streams to larger rivers to rear and then return to natal streams to spawn. Adfluvial bull trout migrate from small natal streams to rear in lakes or reservoirs. Juveniles move downstream during the spring and fall months, and adults move upstream from May through September (USFWS 2002). Mature adfluvial bull trout return to their natal streams to spawn. Bull trout spawn in cold, spring-fed tributary streams during fall months. The species is the least tolerant of salmonids to high water temperatures, making it particularly sensitive to habitat degradation.

Bull trout and steelhead can occur in similar aquatic habitat types; however, bull trout are more sensitive than steelhead to increased water temperatures, poor water quality and habitat conditions, and low flow conditions. Thus, bull trout occur more frequently in higher elevations with less disturbed habitat. Bull trout also require colder water temperatures than steelhead, and these colder water temperatures are more likely to occur in headwater streams (the stream's origin) where bull trout prefer to spawn (Natural Resource Conservation Service 2006; USFWS 2008, 2010).

Food Resources

Young bull trout feed on aquatic invertebrates, including mayflies, stone flies, caddisflies, and beetles. As they grow larger, they begin to feed heavily upon other fish, including various trout and salmon species (including MCR steelhead), minnows, suckers, dace, whitefish, and sculpin. Large adults are also known to eat frogs, snakes, mice, and waterfowl (Natural Resource Conservation Service 2006).

Fisheries

Retention of one bull trout over 24 inches per day is allowed within the action area in Lake Billy Chinook and Lake Simtustus and in the Deschutes River arm of Lake Billy Chinook upstream of Steelhead Falls.

3.1.1.3 Redband Trout

Status

The redband trout is a Federal species of concern and a state sensitive species. The species has decreased in abundance in the action area due to habitat fragmentation and isolation, low stream flows, high water temperatures during summer months, manmade barriers, and competition with other fish species (Lichatowich et al. 1998; NPCC 2004; Stuart et al. 2007). Other limiting factors include

competition, predation, and poor habitat quality. Primary competitors include kokanee, smallmouth bass, suckers, and brown trout. However, these competitors primarily compete with redband trout in reservoirs where competition for prey is substantial due to the small quantity of shallow shoreline habitat in the reservoirs (which limits macro-invertebrate and insect production), as well as by reservoir drawdowns that cause direct mortality and reduce the amount of available aquatic habitat (Nelson and Kunkel 2001). Redband trout predators include bull trout, brown trout, smallmouth bass, and northern pikeminnow.

Distribution

Redband trout occur throughout the action area, primarily as numerous separate smaller populations that are fragmented and isolated by artificial barriers, such as reservoir impoundments, irrigation diversion systems, and road culverts. Principal redband production areas above Lake Billy Chinook include the upper Deschutes River up to Steelhead Falls, Whychus Creek below Alder Springs, Crooked River (mostly in headwaters of tributaries located on USFS lands and the cool tailwaters of Bowman Dam), Metolius River and its associated tributaries, and groundwater-dominated channel segments near Lake Billy Chinook (including most of the mainstem Deschutes River below Big Falls). Resident redband trout found in these areas support productive and popular recreational fisheries (Nelson and Kunkel 2001).

Redband trout and MCR steelhead both co-occurred within the action area before construction of Pelton Round Butte. Although their habitat requirements are similar, redband trout were more prevalent than MCR steelhead in the Metolius River watershed, Crooked River in the tailwaters of Bowman Dam and below Opal Springs, the Deschutes River below Steelhead Falls, and Whychus Creek (ODFW and CTWSR 2008).

Habitat and Life History

Redband trout occurrence is strongly associated with riparian cover components, including undercut banks, large woody debris, and overhanging vegetation (Lee et al. 1997). The overhanging vegetation provides shade that maintains the lower water temperatures redband trout require during the hot, dry summer months, and it also provides habitat for terrestrial insects that redband trout consume. Redband trout are also associated with streams that have higher gradient changes, often in riffles, or with substrates dominated by bounders, cobbles, and pocket water. Pools provide important holding and rearing habitat, resting places, overwinter areas, and refuges from floods, drought, and extreme temperatures. From studies conducted throughout the upper Deschutes River watershed, redband trout

spawn from age 3 to age 4 during spring and early summer, and fry emerge in early July to mid-August (Nelson and Kunkel 2001).

Food Resources

From sampling of redband trout in the Crooked, Deschutes, and Metolius Rivers, Groves et al. (1999) found that the redband trout diet was comprised of aquatic insects and their associated larvae. Common prey include stoneflies, mayflies, caddisflies, midges, crane flies, black flies, mosquitoes, backswimmers, and two-winged flies. These insects are widespread and common within the three rivers (Groves et al. 1999).

Fisheries

Outside of the Metolius River, angling regulations within the action area allow harvest of resident redband trout that are at least 8 inches long. Such resident fish are difficult to distinguish from juvenile steelhead that reach similar size before migrating seaward. As MCR steelhead are reintroduced to the area, some older juvenile MCR steelhead may exceed 8 inches and may be harvested by anglers. However, the actual fraction of the juvenile MCR steelhead population that would be harvested is uncertain. MCR steelhead outmigrants captured in the upper Deschutes River watershed during the 1960s averaged approximately 8 inches long (Ratliff 2001) and ranged from less than 6 inches to more than 10 inches (Gunsolus and Eicher 1962). Future monitoring efforts will clarify the risk anglers pose to juvenile MCR steelhead above Pelton Round Butte. The data obtained from this monitoring may provide incentive for ODFW to adjust regulations to limit losses of these fish (ODFW and CTWSR 2008). The Metolius River allows only catch and release fishing for redband trout.

3.1.2 Other Natural-origin Fish

Spring Chinook salmon and mountain whitefish are other natural-origin salmonids found in the upper Deschutes River watershed, and they continue to occur in project-area rivers and streams (Table 3-1). A remnant population of natural-origin spring Chinook salmon is believed to occur in Lake Billy Chinook. There are reports of angler captures of spring Chinook salmon in the reservoir every year; thus, the population may continue to exist (Nelson and Kunkel 2001). However, no spawning adults were found in the Deschutes River above Lake Billy Chinook or Whychus Creek.

Efforts continue for reintroducing Chinook salmon to the upper Deschutes River watershed (ODFW and CTWSR 2008). Before Pelton Round Butte was constructed, natural-origin Chinook salmon (primarily spring-run fish) were present in the Metolius River watershed, the Deschutes River below Steelhead Falls, and in Whychus Creek below about Alder Springs (Nehlsen 1995; Fies et al. 1996;

Ratliff and Schulz 1999). However, the distribution of Chinook salmon in Whychus Creek was substantially diminished from water withdrawals by the time the hydroelectric project began construction (see, for example, USFS 1998), and use of the Crooked River watershed by a historically important Chinook salmon run diminished to the point that the species' presence in this area was no longer certain (Nehlsen 1995).

Chinook salmon stock designated for reintroduction include Warm Springs natural-origin spring Chinook salmon, Warm Springs Hatchery spring Chinook salmon, and Round Butte Hatchery Spring Chinook salmon. Areas designated for spring Chinook salmon reintroduction are the Metolius River, Whychus Creek, and the Crooked River watershed (ODFW and CTWSR 2008).

Anadromous sockeye salmon once migrated up the Metolius River and into the Lake Creek-Suttle Lake complex to spawn, but the last sizable run of these fish in the Metolius River was 227 adults reported in 1955 (Nehlsen 1995). Today, a population of landlocked sockeye (kokanee), that may be partially derived from the natural-origin anadromous run, grows to adulthood in Lake Billy Chinook and migrates from the reservoir each fall to spawn primarily in the Metolius River watershed but also in the Deschutes River below Steelhead Falls, Whychus Creek, and Crooked River below Opal Springs Dam (Thiesfeld et al. 1999). The effort to reestablish a sockeye run was initiated in 2010 by passing juvenile kokanee downstream below Pelton Round Butte in an attempt to encourage anadromy (ODFW and CTWSR 2008).

The most abundant natural-origin salmonid game fish in the action area is the mountain whitefish (Table 3-1), which occurs in larger stream channels throughout the action area. Mountain whitefish have similar habitat requirements as redband trout, although they tend to occupy deeper pools in streams and are primarily bottom feeders (Pontius and Parker 1973). Mountain whitefish are believed to have increased in abundance using habitat that was vacated by anadromous salmon due to construction of Pelton Round Butte (Nelson and Kunkel 2001).

Other natural-origin species that occur in the upper Deschutes, Crooked, and Metolius River watersheds are chiselmouth, sculpins, dace, and suckers. Eggs and young of these species are consumed by natural-origin and introduced salmonids, including MCR steelhead. Northern pikeminnow occur in the Crooked River watershed (Table 3-1) and prey on salmon eggs and juveniles. Redside shiner is extremely rare in the action area (Table 3-1). Generally, all of the natural-origin fish in the action area consume small insects as their primary food source (NPCC 2004), and these species actively compete for these food resources (Nelson and Kunkel 2001).

Natural-origin fish may be harvested in most upper Deschutes and Crooked River tributaries, with some restrictions (timing, species caught, and size and number caught). These species include mountain whitefish, suckers, and sculpins. The Metolius River allows only catch and release fishing for all species.

3.1.3 Introduced Fish

Salmonids introduced into the upper Deschutes, Crooked, and Metolius River watersheds include rainbow trout, cutthroat trout, brook trout, brown trout, kokanee (Table 3-1). Rainbow trout stocking has been limited due to concerns about their ability to migrate downstream into the Deschutes River where they could breed and compete with redband trout. Brown and brook trout occur in the upper Deschutes, Crooked, and Metolius Rivers, although brook trout area rare in the Metolius and Crooked Rivers (Table 3-1). In addition, several warm-water game fish were introduced into reservoirs for recreational fishing opportunities (Table 3-1).

Primary competitors of MCR steelhead are brook trout and brown trout since these two species have not naturally coevolved with MCR steelhead and may outcompete MCR steelhead for habitat, space, and food resources. Brook trout may also hybridize with bull trout. Cutthroat trout may hybridize with MCR steelhead (NMFS 1999). ODFW fishing regulations allow fishing for most warm-water game fish; kokanee; Atlantic salmon; and rainbow, brook, and brown trout (ODFW 2010).

3.2 Aquatic Habitat

The action area contains 250 stream miles of potential anadromous fish habitat. Streams currently or expected to be accessible to reintroduced MCR steelhead include the following) (ODFW and CTWSR 2008):

Mainstem Deschutes River, Whychus Creek, and a few small tributaries (36 miles)

Crooked River (105 miles)

Metolius River (108 miles)

Crooked River streams will become accessible to adult anadromous fish when passage impediments at the Opal Springs Hydroelectric Project (FERC Project No. 5891) and other blockages are remedied.

The Metolius, Crooked, and upper Deschutes River are watersheds within the upper Deschutes River basin of the Deschutes subbasin, which is approximately 10,5000 square miles in size and 170 air miles long by 125 air miles wide (NPCC 2004). The Deschutes subbasin is bounded on the west by the

Cascade Mountains, on the south by high elevation pine forest, on the east by the high desert plateau between the John Day and Deschutes subbasins, and on the north by the Columbia River. Descriptions of the aquatic habitat within the Metolius, Crooked, and upper Deschutes Rivers that are provided in the following subsections were obtained primarily from the Deschutes River Subbasin Summary (Nelson and Kunkel 2001) and Deschutes Subbasin Plan (NPCC 2004).

3.2.1 Upper Deschutes River

The upper Deschutes River flows for about 132 miles before reaching Pelton Round Butte. Most of the watershed is in Deschutes County with smaller portions in Jefferson, Lake, and Klamath Counties. The total drainage area is approximately 2,000 square miles. Elevation ranges from 1,900 feet (Lake Billy Chinook) to 10,358 feet (south Sister Mountain). The upper Deschutes River flows north from its headwaters at Little Lava Lake to Crane Prairie Reservoir, east through Wickiup Reservoir, and north to its confluence with Lake Billy Chinook. Soils are partially to entirely composed of materials deposited by volcanic eruptions (Nelson and Kunkel 2001; NPCC 2004).

Riparian vegetation consists mainly of willow, alder, and sedges. Although aquatic and riparian habitat within the upper Deschutes River watershed historically was high quality, reservoir development has resulted in degradation of the aquatic environment due to extreme seasonal flow fluctuations caused by irrigation release and storage. Seasonal water fluctuation has created drawdown zones in the river channels where riparian vegetation is now absent. Riparian vegetation consists mainly of willow, alder, and sedges. Loss of riparian vegetation has resulted in loss of stream shading, increased stream temperatures, increased bank erosion, widening and swallowing of stream channels, and reduction or loss of perennial flow. Degraded riparian zones are present throughout the entire upper Deschutes River watershed (Nelson and Kunkel 2001; NPCC 2004).

3.2.2 Crooked River

The Crooked River is the easternmost major tributary to the upper Deschutes River. The Crooked River watershed is located primarily within Crook County with smaller portions in Jefferson, Wheeler, Grant, Deschutes, and Harney Counties. The drainage area of the Crooked River is approximately 4,300 square miles, and the total length from its headwaters on the North Fork Crooked River to the mouth at Lake Billy Chinook is approximately 155 miles. The Crooked River watershed ranges from 1,900 feet (Lake Billy Chinook) to 6,926 feet (Ochoco Mountains). The river is located along the southern edge of the Columbia Basin Plateau and the northern margin of the High Desert. Portions of the Crooked River are within canyons of the central Oregon desert, although much of the drainage is characterized by

rolling hills. The Ochoco Mountains are the major mountain range in the watershed. The Maury Mountains to the south of the Ochoco Mountains are entirely drained by tributaries of the Crooked River. Soils in the Crooked River watershed are sedimentary formation, but they also include basalt and volcanic ash derivations (Nelson and Kunkel 2001; NPCC 2004). Primary MCR steelhead introduction areas within the Crooked River watershed are Whychus, McKay, and Ochoco Creeks (ODFW and CTWSR 2008).

The Crooked River watershed streamside vegetation communities include quaking aspen, mountain alder, black cottonwood, and willow. Large impoundments in the Crooked River watershed include Lake Billy Chinook, Lake Simtustus, Haystack and Prineville Reservoirs (constructed by the U.S. Bureau of Reclamation for irrigation storage), and Ochoco Reservoir (private irrigation impoundment). Small public reservoirs include Allen Creek, Antelope Flat, Walton Lake, and Reynolds Point (Nelson and Kunkel 2001).

Aquatic habitat limitations in the Crooked River include loss of riparian vegetation, altered hydrology (flows), elevated stream temperatures, water quality impairments, fish passage limitations, diminished floodplain function, reduced stream complexity, and altered sediment routing. However, optimum fish habitat does occur in the headwaters of streams within the Ochoco National Forest. These headwater streams provide year-round flow, instream cover, cobble and boulder substrate, and productive streamside vegetation. Alternatively, the numerous reservoirs in the Crooked River watershed create aquatic habitat for introduced game species (Subsection 3.1.3, Introduced Fish). Habitat surrounding reservoirs is characterized by lack of shoreline vegetation, deep waters, and mud flat shoreline substrates (Nelson and Kunkel 2001; NPCC 2004).

3.2.3 Metolius River

The Metolius River covers approximately 315 square miles, and originates from three springs at the base of the north side of Black Butte, near the community of Sisters, Oregon. The river flows south and east approximately 29 miles to its confluence with the Deschutes River in Lake Billy Chinook. Elevation in the Metolius River watershed ranges from 1,940 to 10,497 feet above sea level. Geologic features include the Cascade Mountains, Black Butte, and Green Ridge. The watershed drains approximately 315 square miles within Deschutes and Jefferson Counties. The landforms of the Metolius River watershed are a product of early Cascade volcanism modified later by at least three periods of glaciation that carved large, deep canyons and left outwash fans of sand and gravel when glaciers melted. The landform is dominated by immature soils developed from volcanic ash and soils with more developed profiles derived from glacially deposited materials. The Metolius River has cut

through these outwash fans and, in some places, into older sediments and lava beneath the soils (USFS 1996; Nelson and Kunkel 2001; NPCC 2004).

The Metolius River is one of the largest spring-fed streams in Oregon. Flows average 100 to 110 cubic feet per second (cfs) at the source and accrue an additional 1,300 cfs from tributaries and springs (USFS 1996). The river is spring-fed, lacks flood events, and flows on a relatively uniform gradient within the volcanic bed. The river width averages 50 feet in width and flows in a well-defined channel. There are few wetlands along the mainstem of the Metolius River, but several tributaries have marshes, particularly in the Lake Creek area. Riparian issues include removal of large woody material from the river to facilitate rafting, firewood collection, salvage logging, and camping and boating safety. The riparian area is considered adequately stocked with large conifers to provide future and long-term fish habitat. For most of its length, the river is fast moving with few pools (Nelson and Kunkel 2001; NPCC 2004).

3.2.4 MCR Steelhead Habitat

Despite past degradation, habitat historically used by MCR steelhead above Pelton Round Butte retains important productive capability and has the capacity to recover to greater levels of productivity (ODFW and CTWSR 2008). Segments of some streams remain in relatively good condition. The mainstem Deschutes and Whychus Creeks, for example, currently could support an annual run of MCR steelhead exceeding 700 adults if highly effective fish passage were provided at Pelton Round Butte (ODFW and CTWSR 2008, per adjustments to modeling by Beamesderfer 2002). Habitat in the lower Crooked River watershed, which is approximately three times as expansive, currently could support annual runs of about 1,200 adult MCR steelhead if highly effective passage were provided at Pelton Round Butte, and the fish were given access to areas above Opal Springs Dam (ODFW and CTWSR 2008).

Predominant land ownership and use types near major streams within the action area above Pelton Round Butte affect existing habitat conditions (Table 3-3), as well as sponsorship of restoration activities helpful to MCR steelhead. Patterns of ownership and use along Whychus Creek and the Crooked River watershed are important when considering areas where MCR steelhead are introduced. Restoration of degraded habitats in these areas depends both on public and private entities, including the cooperation of private parties whose water use, land management practices, or other activities may benefit or degrade habitat function.

Table 3-3 Predominant land ownership near major streams that may be used for reintroduction of anadromous salmonids above Pelton Round Butte

Major Stream	Federal Forestland	Federal Range/ Grassland	Tribal	Private Forestland	Private Rangeland/ Agriculture	Urban/ Rural Residential
Deschutes River	--	■	--	--	■	■
Whychus Creek	■	■	--	--	■	■
Crooked River		■		■	■	■
McKay Creek	■	--	--	■	■	--
Ochoco Creek	■	--	--	--	■	■
Metolius River	■	--	■	--	--	--

-- Means not present.

Basic habitat limitations for MCR steelhead within the action area above Pelton Round Butte are summarized by major stream in Table 3-4. Limitations common to segments of each major steelhead stream include altered hydrology (flows) and elevated summer stream temperatures, with additional water quality impairments a potential concern in the lower Crooked River. Other functional limitations include fish passage limitations (at diversion dams and in flow-depleted segments of stream channels), degraded riparian or woody debris conditions, diminished floodplain function, reduced stream complexity, and altered sediment routing. Palustrine emergent, palustrine scrub-shrub, and riverine type wetlands occur at scattered locations along most streams within the action area (USFWS 2008), many of them altered to some degree by human activities.

Although high quality, properly functioning habitat predominates in the Metolius River watershed, historical use by MCR steelhead is uncertain (Nehlsen 1995). Habitat in this area is rated as being of predominantly fair or poor quality for steelhead (Reihle 1999), with varying degrees and types of functional impairments, as found in other parts of the action area. Habitat in the lower Crooked River watershed is recognized as having been particularly degraded by the cumulative effects of more than a century of damaging activities (Stuart et al. 1996).

Table 3-4 Key MCR steelhead habitat limitations identified for six major streams within the action area

Major Stream	Floodplain Conditions	Riparian / Woody Debris	Altered Hydrology	Temperature / Water Quality	Stream Complexity	Sediment Routing	Fish Passage/ Connectivity
Deschutes River	●	●	●	●	---[1]	---	●
Whychus Creek	■	■	■	■	■	●	■
Crooked River	■	■	■	■	■	■	■
McKay Creek	●	■	■	■	●	●	■
Ochoco Creek	●	■	■	■	●	●	■
Metolius River	---	---	---	---	---	---	---

■ major limitation; ● lesser limitation

-- [1] Means use by MCR steelhead uncertain. Habitat near-pristine or with relatively fewer modifications to natural conditions.

Sources: Fies et al. (1996a, b); Stuart et al. (1996); NPCC (2004); Carmichael and Taylor (2010).

Management strategies and the types of actions needed to address aquatic habitat limitations within the action area were summarized by NPCC (2004), Crooked River Watershed Council (2008), and Oregon's MCR steelhead recovery plan (Carmichael and Taylor 2010) (Table 3-5). Recommended restoration actions are already underway or being initiated through a variety of programs, both public and private. Substantial financial support has been and continues to be available to private parties involved in the effort, including allocations from a $21.5 million habitat fund managed by the Portland General Electric Company and $9 million in funding from the Deschutes Special Investment Partnership (Oregon Watershed Enhancement Board 2008) for high-priority habitat restoration actions backed by local watershed-based groups. These efforts include those sponsored through the Upper Deschutes Watershed Council, Crooked River Watershed Council, Oregon Water Trust, Deschutes Land Trust, Deschutes River Conservancy, state agencies through the Oregon Plan, and the CTWSR.

These projects include fish passage improvements, instream flow restoration, instream habit restoration, riparian enhancements, wetland restoration, agriculture/rangeland improvements, upland habitat restoration, and road abandonment and restoration. Central Oregon irrigation districts and the City of Prineville are assessing the conservation efficacy of their ongoing activities and preparing a HCP to avoid potential exposure to the take prohibitions of the ESA. These HCP proponents are working collaboratively with a diverse set of Federal, tribal, state, local, and non-governmental parties to develop habitat conservation measures for improving MCR steelhead aquatic habitat.

Table 3-5 Habitat limitations that may affect MCR steelhead reintroduction within the action area with strategies and actions to address these limitations

Threats And Limiting Factors	Management Strategies	Types of Actions to Conserve Habitat
All Habitat Limiting Factors	Protect and conserve natural ecological processes that support the viability of the populations and their primary life history strategies throughout their lifecycle.	Protect the highest quality habitats through acquisition and conservation. Adopt and manage conservation agreements. Conserve rare and unique functioning habitats. Consistently apply best management practices and existing laws to protect and conserve natural ecological processes.
Impaired Fish Passage	Restore passage and connectivity to habitats blocked or impaired by artificial barriers. Maintain unimpaired passage and connectivity.	Remove or replace barriers blocking passage such as dams, road culverts, and irrigation structures. Provide screening at 100 percent of irrigation diversions. Replace screens that do not meet NMFS criteria.
Degraded Floodplain Connectivity and Function	Restore floodplain connectivity and function, and maintain unimpaired floodplain connectivity and function.	Reconnect side channels and off-channel habitats to stream channels. Restore wet meadows. Reconnect floodplain to channel.
Degraded Channel Structure and Complexity	Restore channel structure and complexity, and maintain unimpaired structure and complexity.	Place stable large woody debris in streams. Stabilize stream banks. Restore natural channel form.
Degraded Riparian Conditions and Woody Debris Recruitment	Restore riparian conditions and woody debris recruitment, and maintain unimpaired conditions.	Restore natural riparian vegetative communities. Develop grazing strategies that promote riparian recovery.
Altered Hydrology	Restore hydrographs to provide sufficient flow during critical periods.	Implement agricultural water conservation measures. Improve irrigation conveyance and efficiency. Lease or acquire water rights and convert to instream.
Degraded Water Quality (Including Elevated Summer Temperatures)	Improve degraded water quality and maintain unimpaired water quality.	Reduce chemical pollution inputs. Apply best management practices to animal feeding operations. Restore natural functions and processes.
Altered Sediment Routing	Restore degraded upland processes to minimize unnatural rates of erosion and runoff, and maintain unimpaired natural upland processes.	Achieve 95 percent conversion to no-till farming. Upgrade or remove problem forest roads. Restore native upland plant communities. Employ best management practices in forestry, livestock grazing, road management, and agricultural practices.

Source: Carmichael and Taylor 2010

3.3 Water Resources (Quantity and Quality)

3.3.1 Hydrography

Historically, most of the water resources within the Deschutes River were from a large underground aquifer that discharged into the Deschutes, Metolius, and Crooked Rivers. The aquifer provided stable flow conditions wherever groundwater was the primary water source. Where groundwater was not a primary water source, more variable flows occurred along with more flooding. High flows occurred during spring runoff, and low flows occurred in late summer (July to September). There were more streams in the action area than currently occur, and these streams were primarily perennial. Over time, with the loss of vegetation for various land uses and increased water use in the action area, many streams either were lost altogether or became intermittent.

With development of hydroelectric projects, reservoirs, and irrigation diversions over the past 50 years, the hydrologic regime within the action area was altered, and flow fluctuations were based on water storage and releases planned for these facilities. The reservoirs are used to control flooding and provide irrigation water during the summer months. Some stream flows decreased due to diversion of water for irrigation. Although most fish-bearing streams in the Deschutes River received instream water rights, surface water resources are generally over-allocated throughout the Deschutes subbasin. Consumptive use generally exceeds stream flow primarily from April to October. Stream flows below legally set minimum limits occur locally. All new water development now relies on groundwater resources (Nelson and Kunkel 2001).

3.3.2 Water Use

The upper Deschutes River watershed yields an average annual discharge of about 4550 cfs; 34 percent enters Lake Billy Chinook as gauged flow from the Metolius River, approximately 33 percent enters from the Crooked River, and approximately 20 percent enters from the upper Deschutes River (PGE 1999, as cited by Golden and Alyward 2006). Remaining contributions to this discharge come from direct groundwater inputs and small tributaries to all of the Pelton Round Butte reservoirs. As shown in Table 3-4, altered hydrology is a limiting habitat factor within stream segments where MCR steelhead are actively reintroduced.

Consumptive use of water within all portions of the upper Deschutes River watershed, except those above the Bowman and Ochoco Dams, has been estimated to equal about 10 percent of average annual discharge, with about 90 percent of this use attributed to surface water diversions and irrigated

agriculture (Golden and Alyward 2006). Seasonal diversions from streams within this area irrigate approximately 160,000 agricultural acres (approximately 250 square miles) and leak substantial volumes of water to a large regional aquifer that returns groundwater to the surface near Lake Billy Chinook (Gannett et al. 2001). These diversions can alter stream flow considerably in portions of the Deschutes and lower Crooked River watersheds above Round Butte Dam. Seasonal diversions managed by irrigation districts previously removed water at a combined rate reaching and probably exceeding 2,000 cfs from these streams[9], drawing water substantially from larger channels that receive supplemental water during the irrigation season from storage reservoirs behind dams built by the Bureau of Reclamation or irrigation districts (Table 3-6). Independent diverters remove additional water (but collectively considerably smaller amounts of water) directly from streams within the area.

Seasonal variation in the volume of water discharged from the upper Deschutes River basin is unusually low for an area its size despite the intensive water management described above (Figure 3-1). This is attributable largely to the presence of extensive permeable volcanic formations and an associated aquifer that discharge prodigious quantities of groundwater near Lake Billy Chinook (Gannett et al. 2001; O'Connor et al. 2003). Groundwater discharges are particularly heavy into the Metolius River watershed, especially for 8 miles of the Deschutes River between Big Falls and Lake Billy Chinook, the lower 2 miles of Whychus Creek, nearly 8 miles of the Crooked River from Osborne Canyon to Lake Billy Chinook, and beneath the reservoir and the rest of the hydroelectric complex (Gannett et al. 2001). These discharges account for most stream flow leaving the basin, particularly in the summer and early fall (Gannett et al. 2001). Outside the groundwater-dominated areas just identified, flow patterns within the basin are more varied and often substantially affected by water management practices associated with irrigated agriculture and a growing human population (Golden and Alyward 2006). These influences on stream flows occur in addition to altered watershed conditions that are pronounced in the Crooked River watershed (Stuart et al. 1996; Crooked River Watershed Council 2008).

[9] Approximately 764,000 acre-feet of water were diverted by such groups in 1994 (Gannett et al. 2001, excluding Peoples Canal), primarily during an irrigation season of approximately 200 days and at aggregate rates that were not constant.

Table 3-6 Large water storage reservoirs and diversions in the upper Deschutes River basin excluding locations above Prineville and Ochoco Reservoirs in the Crooked River watershed

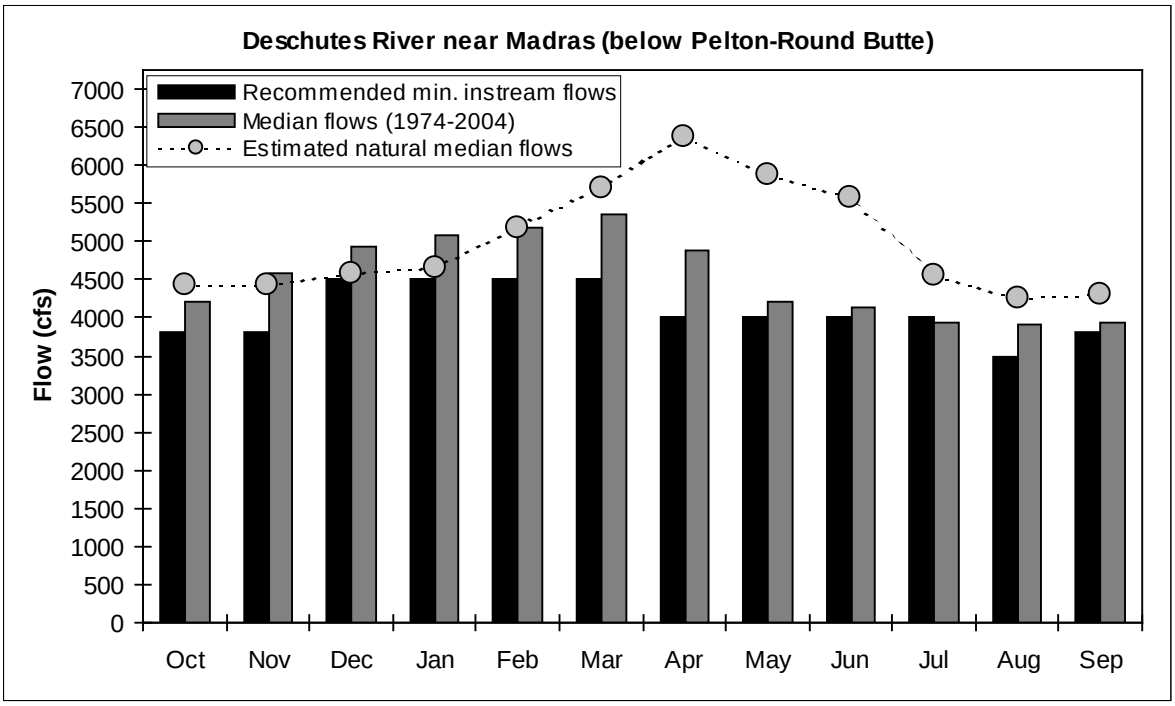
Areas	Facilities	Owners	Operators	Capacities
Deschutes River (Mainstem And Headwaters)	Crane Prairie Dam and Reservoir	Bureau of Reclamation	Central Oregon Irrigation District (ID)[1]	55,300 acre feet active storage
	Wickiup Dam and Reservoir	Bureau of Reclamation	North Unit ID[1]	200,000 acre feet active storage
	Crescent Lake	Tumalo ID	Tumalo ID	86,050 acre feet active storage
	Walker Basin Headworks and Main Canal	Walker Basin ID	Walker Basin ID	38 cfs maximum diversion
	Arnold Diversion Dam	Arnold ID	Arnold ID	150 cfs maximum diversion
	Central Oregon Diversion Dam and Canal	Central Oregon ID	Central Oregon ID	1,382 cfs maximum diversion shared with Pilot Butte
	Tumalo Headworks and Bend Feed Canal	Tumalo ID	Tumalo ID	185 cfs maximum diversion
	North Canal Diversion and Pilot Butte Canal	Central Oregon ID	Central Oregon ID	1,382 cfs maximum diversion shared with CO Canal
	North Unit Headworks and Main Canal	Bureau of Reclamation	North Unit ID[1]	1,101 cfs maximum diversion
	Swalley Headworks and Main Canal	Swalley ID	Swalley ID	125 cfs maximum diversion
Deschutes River (Tumalo Creek)	Upper Tumalo Reservoir	Tumalo ID	Tumalo ID	1,100 acre feet short-term, off-channel storage
	Tumalo Headworks and Tumalo Feed Canal	Tumalo ID	Tumalo ID	214 cfs maximum diversion
Deschutes River (Whychus Creek)	Three Sisters Headworks and Main Canal	Three Sisters ID	Three Sisters ID	153 cfs maximum diversion
Deschutes River (Off-Channel)	Haystack Dam and Equalizing Reservoir	Bureau of Reclamation	North Unit ID[1]	5,600 acre feet active storage
Crooked River (Mainstem)	Bowman Dam and Prineville Reservoir	Bureau of Reclamation	Ochoco ID[2]	148,640 acre feet active storage
	Crooked River Diversion Dam and Feed Canal	Bureau of Reclamation	Ochoco ID[1]	180 cfs maximum diversion
	Central Ditch, Peoples Ditch, Rice-Baldwin Ditch, Lowline Ditch	Private	Private	38.5 cfs maximum diversions
	Crooked River Pumping Plant	North Unit ID	North Unit ID	150 cfs maximum pump capacity, 200 cfs right to divert
Crooked River (Ochoco Creek)	Ochoco Dam and Reservoir	Ochoco ID	Ochoco ID	39,000 acre feet active storage; 5,266 added pump storage
	Ochoco Main Canal	Ochoco ID	Ochoco ID	211 cfs maximum diversion
	Rye Grass Ditch	Ochoco ID	Ochoco ID	8 cfs maximum diversion

Source: Adapted from Golden and Alyward (2006) and information provided by Bureau of Reclamation (2003)

[1] Transferred Works: where the daily responsibility for operations and maintenance activities were transferred to and financed by the irrigation district.

[2] Reserved Works: where operations and maintenance activities are the responsibility of the United States, but daily operations and maintenance responsibility may be contracted to another entity while the United States maintains financial responsibility.

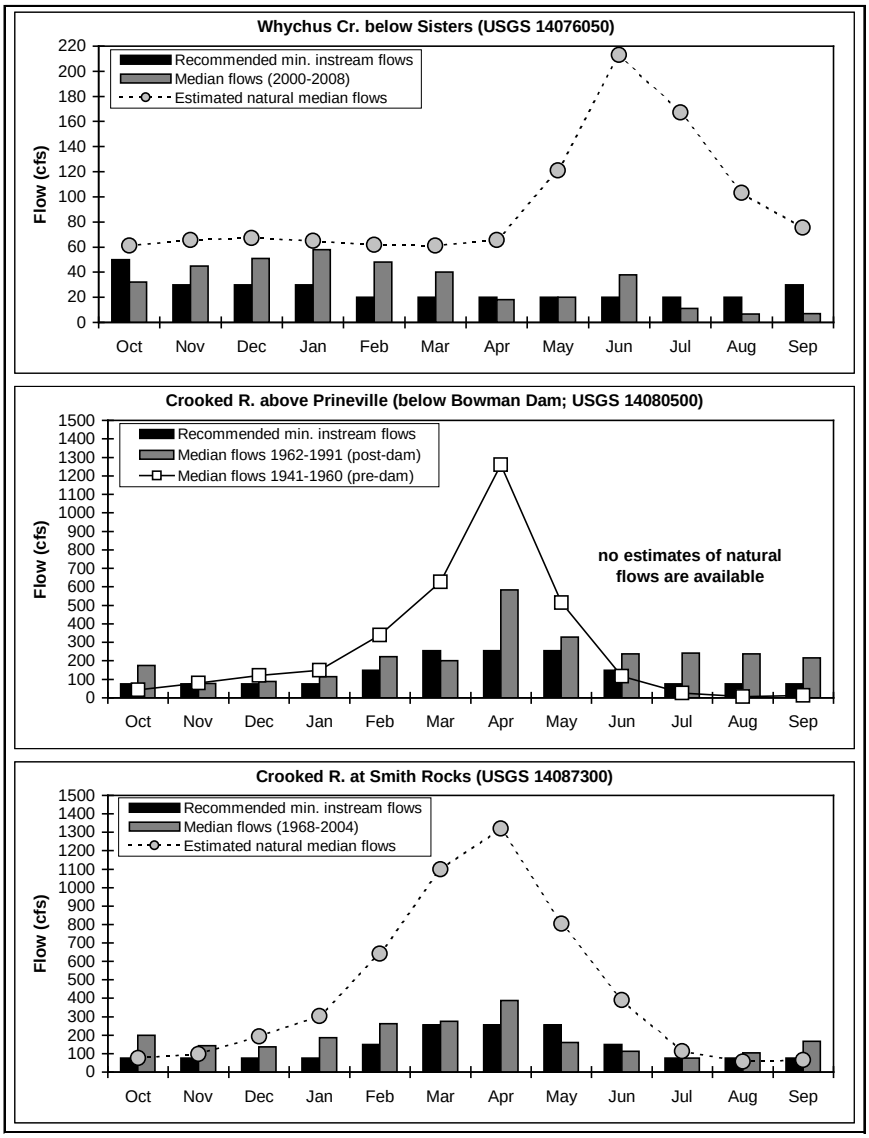
Figure 3-1 Recent median stream flows versus state-recommended minimums and estimated natural median flows for the mainstem Deschutes River near Madras (United States Geological Survey [USGS] guage no. 14092500)



Source: Adapted from Golden and Alyward (2006).

In those portions of the Deschutes and Crooked River watersheds that lie within the action area but above the identified groundwater-dominated zones near Round Butte, two basic seasonal hydrographic patterns occur where stream flows are affected by water management (Figure 3-2). One pattern, seen in Whychus Creek, McKay Creek, and other streams unaffected by water storage reservoirs, has discharge modified primarily during the irrigation season (April to mid-October) when stream flow is removed at diversion dams (or pumps) and decreases to levels often insufficient to meet minimum flow targets established by the state. The second pattern is seen in streams, such as the Crooked River below Prineville Reservoir, where water storage behind Bureau of Reclamation's Bowman Dam expands outside the irrigation season and contracts during this season as supplemental water is delivered to water users downstream (Figure 3-2). Below the dam, flows decreased during periods of naturally high runoff and increased during the irrigation season downstream to at least the point(s) of major water district diversions (near Prineville in this particular case). Below these major diversion points, flows substantially diminish and may not meet minimum instream flow targets during the irrigation season, particularly during dry years. In the case of the Crooked River near and below Prineville, summer and early fall flows are naturally low, but they declined due to alterations and consumptive uses well before the Bowman Dam was completed in 1961 (Lichatowich et al. 1998).

Figure 3-2 Recent median stream flows versus state-recommended minimums and estimated natural or historical median flows for Whychus Creek below Sisters, Crooked River above Prineville, and Crooked River at Smith Rocks.



Source: Adapted from Golden and Alyward (2006), with supplemental data from USGS gauge 14080500 and natural flow estimates from Oregon Water Resources Department (2008b) that were calculated as described by Cooper (2002).

Given existing consumptive and instream water rights, water availability analyses indicate that aggregate consumptive uses of the upper Deschutes River watershed's surface waters reached their limit (Oregon Water Resources Department 2008a). Permits for greater consumptive uses of these waters are no longer being issued in the basin, and legal restrictions were placed on permits for additional groundwater use because hydrologic connections between the basin's surface and groundwater resources make such restrictions necessary to protect existing consumptive and instream water rights (Golden and Alyward 2006; Oregon Water Resources Department 2008b).

Groundwater use permits are currently being issued within the upper Deschutes River watershed under a Deschutes Groundwater Mitigation Program administered by the Oregon Water Resources Department and at least temporarily capped at 200 cfs (Oregon Water Resources Department 2008b), as set forth under Oregon Administrative Rules 690-505 and Oregon Administrative Rules 690-521 (Subsection 1.7, Relationship to Other Plans and Policies). The program requires the volume of groundwater pumped and consumed under each permit to be offset through surface water conservation measures and market-based mitigation intended to return an equivalent or greater volume of surface flow to streams affected by the pumping. The groundwater mitigation program is structured to encourage stream flow increases primarily during the irrigation season through collaboration with the agricultural community, and monitored in an effort to ensure that offsetting returns of surface flows constrain further surface water depletions. Early monitoring has focused on the mainstem Deschutes River and suggests incremental increases in irrigation season flows and decreases in winter flows (Oregon Water Resources Department 2008b).

Stream flow depletion is evident during summer months in streams above the zone of heavy groundwater input near Lake Billy Chinook (NPCC 2004). Such depletion is difficult to resolve other than through collaboration because existing regulations encourage resolution of environmental problems, but may not provide clear resolution when issues are associated with privately held water rights (Golden and Alyward 2006). With this in mind, collaborative approaches are considered essential to resolving potential water conflicts in the upper Deschutes River watershed and were recently explored and acted upon by diverse groups, including the Deschutes Water Alliance established by Congress in 1996 (Subsection 1.7, Relationship to Other Plans and Policies). The Deschutes Water Alliance includes central Oregon irrigation districts, central Oregon municipalities, the Deschutes River Conservancy, and the CTWSR. As a result of efforts by the Deschutes Water Alliance, its members, and others, stream flows increased in some area streams during the irrigation season, including segments of Whychus Creek and the mainstem Deschutes where MCR steelhead are reintroduced. The need for further flow improvements within Whychus Creek and the lower Crooked River watershed to achieve minimum instream flows as recommended by ODFW remains substantial, however, and recent analyses by Watershed Sciences (2008) and others suggested that the ODFW-recommended minimums may not always be sufficient to meet the full suite of aquatic species needs, including MCR steelhead.

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3.3.3 Water Quality

Water quality in the Deschutes subbasin varies from pristine to degraded. Portions of the Crooked River, Deschutes River and Whychus Creek are all on Oregon State's 303(d) list as administered by the state under the Clean Water Act. Water quality standards were violated on these streams due to temperature, sedimentation, pH, dissolved oxygen, flow modification, and/or habitat modification. Primary summer concerns include temperature, flow, dissolved oxygen, and pH. As an exception, water quality in the Metolius River watershed is excellent throughout most of the watershed due to spring sources in tributaries, as well as in the mainstem (Nelson and Kunkel 2001; NPCC 2004; Oregon Department of Environmental Quality 2006).

Beneficial uses for water in the action area include public domestic water supply, industrial water supply, livestock watering, salmonid fish rearing, resident fish and aquatic life, fishing, water contact recreation, aesthetic quality, private domestic water supply irrigation, fish passage, wildlife viewing, hunting, boating, and hydropower. Land use practices that affected water quality include water storage and diversion, agricultural and livestock runoff, failing septic system, wastewater treatment and other discharges, toxic spills, soil erosion, and degraded upland and riparian vegetation (ODEQ 2006).

3.4 Socioeconomics

Information for this subsection was obtained from the U.S. Census Data and State of Oregon, Office of Economic Analysis, for the three counties where most of the project area is located (Jefferson, Deschutes, and Crook Counties). These three counties are within the Central Oregon economic region. Human population growth has been substantial during recent decades in the three counties, particularly in Deschutes County and its largest communities: Bend, Redmond, and Sisters (Table 3-7). From 1990 to 2008, the population nearly quadrupled in Bend (from 20,468 to 80,995 residents), more than tripled in Redmond (7,163 to 25,445 residents), and nearly tripled in Sisters (679 to 1,875 residents) (Population Research Center 2008). However, since 2008, populations declined throughout the analysis area, particularly in Bend and Redmond (Table 3-7). This population decline mirrors the overall economic downturn and decreased ability of residents and tourists to spend dollars on recreation, tourist activities, and retirement homes.

Table 3-7 Population growth in Deschutes, Crook, and Jefferson Counties and incorporated communities, 1990 to 2009

County/Community	Population Estimate			
	1990[1]	**2000[2]**	**2008[2]**	**2009[3]**
Crook County	14,111	19,182	26,845	22,566
Prineville	5,355	7,356	10,370	7,356
Deschutes County	74,958	115,367	167,015	158,629
Bend	20,468	52,029	80,995	52,029
Redmond	7,163	13,481	25,445	13,481
Sisters	679	959	1,875	959
Jefferson County	13,676	19,009	22,450	19,959
Madras	3,443	5,078	6,640	5,078
La Pine	4,815	5,799	6,938	6,470

[1] U.S. Census Bureau data adjusted by the Office of Economic Analysis, Department of Administrative Services, State of Oregon.
[2] Population Research Center (2008).
[3] U.S. Census Bureau (2010).

Economic activity within Deschutes, Crook, and Jefferson Counties generated $3.1 billion in reported income during 2006 (U.S. Census Bureau 2009). The three-county area is dominated by employment in agriculture and forest products, tourism and recreation, and government. Since 2007, however, the region has experienced job losses every quarter. Central Oregon has the highest unemployment rate in the state at 14.7 percent, with the highest unemployment rate in the area in Crook County (Table 3-8). Most of the job losses occurred in the

manufacturing sector, while the wood products industry has shown some signs of job recovery. Income sources derived from lands within the analysis area are primarily associated with farming or forest products. Median household income ranges from approximately $43,000 to $55,000 (Table 3-8).

Table 3-8 Unemployment, household income, and land area for Jefferson, Deschutes, and Crook Counties

Parameter	County		
	Jefferson	Deschutes	Crook
May 2010 Unemployment Rate (percent)	14.2	14.7	17.0
Median Household Income ($)	43,786	54,328	43,374
Land Area (Square Miles)	1,791	3,055	2,987
Persons per square mile	10.7	37.8	5

Source: U.S. Census Bureau 2010

Agriculture is the predominant source of income in Jefferson County with 60,000 acres located on irrigated lands. Crops include vegetables, grass, flower seeds, garlic, mint, and sugar beets. The county also has rangelands and an industrial base related to forest products, as well as a tourism industry that includes the Kah-Nee-Ta Resource and Convention Center. The Warm Springs Forest Products Industry, owned by the CTWSR, is the largest industry in the county. The incorporated community within Jefferson County is Madras with more than 5,000 residents. Primary landowners in Jefferson County are the USFS (24 percent) and CTWSR (21 percent).

Before the economic downturn, Deschutes County was considered the fastest growing county in Oregon due to the year-round availability of recreation activities. As a result, the area was popular for retirement home construction. Beyond tourism, the county's primary industries are lumber, ranching, and agriculture (primarily potatoes). The USFS owns 50 percent of the lands within county boundaries. Other protected areas within the county include Newberry National Volcanic Monument. Incorporated areas include Bend (52,029 residents), Redmond (13,481 residents), Sisters (959 residents), and La Pine (6,470 residents). The Bend-Redmond area has become a regional shopping

area. Lands surrounding the analysis area are primarily within the Deschutes National Forest or within agricultural areas.

Forest products, agriculture, livestock, and recreation/tourism comprise Crook County's economy. Agriculture is supported by irrigation districts with the primary crops being hay, grain, mint, potatoes, and seed. Lumber is obtained primarily from the Ochoco National Forest. Prineville (7,356 residents) is the only incorporated area within Crook County. Most residences are concentrated near the Prineville reservoir. Although agriculture has provided consistent income to the county, expansion and diversification of agriculture were limited by the lack of new lands and availability of water for irrigation (Prineville Planning Department 2007). Approximately half of the county's lands are administered by the USFS and Bureau of Land Management, while the Bureau of Reclamation manages lands associated with the Prineville and Ochoco Reservoirs.

3.5 Environmental Justice

Federal agencies are required to address environmental justice concerns in their National Environmental Policy Act (NEPA) documents as required in Executive Order 12998 (59 CFR 769). Environmental justice is defined as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (U.S. Environmental Protection Agency Office of Environmental Justice, EH-411-97/0001, February 1997). As a Federal agency, NMFS must ensure that the decision-making process for this EA is fair, and that the impacts are evenly distributed among populations regardless of race, color, national origin, or income. No single group of people, based on racial, ethnic, socioeconomic, or other status should bear an unequal share of any negative environmental consequences that result from implementation of any action proposed in this EA.

The analysis area contains both minority and low-income populations. The primary minority populations within the three-county area consist of Hispanics, Native Americans, and African Americans. Within Crook County, minority residents include Hispanics (15 percent), African Americans (12 percent), Asians (4 percent), and Native Americans (1 percent) (U.S. Census Bureau 2010). Minorities in Jefferson County include Hispanics (21 percent), Native Americans (16 percent, and African Americans (1 percent) (U.S. Census Bureau 2010). The larger Native American population is due to the presence of CTWSR. Within Deschutes County, minority residents include African Americans (less than 1 percent), Native American (1 percent), Asian (1 percent) and Hispanic (7 percent) (U.S. Census Bureau 2010).

All three counties are considered distressed since their unemployment rates are greater than 10 percent (Business Oregon 2010). The poverty rates for the area include 10 percent of the residents within Deschutes and Jefferson Counties and 13 percent of the residents within Crook County.

The CTWSR consists of 1,019,385 square miles of land north of the Metolius River that are occupied and governed by the CTWSR (Wasco, Warm Springs, and Paiute Tribes). The reservation is primarily within Wasco and Jefferson Counties, and it includes smaller areas of Clackamas, Marion, Gilliam, Sherman, Lin, and Hood River (non-contiguous lands) Counties. The reservation was part of the 1855 Treaty with the Tribes of Middle Oregon. The treaty also provided for tribal members' hunting and fishing rights in their natural and accustomed areas, which includes the analysis area. Most of the population on the reservation lives in the community of Warm Springs (2,431 residents). Tribal income is derived primarily from a casino and Kah-nee-ta resort (lodging complex with a hotel, cottages, and tipis), hydroelectric projects on the Deschutes River (Warm Springs Power Enterprises), and Warm Springs Forest Products Industries. Tribal members engage in ceremonial, subsistence, and commercial fisheries in the Deschutes River, primarily at Sherars Falls and Willamette Falls. Primary fish harvested by the tribes are salmon, steelhead, sturgeon, and Pacific lamprey.

3.6 Recreation

Tourism represents an important component of the central Oregon economy because of the large quantity of accessible public lands and optimum climate conditions with cool and dry snow conditions for winter sports and warm, dry, sunny conditions for summer sports. Tourism is the third largest economic indicator of the central Oregon area. The Deschutes, Crooked, and Metolius Rivers and Whychus Creek attract a large number of visitors and residents for recreation, and portions of all four streams are designated as Wild and Scenic Rivers.

Congress created the National Wild and Scenic Rivers System in 1968 (Public Law 90-542; 16 U.S.C. 1271 *et seq*.) to preserve selected rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The designation safeguards the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

The wild and scenic designation provides for the protection and enhancement of outstandingly remarkable values of free-flowing and other natural river systems. River segments may be designated as recreational, scenic, and/or wild. The Deschutes River is mostly designated as recreation, although

one area is also scenic. The Metolius River is designated as scenic and recreational; the Crooked River is designated as wild, scenic, and recreational; while Whychus Creek is designated as wild and scenic. Management plans for each of the federally managed segments of these rivers support the goal of reintroducing anadromous fish into the area (ODFW and CTWSR 2008).The entire 100-mile length of the lower Deschutes River watershed is also a component of the Oregon State Scenic Waterways System.

Public recreation opportunities within the analysis area include recreational use of lands managed by the USFS (Deschutes and Ochoco National Forests), Bureau of Land Management, and Bureau of Reclamation, as well as public recreational lands and facilities owned by Oregon State Parks and county/municipal parks. Recreational opportunities include fishing, hiking, boating, hunting, horseback riding, rafting, biking, rock climbing, golfing, camping, snowmobiling, and cross-country skiing. Most recreation occurs during the summer months. Lake Billy Chinook, Prineville Reservoir, Ochoco Reservoir, Crooked River, and small reservoirs are used primarily for fishing. Prineville Reservoir State Park and Cove Palisades State Park are both in the top five Oregon State Parks for visits and use.

Fishing, rafting, kayaking/canoeing in central Oregon occurs on lakes and rivers, including those rivers planned for reintroduction of MCR steelhead. Fish caught by anglers within the three-county area include warm- and cold-water fish species and introduced and natural-origin fish. Popular fish caught include trout (rainbow trout, brook trout, lake trout, redband trout, bull trout, and brown trout), salmon (steelhead, kokanee, Atlantic salmon), bass (largemouth and smallmouth), black crappie, and mountain whitefish. At times, fishermen may inadvertently harvest natural-origin fish that are prohibited from harvest.

4 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction and Alternative Description Summaries

This section contains descriptions of the potential environmental consequences of implementing Alternative 1 (No-action Alternative), Alternative 2 (Proposed Action), and two other action alternatives (Alternative 3 and Alternative 4). The resources analyzed in this section are identical to those discussed in Section 3, Affected Environment. The affected environment resource information establishes baseline conditions that are used in the analyses under each alternative in this section. For this analysis, the baseline conditions reflect expected conditions under the No-action Alternative. Subsequently, each resource under each action alternative is compared to the No-action Alternative (Alternative 1) to assess changes in conditions relative to the affected environment, which is the same as baseline conditions.

The action area consists of streams located within the upper Deschutes, Crooked River, and Metolius River watersheds (Subsection 1.6, Description of Action Area). A summary of short-term and long-term effects under each alternative is provided at the end of this section (Table 4-1).

Under Alternative 1, MCR steelhead reintroduction efforts would continue, and steelhead above Pelton Round Butte Dam would continue to be members of the MCR DPS. This DPS would remain federally listed as threatened under the ESA throughout its range. This listing would likely continue for a number of years until NMFS determines that the entire DPS can be delisted.

Under the action alternatives, NMFS would designate steelhead above Round Butte Dam as an NEP. The NEP designation would only be effective for the steelhead when they are in the geographic area of the NEP. When the same fish are below Round Butte Dam (outside the specific geographic area), they would not carry the NEP designation. Therefore, they would have threatened status. Under Alternative 2 (Proposed Action), NMFS would designate MCR steelhead reintroduced into the upper Deschutes, Crooked, and possibly the Metolius River watersheds above Round Butte Dam as an NEP for ~~three successive generations, approximately~~ 12 years. ~~This 12-year timeframe would begin when adult MCR steelhead are passed above the dams (Subsection 1.2.1, MCR Steelhead Reintroduction).~~ Under Alternative 3, NMFS would designate steelhead as an NEP population for 7 years in the same watersheds as Alternative 2. After 7 years, the NEP designation would be expired, and the fish would return to the MCR DPS status. Under Alternative 4, NMFS would designate steelhead above the dams as an NEP population for 5 years, after which time, NMFS would reevaluate the status of the MCR steelhead and could either 1) continue the NEP designation for additional years (with a subsequent

reevaluation), or 2) expire the designation. NMFS assumes the listing status of the MCR steelhead DPS would remain as threatened once the NEP designation expires under any action alternative.

4.1.1 Analysis Elements Common to all Alternatives

Various elements of each alternative would be commonly implemented. As a result, they are not analyzed in detail under each alternative, but are described here.

4.1.1.1 Regulatory Avenues

Non-Federal public and private entities have, and will continue to have, various regulatory avenues under the ESA in which to seek limits on their potential liabilities from otherwise lawful activities. These could include a section 4(d) limit approval or a section 10(a)(1)(B) incidental take permit (ITP). Either approach would require a section 7 consultation process with NMFS before approving a limit or issuing an ITP. For analysis purposes, and because the regulatory avenue non-Federal public and private entities may pursue in any given timeframe is speculative, these potential regulatory approaches are implied. For example, when the HCP is discussed, it is implied that it would be implemented through a section 10(a)(1)(B) ITP with a section 7 consultation. Further, NMFS's development of a section 4(d) limit or issuance of a section 10(a)(1)(B) ITP implies completion of a section 7 consultation.

4.1.1.2 Habitat Conservation Plan Funding

As described in Subsection 1.2.2.1, Evaluation of Potential Liabilities and Development of a Habitat Conservation Plan, central Oregon irrigation districts that are members of the DBBC and the City of Prineville are currently developing an HCP (HCP proponents) for their collective management actions that potentially take listed MCR steelhead. It is assumed that HCP development and completion by the HCP proponents would depend on available funding, regardless of the alternative implemented. It is impossible to speculate on whether adequate funding would be available or on the timing of such funding. NMFS assumes that the HCP would be completed and implemented under all action alternatives, but that completion timeframe would vary by alternative. Further, HCP completion under the No-action Alternative would be less certain than under the action alternatives, as discussed below.

4.1.1.3 Implementation of Existing Plans

It is also assumed for analysis purposes that the Federal MCR steelhead recovery plan (NMFS 2009) and the co-manager's MCR steelhead reintroduction plan (ODFW and CTWSR 2008) (co-manager's reintroduction plan) would continue to be implemented consistently under all alternatives analyzed (Subsection 1.2.1 MCR Steelhead Reintroduction; Subsection 1.2.2, Species Listing under the

Endangered Species Act). However, the management flexibility that NMFS could have under the action alternatives would enable more possibilities to develop conservation measures in the short term, as described in the analyses, when compared to the No-action Alternative. Further, regardless of the implementation of either plan, reintroduction would continue because the FERC license order requires the owners of Pelton Round Butte to provide fish passage. Therefore, fish passage and reintroduction will proceed under the FERC order regardless of the alternatives analyzed.

4.1.1.4 Monitoring

Monitoring is not included in the alternative analyses because it is assumed that current, ongoing monitoring efforts in the action area would continue under all alternatives (Section 2, Alternatives). Monitoring is required in the Pelton Round Butte FERC license, which would not change under any of the alternatives, because it is an independent responsibility. Monitoring results would be used to manage conservation actions within the action area adaptively to ensure continued habitat improvements over the long term under all alternatives.

4.1.1.5 Short-term and Long-term Timeframes used for Analyses

The following analyses define impacts or benefits of the alternatives in short-term and long-term timeframes. The short term is considered synonymous with the near term, or some timeframe close to initiation of the NEP designation periods or close to the current time period. In contrast, the long term would include the entire NEP designation period and the timeframe beyond that period.

Short term may also indicate the duration of the effect or of a measure. For example, short term could be used to define temporary closures of recreational opportunities to support recovery efforts. Short-term implementation of a measure could result in long-term benefits.

It is anticipated that, for all the action alternatives, more meaningful and well-planned measures focused on reintroduction success would be developed and created in the short term and in a time certain when compared to Alternative 1. Implementation of conservation measures in the short term under any of the action alternatives is anticipated to have long-term, positive benefits, as well, because the measures would address impacts that occur over the long term and develop in a comprehensively planned manner to create a meaningful and well-planned suite of measures focused on reintroduction success. Further, because of the certain timeframes under each of the action alternatives, non-Federal public and private entities would likely have opportunities to forecast and appropriate necessary funds and staff to implement and monitor new measures. This would result in implementation of comprehensive, meaningful conservation measures developed in cooperation with NMFS in the short term.

4.1.1.6 Take

ESA section 3(19) defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." If NMFS designates MCR steelhead within the experimental population area as an NEP, then take would be allowed provided that the taking is unintentional, not due to negligent conduct, and incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Examples of otherwise lawful activities include recreation, agriculture, forestry, municipal usage, and other, similar activities, which are carried out in accordance with Federal, state, and local laws and regulations. NMFS expects that levels of incidental take in the NEP designation area would be low because ongoing conservation measures in the action area would minimize adverse effects on steelhead and their habitat and would continue to support ongoing reintroduction efforts and recovery plan goals.

4.2 Fish

Described below are the environmental consequences of implementing the alternatives on MCR steelhead; bull trout; redband trout; and other natural-origin and introduced fish. The environmental consequences include analyses of distribution, habitat, life history, food resources, and fisheries within the action area for the above-named species.

This EA does not analyze the effects of reintroduction itself, but does incorporate the reintroduction into the description of the affected environment as baseline conditions since this is an ongoing activity and will continue regardless of the proposed action. The analysis herein focuses on impacts related to designation of an NEP of MCR steelhead, including interactions with other species from this designation.

4.2.1 Endangered Species Act-listed and Sensitive Species

4.2.1.1 MCR Steelhead

NMFS listed the MCR steelhead DPS as threatened on March 25, 1999 (64 Fed. Reg. 14517) (Subsection 1.1, Background). As described in Subsection 3.1, Fish, and Subsection 3.1.1.1, MCR Steelhead, Distribution, natural-origin MCR steelhead were extirpated from the Upper Deschutes, Crooked, and possibly the Metolius River watersheds more than 40 years ago due to loss of fish passage through the Deschutes River at the Pelton Round Butte dams (Subsection 3.1.1.2, Distribution). Fish passage was terminated at Pelton Round Butte in 1968 due to the inability to collect juvenile migrants out of Lake Billy Chinook.

Under the 2004 settlement agreement and 2005 FERC license, fish passage is being restored at Pelton Round Butte (Subsection 1.1, Background). The new juvenile fish passage facility at Round Butte Dam became operational in early December 2009 and, by July 31, 2010, had successfully collected more than 100,000 salmon and steelhead smolts, including 42,233 juvenile spring Chinook salmon, 50,293 yearling kokanee (to return as sockeye) and 7,806 juvenile MCR steelhead. All of these fish were transported and released below Pelton Round Butte (Subsection 3.1.1.1, MCR Steelhead) and in 2012, both spring Chinook and MCR steelhead adults were transported and released into the NEP area.

As described in Subsection 3.1.1.1, MCR Steelhead, a long-term goal for MCR steelhead is to improve tribal, recreational, and commercial fisheries (ODFW 1997; ODFW and CTWSR 2008; NMFS 2009). When delisting or broad-based recovery goals are achieved, recreational and/or commercial fisheries may be possible (ODFW and NMFS 2009).

4.2.1.2 Alternative 1 (No-action Alternative)

Status

Under Alternative 1, reintroduction efforts would continue to occur in the action area, and no NEP would be designated. The MCR steelhead released above Round Butte Dam would continue to be listed as a federally threatened species (Subsection 3.1.1.1, MCR Steelhead, Status). Limiting factors and threats identified in the Federal MCR steelhead recovery plan (NMFS 2009) would likely continue and would be addressed through ongoing local, state, tribal, and Federal efforts (NMFS 2009) (Subsection 1.2.2, Species Listing under the Endangered Species Act; Subsection 1.7, Relationship to Other Plans and Policies). Restoration of a self-sustaining population of MCR steelhead through implementation of fish passage and other mitigation measures in the Pelton Round Butte license, the co-manager's reintroduction plan (ODFW and CTWSR 2008), and the Federal MCR steelhead recovery plan (NMFS 2009) would continue through use of hatchery-origin fish in the upper Deschutes basin for reintroduction above Pelton Round Butte (Subsection 3.1.1.1, MCR Steelhead, Status).

In the long term, funded actions to achieve a self-sustaining population of MCR steelhead would continue through Federal, state, and local agencies, tribes, utilities, and non-governmental organizations under Alternative 1 (Subsection 1.2.1, MCR Steelhead Reintroduction; Subsection 1.7, Relationship to Other Plans and Policies). The Federal listing status may be a basis for entities to obtain additional funding support for conservation efforts to address potential ESA liabilities, to develop a self-sustaining population of MCR steelhead, and possibly to minimize the listing duration (Subsection 1.6, Description of the Action Area).

Several irrigation districts have already completed a number of important water conservation measures in the action area, would likely continue to pursue available opportunities to limit potential liabilities, and would continue to implement these measures. Additionally, central Oregon municipalities have undertaken assessments of actions they must implement under city codes and regulations (e.g., water use, road maintenance, storm runoff, noxious weed control) that may affect listed species (Subsection 1.5, Other Plans and Policies). Under Alternative 1, these assessments would likely continue to minimize ongoing, potential ESA liabilities and, if so, would lead to development of measures to help conserve aquatic resources, including MCR steelhead habitat, and would support the reintroduction effort.

NMFS expects no changes or modifications to planned or ongoing Federal actions or actions associated with implementation of the Pelton Round Butte license in the action area under Alternative 1. As discussed in Subsection 1.2.2, Species Listing under the ESA, the HCP being developed by HCP proponents would include conservation measures for management of MCR steelhead habitat and would be part of the basis for a potential incidental take permit issued by NMFS. Because of the current level of interest and effort to develop an HCP to be included with an ITP application, NMFS assumes that the HCP would continue to be developed under the No-action Alternative, but that the timeframe for completion and ITP issuance would remain uncertain. This is because HCP proponents would have no incentive to complete conservation measures by a particular time.

Finally, ESA section 7 consultations with NMFS would remain a requirement for Federal actions within the action area (including any non-Federal public or private entity action involving a Federal permit or approval) that may affect listed species, including MCR steelhead.

Because of the ESA section 7 consultation requirements and implementation of the Pelton Round Butte license, Federal MCR steelhead recovery plan (NMFS 2009), and co-manager's reintroduction plan (ODFW and CTWSR 2008), Federal, non-Federal public, and private entities would likely avoid activities that may harm MCR steelhead in the action area such as additional diversions, placement of new passage barriers, and increased water withdrawals. Federal, non-Federal public, and private entities may seek to implement measures to decrease current impacts from their activities, and steelhead protection measures may be developed due to the ESA section 7 consultations requirement for Federal agencies and/or the need to avoid jeopardy to the species and to minimize incidental take. While the section 7 consultation process and other take avoidance measures would remain a benefit to NMFS as avenues to assess potential effects before implementation of Federal, non-Federal public, and private activities and to work with these entities to minimize effects, it would limit NMFS's

management flexibility that Congress intended through section 10(j) of the ESA because it would also provide less certain long-term conservation planning for NMFS compared to development of a comprehensive HCP (although an HCP would likely be developed under Alternative 1, this discussion focuses on the outcome of Section 7 consultations and/or take avoidance measures only). As an example of such planning uncertainty, the timeframe for Federal, non-Federal public, and private entities to seek section 7 consultations and/or to implement take avoidance measures would be uncertain under Alternative 1 because the listing status would remain indefinite; Federal agencies could seek section 7 consultations at any time and private entities could implement take avoidance measures at any time.

Under Alternative 1, Federal, non-Federal public, and private entities would continue to develop measures to meet recovery planning goals (NMFS 2009); however, it is likely that these measures would not be developed or implemented in a defined timeframe. Additionally, activities designed to improve conditions for listed species would likely take substantial time to achieve under Alternative 1 because there would be no defined timeframe for their completion. Under the ESA, NMFS may have limited discretion to allow beneficial, long-term conservation efforts to develop because of the immediate requirements for protection of listed species. This results in requirements that Federal, non-Federal public, and private entities put temporary conservation measures in place that may not provide the most beneficial, long-term benefits to listed species, which would be expected under Alternative 1. Furthermore, funds and staffing needed to achieve conservation actions may not be readily available to develop meaningful long-term solutions for listed species under Alternative 1 because without a defined timeframe to accomplish conservation planning entities may not incorporate such needs into their long range funding and staffing forecasts. This may discourage non-Federal public and private entities that often require time to attain funding to accomplish beneficial actions for listed species. As a result of these limitations, NMFS would have less discretion in fostering comprehensive, long-term conservation planning, and less flexibility in seeking short-term, cooperative solutions with non-Federal public and private entities under Alternative 1 when compared to the action alternatives.

In contrast to the lack of incentive to prepare an HCP or other comprehensively developed, meaningful conservation measures focused on reintroduction success in a defined timeframe, Alternative 1 would provide NMFS with an opportunity to measure the progress of reintroduction over both the long and short terms (Subsection 2.1, Alternative 1, No-action Alternative). This is because Alternative 1 would provide an undefined timeframe to measure the success of reintroduction absent a defined NEP designation period. While the listing status would remain constant during this timeframe, NMFS would continue to monitor reintroduction success with the assistance of other agencies, which would result in

an understanding of what modifications and/or additional conservation efforts may be needed to improve the status, distribution, and life history factors of MCR steelhead in the action area.

Combined, 1) ongoing funded actions, 2) additional funded activities, 3) assessments of actions, 4) possible continued implementation of some conservation measures, and 5) results of ESA consultations would all benefit MCR steelhead habitat, both in the short term and long term. Such benefits would likely lead to status improvements, and would further the goals of the Federal MCR steelhead recovery plan (NMFS 2009) and co-manager's reintroduction plan (ODFW and CTWSR 2008), but it is uncertain when such measures would be implemented absent any incentive to complete them in a defined timeframe. It is also unknown when non-Federal public and private entities would seek ESA consultations to implement measures. This scenario would continue to render NMFS with limited discretion in fostering comprehensive, long-term conservation planning and management of listed MCR steelhead, and limited flexibility in seeking short-term, cooperative solutions with non-Federal public and private entities.

Distribution

The existing Eastside and Westside MCR steelhead populations as described in Subsection 3.1.1.1, MCR Steelhead, Distribution, would not be affected by the continued MCR listing as threatened or no NEP designation. These populations are protected under the ESA and will continue to receive conservation support and funding as described in the MCR steelhead recovery plan (NMFS 2009). Since the focus of the MCR steelhead reintroduction effort is upstream of Pelton Round Butte, and these existing populations occur downstream of the action area, there would be no change to the populations under Alternative 1. Over the long term, the extirpated Crooked River population would be replaced by reintroduced MCR steelhead.

Habitat and Life History

Under all alternatives, it is anticipated that, in the long term, reintroduced MCR steelhead would rear in the upper Deschutes and Crooked River watersheds and colonize streams adjacent to their initial reintroduction areas as they mature. From reintroduction as fry, fish would rear to age 2 and possibly age 3. Then the fish would be expected to move downstream into the upper Deschutes River, eventually passing Pelton Round Butte. They would continue downstream via the Deschutes River to the Columbia River to reach the Pacific Ocean (Subsection 3.1.1.1, MCR Steelhead, Habitat and Life History). They would remain in the Pacific Ocean for 1 to 2 years, and then return to the upper Deschutes, Crooked, and possibly the Metolius River watersheds to spawn using the same migratory

route. This is a total of approximately 4 years from the time the MCR steelhead fry hatch to the time they return as spawning adults. The timing of spawning would not change under Alternative 1.

Under Alternative 1, conservation measures identified under the Federal MCR steelhead recovery plan (NMFS 2009) that are supported by the Pelton Round Butte Fund, Federal agencies, non-Federal public and private entities, CTWSR, and central Oregon assessments of activities affecting steelhead recovery would be expected to help protect existing MCR steelhead habitat and to restore degraded habitat, fish passage, water supply, and water quality in the action area (ODFW and CTWSR 2008). Thus, over time, more MCR steelhead aquatic habitat would likely be created, protected, or restored, both in the short and long term under Alternative 1 (Table 3-2). Under Alternative 1, the threatened listing status and associated Federal MCR steelhead recovery plan (NMFS 2009) are expected to foster conservation in all areas where the species rears, migrates, and forages and to improve the associated habitat conditions (e.g., aquatic connectivity, floodplain function, riparian conditions, and water temperature) (Subsection 3.1.1.1, MCR Steelhead, Habitat and Life History). However, the timing of these efforts would be unpredictable due to the uncertain time before which NMFS would remove MCR steelhead from its listing status. This uncertainty could result in slow momentum for development of the HCP or other recovery efforts in a timely manner. Therefore, in the short term, the extent of habitat improvements would be uncertain under Alternative 1.

Because MCR steelhead are designated as threatened below Pelton Round Butte and throughout the remainder of their migratory route to the Pacific Ocean under Alternative 1 (Subsection 2.1, Alternative 1, No-action Alternative), conservation efforts planned under the Federal MCR steelhead recovery plan (NMFS 2009) would help restore these areas. The measures should also improve MCR steelhead survival throughout all life history stages, including their return to the action area for spawning.

Food Resources

Available food resources for steelhead would not change in the short term under Alternative 1 (Subsection 3.1.1.1, MCR Steelhead, Food Resources), but are expected to increase in the long term. As described above, additional MCR steelhead aquatic habitat would be created, protected, or restored in the long term under Alternative 1 and possibly in the short term depending on non-Federal public and private entity habitat improvement initiatives during the listing status duration. This improvement in habitat would help increase aquatic insects, an important MCR steelhead food supply.

Fisheries

In the long term, MCR steelhead would continue to have important cultural, religious, subsistence, ceremonial, and commercial value to the CTWSR (Subsection 3.1.1.1, MCR Steelhead, Fisheries) under Alternative 1. This species would also remain an important recreational fishery for non-tribal fishers below Pelton Round Butte under Alternative 1. In the long term, as the reintroduction efforts continue in conjunction with the protections of the Federal threatened listing status under Alternative 1, MCR steelhead fisheries could be established above Pelton Round Butte. This would result from expected increases in size and distribution of the Deschutes Westside population, reestablishment of the Crooked River population, and contributions to the ultimate recovery of the species (Subsection 3.1.1.1, MCR Steelhead, Fisheries). These benefits would then be realized by the tribes because of the increased fishery abundance.

In the short term, fishing pressure on MCR steelhead is not expected to change under Alternative 1 since the existing state fishing program does not allow for catch of this stock (Subsection 3.1.1.1, MCR Steelhead, Fisheries). However, unintentional harvest of juvenile steelhead in the recreational trout fishery would likely occur at some small level and would be the same under all alternatives.

Alternative 1 Summary

MCR steelhead recovery would continue under Alternative 1 because of ongoing reintroduction and recovery efforts. Implementation of meaningful, long-term conservation measures would be uncertain under Alternative 1 because of the need to respond to potential listing liabilities and ESA requirements in the short term. Improvement to MCR steelhead status, distribution, life history, food resources, and fishing would occur in a longer timeframe than under the action alternatives with a defined NEP designation period and known date for returning the DPS to a listing status.

However, Alternative 1 would provide NMFS with a substantial measure of the reintroduction's progress in both the short and long terms while the listing status is in place, and an understanding of what modifications and/or additional conservation efforts may be needed to improve the status, distribution, and life history factors of MCR steelhead in the action area. This outcome under Alternative 1 would continue to support the ongoing reintroduction effort, thereby promoting conservation of the species.

4.2.1.3 Alternative 2 (Proposed Action)

Status

As described under Alternative 1, reintroduction efforts would continue to occur in the action area under Alternative 2. However, steelhead in areas above Round Butte Dam would be designated as a NEP Subsection 2.2, Alternative 2, Proposed Action; Subsection 1.6, Description of the Action Area). Limiting factors and threats identified in the Federal MCR steelhead recovery plan would likely continue to exist and to be addressed through ongoing local, state, tribal, and Federal efforts (NMFS 2009) (Subsection 1.2.2, Species Listing under the Endangered Species Act; Subsection 1.7, Relationship to Other Plans and Policies). Restoration of a self-sustaining population of MCR steelhead through implementation of fish passage and other mitigation measures in the Pelton Round Butte license, the co-manager's reintroduction plan (ODFW and CTWSR 2008), and the Federal MCR steelhead recovery plan (NMFS 2009) would continue through use of hatchery-origin fish in the upper Deschutes basin for reintroduction above Pelton Round Butte (Subsection 3.1.1.1, MCR Steelhead, Status).

Under Alternative 2, the NEP designation would expire 12 years from the publication date of the NEP final rule ~~after three successive generations of natural-origin steelhead have passed Pelton Round Butte~~ (Subsection 2.2, Alternative 2, Proposed Action). ~~The 3-year succession would begin with the first year of adult passage and would end when adults from the third generation of natural spawners are passed above Round Butte Dam.~~ The criteria for passing adult MCR steelhead are discussed in Subsection 1.2.1, MCR Steelhead Reintroduction. When the NEP expires, steelhead above Round Butte Dam would return to the MCR steelhead DPS status. It is assumed for purposes of analysis, that the MCR steelhead status would remain as threatened.

In the long term (including the ~~approximate~~ 12-year timeframe and beyond), funded actions to achieve a self-sustaining population of MCR steelhead would continue through Federal, state, and local agencies, tribes, utilities, and non-governmental organizations under Alternative 2 (Subsection 1.1.1, MCR Steelhead Reintroduction; Subsection 1.7, Relationship to Other Plans and Policies). Additionally, assessment efforts by central Oregon municipalities necessary to modify city codes and regulations for conservation of MCR steelhead (e.g., water use, road maintenance, storm runoff, noxious weed control) would likely continue as under Alternative 1 because of the incentive to minimize their potential ESA liabilities. These assessments under Alternative 2 would likely lead to short-term development and implementation of meaningful and comprehensively planned measures to

conserve aquatic resources over the long term, including MCR steelhead habitat, and would support the reintroduction effort.

Short-term development and implementation of cooperative, integrated, comprehensive conservation measures would be a benefit to MCR steelhead over Alternative 1 because efforts to support reestablishment of a self-sustaining population in the action area could occur sooner because of the known and defined NEP designation timeframe. These more immediate efforts and associated monitoring would also lead to increased management flexibility and discretion for NMFS and, thereby, improved planning and management for recovery.

Under Alternative 2, HCP proponents would have more incentive to complete the HCP and to work cooperatively with NMFS to develop conservation measures aimed at recovery of MCR steelhead in the short term than under Alternative 1. This result would likely occur because Alternative 2 would encourage short-term completion of the HCP, and would be adequate time for completion, before the NEP designation expires in ~~approximately~~ 12 years, and the reintroduced population returns to all the protections of the ESA. Additionally, several irrigation districts have already completed a number of important water conservation measures in the action area. As under Alternative 1, these measures would continue to be implemented under Alternative 2. The NEP designation timeframe under Alternative 2 would give non-Federal public and private entities a defined period to monitor effects, to realize benefits to species, and then to develop and implement modifications or additional conservation measures cooperatively with NMFS.

While the NEP designation is in effect, there would be greater flexibility for NMFS to manage the reintroduced population than under Alternative 1 (Subsection 1.3.1, Congressional History and Intent). ESA section 9 take prohibitions and section 7 consultation requirements under Alternative 1 would be removed, allowing NMFS more flexibility and discretion for comprehensive planning, funding, and implementing a greater range of long-term conservation efforts designed to enhance and support the ongoing reintroduction and to promote recovery of the species. This outcome would likely result in colonization of MCR steelhead in some areas identified in the reintroduction plan as potential future habitat, but that require restoration sooner than under Alternative 1 where there is less incentive to accomplish these activities without a defined timeframe prior to returning the MCR steelhead DPS to the protections of their threatened status under the ESA. As under Alternative 1, non-Federal public, and private entities may seek to implement measures to decrease current impacts from their activities, and steelhead protection measures may be developed through section 7 consultations under Alternative 2 to avoid jeopardy to the species and to minimize incidental take. However, it is anticipated that HCP

proponents and other entities would seek to develop more comprehensive, coordinated, and integrated conservation efforts with NMFS while the NEP designation is in effect under Alternative 2 when compared to the uncertain planning timeframe under Alternative 1 because of the incentive to complete the measures while the possibility of ESA liability is removed.

Like all of the alternatives, Alternative 2 would lead to improvements of MCR steelhead status in the action area. However, compared to Alternative 3 and Alternative 4, Alternative 2 would provide NMFS with the greatest opportunity to measure the reintroduction's progress and to gather information on what additional conservation measures are needed to minimize and mitigate for impacts on MCR steelhead and help support the reintroduction program (Subsection 2.2, Alternative 2, Proposed Action). The approximate 12-year period based on monitoring reintroduction success would provide a substantial period to complete planning and secure funding for conservation measures to mitigate for the effects of the HCP proponents' actions and other, ongoing conservation efforts in the action area. The 12-year period would also support the ongoing reintroduction effort compared to other action alternatives, thereby promoting conservation of the species. For example, once NMFS and the HCP proponents have an understanding of the conservation measures needed to support the reintroduction, conservation measures to mitigate for specific landowner project effects can be developed that would be aimed at supporting the reintroduction. Consequently, with the long timeframe for HCP development under Alternative 2, appropriate conservation measures to address the HCP proponents' potential take would be more focused to support the reintroduced population than under the more limited timeframes of the other action alternatives.

Distribution

As under Alternative 1, through implementation of the Federal MCR steelhead recovery plan (NMFS 2009) and ongoing conservation efforts, including the ODFW and CTWSR (2008) reintroduction plan, reintroduced MCR steelhead would likely expand their distribution in the upper Deschutes, Crooked, and possibly the Metolius River watersheds over time. As under the status analysis for Alternative 2, this distribution increase could be anticipated to occur sooner than under Alternative 1 because of the incentive to develop and implement conservation measures, including the HCP, in the action area due to the limited timeframe of the NEP designation. As under Alternative 1, the existing Eastside and Westside MCR steelhead populations as described in Subsection 3.1.1.1, MCR Steelhead, Distribution, would not be affected by the continued MCR listing as threatened. These populations are protected under the ESA and will continue to receive conservation support and funding as described in the MCR

steelhead recovery plan (NMFS 2009). Over the long term, the extirpated Crooked River population would be replaced by reintroduced MCR steelhead.

Compared to Alternative 1, conservation measures supported by HCP proponent and other entity planning efforts may be developed and implemented in the short term under Alternative 2, resulting in habitat improvements and support for reintroduction efforts occurring sooner than under Alternative 1. Such improvements could support a near-term increase in MCR steelhead distribution in the action area, which would have long-term benefits to conservation of the species.

Habitat and Life History

Under all alternatives, it is anticipated that the reintroduced MCR steelhead would rear in the upper Deschutes and Crooked River watersheds and colonize streams adjacent to their initial reintroduction areas as they mature. From reintroduction as fry, the fish would rear to age 2, and possibly age 3. The fish would then be expected to move downstream into the upper Deschutes River eventually passing Pelton Round Butte. They would, continue downstream via the Deschutes River to the Columbia River to reach the Pacific Ocean (Subsection 3.1.1.1, MCR Steelhead, Habitat and Life History). They would remain in the Pacific Ocean for 1 to 2 years, and then would return to the upper Deschutes, Crooked, and possibly the Metolius River watersheds to spawn using the same migratory route. The timing of spawning would not change under Alternative 2 as compared to Alternative 1.

In addition to supporting these conservation efforts, non-Federal public and private entities would be expected to avoid and minimize activities that could result in impacts on listed species. However, with the limited liabilities from the NEP designation under Alternative 2, it is possible that non-Federal public and private entities would conduct lawful activities that may negatively impact MCR steelhead habitat or may incidentally take the species. While this likelihood exists, and such incidental take would be legal under an NEP designation (Subsection 1.3.1, Congressional History and Intent), it is considered remote because it would thwart ongoing efforts for long-term MCR steelhead reintroduction success, and could, therefore, exacerbate the threatened listing status for a long period. Furthermore, requirements under the Pelton Round Butte license, the Federal MCR steelhead recovery plan (NMFS 2009), and co-manager's reintroduction plan (ODFW and CTWSR 2008) would remain in place under the NEP designation, which would likely foster continued practices to avoid or minimize impacts to MCR steelhead habitat.

As under Alternative 1, conservation measures identified under the Federal MCR steelhead recovery plan that are supported by the Pelton Round Butte Fund, Federal agencies, non-Federal public and private entities, CTWSR, and central Oregon assessments of activities affecting steelhead recovery

would be expected to help protect existing MCR steelhead habitat and to restore degraded habitat, fish passage, water supply, and water quality in the action area under Alternative 2 (NMFS 2009). Under Alternative 2, more MCR steelhead aquatic habitat would be created, protected, or restored both in the short and the long term, as compared to Alternative 1 because of the incentive to implement conservation measures under the limited liabilities of the NEP designation, and because the NEP designation period would provide Federal, non-Federal public, and private entities with a defined planning timeframe to garner necessary resources to cooperatively develop and implement conservation measures with NMFS (e.g., funding and staffing). An additional incentive may be to minimize the long-term listing duration.

As under Alternative 1, conservation measures developed by Federal, non-Federal public, and private entities would adhere to the goals and objectives of the Federal MCR steelhead recovery plan (NMFS 2009) and co-manager's reintroduction plan (ODFW and CTWSR 2008), including measures designed to conserve areas where the species rears, migrates, and forages and to improve the associated habitat conditions (e.g., aquatic connectivity, floodplain function, riparian conditions, and water temperature) (Subsection 3.1.1.1, MCR Steelhead, Habitat and Life History). However, under Alternative 2, non-Federal public and private entities would have an incentive to develop and implement such measures within a defined timeframe, as opposed to under Alternative 1 because of the NEP designation timeframe. Because MCR steelhead would be continue to be designated as threatened below Pelton Round Butte and throughout the remainder of their range, including their migratory route to the Pacific Ocean under Alternative 2 (Subsection 2.2, Alternative 2, Proposed Action), conservation efforts planned under the Federal MCR steelhead recovery plan would help restore these areas and would improve MCR steelhead survival throughout all life history stages, including their return to the action area for spawning. This would be the same result as under Alternative 1.

Food Resources

Available food resources for steelhead could be improved in the short term under Alternative 2 as compared to Alternative 1 because of the incentive to develop and implement measures to improve habitat before the DPS is returned to the protections of the threatened status under the ESA at the end of the ~~approximate~~ 12-year timeframe and because the NEP designation period would provide non-Federal public and private entities with a defined planning timeframe to garner necessary resources to cooperatively develop and implement conservation measures with NMFS (e.g., funding and staffing). As under Alternative 1, additional MCR steelhead aquatic habitat would be created, protected, or restored in the long term through implementation of HCP conservation measures and conservation

efforts by other entities under Alternative 2. This improvement in habitat would help increase aquatic insects, an important MCR steelhead food supply.

Fisheries

As under Alternative 1, MCR steelhead would continue to have important cultural, religious, subsistence, ceremonial, and commercial value to the CTWSR (Subsection 3.1.1.1, MCR Steelhead, Fisheries) under Alternative 2. This species would also remain an important recreational fishery for non-tribal fishers under Alternative 2. As the reintroduction and recovery efforts continue in conjunction with expected implementation of conservation measures in the short term, benefits from MCR steelhead fisheries may be improved over current conditions, and possibly over Alternative 1. This would result from expected increases in size and distribution of the Deschutes Westside population, reestablishment of the Crooked River population, and contributions to the ultimate recovery of the species (Subsection 3.1.1.1, MCR Steelhead, Fisheries). These benefits would then be realized by the Tribes because of the improved fishery abundance. As described under Alternative 1, MCR steelhead fishing is not permitted (Subsection 3.1.1.1, MCR Steelhead, Fisheries), and the NEP designation under Alternative 2 would not likely change this restriction unless ODFW and NMFS determine that MCR steelhead abundance is sufficient to allow for a fishery (ODFW and NMFS 2009).

Alternative 2 Summary

Alternative 2 would result in improvements to MCR steelhead habitat and would support reintroduction in both the short and long terms. This would occur because Alternative 2 would concurrently provide 1) development of focused and meaningful conservation measures based on information from reintroduction progress, and 2) an incentive to complete these comprehensively planned, meaningful, and integrated conservation measures in a defined timeframe. Although it is not certain if Alternative 2 would provide as much time as Alternative 1 to collect adequate information of the success of reintroduction, Alternative 2 would afford NMFS with greater flexibility and discretion to manage MCR steelhead conservation than Alternative 1 because of the incentive to foster cooperative, comprehensive, and integrated conservation planning in a defined timeframe. NMFS does not anticipate that such development of conservation measures would occur in the uncertain timeframe under Alternative 1 because there is no incentive to complete measures by a specific time. Therefore, while conservation measures may be developed in the short term, with no NEP designation, it is less likely that the HCP or other meaningful conservation measures focused on reintroduction success would be completed in a defined timeframe in contrast to the expected outcome under the action alternatives.

It is anticipated that Alternative 2 would be more beneficial to MCR steelhead than Alternative 1 with the following results:

- More conservation measures would be developed and implemented in the short term, resulting in increased near-term MCR steelhead abundance, distribution, and habitat compared to Alternative 1.
- NMFS would have more discretion in fostering cooperative, integrated, long-term conservation planning, and more flexibility in seeking short-term, cooperative solutions with non-Federal public and private entities when compared to Alternative 1.
- Allowing for three generations of natural production above Pelton Round Butte under the designation should provide a substantial measure of the reintroduction's progress and an understanding of what modifications and/or additional conservation efforts may be needed to improve the status, distribution, and other factors affecting MCR steelhead in the action area.
- Central Oregon municipalities would have sufficient time to analyze and address possible impacts of their activities on reintroduced MCR steelhead and their habitat.
- HCP proponents would have an incentive to complete the HCP prior to returning the MCR steelhead DPS to protections of the threatened status under the ESA, and sufficient time for HCP development and completion.
- Non-Federal public and private entities would have a defined planning timeframe necessary to garner resources for cooperative and comprehensive planning with NMFS (e.g., funding and staffing).

4.2.1.4 Alternative 3

Status

As described under Alternative 1, reintroduction efforts would continue to occur in the action area under Alternative 3. However, the section 9 take liabilities for MCR steelhead that occur in areas above Pelton Round Butte would be limited under an NEP designated for 7 years (Subsection 2.3, Alternative 3: Expire NEP Designation After 7 Years; Subsection 1.6, Description of the Action Area). Limiting factors and threats identified in the Federal MCR steelhead recovery plan would likely continue to exist and to be addressed through ongoing local, state, tribal, and Federal efforts (NMFS 2009) (Subsection 1.2.2, Species Listing under the Endangered Species Act; Subsection 1.7, Relationship to Other Plans and Policies). Restoration of a self-sustaining population of MCR steelhead through implementation of fish passage and other mitigation measures in the Pelton Round Butte license, the co-manager's

reintroduction plan (ODFW and CTWSR 2008), and the Federal MCR steelhead recovery plan would continue through use of hatchery-origin fish in the upper Deschutes River basin for reintroduction above Pelton Round Butte (Subsection 3.1.1.1, MCR Steelhead, Status).

Under Alternative 3, NMFS would expire the NEP designation after 7 years. When the NEP expires, the MCR steelhead DPS would return to the protections of the threatened status under the ESA. It is assumed for purposes of analysis, that this status would remain as threatened.

In the long term (including the 7-year timeframe and beyond), funded actions to achieve a self-sustaining population of MCR steelhead would likely continue through Federal, state, and local agencies, tribes, utilities, and non-governmental organizations as under Alternative 1 because the protections of the threatened status under the ESA would then be returned, triggering the impending need to improve habitat conditions (Subsection 1.1.1, MCR Steelhead Reintroduction; Subsection 1.7, Relationship to Other Plans and Policies). Although the section 9 take liabilities would be limited during the NEP designation, as under Alternative 1, entities may obtain additional funding support for conservation efforts because of the impetus to establish a self-sustaining population of MCR steelhead and because of the incentive to implement conservation measures with limited take liabilities under the NEP designation. An additional incentive under Alternative 3 may be to minimize the long-term listing duration and ongoing, potential ESA liabilities. Additionally, assessment efforts by central Oregon municipalities necessary to modify city codes and regulations for conservation of MCR steelhead (e.g., water use, road maintenance, storm runoff, noxious weed control) would likely continue as under Alternative 1 because of the incentive to minimize ongoing, potential ESA liabilities. These assessments under Alternative 3 would likely lead to short-term development and implementation of meaningful and comprehensively-planned measures to conserve aquatic resources over the long term, including MCR steelhead habitat, and would support the reintroduction effort.

Short-term development and implementation of cooperative, integrated, and comprehensive conservation measures would be a benefit to MCR steelhead over Alternative 1 because efforts to create a self-sustaining population in the action area would likely occur sooner. Finally, short-term efforts by non-Federal public and private entities under Alternative 3 (7-year designation) could be accelerated over Alternative 1. These more immediate efforts and associated monitoring would add to ongoing efforts for improved recovery and would lead to increased management flexibility and discretion for NMFS and, thereby, improved planning for recovery to address limiting factors.

Under Alternative 3, HCP proponents would have more incentive to complete the HCP and to work cooperatively with NMFS to develop conservation measures aimed at recovery of MCR steelhead in a

shorter time than under Alternative 1. This result would likely occur because Alternative 3 would provide adequate time for, and encourage completion of, measures during the defined 7-year timeframe before the NEP designation expires and DPS protections under the threatened status of the ESA are returned. Additionally, several irrigation districts have already completed a number of important water conservation measures in the action area, and these efforts would likely continue to be implemented under Alternative 3. The NEP designation timeframe under Alternative 3 would give non-Federal public and private entities a defined period to monitor effects, to realize benefits to species, and then to develop and implement modifications or additional conservation measures cooperatively with NMFS.

While the NEP designation is in effect, there would be greater flexibility for NMFS to manage the reintroduced population than under Alternative 1 (Subsection 1.3.1, Congressional History and Intent). Under Alternative 3, ESA section 9 take prohibitions and section 7 consultation requirements under Alternative 1 would be eased, allowing NMFS more flexibility and discretion for comprehensive planning, funding, and implementing a greater range of activities designed to enhance and support the ongoing reintroduction and to promote recovery of the species, while ensuring that the daily activities of non-Federal public and private entity water-users are unaffected. However, because the designation would only be in effect for 7 years, unlike Alternative 2, colonization of MCR steelhead in some areas that requires restoration may not occur since 7 years may not be enough time to accomplish this restoration goal.

While conservation measures may be developed and implemented due to ESA section 7 consultation requirements that continue under Alternative 1, it is not certain that non-Federal public and private entities would seek to implement any measures under Alternative 1 because of the continued listing status and lack of incentive to complete and implement measures in a defined timeframe absent an NEP designation (Subsection 4.2.1.1, Alternative 1 (No-action Alternative, Status). It is anticipated that HCP proponents and other entities would seek to develop more comprehensive, coordinated, and integrated conservation efforts with NMFS while the NEP designation is in effect under Alternative 3 when compared to the uncertain planning timeframe under Alternative 1.

Like all of the alternatives, Alternative 3 would lead to improvements of MCR steelhead status in the action area. However, unlike Alternative 2, the NEP designation termination period would have no relationship to the reintroduced population's performance, substantially reducing NMFS's ability to measure the progress of the reintroduction effort and to assess the effect of conservation endeavors by Federal, non-Federal private, and public entities. For example, once NMFS and the HCP proponents have an understanding of the conservation measures needed to support the reintroduction, conservation

measures to mitigate for specific landowner project effects can be developed that would be aimed at supporting the reintroduction. Consequently, with the longer timeframe for HCP development under Alternative 2 (~~approximately~~ 12 years versus 7 years), appropriate conservation measures to address the HCP proponents' potential take would be more focused to support the reintroduced population than under the more limited timeframe of Alternative 3. This result under Alternative 2 would afford NMFS with greater flexibility and discretion to manage MCR steelhead conservation than under Alternative 3. Alternative 3 would not provide as much time as Alternative 2 to collect adequate information on the success of reintroduction or the effects of the HCP proponents' actions and how they might support or hinder reintroduction before the NEP designation is returned.

Distribution

As under Alternative 1, through implementation of the Federal MCR steelhead recovery plan (NMFS 2009) and ongoing conservation efforts, including the ODFW and CTWSR (2008) reintroduction plan, reintroduced MCR steelhead would likely expand their distribution in the upper Deschutes, Crooked, and possibly Metolius River watersheds over time. As under the status analysis for Alternative 3, this distribution increase could be anticipated to occur sooner than under Alternative 1 because of the incentive to develop and implement conservation measures, including the HCP, in the action area due to the limited timeframe of the NEP designation and its associated limits on take liabilities. As under Alternative 1, the existing Eastside and Westside MCR steelhead populations as described in Subsection 3.1.1.1, MCR Steelhead, Distribution, would not be affected by the continued MCR listing as threatened. These populations are protected under the ESA and will continue to receive conservation support and funding as described in the MCR steelhead recovery plan (NMFS 2009). Over the long term, the extirpated Crooked River population would be replaced by reintroduced MCR steelhead.

Compared to Alternative 1, conservation measure supported by HCP proponent and other entity planning efforts may be enacted in the near term under Alternative 3, resulting in habitat improvements and support for reintroduction efforts occurring sooner than under Alternative 1. Such improvements could support a near-term increase in MCR steelhead distribution in the action area, which would have long-term benefits to conservation of the species.

Habitat and Life History

Under all alternatives, it is anticipated that the reintroduced MCR steelhead would rear in the upper Deschutes and Crooked River watersheds and colonize streams in their reintroduction areas as they mature. From reintroduction as fry, fish would rear to age 2 and possibly age 3; the fish would be

expected to move downstream into the upper Deschutes River eventually passing Pelton Round Butte. They would, continue downstream via the Deschutes River to the Columbia River to reach the Pacific Ocean (Subsection 3.1.1.1, MCR Steelhead, Habitat and Life History). They would remain in the Pacific Ocean for 1 to 2 years, and then would return to the upper Deschutes, Crooked, and possibly the Metolius River watersheds to spawn using the same migratory route. The timing of spawning would not change under Alternative 3 as compared to Alternative 1.

As under Alternative 1, conservation measures identified under the Federal MCR steelhead recovery plan that are supported by the Pelton Round Butte Fund; Federal agencies; non-Federal public and private entities; CTWSR; and central Oregon assessments of activities affecting steelhead recovery would be expected to help protect existing MCR steelhead habitat and to restore degraded habitat, fish passage, water supply, and water quality in the action area under Alternative 2 (NMFS 2009). Under Alternative 3, more MCR steelhead aquatic habitat could be created both in the short term and long term, as compared to Alternative 1 because of the incentive to implement conservation measures while the NEP designation is in effect. An additional incentive may be to minimize the long-term listing duration and associated potential ESA liabilities. As under Alternative 1, adherence by Federal, non-Federal private, and public entities to the Federal MCR steelhead recovery plan and co-manager's reintroduction plan is expected to conserve all areas where the species rears, migrates, and forages and to improve the associated habitat conditions (e.g., aquatic connectivity, floodplain function, riparian conditions, water temperature) (Subsection 3.1.1.1, MCR Steelhead, Habitat and Life History). However, under Alternative 3, non-Federal public and private entities would have an incentive to develop and implement such measures sooner than under Alternative 1 because of the defined NEP designation timeframe.

In addition to supporting conservation efforts, non-Federal public and private entities would be expected to avoid and minimize activities that could result in impacts on listed species. However, as under Alternative 2, with limited take liabilities under Alternative 3, it is possible that Federal, non-Federal public, and private entities would conduct lawful activities that may negatively impact MCR steelhead habitat or may incidentally take the species (Subsection 4.2.1.1, Alternative 1 (No-action Alternative, Status; Subsection 1.3.1, Congressional History and Intent). While this likelihood exists, and such incidental take would be legal under an NEP designation, it is considered remote because it would thwart ongoing efforts for long-term MCR steelhead reintroduction success, and could, therefore, exacerbate protections under the threatened status of the ESA for a long period. Furthermore, requirements under the Pelton Round Butte license, Federal MCR steelhead recovery plan (NMFS 2009), and co-manager's reintroduction plan (ODFW and CTWSR 2008) would remain in place under

the NEP designation, which would likely foster continued practices to avoid or minimize impacts to MCR steelhead habitat.

Because MCR steelhead would be designated as threatened below Pelton Round Butte and throughout the remainder of their migratory route to the Pacific Ocean under Alternative 3 (Subsection 2.3, Alternative 3: Expire NEP Designation After 7 Years), conservation efforts planned under the Federal MCR steelhead recovery plan would help restore these areas and would improve MCR steelhead survival throughout all life history stages, including their return to the action area for spawning. This would be the same result as under Alternative 1.

Food Resources

Available food resources for steelhead could be improved in the short term under Alternative 3 as compared to Alternative 1 because of the incentive to develop and implement measures to improve habitat before the threatened status under the ESA is returned at the end of the 7-year timeframe, and because the NEP designation period would provide non-Federal public and private entities with a defined planning timeframe to garner necessary resources to cooperatively develop and implement conservation measures with NMFS (e.g., funding and staffing). As under Alternative 1, additional MCR steelhead aquatic habitat would be created, protected, or restored in the long term under Alternative 3. This improvement in habitat would help increase aquatic insects, an important MCR steelhead food supply.

Fisheries

Impacts to fisheries in the action area under Alternative 3 would be the same as described under Alternative 2.

Alternative 3 Summary

Alternative 3 is directed toward encouraging completion of HCP development and ongoing central Oregon municipality assessments of activities in a known timeframe more quickly than Alternative 2 (i.e., during a 7-year period versus ~~after three successive generations of natural-origin steelhead have passed Pelton Round Butte, or an approximate~~ a12-year period). This alternative would also provide non-Federal public and private entities with certainty regarding the timeframe of the NEP designation; a benefit that would not be realized under Alternative 1 because there would be no defined timeframe for an NEP designation and no known timeframe for a change in the listing status.

However, unlike Alternative 2, the NEP timeframe would have no relationship to the reintroduced population's performance, substantially reducing NMFS's ability to measure the progress of the

reintroduction effort and to assess the effect of conservation endeavors by Federal, non-Federal private, and public entities. Though ESA section 9 take prohibitions and section 7 consultation requirements would be eased for a period of 7 years, this would substantially reduce the time period to complete planning and secure funding for conservation measures to mitigate for the effects of the HCP proponents' actions and support the ongoing reintroduction effort compared to Alternative 2 (~~approximately~~ 12 years), thereby promoting conservation of the species. For example, once NMFS and the HCP proponents have an understanding of the conservation measures needed to support the reintroduction, conservation measures to mitigate for specific landowner project effects can be developed that would be aimed at supporting the reintroduction. Consequently, with the longer timeframe for HCP development under Alternative 2, appropriate conservation measures to address the HCP proponents' potential take would be more focused to support the reintroduced population than under the more limited timeframe of Alternative 3. Alternative 3 would not provide as much time as Alternative 2 to collect adequate information on the success of reintroduction or the effects of the HCP proponents' actions and how they might hinder reintroduction. Alternative 2 would afford NMFS with greater flexibility and discretion to manage MCR steelhead conservation than Alternative 3.

The results of Alternative 3 could be similar to those described under Alternative 2:

- More conservation measures would be developed and implemented in the short term, resulting in increased near-term MCR steelhead abundance, distribution, and habitat compared to Alternative 1.
- NMFS would have with more discretion in fostering cooperative, integrated, long-term conservation planning, and more flexibility in seeking short-term, cooperative solutions with Federal, non-Federal public, and private entities when compared to Alternative 1.
- Central Oregon municipalities would have sufficient time to analyze and address possible impacts of their activities on reintroduced MCR steelhead and their habitat.
- HCP proponents would have an incentive to complete the HCP prior to returning the MCR steelhead DPS to protections under the threatened status of the ESA, and sufficient time for HCP development and completion.
- Non-Federal public and private entities would have a defined planning timeframe necessary to garner resources for cooperative and comprehensive planning with NMFS (e.g., funding and staffing).

4.2.1.5 Alternative 4

Status

As described under Alternative 1, reintroduction efforts would continue to occur in the action area under Alternative 4. However, the take liabilities for MCR steelhead that occur in areas above Pelton Round Butte would be limited under an NEP designated for at least 5 years (Subsection 2.4, Alternative 4: 5-Year NEP Designation and Subsequent Reevaluation; Subsection 1.6, Description of the Action Area). Limiting factors and threats identified in the Federal MCR steelhead recovery plan would likely continue to exist and to be addressed through ongoing local, state, tribal, and Federal efforts (NMFS 2009) (Subsection 1.2.2, Species Listing under the Endangered Species Act; Subsection 1.7, Relationship to Other Plans and Policies). Restoration of a self-sustaining population of MCR steelhead through implementation of fish passage and other mitigation measures in the Pelton Round Butte license, the co-manager's reintroduction plan (ODFW and CTWSR 2008), and the Federal MCR steelhead recovery plan (NMFS 2009) would continue through use of hatchery-origin fish in the upper Deschutes basin for reintroduction above Pelton Round Butte (Subsection 3.1.1.1, MCR Steelhead, Status).

Under Alternative 4, NMFS would not necessarily expire the NEP designation after 5 years, but would reevaluate the designation's effectiveness at conserving MCR steelhead, and how well development of the conservation measures is progressing (Subsection 2.4, Alternative 4: 5-Year NEP Designation and Subsequent Reevaluation). This reevaluation could result in an extension of the designation period or a return of the MCR steelhead DPS to protections of a threatened status under the ESA. It is assumed for purposes of analysis, that this status would remain as threatened.

In the long term (including the 5-year timeframe and beyond), funded actions to achieve a self-sustaining population of MCR steelhead would likely continue through Federal, state, and local agencies, tribes, utilities, and non-governmental organizations as under Alternative 1 because protections under the ESA threatened status could then be returned triggering the impending need to improve habitat conditions (Subsection 1.1.1, MCR Steelhead Reintroduction). Although take liabilities would be limited with an NEP designation, as under Alternative 1, entities may obtain additional funding support for conservation efforts in the action area because of the impetus to create a self-sustaining population of MCR steelhead, to implement conservation measures without liabilities under the ESA threatened status and the possible additional incentive of minimizing the long-term listing duration. Additionally, assessment efforts by central Oregon municipalities necessary to modify city codes and regulations for conservation of MCR steelhead (e.g., water use, road maintenance, storm

runoff, noxious weed control) would likely continue as under Alternative 1 because of the incentive to limit ongoing, potential ESA liabilities. These assessments under Alternative 4 would likely lead to short-term development and implementation of meaningful and comprehensively-planned measures to conserve aquatic resources over the long term, including MCR steelhead habitat, and would support the reintroduction effort.

Short-term development and implementation of cooperative, integrated, and comprehensive conservation measures within a 5-year timeframe would be a benefit to MCR steelhead over Alternative 1 because efforts to create a self-sustaining population in the action area could occur sooner with a known and defined NEP designation timeframe. Finally, short-term efforts by non-Federal public and private entities under Alternative 4 (5-year designation) would be accelerated over Alternative 2 (~~approximate~~ 12-year designation) and Alternative 3 (7-year designation). These more immediate efforts and associated monitoring would add to ongoing efforts for improved recovery and would lead to increased management flexibility and discretion for NMFS and, thereby, improved planning for recovery to address limiting factors.

As under Alternatives ~~4~~2 and 3, HCP proponents would have more incentive to complete the HCP and to work cooperatively with NMFS to develop conservation measures aimed at recovery of MCR steelhead than under Alternative 1. This result would likely occur because Alternative 4 would provide adequate time for, and encourage completion of, the HCP before the NEP designation expires and the DPS threatened protections under the ESA are returned. However, the 5-year designation could be extended under Alternative 4. In determining the time for continuation of the NEP designation, NMFS would consider how much progress is being made on developing and implementing conservation measures. If non-Federal public and private entities are making progress on development of measures, and the measures can be completed in a reasonable amount of time after the NEP designation is extended, then NMFS would be likely to extend the NEP designation to allow completion of work and collaboration with NMFS on conservation measures. Additionally, several irrigation districts have already completed a number of important water conservation measures in the action area, and these measures would continue to be implemented under Alternative 4. The NEP designation timeframe under Alternative 4 would give non-Federal public and private entities a defined period to monitor effects, to realize benefits to species, and then to develop and implement modifications or additional conservation measures cooperatively with NMFS.

While the NEP designation is in effect, there would be greater flexibility for NMFS to manage the reintroduced population than under Alternative 1. ESA section 9 take prohibitions and section 7

consultation requirements under Alternative 1 would be eased under Alternative 4, allowing more flexibility and discretion for comprehensive planning, funding, and implementing a greater range of activities designed to enhance and support the ongoing reintroduction and to promote recovery of the species while ensuring that the daily activities of non-Federal public and private entity water-users are unaffected. However, because the designation would only be in effect for 5 years, and may or may not be extended, unlike Alternative 2 and Alternative 3, colonization of MCR steelhead in some areas that requires restoration may not occur since 5 years may not be enough time to accomplish this restoration goal.

While conservation measures may be developed and implemented under Alternative 1 ESA section 7 consultation requirements, it is anticipated that HCP proponents and other entities would seek to develop more comprehensive, integrated, and coordinated conservation efforts with NMFS while the NEP designation and associated limited liabilities are in effect under Alternative 4 when compared to the uncertain planning timeframe under Alternative 1.

As under Alternative 3, the NEP designation termination under Alternative 4 would have no relationship to the reintroduced population's performance; even further limiting NMFS's ability to measure the reintroduction progress, and providing little time to evaluate the effectiveness of ongoing and recently implemented conservation measures by Federal, non-Federal public, and private entities. Though ESA section 9 take prohibitions and section 7 consultation requirements would be eased for 5 years, this would substantially reduce the time period to complete planning and secure funding for conservation measures to mitigate for the effects of the HCP proponents' actions and other, ongoing conservation efforts in the action area, and support the ongoing reintroduction effort compared to Alternative 2 (12 years), thereby promoting conservation of the species. Repeating the example under Alternative 3, once NMFS and the HCP proponents have an understanding of the conservation measures needed to support the reintroduction, conservation measures to mitigate for specific landowner project effects can be developed that would be aimed at supporting the reintroduction. Consequently, with the longer timeframe for HCP development under Alternative 2, appropriate conservation measures to address the HCP proponents' potential take would be more focused to support the reintroduced population than under the more limited timeframe of Alternative 4. Alternative 4 would not provide as much time as Alternative 2 to collect adequate information of the success of reintroduction or the effects of the HCP proponents' actions and other actions in the area and how they might hinder reintroduction. Alternative 2 would afford NMFS with greater flexibility and discretion to manage MCR steelhead conservation, including status, distribution, and life history factors than Alternative 4.

Distribution

The distribution of MCR steelhead over the short and long term under Alternative 4 is expected to be similar to conditions and impacts described under Alternative 3.

Habitat and Life History

All habitat and life history conditions and impacts under Alternative 4 would be the same as those described under Alternative 3.

Food Resources

All food resource conditions and impacts under Alternative 4 would be the same as those described under Alternative 3.

Fisheries

All fisheries conditions and impacts under Alternative 4 would be the same as those described under Alternative 3.

Alternative 4 Summary

Compared to Alternative 1, conservation measure supported by HCP proponent and other entity planning efforts may be enacted in the near term under Alternative 4, resulting in habitat improvements and support for reintroduction efforts occurring sooner than under Alternative 1. Additionally, MCR steelhead aquatic habitat would be created, protected, or restored in the long term. Such improvements could support a near-term increase in MCR steelhead status, distribution, and life history factors in the action area, which would have long-term benefits to conservation of the species.

Alternative 4 is directed toward encouraging completion of HCP development and ongoing central Oregon municipality assessments of activities in a known timeframe more quickly than Alternative 2 (i.e., during a 5-year period versus ~~after three successive generations of natural-origin steelhead have passed Pelton Round Butte, or an approximate~~ a12-year period). This alternative would also provide non-Federal public and private entities with certainty regarding the timeframe of the NEP designation, a benefit that would not be realized under Alternative 1 because there would be no defined NEP designation timeframe with a limited take liabilities and no known timeframe for a change in the listing status.

In contrast to Alternative 3, where the NEP designation would be expired after a defined period, this alternative would allow NMFS to extend the NEP designation for some undefined period. This extension option would give non-Federal public and private entities additional time to garner resources

to complete management activity assessments and to implement conservation measures without ESA section 9 take prohibitions in place (e.g., funding and staffing). However, while this alternative would offer some planning certainty with a defined NEP designation period, non-Federal public and private entities would initially have less planning certainty than under the other action alternatives because it is unknown whether the NEP designation would be extended or whether protections under the ESA threatened status would be returned after 5 years. Further, the 5-year period may not be enough time for entities to garner necessary resources to implement meaningful long-term measures focused on reintroduction success. This would hinder long term, comprehensive planning efforts and NMFS's flexibility and discretion in developing meaningful measures to support reintroduction cooperatively with non-Federal public and private entities.

However, the extension option would give non-Federal public and private entities additional time, if needed, to complete management activity assessments and to develop conservation measures without concerns related to ESA section 9 take liability. The outcome of Alternative 4 would then provide support for the reintroduction effort through cooperative and comprehensive development of conservation measures for MCR steelhead in a defined timeframe when compared to Alternative 1.

Unlike Alternative 2, the 5-year NEP designation timeframe has no relationship to the reintroduced population's performance, substantially reducing NMFS's ability to measure the progress of the reintroduction effort and to assess effects of conservation efforts by private and public entities when compared to Alternative 2 or Alternative 3. There is less certainty that Alternative 4 would afford NMFS with as much time as it needs to gain an adequate understanding of what modifications and/or additional conservation efforts may be needed to improve the status, distribution, and life history factors of MCR steelhead in the action area when compared to Alternative 2 or Alternative 3 Consequently, Alternative 4 would not afford NMFS as much flexibility and discretion to manage recovery and conservation of listed MCR steelhead, and therefore, to support reintroduction as Alternative 2 or Alternative 3.

The results of Alternative 4 could be similar to those described under Alternative 2:

- More conservation measures would be developed and implemented in the short term, resulting in increased near-term MCR steelhead abundance, distribution, and habitat compared to Alternative 1.
- NMFS would have with more discretion in fostering cooperative, integrated, long-term conservation planning, and more flexibility in seeking short-term, cooperative solutions with non-Federal public and private entities when compared to Alternative 1.

Central Oregon municipalities would have sufficient time to analyze and address possible impacts of their activities on reintroduced MCR steelhead and their habitat.

HCP proponents would have an incentive to complete the HCP prior to returning the MCR steelhead DPS to protections under the ESA threatened status, and sufficient time for HCP development and completion.

Non-Federal public and private entities would have a defined planning timeframe necessary to garner resources for cooperative and comprehensive planning with NMFS (e.g., funding and staffing).

4.2.2 Bull Trout

4.2.2.1 All Alternatives

Status, Distribution, Habitat and Life History, Food Resources, and Fisheries

As described in Subsection 3.1.1.2, Bull Trout under Distribution, bull trout occur in Lake Billy Chinook, Metolius River, mainstem Deschutes River up to Big Falls, lower Whychus Creek below Alder Springs at about Mile 2, and lower Crooked River below Opal Springs Dam. After the Pelton Round Butte Hydroelectric Project was completed, and other irrigation dams and reservoirs were constructed in the 1960s, bull trout abundance decreased due to anadromous fish blockage that resulted in decreased salmon abundance (which are prey of bull trout), decreased access to rearing and foraging areas, water supply loss and flow changes, removal of bull trout from weir sites used to trap salmon, and degraded aquatic habitat (Subsection 3.1.1.2, Bull Trout, Status; Subsection 3.1.1.2 Bull Trout, Distribution). In addition, the bull trout recovery plan (USFWS 2002) identified other factors that have also depressed bull trout populations (dam and diversion operation and maintenance activities, introduced species, isolation and fragmentation of bull trout populations, and decreased water quantity and water quality in areas inhabited by bull trout) (Section 3.1.1.2, Bull Trout, Status). USFWS is in the process on designating critical habitat for bull trout. The proposed NEP area under all alternatives would be in projected critical habitat for bull trout (USFWS 2010).

Under all alternatives, reintroduction efforts for MCR steelhead would continue to occur in the action area. Limiting factors and threats identified in the Federal MCR steelhead recovery plan would likely continue to exist and to be addressed through ongoing local, state, tribal, and Federal efforts (NMFS 2009) (Subsection 1.2.2, Species Listing under the Endangered Species Act; Subsection 1.7, Relationship to other Plans and Policies). Because bull trout and MCR steelhead occur in similar aquatic habitats, such ongoing and planned conservation efforts for MCR steelhead in the action area

under all alternatives would also help increase bull trout distribution and abundance by enhancing its habitat and food supply for most life stages (e.g., increased salmon prey, improved riparian conditions supporting snakes, frogs, and other prey; Subsection 3.1.1.2, Bull Trout, Food Resources). An exception is headwater streams with cold stream temperatures, which are preferred by bull trout for spawning (Subsection 3.1.1.2, Bull Trout, Habitat and Life History). These areas would not be affected by any of the alternatives. The timing of juvenile migrations and adult spawning, and fluvial or adfluvial life histories, would not change under any alternative.

None of the alternatives would affect dam and other diversion operation and maintenance activities, change the presence of introduced species, or affect dam and diversion structures that have isolated and fragmented bull trout populations and impacted water quantity and water quality in the action area. These impacts would continue to occur under all alternatives, but are expected to decrease over time as the bull trout recovery plan is implemented by local, state, tribal, and Federal efforts.

Anticipated shared aquatic habitat improvements would likely occur on varying time scales under the alternatives depending on conservation efforts developed and implemented by non-Federal public and private entities. While these measures would likely occur under any alternative, there may be short-term and long-term differences for habitat improvements. As described under Subsection 4.2.1.1, Alternative 1 (No-action Alternative, Status), if non-Federal public and private entities have incentives to develop and implement the HCP in the short term because of the certainty of a defined planning period when the NEP designation is in effect (Alternative 2, Alternative 3, Alternative 4), aquatic habitat improvements may occur sooner than in the long term absent such incentives (Alternative 1). The timing of these improvements would affect bull trout in the same way they affect MCR steelhead since they share aquatic habitat and since steelhead is a food resource for bull trout.

MCR steelhead are prey of bull trout (Subsection 3.1.1.2, Bull Trout, Food Resources), and their reintroduction under all alternatives would be an increase in one of many food resources used by bull trout. However, because bull trout populations are depressed, their predation on MCR steelhead would not likely affect MCR steelhead abundance in the short term (ODFW and NMFS 2009), and it is not likely that bull trout populations would be improved substantially in the long term to negatively affect reintroduction or conservation measure successes for MCR steelhead.

Reintroduction of MCR steelhead into the upper Deschutes, Crooked, and possibly the Metolius River watersheds would not affect existing bull trout fishing regulations under any alternative because of its ongoing Federal listing status.

Overall, conservation efforts associated with all alternatives would help increase the status, distribution, life history, and habitat of bull trout in the long term. Until bull trout are delisted throughout their range, however, bull trout fishing regulations would not likely change. The NEP designation under the action alternatives would have no effect on the critical habitat designation for bull trout in the action area. Recovery efforts for bull trout would continue as currently identified in the bull trout recovery plan for the Deschutes Recovery Unit (USFWS 2002) for all alternatives; however, efforts to develop and implement conservations measures to meet recovery planning goals and objectives for MCR steelhead in the action area under the three action alternatives could lead to improvements in bull trout habitat in the short term because of defined timeframes for the NEP designation, which would have long-term effects (Subsection 4.2.1, Endangered Species Act-listed and Sensitive Species; Subsection 4.2.1.2, Alternative 2 (Proposed Action), Status). As described for each alternative analysis under Subsection 4.2.1, Endangered Species Act-listed and Sensitive Species, regardless of the alternative, Federal agencies would have to consult with the USFWS on potential effects to bull trout from any proposed Federal action.

Bull trout would likely remain listed over the short term both as a federally threatened species and as an Oregon sensitive species, despite conservation improvements in aquatic habitat (Section 3.1.1.2, Bull Trout, Status). This is because of the bull trout's sensitivity to warm water temperatures in spawning areas (Subsection 3.1.1.2, Bull Trout, Habitat and Life History). Cooler water temperatures can only be achieved over the long term as trees mature and shade aquatic habitat. However, the recent increase of kokanee in lakes and reservoirs where bull trout rear (Subsection 3.1.1.2, Bull Trout, Distribution) has helped sustain its existing population.

4.2.3 Redband Trout

4.2.3.1 All Alternatives

Status, Distribution, Habitat and Life History, Food Resources, and Fisheries

Redband trout occur throughout the action area, but they have decreased in abundance due to habitat fragmentation, isolation, and loss; low stream flows; manmade barriers; predation, and competition with other fish (Subsection 3.1.1.3, Redband Trout). Redband trout and MCR steelhead historically coexisted in the upper Deschutes, Crooked, and possibly the Metolius River watersheds, and their habitat and food requirements are similar (Subsection 3.1.1.3, Redband Trout under Distribution, and Subsection 3.1.1.1, MCR Steelhead, Distribution). Both species are sensitive to habitat degradation, increased stream temperatures, and fish passage barriers (Lichatowich et al. 1998; NPCC 2004; Stuart et al. 2007 for redband trout; and NMFS 2009 for MCR steelhead).

Under all alternatives, reintroduction efforts for MCR steelhead would continue to occur in the action area, limiting factors and threats identified in the Federal MCR steelhead recovery plan would likely continue to exist and to be addressed through ongoing local, state, tribal, and Federal efforts (NMFS 2009) (Subsection 1.7, Relationship to Other Plans and Policies). Because redband trout and MCR steelhead occur in similar aquatic habitats, such ongoing and planned conservation efforts for MCR steelhead in the action area under all alternatives would also help increase redband trout distribution and abundance by enhancing its habitat and food supply for most life stages (e.g., improved riparian conditions supporting overhanging vegetation and insect habitat) (Subsection 3.1.1.3, Redband Trout under Habitat and Life History). The timing of adult spawning would not change under any alternative.

Anticipated shared aquatic habitat improvements would likely occur on varying time scales under the alternatives depending on conservation efforts developed and implemented by non-Federal public and private entities (Subsection 4.3, Aquatic Habitat). While these measures would likely occur under any alternative, there may be short-term and long-term differences for habitat improvements. As described under Subsection 4.2.1.1, Alternative 1 (No-action Alternative, Status), if non-Federal public and private entities have incentives to develop and implement the HCP in the short term because of the impetus to implement conservation measures without the restrictions of the protections under an ESA threatened status and the possible additional incentive of minimizing the long-term listing duration and ongoing, potential ESA liabilities (Alternative 2, Alternative 3, Alternative 4), aquatic habitat improvements may occur sooner than in the long term absent such incentives (Subsection 4.2.1.1, Alternative 1 (No-action Alternative, Status). The timing of these improvements would affect redband trout and its status as a Federal species of concern and a state sensitive species the same way that they affect MCR steelhead where they share aquatic habitat. Additionally, as bull trout habitat is improved through listing recovery efforts and MCR steelhead habitat conservation measures, redband trout may experience pressures from bull trout predation under all alternatives (Subsection 3.1.1.3, Redband Trout under Status).

Long-term development of a restored MCR steelhead fishery above Pelton Round Butte may, however, involve near-term fisheries management tradeoffs, depending on the degree to which competitive interactions with juvenile MCR steelhead reduce redband trout abundance or the unintentional harvest of MCR steelhead necessitates restrictions on harvest of co-mingled (and difficult to distinguish) redband trout (Subsection 3.1.1.3, Redband Trout under Fisheries). Future monitoring efforts would clarify the risk anglers pose to juvenile MCR steelhead above Pelton Round Butte. The data obtained from this monitoring may provide incentive for ODFW to adjust regulations to limit losses of these fish (ODFW and CTWSR 2008).

The prevailing hypothesis is that MCR steelhead would be at a distinct competitive disadvantage within the action area's existing strongholds for redband trout, but would return to dominance elsewhere (Cramer and Beamesderfer 2006; ODFW and CTWSR 2008). The strongholds include the Metolius River watershed, Crooked River in the tailwaters of Bowman Dam and below Opal Springs, the Deschutes River below Steelhead Falls, and Whychus Creek (Subsection 3.1.1.3, Redband Trout under Distribution). Interspecific competition between MCR steelhead and redband trout in the Crooked River and Whychus Creek is currently being monitored (ODFW and CTWSR 2008).

Outside of these strongholds, recreational fisheries for resident trout are likely to be reduced by the reintroduction of MCR steelhead. Impacts on redband trout fisheries within the strongholds themselves are less than certain, but they are anticipated to be minor.

4.2.4 Other Natural-origin Fish

4.2.4.1 All Alternatives

Other natural-origin fish in the upper Deschutes, Crooked, and Metolius River watersheds include reintroduced spring Chinook salmon, kokanee, mountain whitefish, sculpins, dace, northern pikeminnow, chiselmouth, and suckers (Subsection 3.1.2, Other Natural-origin Fish) These fish occur in similar aquatic habitat as MCR steelhead (Subsection 3.1.1.1, MCR Steelhead, Habitat and Life History); therefore, they would also benefit from conservation efforts that would improve aquatic habitat under all alternatives (Subsection 4.3, Aquatic Habitat).

Although young chiselmouth, sculpins, dace, and suckers can be a food source for adult MCR steelhead their primary food source is insects, which is similar to that of MCR steelhead (Subsection 3.1.2, Other Natural-origin Fish), Competition for these food resources occur among all natural-origin fish species (Subsection 3.1.2, Other Natural-origin Fish). Northern pikeminnow prey on salmon eggs and juveniles, and this could have an effect on juvenile MCR steelhead in this area over the long term as MCR steelhead reintroduction continues under all alternatives. There would be no measurable benefit or impact to redside shiners under any alternative because they are extremely rare in the action area (Subsection 3.1.2, Other Natural-origin Fish). In addition, it is possible that competition between mountain whitefish and MCR steelhead may occur since mountain whitefish were believed to have increased in abundance following the loss of anadromous fish when Pelton Round Butte was constructed (Subsection 3.1.2, Other Natural-origin Fish). This indicates that mountain whitefish and MCR steelhead have similar habitat requirements.

Over the long-term impacts to all natural-origin fish in the action area would be the same as those described for redband trout (Subsection 4.2.3, Redband Trout).While some predator-prey relationships would exist between MCR steelhead and other species, conservation efforts in the action area would benefit natural-origin fish abundance, habitat, and food resources.

4.2.5 Introduced Fish

4.2.5.1 All Alternatives

Introduced fish include rainbow trout, cutthroat trout, brook trout, brown trout, kokanee, and Atlantic salmon and warm-water game fish released into reservoirs (Subsection 3.1.3, Introduced Fish). Cutthroat trout may hybridize with steelhead (NMFS 1999), which would be a concern under all alternatives in the upper Deschutes River watershed where cutthroat trout occur. Other introduced trout have been observed competing with native salmonids in the watershed, and brook trout and brown trout may compete with reintroduced MCR steelhead for habitat, space, and food resources. Therefore, introduced trout in the Deschutes River subbasin may be a threat to steelhead under all alternatives.

Since the Federal MCR steelhead recovery plan identifies hybridization and introduced species in the plan as threats to this species, actions are undergoing to minimize the release of introduced species in the subbasin (NMFS 2009). It is possible that the conservation efforts under any alternative would help to increase abundance and distribution of introduced trout in the action area; however, the timing of such a benefit to trout would vary depending on the timing of implementing conservation efforts by non-Federal public and private entities under each alternative (Subsection 4.2.1.1, Alternative 1 (No-action Alternative, Status).

Although introduced trout could benefit in the long term from habitat restoration actions under all alternatives, the intent of these actions would not be to enhance habitat for these fish.

Restoration actions planned in the upper Deschutes, Crooked, and Metolius River watersheds are not intended to benefit warm water fish species introduced into reservoirs for recreational fishing (Subsection 3.1.3, Introduced Fish). In the short term, conservation measures in the action area under any alternative may result in a slight negative impact on these fish through reservoir drawdowns. However, it is expected that sufficient reservoir waters would be maintained for the continued presence of warm water fish under all alternatives.

4.3 Aquatic Habitat

4.3.1 All Alternatives

4.3.1.1 Habitat Restoration Actions in all Watersheds

As described in Subsection 3.2.4, MCR Steelhead Habitat, a number of conservation and restoration actions are occurring in the action area to enhance fisheries habitat, including steelhead conditions. These ongoing efforts, and some measure of their funding, are expected to occur under all alternatives (Subsection 4.2.1.1, Alternative 1 (No-action Alternative, Status). These restoration activities are expected to provide aquatic habitat improvements that include protecting highest quality habitats, removing and replacing barriers that block fish passage, reconnecting floodplains, stabilizing stream banks, restoring natural riparian vegetation communities, developing grazing strategies to promote riparian recovery, improving natural watershed hydrology and water quality, and minimizing sedimentation in all watersheds within the action area (Table 3-5). Ongoing projects in the action area include fish passage improvements, instream flow restoration, instream habit restoration, riparian enhancements, wetland restoration, agriculture/rangeland improvements, upland habitat restoration, and road abandonment and restoration (Subsection 3.2.4, MCR Steelhead Habitat).

4.3.1.2 Upper Deschutes River

Although aquatic and riparian habitat within the upper Deschutes River watershed historically was high quality, reservoir development has resulted in degradation of the aquatic environment due to extreme seasonal flow fluctuations caused by irrigation release and storage. For example, seasonal water fluctuation has created drawdown zones in river channels where riparian vegetation is now absent; degraded riparian zones are present throughout the entire upper Deschutes River watershed. Loss of riparian vegetation has resulted in increased stream temperatures, loss of cover, increased bank erosion, widening and swallowing of stream channels, and reduction or loss of perennial flow (Subsection 3.2.1, Upper Deschutes River).

Habitat conditions in the Upper Deschutes River area are expected to remain degraded in the short term under all alternatives, but the timeframe of their improvements may vary depending on the timing of implementation of measures under a given alternative. For example, alternatives with more incentive and likelihood of garnering resources to complete and implement conservation measures in the short term would result in more immediate on-the-ground measures for habitat restoration, such as Alternative 2, Alternative 3, and Alternative 4, Alternative 2 has the greatest likelihood of demonstrating such short-term implementation of restoration measures because Alternative 3 and

Alternative 4 would have shorter planning timeframes under shorter NEP designation periods than Alternative 2.

While restoration actions are ongoing, and it is anticipated that they would continue under all alternatives, such degradation may not be improved to historical conditions in the near term. This outcome would occur regardless of the timeframe for implementing planned restoration actions under each of the alternatives (Subsection 4.2.1.1, Alternative 1 [No-action Alternative, Status]). Additionally, reservoir development has substantially altered the condition of Upper Deschutes River streamside habitat, and these conditions may continue to be a limiting factor in the watershed under any alternative in the long term.

4.3.1.3 Crooked River

Riparian stands in the Crooked River watershed are predominantly deciduous, but aquatic habitat surrounding reservoirs is characterized by lack of shoreline vegetation, deep waters, and mud flat shoreline substrates (Subsection 3.2.2, Crooked River). Habitat in the lower Crooked River watershed is recognized as having been particularly degraded by the cumulative effects of more than a century of damaging activities (Stuart et al. 1996). In contrast, optimum natural-origin salmon habitat in the Crooked River watershed occurs in the headwaters of streams within the Ochoco National Forest. These headwater streams provide year-round flow, instream cover, cobble and boulder substrate, and productive streamside vegetation (Subsection 3.2.2, Crooked River).

Ongoing and planned restoration actions in the Crooked River watershed would be expected to continue to improve or maintain quality riparian habitat under all alternatives. Short-term improvements would be most likely under alternatives with incentives to develop and implement conservation measures in the near term (Alternative 2, Alternative 3, and Alternative 4); however all alternatives, including Alternative 1, would be expected to provide benefits to aquatic habitats in the Crooked River watershed in the long term.

As described for the Upper Deschutes River watershed, reservoir development has substantially altered the condition of streamside habitat in the Crooked River watershed, and these conditions may continue to be a limiting factor under any alternative in the long term.

4.3.1.4 Metolius River

The unique geologic characteristics of the Metolius River watershed would not be altered under any alternative; therefore, riparian and flow conditions forming valuable habitat are expected to continue or to be improved where needed. The riparian area along this spring-fed stream is adequately stocked with

large conifers to provide future and long-term fish habitat (Nelson and Kunkel 2001; NPCC 2004); however, habitat in the Metolius River watershed is rated as being of predominantly fair or poor quality for steelhead (Reihle 1999) with varying degrees and types of functional impairments, as found in other parts of the action area (Subsection 3.2.3, Metolius River). Ongoing and planned restoration actions would benefit this watershed in localized areas where functional impairments exist but, even if such actions did not occur until the long term (Alternative 1), fair aquatic habitat conditions in the Metolius River watershed are expected to remain beneficial to fish, including MCR steelhead.

4.3.1.5 MCR Steelhead Habitat

Short-term and long-term effects and benefits described under each of the watershed analyses would impact MCR steelhead habitat. Habitat historically used by MCR steelhead above Pelton Round Butte retains important productive capability and has the capacity to recover to greater levels of productivity (ODFW and CTWSR 2008), which would be anticipated under any alternative. The timing of such improvements would depend on the timing of conservation measure development and implementation under each alternative (Subsection 4.2.1.1, Alternative 1 (No-action Alternative, Status). For example, alternatives with more incentive and likelihood of garnering resources to complete and implement conservation measures in the short term would result in more immediate on-the-ground measures for habitat restoration, such as Alternative 2, Alternative 3, and Alternative 4, Alternative 2 has the greatest likelihood of demonstrating such short-term implementation of restoration measures because Alternative 3 and Alternative 4 would have shorter planning timeframes under shorter NEP designation periods than Alternative 2.

While segments of some streams remain in good habitat condition, others require long-term restoration efforts for improvement. Limitations common to segments of each major steelhead stream include altered hydrology (flows) and elevated summer stream temperatures, with additional water quality impairments a potential concern in the lower Crooked River (Subsection 3.2.4, MCR Steelhead Habitat). Other functional limitations include fish passage limitations (at diversion dams and in flow-depleted segments of stream channels), degraded riparian or woody debris conditions, diminished floodplain function, reduced stream complexity, and altered sediment routing (Table 3-4). Improvements are anticipated in the long term under all alternatives, but short-term benefits may be unlikely given the degraded habitat condition in some watershed areas.

Regardless of restoration actions planned or ongoing in the action area, patterns of ownership and use along Whychus Creek and the Crooked River watershed are important when considering areas where MCR steelhead are being introduced (Subsection 3.2.4, MCR Steelhead Habitat). Agricultural

practices, forestry management, grassland management, and residential development and use would be ongoing and aquatic habitat-related effects may be difficult to mitigate under any alternative (Table 3-3). Restoration of degraded habitats in these areas under any alternative would depend on joint Federal, non-Federal public, and private cooperation in the short term and long term. These entities' water use, land management practices, or other activities may benefit or degrade MCR steelhead habitat function. Alternatives that foster cooperative and comprehensive planning efforts because of the incentive for developing and implementing conservation measures while take liabilities are limited under an NEP designation would result in improved flexibility and discretion for NMFS to manage conservation of MCR steelhead. Such management efforts by NMFS, in coordination with other Federal and state agencies, tribes, utilities, and interest groups would include cooperative efforts to address these land uses in the action area.

4.4 Water Resources (Quantity and Quality)

4.4.1 All Alternatives

4.4.1.1 Hydrography, Water Use, and Water Quality

Under all alternatives, conservation and restoration activities that are ongoing in the action area are intended, over the long term, to change existing hydrology in the upper Deschutes, Crooked, and Metolius River watersheds. These actions changing the watersheds' hydrology are intended to improve hydrologic conditions for aquatic resources as much as possible while allowing existing land uses to continue and avoiding extreme flooding events. This would include providing for more natural stream flows and ensuring sufficient in-stream water during summer months. Currently, permits for increased water withdrawals are being denied, and this practice is expected to continue with the listing of the MCR steelhead and bull trout (Subsection 3.3.2, Water Use). It is not likely that this practice would be discontinued if an NEP is designated under Alternative 2, Alternative 3, or Alternative 4 because of the need to protect resident species (e.g., redband trout) and because increased water withdrawals could lead to further habitat degradation and, therefore, to a more certain long-term listing status limiting management actions in the future.

The Deschutes Groundwater Mitigation Program is expected to continue under all alternatives, whereby water withdrawals will be reviewed to ensure that groundwater withdrawn is replaced by surface water conservation measures (Subsection 1.7, Relationship to Other Plans and Policies; Subsection 3.3.2, Water Use). The Deschutes Water Alliance is also expected to continue collaborative efforts within the community to help achieve minimum in-stream flows and provide further stream

flow improvements in the watersheds under all alternatives. The continued protections of an ESA threatened status for MCR steelhead is an incentive for Federal, non-Federal public, and private entities to change current water withdrawal practices so that more water is available for stream flow, particularly where Federal, non-Federal public, and private entities do not have regulatory approvals in place or are using equipment or methods for water diversion or withdrawal that are impacting a listed species. This incentive would be realized under all alternatives because 1) the listing would remain status quo (Alternative 1) or 2) protections of the ESA threatened status would be returned after the NEP designation expires (Alternative 2, Alternative 3, Alternative 4). Water use and supply on Federal lands are not expected to change under any alternative since most of the water use in the action area is for irrigation on private lands (Subsection 3.3.2, Water Use).

It is possible that some ongoing private landowner actions associated with the HCP may be suspended by the HCP proponents until the HCP is completed if there is little incentive to continue with ongoing conservation measures and to complete the HCP in a timely manner (Subsection 4.2.1.1, Alternative 1 [No-action Alternative, Status]). These actions could include agricultural water conservation measures, irrigation conveyance, and private landowners and irrigation districts relinquishing water rights, all of which would help to improve watershed hydrography for MCR steelhead. Alternative 1 may lack such an incentive because of the listing status with no known delisting timeframe. Alternative 4 may not provide enough time for HCP proponents to complete the HCP prior to returning the MCR steelhead DPS protections under an ESA threatened status, and therefore, little incentive to develop the HCP in a timely manner. Regardless, it is anticipated that ongoing conservation measures would continue to be implemented under all alternatives to limit potential ESA liabilities and to help improve habitat conditions in the long term, and therefore, to continue to work toward a delisting action, or toward a shortened listing timeframe.

Water quality issues in the upper Deschutes and Crooked River watersheds are related to temperature, sedimentation, pH, dissolved oxygen, flow modifications, and/or habitat modifications (Subsection 3.3.3, Water Quality). Land use practices in the watersheds have resulted in decreased water quality. These practices include water storage and diversion, agriculture and livestock runoff, failing septic systems, wastewater treatment and other discharges, toxic spills, soils erosion, and degraded upland and riparian vegetation (Subsection 3.3.3, Water Quality). The Clean Water Act 303(d) listing for portions of the upper Deschutes, Crooked, and Metolius Rivers and Whychus Creek provides incentives for agencies and residents to change practices that impact water quality in the action area. This listing would likely continue under all alternatives, particularly in the short term. The 303(d)

listing also results in increased regulatory review and approvals for proposed land use practices in areas already in violation.

Under all alternatives, Federal, state, and local agencies; nongovernmental organizations; utilities; tribes; and private landowners would continue to work together to correct these water quality issues. They would work together because of the benefits derived to each entity from improved conditions (e.g., public domestic water supply, industrial water supply, livestock watering, salmonid fish rearing, resident fish and aquatic life, fishing, water contact recreation, aesthetic quality, private domestic water supply irrigation, fish passage, wildlife viewing, hunting, boating, and hydropower) (Subsection 3.3.3, Water Quality).

4.5 Socioeconomics

4.5.1 All Alternatives

Each of the alternatives represents a scenario to maintain or to return the MCR steelhead DPS to protections under an ESA threatened staus (Section 2.0, Alternatives). Conservation and restoration actions associated with recovery of a listed species often help draw communities together to find collaborative solutions that support all of their residents and businesses. Furthermore, including communities in consideration and development of conservation measures can foster community development of priorities and goals needed to achieve those priorities. This can be demonstrated in the analysis area through the ongoing HCP effort and local community support to help find solutions that provide funding, increased water supplies, and habitat restoration opportunities for MCR steelhead in the upper Deschutes, Crooked, and Metolius River watersheds. As described under other resource analyses, it is anticipated that HCP development would continue in the action area along with central Oregon municipality efforts to assess and to implement conservation efforts that benefit listed species, including MCR steelhead.

In the short term under Alternative 1, some streams may be temporarily or permanently closed to recreational use, while activities protecting a listed species habitat are implemented or restoration actions continue. Such closures may also occur under an NEP designation under Alternative 2, Alternative 3, and Alternative 4 if conservation efforts continue regardless of less management restrictions as compared to those imposed under a listing status (Alternative 1). Such closures could represent a temporary decline in recreational-related expenditures in the area, but it is also likely that closures would be mitigated by many other recreational opportunities elsewhere in the action area.

The current MCR steelhead DPS listing status under Alternative 1 and eventual return of protections under an ESA threatened status under each action alternative may negatively impact the agriculture and forest industries because of the direct relationship between industry practices and the condition of fish habitat. Income sources derived from lands surrounding the analysis area are primarily associated with farming or forest products (Subsection 3.4, Socioeconomics). While some conservation measures may be developed that benefit both the landowner and adjacent habitat, some measures may result in negative short-term or long-term effects on landowners. For example, for private forest or agricultural properties that are adjacent to streams in the upper Deschutes, Crooked, and Metolius River watersheds, water storage and withdrawals for irrigation may have to be reduced to help supply needed water in streams. Timber harvest near streams may also be limited to ensure appropriate streamside shading, large woody debris recruitment, and storm water retention, particularly in watersheds experiencing continued degradation of aquatic habitat (Subsection 3.2, Aquatic Habitat). Other water quality protection measures may be needed, particularly if streams are on the Clean Water Act 303(d) list for water impairment criteria, which could further limit economic sector practices in the area. Such impacts to forest and agricultural sectors could be either short or long term depending on the listing status duration and effectiveness of localized improvements.

It is possible that dollars would be spent within the local economy over the short term to fund restoration actions under all alternatives, but such expenditure is most likely under the action alternatives because of the incentive to develop and implement conservation measures in a defined NEP timeframe with limited take liabilities under an NEP designation. In turn, this expenditure could result in short-term employment for construction contractors, the use of construction equipment, and the purchase of construction materials and other local supplies and food for construction workers. It is further possible that additional dollars would be allocated to projects in the near term under Alternative 2, Alternative 3, and Alternative 4 during the short duration of the NEP designation to minimize the need for long-term listing and to secure incidental take allowances for MCR steelhead with implementation of a completed HCP in a timely manner.

In comparison, Federal land management agencies more frequently forecast their actions over a longer period and require a more detailed internal review of proposed restoration action than private entities. Recognizing that MCR steelhead may be listed following the NEP designation under all alternatives or would remain listed under Alternative 1, these agencies are not expected to alter or change their planned and/or restoration actions that would restore habitat for MCR steelhead. As such, economic effects on those employed by Federal land management agencies are not likely to change under any alternative.

However, over the long term under all alternatives, the ongoing or future listing status would not be anticipated to affect the job status substantially within the action area. Since 2007, the region has experienced job losses every quarter (Subsection 3.4, Socioeconomics). Central Oregon has the highest unemployment rate in the state at 14.7 percent, with the highest unemployment rate in the area in Crook County (Subsection 3.4, Socioeconomics). However, most of the job losses have occurred in the manufacturing sector. Unlike the forest or agricultural sectors, the manufacturing sector is not particularly directly or indirectly affected by a listing status. Additionally, the wood products industry has experienced job increases since 2007 (Subsection 3.4, Socioeconomics).

Finally, restoration efforts in the action area under a listing status of Alternative 1or the NEP designations of the action alternatives would be expected to attract more tourists into the area to enjoy its improved natural scenic beauty and to engage in recreational activities and tourism such as camping, fishing, boating, and hiking opportunities. Economic sectors that support tourism, including the food, fuel, retail, lodging, and recreation industry, would benefit from this expected increase in tourists under all alternatives, but substantial or measurable job increases in these sectors are not expected as a direct relationship to a listing status or an NEP designation.

4.6 Environmental Justice

4.6.1 All Alternatives

As described in Subsection 3.5, Environmental Justice, minority and low income populations exist in the analysis area. The CTWSR comprise the largest concentrated group of minorities in the analysis area. Other minorities and low-income populations are distributed throughout the analysis area. None of the alternatives would disproportionately affect a minority or low-income group because all would potentially benefit from the improved conditions to MCR steelhead over the long term and because an NEP designation would have no disproportionate effect on any one group. Further, no low income or minority populations depend on fishing for employment in the action area. Commercial fishing does benefit the tribes, but the tribes also manage other employment sectors (Subsection 3.5, Environmental Justice).

For the CTWSR, reintroduction of MCR steelhead and its current listing, or a future return of the DPS listing as a federally threatened species under all alternatives would help restore and protect species habitat in the analysis area. This would be beneficial to the CTWSR members, who historically harvested fish in the Deschutes River for ceremonial, subsistence, and commercial purposes (Subsection 3.5, Environmental Justice). Over the long term, reintroduction would help establish and

increase populations of MCR steelhead in the Upper Deschutes, Crooked, and possibly the Metolius River watersheds such that the CTWSR members may have an opportunity to harvest these fish in their usual accustomed fishing areas.

To the extent that an NEP designation may foster improved habitat conditions in the short term and greater fish abundance in the short and long term, (Alternative 2, Alternative 3, Alternative 4), the tribes may benefit from this action sooner than under Alternative 1 where the termination of the listing status and its limitations are difficult to predict. However, MCR steelhead habitat improvements and reintroduction would be most pronounced in the long term; the NEP designation under Alternative 2, Alternative 3, and Alternative 4 would not create short-term fishing opportunities for MCR steelhead by the CTWSR. Long-term benefits of an NEP designation could include delisting the MCR steelhead DPS sooner than under Alternative 1, which would likely be benefit the tribes' forest practices industry.

4.7 Recreation

4.7.1 All Alternatives

Reintroduction of MCR steelhead as a federally threatened species under Alternative 1, or under Alternative 2, Alternative 3, or Alternative 4 where the MCR steelhead DPS protections under an ESA threatened status would be returned after the NEP designation expires, may induce some Federal, state, and local land management agencies to increase efforts to protect public recreation areas from riparian and water-related impacts, particularly overuse. These protection measures may result in temporary or permanent closures of some public areas for use, particularly areas where large woody debris has been removed due to public safety and recreation concerns. By allowing woody debris to remain in streams, these areas would provide better aquatic habitat for MCR steelhead than under removal conditions.

Under all alternatives, closing or limiting access to public use areas on Federal lands could result in recreation impacts for boating, fishing, rafting, and other water-dependent uses. The listed status of MCR steelhead is not expected to affect private landowners regarding their use of adjacent aquatic habitats for recreation activities. ODFW fishing regulations and Federal or state wild and scenic designations in the action area are not expected to change under any alternative.

An NEP designation under Alternative 2, Alternative 3, and Alternative 4 would likely not result in additional Federal protection measures for habitat that occurs in high-use public recreation areas unless the Federal land management agencies are concerned about protecting habitat for bull trout, a federally listed species. If this is the case, however, the focus would likely be protecting bull trout spawning

habitat in cold, headwater streams, which represent habitat where MCR steelhead are not expected to occur. Consequently, an NEP designation is not expected to affect ongoing recreation activities or ODFW fishing regulations in areas managed by the USFS, BLM, and the Bureau of Reclamation.

Over the long term, habitat restoration planned under the Federal MCR steelhead recovery plan and other projects that are supported by Federal, state, and local agencies, utilities, tribes, non-governmental organizations, and private landowners are expected to attract more recreationists to the area because of the restored natural habitat and increased scenic beauty. To the extent that an NEP designation would foster development and implementation of conservation measures to improve MCR steelhead habitat in the short term to potentially allow management flexibility and discretion under the returned ESA threatened protections, recreational opportunities such as fishing could be improved in the short term with long-term fishing benefits. This recreational benefit would be realized under Alternative 2, Alternative 3, and Alternative 4.

4.8 Summary of Resource Effects

Provided in Table 4-1 is a summary of the predicted effects from implementation of the No-action Alternative (Alternative 1) and action alternatives (Alternative 2, Alternative 3, Alternative 4). The summary reflects the detailed resource discussions in Subsection 4.2 to Subsection 4.7.

Table 4-1 Summary of Environmental Consequences by Resource

Resource		Alternative			
		1 (No Action)	2 (12-Year NEP)	3 (7-Year NEP)	4 (5-Plus Year NEP)
Fish	MCR Steelhead	Reintroduction of MCR steelhead would continue without an NEP designation. These efforts would likely reestablish MCR steelhead in the action area within its historic habitat. Recovery planning efforts, FERC license measures, and the co-managers' reintroduction plan would likely support development of conservation measures to increase MCR steelhead habitat, status, and distribution to help establish self-sustaining population above Pelton Round Butte, increase its habitat and food supply, and potentially provide a fishery over the long term. No-action Alternative may have the greatest opportunity to measure the success of reintroduction over the long term while the listing status is in place. However, the lack of an NEP designation would provide less incentive to develop conservation measures for MCR steelhead in a defined timeframe. This lack of incentive would hinder NMFS's flexibility and discretion in managing MCR steelhead recovery and conservation because entities would have no incentive to conduct comprehensive, long-term planning and implementation of conservation measures integrated and cooperatively planned with other measures in the action area within a defined timeframe, as opposed to the timeframe provided by a defined NEP designation period.	Reintroduction of MCR steelhead would continue during the ~~approximate~~ 12-year NEP designation, which is expected to provide increased incentive for development of cooperative, comprehensive conservation measures compared to Alternative1, including those associated with the HCP, and those developed by other entities. With greater potential for a completed HCP and other conservation measures by non-Federal public and private entities, there would likely be increased benefits for MCR steelhead reintroduction compared to Alternative 1. Of the action alternatives, Alternative 2 would provide the greatest opportunity to measure the success of reintroduction and to use this information to develop l conservation measures cooperatively with all parties because of the ~~approximate~~ 12-year timeframe. In addition, this alternative would provide the greatest flexibility and discretion for NMFS to manage MCR steelhead recovery and conservation because of the incentive to develop comprehensive, cooperative measures between parties in a reasonable, defined NEP designation timeframe.	Reintroduction of MCR steelhead would continue during the 7-year NEP designation, which is expected to provide increased incentive to develop and implement conservation measures compared to Alternative 1. This alternative would likely provide more benefits to resources than Alternative 1. Less opportunity to measure success of reintroduction and to use this information to develop conservation measures with all parties than Alternative 2 because of shorter timeframe. This alternative would provide more flexibility and discretion for NMFS to manage MCR steelhead recovery and conservation compared to Alternative 1 because of the incentive to develop comprehensive, cooperative measures focused on reintroduction success between parties in a defined NEP designation timeframe.	Reintroduction of MCR steelhead would continue during the 5-year NEP designation and subsequent NEP reevaluation, which is expected to provide increased incentive to develop and implement conservation measures compared to Alternative 1. This alternative would likely provide more benefits to resources than Alternative 1. Short term project effects would be similar to Alternative 3, although not as predictable due to lack of certainty for the overall time period of the NEP. Less opportunity to measure success of reintroduction and to use this information to develop conservation measures with all parties than Alternative 2 because of shorter timeframe. This alternative would provide more flexibility and discretion for NMFS to manage MCR steelhead recovery and conservation compared to Alternative 1because of the incentive to develop comprehensive, cooperative measures focused on reintroduction success between parties in a defined NEP designation timeframe.
	Bull Trout	Lack of an NEP designation would not affect aquatic habitat improvements associated with bull trout and steelhead recovery planning over the long term. Steelhead recovery would benefit rearing juveniles and adults over the long term.	Same effects to bull trout as under Alternative 1, except an NEP designation could result in aquatic habitat improvements in the short term that would more immediately benefit bull trout, and development of conservation measures focused on reintroduction success for long-term implementation and planning that would also benefit this species.	Same as Alternative 2, but with less likelihood of developing conservation measures focused on reintroduction success because of the short NEP designation timeframe.	Same as Alternative 2, but with less likelihood of developing conservation measures focused on reintroduction success because of the short NEP designation timeframe.
	Redband Trout	Lack of an NEP designation would not affect long-term aquatic habitat improvements that would benefit redband trout. Monitoring would determine if redband trout and MCR steelhead compete for habitat and prey, and if fishing for redband trout may impact juvenile MCR steelhead.	Same effects to redband trout as under Alternative 1, except an NEP designation could result in short term aquatic habitat improvements that would more immediately benefit redband trout, and development of conservation measures focused on reintroduction success for long-term implementation and planning that would also benefit this species.	Same as Alternative 2, but with less likelihood of developing conservation measures focused on reintroduction success because of the short NEP designation timeframe.	Same as Alternative 2, but with less likelihood of developing conservation measures focused on reintroduction success because of the short NEP designation timeframe.

Table 4-1. Summary of Environmental Consequences by Resource, (continued).

Resource		Alternative			
		1 (No Action)	2 (12-Year NEP)	3 (7-Year NEP)	4 (5-Plus Year NEP)
	Natural-origin Fish	Lack of an NEP designation would not affect long-term aquatic habitat improvements that would benefit natural-origin fish.	Same effects to natural-origin fish as under Alternative 1, except an NEP designation could result in short term aquatic habitat improvements that would more immediately benefit natural-origin fish, and development of conservation measures focused on reintroduction success for long-term implementation and planning that would also benefit this species.	Same as Alternative 2, but with less likelihood of developing conservation measures focused on reintroduction success because of the short NEP designation timeframe.	Same as Alternative 2, but with less likelihood of developing conservation measures focused on reintroduction success because of the short NEP designation timeframe.
	Introduced Fish	Lack of an NEP designation would not affect aquatic habitat improvements that may benefit introduced trout that may also compete with MCR steelhead.	Same effects to introduced fish as under Alternative 1, except an NEP designation could result in short term aquatic habitat improvements that would more immediately benefit introduced trout, and development of conservation measures focused on reintroduction success for long-term implementation and planning that would also benefit this species.	Same as Alternative 2, but with less likelihood of developing conservation measures focused on reintroduction success because of the short NEP designation timeframe.	Same as Alternative 2, but with less likelihood of developing conservation measures focused on reintroduction success because of the short NEP designation timeframe.
Aquatic Habitat	Quantity	Lack of an NEP designation would not affect recovery planning efforts for increased water in streams and less water withdrawals over the short term and long term. However, the lack of an NEP designation would provide less incentive to develop conservation measures for MCR steelhead in the short term, including measures related to aquatic habitat.	The NEP designation is expected to provide increased incentive to develop and implement conservation measures to reduce water withdrawals from streams, particularly those associated with the HCP, over the short term compared to Alternative 1. With greater potential for a completed and implemented conservation measures, there would likely be increased water in streams in the long term.	Same as Alternative 2, but with less likelihood of developing conservation measures focused on reintroduction success, including measures related to aquatic habitat, because of the short NEP designation timeframe.	Same as Alternative 2, but with less likelihood of developing conservation measures focused on reintroduction success, including measures related to aquatic habitat, because of the short NEP designation timeframe.
Water Resources	Quality	Lack of an NEP designation would not affect overall efforts to improve water quality conditions over the short term and long term due to the need to comply with Clean Water Act Section 303(d) regardless of an NEP designation.	The NEP designation would not affect overall efforts to improve water quality conditions over the short term and long term due to the need to comply with Clean Water Act Section 303(d).	Same as Alternative 2.	Same as Alternative 2.
		Over the long term, adjacent industry to streams in the action area may have decreased water withdrawals and/or riparian preservation requirements because of the continued ESA listing status for MCR steelhead and bull trout.	Effects would be similar to Alternative 1, particularly when the DPS protections under an ESA threatened status are returned after the NEP designation expires.	Same as Alternative 2.	Same as Alternative 2.

Table 4-1. Summary of Environmental Consequences by Resource, (continued).

Resource		Alternative			
		1 (No Action)	2 (12-Year NEP)	3 (7-Year NEP)	4 (5-Plus Year NEP)
Socioeconomics		Restoration improvement efforts could attract more tourists into the area and create job opportunities. Economic sectors that support tourism would benefit from this increase in tourism, but substantial or measureable job increases in tourism sectors or construction sectors for restoration improvements are not expected. Some streams may be closed to recreational use while activities protecting listed species continues or are implemented. Such closures may represent a temporary decline in recreational-related expenditures in the area, but it is likely that closures would be mitigated by other recreational opportunities elsewhere in the area. Impacts to forest and agricultural sectors from aquatic habitat improvements and area closures could be either short or long term depending on the listing status duration and effectiveness of localized improvements.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Environmental Justice		The lack of an NEP designation would have no disproportionate effect to minorities or low-income populations in the analysis area and would not affect the long-term benefit to CTWSR for opportunities to harvest MCR steelhead because ongoing reintroduction and conservation efforts would continue to benefit all communities in the action area equally.	Effects would be similar to Alternative 1, and the NEP designation would not affect this outcome.	Same as Alternative 2.	Same as Alternative 2.
Recreation		The lack of an NEP designation would not affect the planned aquatic habitat improvements associated with recovery planning, which would result in potential short term loss of recreational use and long term benefits for increased recreational fishing opportunities.	Effects would be similar to Alternative 1, but could result in more short term recreational benefits if habitat improvements lead to improved fisheries.	Same as Alternative 2.	Same as Alternative 2.

5 CUMULATIVE IMPACTS

NEPA defines cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative negative impacts from NMFS' proposed designation of the NEP in the action area, would be minor, if at all measurable, on MCR steelhead and not likely measurable on any other resource. Cumulative positive environmental effects are likely due to development and implementation of cooperative and comprehensive conservation measures to support the ongoing release, reintroduction, and reestablishment of a self-sustaining population of MCR steelhead in the upper Deschutes River basin.

Incremental impacts on the environment are included in the resource analyses in Section 4, Environmental Consequences. For example, designation of the NEP is intended to encourage completion of an HCP within a defined timeframe and to support other conservation actions that would benefit MCR steelhead. These measures would work in concert with other ongoing recovery and reintroduction efforts in the action area and would enhance NMFS' flexibility and discretion in managing listed MCR steelhead conservation within the basin. Ongoing and new monitoring activities associated with a completed HCP and other measures supporting the reintroduction of MCR steelhead by non-Federal public and private entities would garner important information pertaining to MCR steelhead habitat and abundance in the action area. Monitoring and adaptive management components of an HCP, for example, would help ensure that the affected DPS is adequately protected and would help counter-balance negative cumulative impacts from ongoing land use activities in the area such as construction, irrigation, and the presence of dams and other barriers to fish from past actions.

Cumulatively, the NEP designation would be consistent with the goals and objectives of the numerous ongoing planning efforts in the action area (Subsection 1.7, Other Plans and Policies). As described in Subsection 1.2, Middle Columbia River Steelhead Listing, the action area has been degraded in terms of fish habitat and access to spawning areas from past actions, most importantly, by the impacts from dam development and water withdrawals. When combined with several current and future recovery actions in the area, an NEP designation could lead to improved conditions for fish habitat more quickly because of the incentive for non-Federal public and private entities to develop conservation measures during a period of limited take liabilities when compared to conservation efforts without an NEP designation. Additionally, NMFS anticipates that ongoing conservation measures would continue while future measures are being developed during the NEP designation period.

In addition to recovery planning, Federal agencies must consult with NMFS under section 7 of the ESA on any action that is likely to adversely affect MCR steelhead. While an NEP is in effect, the section 7(a)(2) consultation requirement would be suspended, but the section 7(a)(4) conference requirement would remain in effect -- triggered by Federal actions that may jeopardize the continued existence of the species. Although the occurrence of conferences may be limited under the proposed action, in the long term, however, the designation may result in net benefits to listed MCR steelhead if conservation measures supporting reintroduction are successfully developed and implemented during the established NEP period. Also, the ongoing conservation measures in the NEP geographic area are expected to continue, thereby affording some protections for listed fish while the section 7 consultation requirement is suspended under an NEP designation. NMFS does not anticipate negative, direct, or indirect impacts to listed fish during the NEP designation period because of ongoing conservation measures and the incentive for Federal and non-Federal private and public entities to improve habitat conditions over the long term.

The cumulative negative effects to MCR steelhead from land use actions in the area, such as agriculture, development, municipal water use, and hydroelectric facilities, would likely continue under the proposed action. Additionally, climate changes indicate that continued pressures on fish habitat from warming trends would likely exist into the future. However, NMFS does not anticipate that these impacts would increase as a result of the limited NEP designation period because of ongoing efforts in the action area and the regional vicinity by many entities to improve degraded conditions. Incidental take of MCR steelhead that would continue under the NEP designation would be consistent with Congressional intent for 10(j) of the ESA to foster improved habitat and abundance conditions in the long term while ongoing, lawful landowner activities are occurring in the short term under an NEP designation (Subsection 1.1.4, Experimental Populations under Section 10(j) of the ESA, Congressional History and Intent). On balance, taking into account the cumulative negative effects of land use activities in the area, the positive effects of a time-limited NEP designation would outweigh the negative effects because the comprehensively planned conservation measures NMFS expects to be developed and implemented during the NEP period would provide a substantial benefit for MCR steelhead in both the short and long terms.

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7 GLOSSARY of KEY TERMS

Action area: Geographic area where the proposed action will take place.

Adfluvial: Fish migrating between rivers or streams and lakes.

Adipose fin: A small fleshy fin with no rays located between the dorsal and caudal fins of fishes belonging to the family salmonidae (salmon, trout, char, grayling and freshwater whitefish). The adipose fin is often "clipped" on a hatchery-origin fish so that the fish is differentiated from natural-origin fish.

Anadromous: Fish that hatch and rear in fresh water, migrate to the ocean to grow and mature, and return to freshwater to spawn.

Anadromy: A life-history pattern for fish that features early juvenile development in fresh water, migration to seawater, and a return to fresh water for spawning.

Demographically independent population for fish: A demographically independent population is a group of fish of the same species that spawns in a particular lake or stream (or portion thereof) at a particular season and which, to a substantial degree, does not interbreed with fish from any other group spawning in a different place or in the same place at a different season. The level of reproductive isolation is such that migrant influence is less than 10 percent.

Distinct population segment (DPS): Under the Endangered Species Act (ESA), the term species includes any subspecies of fish or wildlife or plants, and any "distinct population segment" of any species or vertebrate fish or wildlife that interbreeds when mature. The ESA thus considers a DPS of vertebrates to be a "species". The ESA does not however establish how distinctness should be determined. Under NMFS policy of Pacific salmon, a population or group of populations will be considered a DPS if it represents an evolutionarily significant unit of the biological species. In contrast to salmon, the National Marine Fisheries Service (NMFS) listed steelhead runs under the joint NMFS-U.S. Fish and Wildlife Service (USFWS) Policy for recognizing DPSs (DPS Policy: 61 Federal Register 4722, February 7, 1996). This policy adopts criteria similar to those in the ESU policy, but applies to a broader range of animals to include all vertebrates.

Ecoregion: An ecologically and geographically defined area that covers relatively large areas of land or water, and contains characteristic, geographically distinct assemblages of natural communities and species. The biodiversity of plants, animals, ecosystems that characterize an ecoregion tends to be distinct from that of other neighboring ecoregions.

Endangered Species Act: A United States law that provides for the conservation of endangered and threatened species of fish, wildlife, and plants.

Fluvial: Fish migrating between rivers and/or streams.

Hatchery-origin: A fish that originated from a hatchery facility. Also known as a hatchery fish.

Hatchery program: A program that artificially propagates fish. Most hatchery programs for salmon and steelhead spawn adults in captivity, raise the resulting progeny for a few months or longer, and then release the fish into the natural environment where they will mature.

Hydrography: The scientific description and analysis of the physical conditions, boundaries, flow, and related characteristics of the earth's surface waters.

Hyporheic zone: The saturated sediment environment below a stream or river that exchanges ground water and nutrients with surface flowing waters.

Natural-origin: Natural-origin fish are the offspring of parents that spawned in the natural environment rather than the hatchery environment. Synonymous with native or wild fish.

Parr: A young salmonid, in the stage between alevin and smolt, that has developed distinctive dark parr marks on its sides and is actively feeding in fresh water.

Passive integrated transponder tag: A small, durable microchip about the size of a grain of rice that contains a unique code to the individual fish that is tagged. Low energy-emitting detectors or scanners are used to energize the tag when a tagged fish passes near them, recording the unique code assigned to that fish.

Radio tags: Radio transmitters placed into fish with an external antenna that allow tracking movement and behavior patterns of the fish.

Redds: A shallow depression created by a spawning female where she will lay her eggs. More than one redd can be made by a female when spawning.

Resident fish: Fish that reside in freshwater throughout their life cycle.

Salmonid: Of, belonging to, or characteristic of the family Salmonidae, which includes salmon, trout, char, grayling and freshwater whitefish.

Smolt: A young salmon that begins the migration from freshwater to marine waters. A smolt is characterized by its physiological changes needed for life in the sea.

Stocking: Reference to fish stocking in this environmental assessment refers to a particular fish population that is more or less isolated from other stocks of the same species, reared in a hatchery, and then released and introduced for commercial and recreational fishing opportunities.

Tailwaters: Refers to waters located immediately downstream from a hydraulic structure, such as a dam, bridge, or culvert.

Threatened Species: As designated by section 4 of the ESA, a threatened species means any species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

8 FINDING OF NO SIGNIFICANT IMPACT FOR NONESSENTIAL EXPERIMENTAL POPULATION DESIGNATION FOR MIDDLE COLUMBIA RIVER STEELHEAD REINTRODUCED ABOVE THE PELTON ROUND BUTTE HYDR0ELECTRIC PROJECT

National Marine Fisheries Service

National Oceanic and Atmospheric Administration Administrative Order 216-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a Proposed Action. In addition, the Council on Environmental Quality regulations at 40 C.F.R. 1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant in making a finding of no significant impact, and NMFS has considered each one individually, as well as in combination with the others. The Proposed Action is for NMFS to designate mid-Columbia River (MCR) steelhead reintroduced in the upper Deschutes River basin in portions of Jefferson, Crook, and Deschutes Counties, Oregon, as a nonessential experimental population (NEP) under section 10(j) of the Endangered Species Act (ESA). This designation will terminate 12 years from the effective date of the NEP final rule. The potential significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

1) Can the proposed action reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?

Response: The ongoing reintroduction program is independent of this NEP designation and would continue after the 12-year NEP period ends. Restoration of a self-sustaining population of MCR steelhead through implementation of fish passage and other required mitigation measures in the Federal license for the Pelton Round Butte Hydroelectric Project, the co-manager's reintroduction plan, and the Federal MCR steelhead recovery plan would continue through use of excess hatchery-origin fish in the NEP area. These fish are a composite of both Eastside and Westside populations and are important in terms of strengthening the Cascades Eastern Slope major population group of MCR steelhead (Subsection 1.5.2, Need for Action), but are not essential to the survival and recovery of the distinct population segment as a whole (Subsection 1.3.4, Essential and Nonessential Designations). Therefore, the Proposed Action of a NEP designation would not jeopardize the sustainability of the target fish in

the action area because the reintroduction is an on-going action that will not stop after the designation ends, and may be a benefit to these species by aiding with recovery.

Additionally, under the Proposed Action NMFS would have more discretion in fostering cooperative, integrated, long-term conservation planning, and more flexibility in seeking short-term, cooperative solutions with non-Federal public and private entities. These include conservation measures identified under the Federal MCR steelhead recovery plan that are supported by the Pelton Round Butte Fund, Federal agencies, non-Federal public and private entities, Confederated Tribes of the Warm Springs Reservation of Oregon, and central Oregon assessments of activities affecting steelhead recovery. These measures would be a benefit to target species by helping to protect existing MCR steelhead habitat and to restore degraded habitat, fish passage, water supply, and water quality in the NEP area (Subsection 4.2.1.3, Alternative 2, Proposed Action).

2) Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?

Response: The Proposed Action would not jeopardize the sustainability of non-target species for the following reasons (refer to Subsection 4.2.2, Bull Trout; Subsection 4.2.3, Redband Trout; and Subsection 4.2.4, Other Natural-origin Fish):

Bull trout: The habitat protection and restoration efforts under the Proposed Action would benefit bull trout because this species and MCR steelhead occur in the same aquatic habitats during certain life stages and have similar habitat requirements. Therefore in the long term, conservation efforts aimed at steelhead would help increase bull trout distribution and abundance by enhancing its habitat. Furthermore, juvenile steelhead are a prey item of bull trout, and their reintroduction is an additional food source for this species.

Redband trout: Redband trout and steelhead use some of the same habitat so NMFS expects some competition for food and space. Steelhead would likely be at a disadvantage within existing redband trout strongholds such as the cold water habitat below Bowman Dam on the Crooked River; but steelhead would likely compete well with redband trout in other habitat areas. However, just as for bull trout, the habitat protection and restoration efforts under the Proposed Action would benefit redband trout as well.

Other natural-origin fish: Other natural-origin fish in the NEP area include kokanee, mountain whitefish, sculpins, dace, northern pikeminnow, chiselmouth, and suckers. These fish also occur in the

same aquatic habitats as MCR steelhead; therefore, they will also benefit from conservation efforts to improve habitat. MCR steelhead could compete with mountain whitefish for food resources and space. MCR steelhead eggs may be preyed upon by mountain whitefish and juveniles are a prey item of northern pikeminnow so this species would benefit from the reintroduction.

3) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coast habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in FMPs?

Response: No activities will result from the Proposed Action. The Proposed Action only modifies the ESA status of MCR steelhead; it does not have a direct relationship to any activities in the ocean, coastal habitat, or EFH in inland waterways. However, other, ongoing lawful activities related to reintroduction and conservation of MCR steelhead would continue under the Proposed Action such as monitoring and implementation of reintroduction and recovery plans, ESA liability assessments, and implementation of water quality conservation measures by Central Oregon municipalities (Table 2-1). Still, these activities are not a direct result of the Proposed Action.

4) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

Response: Restoring MCR steelhead to this part of its historic range would not have a substantial impact on biodiversity and/or ecosystem function, but would benefit the ecosystem by the return of marine-derived nutrients that have been absent from the NEP area for nearly 45 years. Over the long term, this would improve ecosystem function and diversity by increasing primary productivity, increased aquatic insect production, and thus potential increases in prey for all fish species in the NEP area.

5) Can the proposed action reasonably be expected to have a substantial adverse impact on public health or safety?

Response: The Proposed Action would not have a substantial adverse impact on public health or safety because it would not alter any current laws or regulations specific to public health and safety. No activity under the Proposed Action involves risk to public health or safety because the action is only related to how the reintroduced steelhead are considered under the ESA.

6) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, their critical habitat, marine mammals, or other non-target species?

Response: The Proposed Action would not adversely affect endangered, threatened, and non-listed fish species in the NEP area, but would be a benefit to them for the following reasons: (1) conservation measures funded or carried out by Federal, tribal, non-Federal public and private entities during the NEP period would benefit critical habitat for bull trout and habitat in general for all fish species in the NEP area; (2) the designation would encourage development of conservation measures tailored to support the reintroduction of threatened MCR steelhead in a time certain, which in turn would support recovery of the ESU; (2) the return of steelhead to its historic habitat would provide marine-derived nutrients to the ecosystem, and would increase productivity for all species in the NEP area over time; (3) MCR steelhead eggs and juveniles would add to the prey base of other native fish species (e.g., bull trout, redband trout, northern pikeminnow); and (4) a growth in abundance of MCR steelhead could add to the prey base of marine mammals.

7) Are significant social or economic impacts interrelated with natural or physical environmental effects?

Response: It is possible that dollars would be spent within the local economy over the short term to fund conservation and restoration actions. These expenditures could result in short-term employment for construction contractors, the use of construction equipment, and the purchase of construction materials and other local supplies and food for construction workers. Over the long term, NMFS expects that conservation and restoration efforts in the action area under the NEP designation would attract more visitors into the area to engage in recreational activities and tourism such as camping, fishing, boating, and hiking opportunities. Economic sectors that support tourism, including the food, fuel, retail, lodging, and recreation industry would benefit from this expected increase in tourists under the Proposed Action, but NMFS does not expect a substantial or measurable job increase in these sectors as a direct relationship to an NEP designation. The Proposed Action would not be anticipated to affect the job status substantially within the action area (Subsection 3.4, Socioeconomics and Subsection 4.5.1, All Alternatives).

8) Are the effects on the quality of the human environment likely to be highly controversial?

Response: The Proposed Action would have insignificant effects on the quality of the human environment. While it will remove some current ESA protections for MCR steelhead for 12 years and this may be a controversial action, it is not likely to be highly controversial since benefits to the species in the long term will outweigh any potential adverse effects. The Proposed Action would result in continuation of reintroduction, which has not been controversial. Further, the Proposed Action would

not result in any modification to the existing recreational fishery in the NEP area because it does not limit take due to otherwise lawful activities, such as fishing. To the extent that the Proposed Action would foster development and implementation of conservation measures to improve MCR steelhead habitat in the short term to potentially allow management flexibility and discretion under the returned ESA threatened protections, recreational opportunities such as fishing could be improved in the short term with long-term fishing benefits (Section 4.7, Recreation). Over the long term, recreation fishing for adult steelhead might occur, benefiting the economic sectors that support sport fishing such as food, fuel, retail, lodging, and the recreation industry overall.

9) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas?

Response: The Proposed Action would not result in substantial impacts to unique areas because there would be no activities associated with the Proposed Action in or near historic or cultural resources, park land, prime farmlands, wetlands, or wild and scenic rivers. As described above in response to Question 3 (Can the proposed action reasonably be expected to cause substantial damage to the ocean and coast habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in FMPs?), the Proposed Action only changes the ESA status of MCR reintroduced into the NEP area and has no relationship to any ground disturbing activities.

10) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

Response: There are no unique or unknown risks to the human environment that would result from the Proposed Action. The Proposed Action would allow both public and private entities to conduct business and activities as they are normally accustomed to under Federal and local laws during its 12-year period. However, once the 12-year term expires, both public and private entities would need to treat the steelhead as a threatened species and comply with the applicable requirements of the ESA. The Proposed Action is designed to give public and private entities time to determine if their activities have any impact on MCR steelhead, and to address those impacts if needed; therefore future compliance with the ESA would not be an unknown risk.

11) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

Response: The Proposed Action will not cause significant cumulative effects and would be consistent with the goals and objectives of the numerous ongoing planning efforts in the action area (Subsection

1.7, Other Plans and Policies). When combined with several current and future recovery actions in the area, the Proposed Action could lead to improved conditions for fish habitat more quickly because of the incentive for non-Federal public and private entities to develop conservation measures during a period of limited take liabilities when compared to conservation efforts without the Proposed Action. Additionally, NMFS anticipates that ongoing conservation measures would continue while future measures are being developed during the NEP designation period.

The cumulative negative effects to MCR steelhead from land use actions in the area, such as agriculture, development, municipal water use, and hydroelectric facilities, would likely continue under the Proposed Action. Additionally, climate changes indicate that continued pressures on fish habitat from warming trends would likely exist into the future. However, NMFS does not anticipate that these impacts would increase as a result of the limited NEP designation period because of ongoing efforts in the action area and the regional vicinity by many entities to improve degraded conditions. Incidental take of MCR steelhead that would continue under the NEP designation would be consistent with Congressional intent for 10(j) of the ESA to foster improved habitat and abundance conditions in the long term while ongoing, lawful landowner activities are occurring in the short term under an NEP designation (Subsection 1.1.4, Experimental Populations under Section 10(j) of the ESA, Congressional History and Intent). On balance, taking into account the cumulative negative effects of land use activities in the area, the positive effects of a time-limited NEP designation would outweigh the negative effects because the comprehensively planned conservation measures NMFS expects to be developed and implemented during the NEP period would provide a substantial benefit for MCR steelhead in both the short and long term.

12) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources?

Response: The Proposed Action would have no adverse effects on districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places or cause loss or destruction of significant scientific, cultural, or historical resources because the Proposed Action would not impact or alter the physical environment, including these structures and resources.

13) Can the proposed action reasonably be expected to result in the introduction or spread of

non-indigenous species?

Response: The Proposed Action would not import, introduce, or contribute to the spread of non-indigenous species because designating the reintroduced steelhead as an experimental population would not change the basic plans to only reintroduce listed hatchery steelhead for the reintroduction effort. As such, the rulemaking to designate the reintroduced steelhead as an NEP would have no effect on the potential spread of non-indigenous species.

14) Is the proposed action likely to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration?

Response: No decision in principle about a future action within this action area or its vicinity would occur from implementation of the Proposed Action. While the Proposed Action is the first of its kind for an anadromous fish species, and may establish a precedent for other anadromous fish designations, is does not represent a decision in principle because each potential future experimental population designation would be independently analyzed based on the unique facts of the particular situation. Further, while the Proposed Action is aimed at development of conservation measures, it does not set a precedent for requiring HCP development for future section 10j designations, nor does it guarantee that an incidental take permit would be issued for such future actions.

15) Can the proposed action reasonably be expected to threaten a violation of Federal, state, or local law or requirements imposed for the protection of the environment?

Response: The Proposed Action would not threaten a violation of Federal, state, tribal, and local law or requirements to protect the environment because it is based on current environmental law (ESA) and regulations, and supports the MCR steelhead reintroduction. The Proposed Action would be limited in time (12-year period) so that protections under the ESA for a threatened population would return to the reintroduced population, which is also consistent with plans that support the reintroduction.

16) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

Response: The Proposed Action would not result in cumulative adverse effects because it will benefit the target species (reintroduced MCR steelhead), as well as other ESA-listed bull trout and non-target fish species. As described above in response to Question 1 (Can the proposed action reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?) the Proposed Action is intended to encourage completion of conservation measures within a defined timeframe that would benefit MCR steelhead. These measures would work in concert with other

ongoing recovery and reintroduction efforts in the action area and would enhance NMFS' flexibility and discretion in managing listed MCR steelhead conservation within the basin.

Furthermore, as described in Question 2 (Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?), in the long term, conservation efforts aimed at MCR steelhead would help increase bull trout distribution and abundance by enhancing its habitat. Furthermore, juvenile steelhead would add to the prey base for bull trout as their reintroduction is an additional food source for this species. This benefit is likely for redband trout as well. Finally, the return of MCR steelhead will also infuse marine-derived nutrients that over time would increase productivity for all fish species in the action area.

8.1 List of Reviewers

- ☐ Kate Hawe, NWR NEPA Coordinator
- ☐ Barry Thom, NWR Deputy Administrator
- ☐ Jane Hannuksela, General Counsel Northwest

8.2 List of Preparers

In addition to NMFS staff preparation of the draft and final EA, support was provided by two contractors to prepare the final EA:

Pamela Gunther (M.A. Biology, B.S. Wildlife Science), Golder Associates, prepared Section 3, Affected Environment, and provided support in preparation and review for other sections of the EA.

Karen Cantillon (B.A. English Literature), Parametrix, provided grammatical editing services.

8.3 Determination

In view of the information presented in the EA and analysis (Section 4, Environmental Consequences) prepared for the action titled "Non-essential Experimental Population Designation for Middle Columbia River Steelhead Reintroduced above the Pelton Round Butte Hydroelectric Project," I have determined that designating MCR steelhead reintroduced above the Pelton Round Butte Hydroelectric Project as an NEP will not significantly impact the quality of the human environment as described above and in the EA. In addition, all beneficial and adverse impacts of the Proposed Action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement is not necessary.

William W. Stelle, Jr., Regional Administrator — Date

NMFS Northwest Region

Seattle, Washington

Appendix A. Comments

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July 18, 2011

VIA ELECTRONIC MAIL (*Federal e-Rulemaking Portal: http://www.regulations.gov*) AND FACSIMILE (503.231.2318)

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Re: Designation of a Nonessential Experimental Population for Middle Columbia River Steelhead Above the Pelton Round Butte Hydroelectric Project in the Deschutes River Basin, Oregon (76 Fed. Reg. 28,715 (May 18, 2011))

Draft Environmental Assessment for Nonessential Experimental Population Designation for Middle Columbia River Steelhead Reintroduction Above the Pelton Round Butte Hydroelectric Project (May 18, 2011) (RIN Number: 0648-BB04)

Dear Assistant Regional Administrator:

We represent the Deschutes Basin Board of Control (the "Board"), which includes Arnold Irrigation District, Central Oregon Irrigation District, North Unit Irrigation District, Ochoco Irrigation District, Swalley Irrigation District, Three Sisters Irrigation District, and Tumalo Irrigation District. We also represent the City of Prineville (the "City"). These comments are submitted on behalf of the Board and the City (the "Commenters"). We also appreciate and recognize the assistance of Ron Campbell and Dudley Reiser with R2 Resource Consultants, Inc. in the preparation of these comments.

Alaska California Idaho
Minnesota Oregon Utah Washington

I. INTRODUCTION

On May 18, 2011, the National Marine Fisheries Service ("NMFS") gave notice of the public comment period for a proposed rule that would designate a nonessential experimental population for Middle Columbia River ("MCR") steelhead above the Pelton Round Butte Hydroelectric Project in Oregon's Deschutes River Basin (the "Proposed Rule"). NMFS prepared a draft environmental assessment (the "Draft EA") in conjunction with the promulgation of the Proposed Rule. This comment letter responds to both the Proposed Rule and the Draft EA.

II. DISCUSSION

For the reasons provided in this letter and those provided in the Proposed Rule, the Commenters agree with NMFS's proposal to designate MCR steelhead above the Pelton Round Butte Hydroelectric Project as a nonessential experimental population. The purpose of the proposed designation is to temporarily lift certain Endangered Species Act ("ESA") liability and consultation requirements to allow time for the development of conservation measures that will support the ongoing reintroduction efforts in the Deschutes Basin. 76 Fed. Reg. 28,715, 28,716 (May 18, 2011). The Commenters believe this designation is critical to maintain local support for the reintroduction efforts, to recognize the conservation efforts that have already been undertaken by the Commenters and by other local interests, and to facilitate the development and implementation of further conservation efforts. The Commenters believe that the Proposed Rule will benefit both local interests and the recovery of MCR steelhead.

As noted in the Proposed Rule, Congress added section 10(j) to the ESA in 1982 to develop greater support for the reintroduction of listed species. *Id.* at 28,717-18. As Congress stated, a rule designating an experimental population "should be viewed as an agreement among the Federal agencies, the state fish and wildlife agencies and any landowners involved." H.R. Rep. No. 567, 97th Cong., 2d Sess. 34 (1982). Prior to the addition of section 10(j), local citizens often opposed reintroduction efforts due to concerns about potential liability for harming members of the reintroduced population and restrictions on federal and private activities. *Id.* Section 10(j) protects those who engage in lawful activities from liability for the unintentional "take" of a member of the experimental population. Congress received testimony from "a broad variety of conservation and environmental groups" before passing the 1982 amendments to the ESA. H.R. Rep. No. 567, 97th Cong., 2d Sess. 34 (1982). The House Report summarized the testimony from these groups as follows: "Environmental groups generally supported the Act but urged that the listing process be speeded up and *that experimental populations be encouraged.*" *Id.* (emphasis added). This evidences the broad support that existed for the establishment of experimental populations.

Since 1982, the U.S. Fish and Wildlife Service ("FWS") has used its authority under section 10(j) to designate dozens of experimental populations. This Proposed Rule marks the first time NMFS has exercised its authority under section 10(j). The Commenters believe that the Proposed Rule exemplifies the type of reintroduction efforts Congress intended to promote when it added section 10(j) to the ESA.

Therefore, the Commenters urge NMFS to promulgate a final rule that designates MCR steelhead above the Pelton Round Butte Hydroelectric Project as a nonessential experimental population. This comment letter provides the Commenters' general comments on the Proposed Rule, responds to the specific questions posed by NMFS in the Proposed Rule, and provides comments on the Draft EA.

A. General Comments on the Proposed Rule

This Section discusses why the Proposed Rule satisfies the statutory requirements for the designation of a nonessential experimental population and is consistent with similar designations by FWS.

1. The Proposed Rule correctly concludes that the proposed experimental population would be wholly separate geographically from nonexperimental populations.

The Proposed Rule concludes that the experimental population of MCR steelhead would be wholly separate geographically from nonexperimental populations because Round Butte Dam provides a clearly defined and absolute barrier that will prevent members of the nonexperimental population from entering the geographic area of the experimental population. 76 Fed. Reg. at 28,721. The proposed geographic area of the experimental population is above Round Butte Dam, where no nonexperimental population currently exists. This satisfies section 10(j)(1), which defines "experimental population" as any population authorized for release by the Secretary, "but only when, and at such times as, the population is wholly separate geographically from nonexperimental populations of the same species." 16 U.S.C. § 1539(j)(1).

FWS has used dams and natural barriers as the boundaries for other experimental populations. *See, e.g.*, 73 Fed. Reg. 74,357, 74,361 (Dec. 8, 2008) (explaining that members of the experimental population would not be able to move past the dams and weirs at the geographic boundaries of the experimental population). For example, FWS concluded that a proposed experimental population of Rio Grande silvery minnows was isolated from existing populations of the same species by large reservoirs. Because silvery minnows are "not known to survive in

or move through large reservoirs," FWS concluded that "the reservoirs [would] act as barriers to the species' downstream movement . . . and [would] ensure that [the nonessential experimental population] remains geographically isolated and easily distinguishable from existing upstream wild populations." *Id.* Similar to the experimental population of silvery minnows, the experimental population of MCR steelhead will remain geographically isolated and easily distinguishable from existing downstream wild populations through the use of Round Butte Dam as the downstream boundary of the experimental population.

The use of Round Butte Dam as the downstream boundary of the experimental population is also consistent with Congress's intent in passing section 10(j) and with existing case law. Congress contemplated that various bases could be used to establish the boundary of the experimental population, including "location, migration pattern, or any other criteria that would provide notice as to which populations of endangered or threatened species are experimental." *Wyo. Farm Bureau Fed'n v. Babbit*, 199 F.3d 1224, 1233 (10th Cir. 2000) (quoting H.R. Conf. Rep. No. 97-835 (1982), *reprinted in* 1982 U.S.C.C.A.N. 2860, 2875). As noted in the Proposed Rule, Round Butte Dam provides a clear boundary that provides notice as to which populations of MCR steelhead are experimental. 76 Fed. Reg. at 28,721.

Federal courts have also held that the geographic separation requirement contained in section 10(j) is satisfied even if individual animals are able to enter or leave the geographic area of the experimental population, resulting in a change in the status of that animal from nonexperimental to experimental or vice versa. *See Wyo. Farm Bureau*, 199 F.3d at 1233 (holding that FWS did not err when it designated an experimental population of gray wolves even though individual wolves that were not members of the experimental population had entered the boundaries of the experimental population); *United States v. McKittrick*, 142 F.3d 1170 (9th Cir. 1998) (same). In a footnote in *Wyoming Farm Bureau*, the Tenth Circuit noted that the protection an individual animal receives under the ESA often depends on whether the animal is located on one side or the other of a political boundary. 199 F.3d at 1236 n.4 (providing as an example the fact that brown pelicans are listed as endangered on the west side of the Mississippi-Alabama state line but are not listed on the east side of the state line).

Thus, the fact that members of the experimental population will become nonexperimental once they migrate downstream from Round Butte Dam does not change the fact that there is a clear boundary between the experimental and nonexperimental populations. Further, this will only serve to *increase* the ESA protections afforded to the members of the experimental population that migrate downstream.

2. The Proposed Rule correctly concludes that the proposed experimental population would further the conservation of MCR steelhead.

The Proposed Rule concludes that the proposed designation will further the conservation of the species. 76 Fed. Reg. at 28,716. Two of the reasons for this conclusion identified in the Proposed Rule are that the proposed designation will (1) "build support for the reintroduction effort among local landowners," and (2) "ensure that the conservation measures [developed to support the reintroduction effort] are informed by information gathered during the NEP designation." *Id.* Commenters believe that these bases are sufficient to support designation of MCR steelhead as an experimental population.

The Proposed Rule also relies on the fact that the Proposed Rule would incentivize landowners and municipalities to complete conservation measures within the 12-year timeframe contemplated for the experimental population designation. *Id.* Commenters agree that any incentive that the Proposed Rule creates for landowners and municipalities to complete conservation measures will further the conservation of MCR steelhead. However, as explained in Section II.B.1 *infra*, the Commenters do not believe that a necessary function of the designation is to speed up the development of Habitat Conservation Plans ("HCPs") or the implementation of other conservation measures. The Commenters have already undertaken the development of an HCP and the implementation of other conservation measures. Other local entities are implementing similar conservation measures. Those efforts will continue even if the experimental population designation does not have a specific expiration date.

The Proposed Rule notes that "[t]here is potential harm associated with the reduced section 9 protections during the time period of the designation." *Id.* at 28,720. However, the Proposed Rule explains that NMFS "do[es] not expect changes to current conditions to significantly increase harm to steelhead during the NEP period." *Id.* It is important to note that one of the purposes of section 10(j) is to increase support for reintroduction efforts through the lifting of certain section 9 prohibitions for experimental populations. Because the designation of an experimental population will almost always result in reduced section 9 protections, that consideration should be given little weight in NMFS's decision to designate an experimental population.

In addition to furthering the conservation of MCR steelhead, this Proposed Rule, once final, would help to further the conservation of other listed species because, as the first designation of an experimental population by NMFS, it would serve as a model for the reintroduction of other NMFS-listed species throughout the nation.

3. The Proposed Rule correctly concludes that the proposed experimental population is not essential to the continued existence of the species.

The Proposed Rule concludes that the proposed experimental population is not essential to the continued existence of the species. *Id.* at 28,720-21. NMFS primarily relied on two findings to reach this conclusion. First, the reintroduction of the experimental population is only one of many ongoing recovery efforts for MCR steelhead, and the recovery of MCR steelhead would be possible even if the current reintroduction effort were unsuccessful. *Id.* Second, the steelhead used for the reintroduction effort will be surplus hatchery stock. *Id.* at 28,721. As noted in the Draft EA, "the fish being released upstream of the dams are excess hatchery fish and are a composite of both Eastside and Westside populations. Therefore, they are not, on their own, considered to be necessary for the survival and recovery of the MCR DPS [distinct population segment]." Draft EA at 1-13.

FWS relied on similar findings to conclude that an experimental population of Rio Grande silvery minnows was not essential to the continued existence of the species. 73 Fed. Reg. at 74,361. The preamble to FWS's final rule provides the following explanation for the conclusion:

> [E]ven if the entire experimental population died, this would not appreciably reduce the prospects for future survival of the species in the wild. That is, the captive population could produce more surplus minnows and future reintroductions still would be feasible if the reasons for the initial failure are understood. As a result, any loss of an experimental population in the wild will not threaten the survival of the species as a whole.

Id. The same is true for MCR steelhead.

This approach is consistent with the purpose of section 10(j): to reduce opposition to the reintroduction of listed species. *See Forest Guardians v. U.S. Fish & Wildlife Serv.*, 611 F.3d 692, 705 (10th Cir. 2010); *Wyo. Farm Bureau*, 199 F.3d at 1231-32. As noted in the Conference Report, "in most cases, experimental populations will not be essential." H.R. Conf. Rep. No. 835, 97th Cong., 2d Sess. 34 (1982). FWS explained in the preamble to its final rule regarding experimental population designations that "a nonessential designation would be the most advantageous to encourage cooperation and should be most actively pursued." 49 Fed. Reg. 33,885, 33,888 (Aug. 27, 1984). As such, the designation of an "essential" experimental population is "a special case, not the general rule." *Id.* To date, FWS has not designated any experimental populations as essential. Draft EA at 1-13.

FWS also explained that the likelihood of adverse impacts to the existing population would be further reduced "if captive propagation efforts are providing individuals for release into the wild." 49 Fed Reg. at 33,888. The Conference Report lends support to this conclusion: "The Secretary shall consider whether the loss of the experimental population would be likely to appreciably reduce the likelihood of survival of that species *in the wild*." *Id.* (emphasis added) (quoting H.R. Conf. Rep. No. 835).

Consistent with the legislative history and FWS regulations, FWS has focused in past designations on whether a proposed experimental population would be established through the use of captive-raised animals. For example, FWS found that experimental populations established through the reintroduction of captive-raised animals, including the red wolf (56 Fed. Reg. 56,325, 56,328 (Nov. 4, 1991)), Mexican gray wolf (63 Fed. Reg. 1752, 1754-55 (Jan. 12, 1998)), black-footed ferret (68 Fed. Reg. 26,498, 26,501 (May 16, 2003)), and California condor (61 Fed. Reg. 54,044, 54,049 (Oct. 16, 1996)), were not essential to the continued existence of those species because the captive populations could produce more surplus animals to support future reintroduction efforts. Thus, the Proposed Rule is consistent with previous 10(j) rules promulgated by FWS.

B. Responses to Specific Questions Posed in the Proposed Rule

The Proposed Rule specifically requests public comments on five issues: (1) the use of a specific expiration date, (2) the proposed 12-year timeframe for the designation, (3) the extent to which the experimental population would be affected by federal, state, or private action within or adjacent to the experimental population area, (4) current programs within the experimental population area that protect fish or aquatic habitats, and (5) necessary management restrictions, protective measures, or other management measures not considered by NMFS. 76 Fed. Reg. at 28,717. This following discussion responds to those issues.

1. NMFS should consider eliminating the specific expiration date when it issues the final rule, which would be consistent with previous 10(j) rules promulgated by FWS.

The Proposed Rule specifically requests comments regarding the use of a specific expiration date. *Id.* at 28,716. Commenters are unaware of any previous 10(j) designation that included a specific expiration date. The Proposed Rule acknowledges that other designations do not include an expiration date: "Other experimental population designations indicate that the designation may be removed for certain reasons, but do not include a specific expiration date in the designation." *Id.* In the final rule that designated a nonessential experimental population of Rio

Grande silvery minnow, for example, FWS did not provide a specific expiration date for the designation. 73 Fed. Reg. at 74,364. The preamble to that final rule states: "Our intent is for the 10(j) rule to remain in place until the status of the species improves to a point where listing is no longer necessary, as defined by the Draft Revised Recovery Plan or the final revised version, and the Rio Grande silvery minnow can be delisted." *Id.* Similar language can be found in the preambles to other 10(j) rules. *See, e.g.*, 63 Fed. Reg. 52,824, 52,826 (Oct. 1, 1998) (establishing a nonessential experimental population of black-footed ferrets in parts of Colorado and Utah); 59 Fed. Reg. 60,266, 60,271 (Nov. 22, 1994) (establishing a nonessential experimental population of gray wolves in parts of Idaho and Montana).

Commenters request that NMFS consider following the approach taken in previous designations by FWS and not establish a specific expiration date in the final rule. As with the 10(j) rules for the Rio Grande silvery minnow, the black-footed ferret, and the gray wolf, the 10(j) rule for MCR steelhead should remain in place until the status of the species improves to a point where listing is no longer necessary, as defined in NMFS's 2009 MCR steelhead recovery plan, and MCR steelhead can be delisted.

The Proposed Rule explains that NMFS proposed an expiration date "to provide an incentive for private landowners and local government entities to complete conservation measures in a certain timeframe, while providing time to gather useful information on the reintroduction effort." 76 Fed. Reg. at 28,721. While the Commenters understand NMFS's desire to incentivize the implementation of conservation measures, the Commenters believe the expiration of the experimental population designation should be tied to the recovery and delisting of the species, rather than to an artificial deadline intended to speed up the implementation of conservation measures.

The Commenters believe that if an expiration date is included in the Proposed Rule, it should be tied biologically to the experimental nature of the population. Although the proposed expiration date is loosely based biologically on the return of three generations of adults following the first return of adult fish reared in the experimental population area, the Proposed Rule offers little biological rationale for the expiration date specified in the Proposed Rule.

If NMFS decides to retain a fixed expiration date for the Proposed Rule, the expiration date should be biologically tied to the stated restoration goal of developing a self-sustaining run of MCR steelhead upstream of the Pelton Round Butte complex. The Commenters suggest the experimental population designation in the NEP Area should extend for a fixed evaluation period after supplementation (by means of either fry releases or surplus wild returning adult outplants) is terminated. The biological opinion for the Pelton-Round Butte Hydroelectric Project FERC

Relicense anticipated surplus hatchery steelhead fry from the Round Butte Fish Hatchery would continue to be outplanted for several generations. *See* Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Consultation for the Pelton Round Butte Hydroelectric Project, FERC No. 2030 (NOAA Fisheries Consultation No. 2004/00812), Feb. 1, 2005. And in the reintroduction plan, the Oregon Department of Fish and Wildlife ("ODFW") and the Confederated Tribes of the Warm Springs Reservation of Oregon ("CTWS") confirm that "hatchery support of the natural runs will diminish through time and end as soon as the runs can sustain themselves. Barring unforeseen circumstances, it will not continue for more than three fish generations in a given subbasin before the fish are given an opportunity to sustain themselves without artificial support." *See* Reintroduction and Conservation Plan for anadromous fish in the Upper Deschutes River Sub-basin, Oregon, ed. 1: Spring Chinook Salmon and Summer Steelhead, Oct. 2008.

In addition, it is possible that some wild adult stock could also be released into the NEP Area before the experimental designation expires. The steelhead reintroduction plan calls for using wild spawners from lower Deschutes River tributaries at some point in the reintroduction effort. Use of non-hatchery fish in the reintroduction will largely depend on the availability of wild spawners and the demonstrated successful performance of the fish passage program at the Pelton Round Butte Project.

In short, as long as the population is supplemented, or manipulated in the manners described above, it should be considered "experimental" since self-sufficiency of an upper Deschutes natural-origin population cannot adequately be evaluated. An evaluation period following the end of supplementation will be needed to assess the self-sustaining nature of the introduced population.

Finally, the Commenters would note that the Crooked River appears to offer more than 50 percent of the available habitat in the NEP area. Returning adults will not have access to the Crooked River habitats until the Deschutes Valley Water District ("DVWD") completes installation of an upstream fish passage facility around Opal Springs Dam. The Commenters understand that settlement negotiations on this topic are underway as between DVWD, NMFS, ODFW, CTWS, and FERC. The anticipated completion date for any upstream passage structure is unclear at this time, but the Commenters believe it could be on the order of three years or more. In lieu of interim passage facilities, steelhead adults released above the Pelton Round Butte Project will not have an opportunity to become self-sustaining within Crooked River habitats and thus, the period to evaluate success of the reintroduction efforts and the self-sustaining nature of the population will only require additional time. These facts offer further

biological rationale for either extending or altogether doing away with any fixed-term of the NEP designation.

If NMFS decides to retain the current deadline, the Commenters request that NMFS promulgate a modified section 4(d) rule that would become effective at the expiration of the experimental population and would continue to provide some limits on Commenters' potential ESA liability for otherwise lawful activities. *See* 16 U.S.C. § 1533(d); *see also* Draft EA at 4-2 (explaining that "a section 4(d) limit" was one regulatory avenue available under the ESA to limit the Commenters' potential liability from otherwise lawful activities).

2. A 12-year timeframe for the experimental population designation represents, at best, the minimum time period necessary for NMFS to gather information critical to the development and implementation of conservation measures that will enhance recovery efforts.

The Proposed Rule requests comments regarding the selection of 12 years as the timeframe for the designation. 76 Fed. Reg. at 28,716. Under the Proposed Rule, the designation would expire 12 years after the first generation of adults return to the nonessential experimental population area. *Id.* This time period would allow for the return of three generations of reintroduced steelhead before the designation expires. *Id.* NMFS concluded that the 12-year time period would provide NMFS sufficient time to collect information "for developing and tailoring conservation measures" and would "incentivize completion of conservation measures—both in the HCP and otherwise." *Id.* at 28,716-17.

NMFS's rationale for selecting a 12-year period to evaluate the experimental restoration program was that 12 years would be long enough to account for variable freshwater and ocean environmental conditions (*i.e.*, meaning fish population response to variable habitat situations) and short enough to provide incentive to complete regional conservation planning measures in a timely fashion. NMFS couched the 12-year term as a typical time period for the return of three generations of steelhead following the first adult return to the Pelton-Round Butte complex.

While a period of three generations may appear reasonable, the Commenters believe it represents, at best, the minimum time period needed to identify whether the establishment of a self-sustaining, naturally-reproducing population is possible. While 12 years may offer some variability for the population to respond to freshwater conditions, it does not offer the same degree of variability for ocean conditions. As NMFS described in its proposed listing determinations, "[e]vidence has shown recurring, decadal-scale patterns of ocean-atmosphere climate variability in the North Pacific Ocean [Pacific Decadal Oscillation Index (PDO)]. These

oceanic productivity 'regimes' have correlated with salmonid population abundance in the Pacific Northwest and Alaska. Survival rates in the marine environment are strong determinants of population abundance for . . . steelhead." 69 Fed. Reg. at 33,114. As such, a 12-year timeframe represents only one and maybe two decadal shifts. It is likely this time period is insufficient to capture significant shifts in ocean conditions or longer term ocean patterns. The Commenters believe consideration should be given to including a longer evaluation period so variable oceanic conditions could be captured.

According to the Purpose and Need statement in the Draft EA, time is needed to assess the efficacy of the reintroduction program and to measure the progress and effectiveness of the conservation measures. The 12-year time frame may be sufficient to allow such an assessment once supplemental out-plantings are curtailed. However, the efficacy of the program cannot be assessed while the population is being manipulated. As described above in Section II.B.1, *supra*, as long as hatchery supplementation continues in the upper basin, and so long as upstream fish passage at Opal Springs is pending, an assessment of the self-sustaining nature of the reintroduced steelhead population cannot readily be made.

Again, in the event NMFS decides to retain the current deadline, the Commenters request that NMFS promulgate a modified section 4(d) rule that would become effective at the expiration of the experimental population and would continue to provide some limits on Commenters' potential ESA liability for otherwise lawful activities.

3. The Commenters believe that their actions within and adjacent to the experimental population area will enhance the recovery of the experimental population.

The Proposed Rule requests public comments regarding "[t]he extent to which the experimental population would be affected by current or future Federal, state, or private actions within or adjacent to the experimental population area." 76 Fed. Reg. at 28,717. As explained in Section II.B.4, *infra*, the Commenters have implemented numerous conservation measures within the experimental population to protect fish and aquatic habitats. These measures will enhance the conservation of the reintroduced steelhead and wild populations of steelhead located downstream.

After MCR steelhead, including the hatchery stock that is being reintroduced above Round Butte Dam, were listed as threatened in 2006, the Commenters evaluated their potential take liabilities under section 9 of the ESA. As part of that process, the Commenters began developing an application for a section 10 incidental take permit and an HCP. Once completed, the HCP will

identify the impacts that will likely result from any covered activities on covered lands, the steps the Commenters will take to minimize and mitigate such impacts, the alternative actions the Commenters have considered and the reasons the Commenters have not undertaken those alternatives, and other measures required by the Secretary. 10 U.S.C. § 1539(a)(2)(A). The Secretary cannot issue an incidental take permit unless: the Secretary determines that the taking will be incidental; the Commenters will, to the maximum extent practicable, minimize and mitigate the impacts of such taking; the Commenters will ensure that adequate funding for the plan will be provided; the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and any other measures required by the Secretary are met. *Id.* § 1539(a)(2)(B). Thus, through the development of the HCP and the implementation of conservation measures, the potential impact on the reintroduced steelhead from the Commenters will be minimized and mitigated.

Many of the conservation measures described in Section II.B.4, *infra*, have already been implemented and, thus, have already benefited the reintroduced steelhead and their habitat. As noted in the Draft EA, "several irrigation districts have implemented a number of important water conservation measures and continue to pursue opportunities to help conserve listed species." Draft EA at 1-10. Further, "central Oregon municipalities have undertaken assessments of actions they must implement under city codes and regulation." *Id.* at 4-6. These assessments will likely "lead to development of measures to help conserve aquatic resources, including MCR steelhead habitat, and would support the reintroduction effort." *Id.* Thus, given the proactive steps taken by private parties, potential impacts to MCR steelhead will be minimized and mitigated and conservation efforts will contribute to the recovery of the species.

4. The Commenters have implemented numerous programs within the experimental population area that protect fish and aquatic habitats.

The Proposed Rule requests public comments regarding "[c]urrent programs within the experimental population area that protect fish or aquatic habitats." 76 Fed. Reg. at 28,717. As noted in the Draft EA,

> restoration actions are already underway or being initiated through a variety of programs, both public and private. Substantial financial support has been and continues to be available to private parties involved in the effort, including allocations from a $21.5 million habitat fund managed by the Portland General Electric Company and $9 million in funding from the Deschutes Special Investment Partnership . . . for high-priority habitat restoration actions backed by local watershed-based groups.

Draft EA at 3-19.

The Commenters have already implemented numerous conservation programs designed to protect fish and improve aquatic habitats in the proposed experimental population area and have plans to implement similar conservation programs in the future. Since the 1960s, the irrigation districts that make up the DBBC, and more recently the City of Prineville and others, have undertaken an unprecedented array of voluntary measures to conserve water, return water instream for fish and wildlife purposes, and use irrigation water supplies to generate renewable energy. Irrigation district-led conservation projects have reduced agricultural diversions by over 200,000 acre-feet annually in this basin, leading to higher instream flows in the Deschutes River and its tributaries. These programs are summarized below. Many of these programs were identified in three "enforcement discretion" letters from the NMFS Regional Administrator to the Commenters.[1]

a. Arnold Irrigation District ("AID") Conservation Programs

AID has worked with the Deschutes River Conservancy ("DRC") to lease approximately 2.6 cubic feet per second ("cfs") of flow that remained in the Deschutes River over the last four summers. AID is located upstream of historic steelhead habitat where fish are not being reintroduced. However, the benefits of restored stream flow extend downstream to areas in the Deschutes River where reintroduced steelhead are likely to be found. Restoration of summer flow in the Deschutes River will most directly benefit steelhead reintroduced in Whychus Creek, a tributary of the Deschutes River, where fish migrating to and from Whychus Creek must pass through a portion of the Deschutes River. Furthermore, juvenile fish electing to rear in the mainstem Deschutes River above Lake Billy Chinook will benefit from improved summer flows.

[1] The first letter was dated May 4, 2007, and was sent by D. Robert Lohn, NMFS Regional Administrator, to the Commenters, less the City. The second letter was dated May 18, 2008, and was sent by D. Robert Lohn to the Commenters, less the City. The third letter was dated April 9, 2010, and was sent by Barry Thom, NMFS Acting Regional Administrator, to the Commenters. The first letter was for a one-year term, while the second and third letters were for two-year terms.

b. Central Oregon Irrigation District ("COID") Conservation Programs

COID has completed piping projects that have permanently restored 24 cfs to the Deschutes River. Over the four years preceding 2010, COID leased 42.6 cfs for summer instream use and expected to lease roughly the same amount in 2010 and 2011. COID is also partnering with the North Unit, Ochoco, Swalley, and Tumalo Irrigation Districts to install flow measurement telemetry stations at 18 locations across these five districts. This project will give the districts the ability to monitor and account for water restoration projects and, when completed, is estimated to result in about 5,510 acre-feet of water savings annually.

COID also has plans to implement future conservation projections, including the Juniper Ridge Phase II Piping Project, which would include 1.25 miles of additional piping and conservation of another 10 cfs of flow to the Deschutes River; the Central Oregon Main Canal Piping Project, extending for 1.8 miles through the urban core of the City of Bend and conserving 9 cfs of daily flow to the Deschutes River; 23 identified and prioritized individual lateral piping projects off of the Central Oregon Canal system that will collectively conserve 32.3 cfs daily and nearly 11,867 acre-feet of water annually to the Deschutes River; and five identified and prioritized individual lateral piping projects off of the Pilot Butte Canal system that will collectively conserve 10.6 cfs of water annually to the Deschutes River.

Like AID, COID diverts water upstream of historic steelhead habitat where fish are not being reintroduced. However, as with AID's conservation measures, COID's conservation measures will directly benefit steelhead reintroduced in Whychus Creek and juvenile fish that elect to rear in the mainstem Deschutes River above Lake Billy Chinook.

c. North Unit Irrigation District ("NUID") Conservation Programs

NUID has completed a piping project that restored 1.51 cfs of flow to the Crooked and Deschutes Rivers. A canal lining project in the 1990s conserved an estimated 23,000 acre-feet. Working with the DRC over the four years preceding 2010, NUID leased between 1.32 and 2.73 cfs of flow that remained in the Deschutes and Crooked Rivers. NUID leased 0.109 cfs in 2010 and 1.47 cfs in 2011 for instream use.

NUID is currently working with the DRC and other entities to develop an additional canal-lining project that is intended to permanently restore up to a total of 19,000 acre-feet to the Deschutes and Crooked River Basins. In 2010, NUID undertook feasibility and mapping efforts to facilitate

this estimated $20 million project. NUID has also completed installation of NMFS-compliant fish screens at its pumping plant in the lower Crooked River. In 2010, NUID completed its Lateral 58-9 Piping Project, which included piping 5 miles of open ditch and will conserve about 700 acre-feet of water. Current planning includes funding its Lateral 58-11 Piping Project, which involves over 7 miles of piping and will conserve 4.6 cfs daily for NUID use and Deschutes River instream flows.

NUID diverts water from the Deschutes River above historic steelhead habitat. Conserved water projects will improve conditions for steelhead that occur in the Deschutes River downstream of the NUID diversion. Further, canal-lining projects will significantly reduce the need for pumping from the Crooked River where steelhead may occur.

d. Swalley Irrigation District ("SID") Conservation Projects

During 2006 and 2007, SID completed three lateral piping projects that permanently restored 7.6 cfs, and over the four years preceding 2010, SID worked with the DRC to lease 8.8 cfs that was used to aid summer flow in the Deschutes River. SID has completed piping 5.1 miles of its 12-mile Main Canal, which has permanently restored about 27 cfs to the Deschutes River. SID has identified additional laterals that could be piped, depending on the availability of grant funds and whether the piping of those laterals fits into SID's strategic plan, which must take urbanization into account. In total, SID's piping projects have permanently restored 38 cfs to the Deschutes River.

Like AID, SID diverts water upstream of historic steelhead habitat where fish are not being reintroduced. However, as with AID's conservation measures, SID's conservation measures will directly benefit steelhead reintroduced in Whychus Creek and juvenile fish that elect to rear in the mainstem Deschutes River above Lake Billy Chinook.

e. Tumalo Irrigation District ("TID") Conservation Projects

TID has permanently restored 8.82 cfs of flow to Tumalo Creek, a tributary to the Deschutes River, and in the four years preceding 2010, TID leased approximately 6.1 cfs to restore summer stream flow in Tumalo Creek and the Deschutes River. In addition, TID is currently working on piping projects that are expected to permanently restore another 8.8 cfs to Tumalo Creek and an additional 2,732 acre-feet of storage in Crescent Lake for use as needed for fish and wildlife. The U.S. Bureau of Reclamation has already authorized $1,000,000 for work on these additional piping projects, subject to matching funds.

Like AID, TID diverts water upstream of historic steelhead habitat where fish are not being reintroduced. However, as with AID's conservation measures, TID's conservation measures will directly benefit steelhead reintroduced in Whychus Creek and juvenile fish that elect to rear in the mainstem Deschutes River above Lake Billy Chinook.

f. Three Sisters Irrigation District ("TSID") Conservation Projects

TSID, in cooperation with other entities, has completed water conservation projects that have permanently restored more than 20 cfs of flow to Whychus Creek. In the four years that preceded 2010, TSID also leased between 6 and 14 cfs of flow for summer instream flow use. In 2010 and 2011, TSID leased between 4 and 5 cfs of flow for summer instream flow use. TSID plans to study the feasibility of piping the remaining 26 miles of open canal within the district, which could restore additional flow to Whychus Creek.

Whychus Creek is within the proposed area of the experimental population and is an important stream for the success of the reintroduction. Permanently restoring summer flow in this stream is expected to directly benefit reintroduced steelhead.

g. Ochoco Irrigation District ("OID") Conservation Projects

Over the past four years, OID has leased between 6 and 8 cfs for use as summer instream flow in Ochoco Creek and the Crooked River. In addition, OID is working on a water rights exchange project with McKay Creek landowners, the DRC, U.S. Bureau of Reclamation, and other entities with the goal of restoring up to 11.2 cfs to McKay Creek, a tributary to the Crooked River. Future planning includes securing funds to complete four lateral piping projects that will collectively conserve about 1.2 cfs of daily Crooked River flow.

OID is located within historic steelhead habitat. Both McKay Creek and Ochoco Creek are important streams for the success of the reintroduction. Permanently restoring summer flow in these streams is expected to directly benefit reintroduced steelhead.

h. City Conservation Projects

The City recently undertook an effort to replace a mile of old water lines each year with modern piping at a cost of over $1,000,000. The old wooden water lines that the City replaced had been installed in the 1940s and were leaking significant amounts of water. To date, over two miles of lines have been replaced.

The City has also made an effort to replace 500 water meters each year with new and more accurate water meters, which has eliminated significant amounts of unaccounted-for water usage. To date, over 2,000 meters have been replaced at a cost of over $500,000. Additionally, the City recently installed telemetry on its water storage tanks to prevent overflow situations and loss. As part of its water management and conservation plan, the City has implemented odd- and even-day watering for irrigation to limit maximum day demands. And the City is pursuing an innovative wetland project along the Crooked River that will provide significant riparian habitat for fish and wildlife, including reintroduced steelhead. Finally, the City is working to better manage the irrigation of City-owned parks, utilizing available surface water from OID to ease demand on groundwater supplies. The City is also developing additional water conservation strategies and habitat restoration efforts, and intends to pursue these projects as funding allows.

5. The Commenters believe that NMFS has sufficiently considered necessary management restrictions, protective measures, and other management measures.

The Proposed Rule requests public comments regarding any necessary management restrictions, protective measures, or other management measures that NMFS has not considered. 76 Fed. Reg. at 28,717. The Commenters agree with NMFS's determination that continuing the multiple-use management of the waters within the proposed experimental population area will not cause significant harm to MCR steelhead. *Id.* at 28,722. Given this determination, the Proposed Rule would "allow[] some take of the steelhead in the experimental population because enough fish will survive to support reintroduction." *Id.* Specifically, "incidental take of steelhead within the experimental population would be allowed, provided that the take is unintentional, not due to negligent conduct, or is consistent with State fishing regulations that have been coordinated with NMFS." *Id.*

This allowance is consistent with the incidental take provisions that FWS has included in numerous other experimental population designations. *See, e.g.*, 73 Fed. Reg. at 74,362 (discussing incidental take of silvery minnows); 68 Fed. Reg. at 26,502 (discussing incidental take of black-footed ferrets). Therefore, the Commenters believe NMFS has sufficiently considered necessary management restrictions, protective measures, and other management measures.

C. Comments Regarding the Draft EA

1 In conjunction with the development of the Proposed Rule, NMFS prepared a Draft EA. An environmental assessment must include a "brief discussion of the need for the proposal, of

alternatives as required by section 102(2)(E) [of the National Environmental Policy Act], of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted." 40 C.F.R. § 1508.0(b). Only a final environmental assessment must include a listing of the agencies and persons consulted because much, if not all, of the consultation occurs after a draft environmental assessment is released. The Draft EA satisfies the statutory requirements.

This Section highlights some of the strengths of the Draft EA and suggests some additional considerations for NMFS to include in the final environmental assessment (the "Final EA").

1. The Draft EA adequately describes the purpose and need for the proposed action.

The context of the reintroduction of MCR steelhead above Round Butte Dam helps to frame the purpose and need for the proposed action. The 2004 settlement agreement that led to the reintroduction contemplated that hatchery stock would be used for the reintroduction. At that time, the hatchery stock was not included in the listed population of MCR steelhead.[2] As such, the parties to the settlement agreement anticipated that NMFS would have significant flexibility in managing the reintroduced steelhead and in developing and implementing conservation measures. However, by the time the first hatchery stock was released in Whychus Creek in
2 2007, the hatchery stock was listed as threatened, limiting NMFS's management flexibility and increasing the potential for opposition to the reintroduction effort. 71 Fed. Reg. 834, 849 (Jan. 5, 2006). This led NMFS, the Commenters, and various other affected entities to begin considering potential options for increasing NMFS's management flexibility, reducing the potential for opposition to the reintroduction effort, and incentivizing the development and implementation of conservation measures that would enhance recovery efforts. These options included the development of an HCP (discussed in Section II.B.3, *supra*), the issuance of enforcement discretion letters from the NMFS Regional Administrator (discussed in Section II.C.2, *infra*), and the designation of an experimental population above the Pelton Round Butte Hydroelectric Project.

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[2] The Draft EA incorrectly states that MCR steelhead were not listed at the time the decision was made to use excess hatchery stock for the reintroduction effort. *See* Draft EA at 1-7. Although the excess hatchery stock was not listed until 2006, *see* 71 Fed. Reg. 834, 849 (Jan. 5, 2006), NMFS listed MCR steelhead as threatened in 1999, *see* 64 Fed. Reg. 14,517, 14,517 (Mar. 25, 1999).

In light of this context, "[t]he purpose of the proposed action is to support the ongoing release, reintroduction, and reestablishment of a self-sustaining population of MCR steelhead by encouraging the cooperative and comprehensive development of measures important to the conservation of this species in a defined, established time frame." Draft EA at 1-15 (cross-reference omitted). The proposed action "will contribute to the recovery of MCR steelhead in the upper Deschutes Basin, and to overall recovery goals provided in the recovery plan for MCR steelhead." *Id.* (citation omitted).

3 From an ESA-focused perspective, the proposed action is needed "to further the conservation of MCR steelhead by increasing the abundance, productivity, spatial structure, and diversity of a part of the major population group of MCR steelhead so that it becomes self-sustaining and contributes to recovery of the [distinct population segment]." *Id.* The need for the proposed action can also be viewed from the perspective of local interests, including the Commenters, and of NMFS. From the Commenters' perspective, the Proposed Rule is needed to maintain local support for the reintroduction effort, to recognize the conservation efforts the Commenters have already undertaken, and to provide Commenters, and other local interests, sufficient time to develop an HCP without the threat of ESA liability for the incidental take of a reintroduced steelhead. From NMFS's perspective, the designation would "further conservation of the species through supporting reintroduction by affording NMFS flexibility and discretion to manage the conservation of this experimental [population]." *Id.* at 1-16.

2. The Draft EA provides a brief discussion of the alternatives, including a "no action" alternative.

The Draft EA discusses four alternatives. Under Alternative 1, the "no-action" alternative, NMFS would not designate an experimental population of MCR steelhead above Round Butte Dam. *Id.* at 2-1 to -3. NMFS would designate an experimental population under Alternatives 2 through 4. The only difference between these alternatives relates to the length of the
4 designation. Under Alternative 2, the designation would expire after three generations of adult steelhead are passed above Round Butte Dam (approximately 12 years). *Id.* at 2-4 to -7. Under Alternative 3, the designation would expire seven years after NMFS issues the final rule designating the experimental population. *Id.* at 2-8 to -10. Finally, under Alternative 4, the initial designation would last for five years after NMFS issues the final rule designating the experimental population, and at that point, NMFS would reevaluate whether to extend the designation period. *Id.* at 2-10 to -14.

a. Alternative 1: No Action

The Draft EA explains that "[w]ith no NEP designation, it is less likely that the HCP would be completed in a defined time frame in contrast to the expected outcome under the action alternatives." *Id.* at 2-2. The Commenters agree. Alternatives 2 through 4 would incentivize the Commenters to complete their HCP by specific deadlines. Under Alternative 1, the Commenters would lack the protection afforded by the incidental take component of the experimental
5 population designation, but the Commenters anticipate that, if NMFS decided not to designate an experimental population, NMFS would continue to provide enforcement discretion letters for an indefinite period of time. Although NMFS would expect the Commenters to continue to make progress toward the completion of their HCP, the deadline for completion would likely be less firm than the deadline imposed by a final designation.

The Draft EA also recognizes the likelihood that, "without the NEP designation, there would be local opposition to the ongoing reintroduction effort." *Id.* at 2-1 to -2. The Commenters agree. The Commenters have supported the reintroduction of MCR steelhead and, as explained in Section II.B.4, *supra*, have implemented various conservation programs to protect fish and improve aquatic habitat. The Commenters have also undertaken the development of an HCP, which is a prerequisite to obtaining an incidental take permit. 16 U.S.C. § 1539(a)(2)(A). Under an incidental take permit, the Commenters would not be liable for the taking of MCR steelhead "if such taking [was] incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." *Id.* § 1539(a)(1)(B). However, the development of an HCP requires significant investments of time and financial resources. As a result, Commenters have not yet completed their HCP and cannot yet obtain an incidental take permit.

Despite the liability risks posed by the current reintroduction, the Commenters have continued to support the reintroduction and have continued to implement habitat conservation programs that enhance recovery efforts. In recognition of the Commenters' support and conservation efforts, the Regional Administrator for NMFS sent "enforcement discretion" letters to the Commenters in 2007, 2008, and 2010. *See* note 1, *supra*. In those letters, the Regional Administrator advised the Commenters that he would not request that NMFS initiate prosecution for the incidental take of reintroduced steelhead so long as the Commenters implemented the conservation measures described in Section II.B.4, *supra*, and the Commenters progressed toward development and completion of an HCP. The Regional Administrator also explained that NMFS was committed to designating the reintroduced steelhead as an experimental population. These commitments by the Regional Administrator—the commitment to exercise enforcement discretion and to designate the reintroduced steelhead as an experimental population—were critical to maintain the Commenters' support for the reintroduction efforts.

The Commenters have supported the reintroduction efforts, in part, based on NMFS's commitment to designate the reintroduced steelhead as an experimental population. Thus, from the Commenters' perspective, a decision by NMFS not to designate an experimental population would be a change in the status quo. The absence of an experimental population designation would leave the Commenters vulnerable to liability for the take of MCR steelhead, even if the Commenters are engaged in an otherwise lawful activity. As such, the Commenters would likely be forced to reevaluate their support for the reintroduction efforts.

Similarly, the designation of an experimental population would allow other municipalities and affected local interests time to either participate in the Commenters' HCP or begin development of their own HCPs. This process cannot happen overnight. Absent some window of time in which HCPs can be developed without the looming threat of prosecution for a taking, opposition to the reintroduction efforts could quickly grow. Given the successes that various groups had in thwarting reintroduction efforts prior to the enactment of section 10(j), NMFS's failure to designate an experimental population of MCR steelhead would pose a threat to the continuation of the reintroduction effort and, as a result, reduce the opportunity for conservation of MCR steelhead.

b. Alternative 2: NEP designation would expire after three generations of adult steelhead passed above Round Butte Dam (approximately 12 years).

One of the key advantages of Alternative 2 is that it is tied to biological considerations. That is, under Alternative 2, the experimental population does not expire until three successive generations of adult steelhead have passed above Round Butte Dam. Draft EA at 2-4. The first adult steelhead could be passed above Round Butte Dam as soon as late 2011 or early 2012. *Id.* at 2-5. As noted in the Draft EA, this alternative "provide[s] a scientifically[] reasonable amount of time to collect information on three generations of returning adults." *Id.* "Three generations are expected to account for variable environmental conditions (both ocean and freshwater) experienced by the NEP during the designation. Additionally, three generations would provide a foundation for understanding the type of conservation measures that would provide strong support for the reintroduction effort." *Id.*

Because Alternative 2 ensures that at least three successive generations of steelhead will be passed above Round Butte Dam before the experimental population designation expires, Alternative 2 best fits the purpose of and need for the proposed action. One of the key benefits that will be derived from the experimental population designation is a better understanding of the types of conservation measures that will minimize and mitigate the effects from the otherwise

lawful activities of the Commenters and other affected local interests. While the Commenters are of the view that 12 years is not sufficient time to complete an evaluation, *see* Sections II.B.1, II.B.2, *supra*, Alternative 2 is the only Alternative that provides, at best, the minimum time period necessary for NMFS to collect information from successive generations of reintroduced steelhead.

As NMFS recognizes in the Draft EA, "Alternative 3 would not provide as much time as Alternative 2 to collect adequate information on the success of reintroduction or the effects of the HCP proponents' actions and other actions in the area and to determine how they might support or hinder reintroduction." *Id.* at 2-10. As explained below, the same is true of Alternative 4. And again, there are good biological reasons and legal justifications to extend this period to more than 12 years, or to eliminate a specific expiration date altogether. As noted above, FWS has never set a specific expiration date for any of its NEP designations.

c. Alternative 3: NEP designation would expire seven years after NMFS issues a final rule designating the experimental population.

Alternative 3 would not satisfy the purposes of and need for the proposed action because it would not allow NMFS to collect adequate information regarding the success of the reintroduction or the effects of the conservation measures undertaken by Commenters and others in the action area. Unlike Alternative 2, Alternative 3 is not tied to biological considerations, which would "substantially reduc[e] NMFS's ability to measure the process of the reintroduction effort and to assess the effect of conservation endeavors by non-federal private and public entities." *Id.* at 2-9.

This time period is not justified with respect to the biology of the species, its population performance, the assessment of reintroduction success, or the evaluation of the experimental nature of the NEP. The time period appears to be tied solely to an assessment of a reasonable time period to complete an HCP and other regional conservation planning efforts. In addition, the Draft EA confirms the NEP likely will not be considered self-sustaining within the seven-year period and the population will continue to be manipulated with fry releases and perhaps with surplus wild adult releases in the NEP area during this same period. The Draft EA also states this time period would reduce the ability to measure progress and effectiveness of conservation measures and would generally lack sufficient variability in freshwater and marine environmental factors.

As the Draft EA recognizes, the first generation of adult steelhead may not be passed above Round Butte Dam until 2015 (or later). *Id.* at 2-5. Because the seven-year expiration date for Alternative 3 would be triggered by NMFS's promulgation of a final rule designating the experimental population, the designation could expire as early as 2018. If that were the case, and if the first generation of adult steelhead were not passed above Round Butte Dam until 2015, NMFS would only be able to gather information from one generation of returning adults before the expiration of the experimental population (*i.e.,* it takes approximately four years for a successive generation to return). The Draft EA recognizes that *two* generations of data may not be sufficient "to ensure that any short term variability in environmental and biological factors can be addressed." *Id.* at 2-10. The availability of only *one* generation of data would be inadequate and, thus, would likely provide an incomplete representation of the success of the reintroduction effort and of the conservation measures. *Id.*

Another reason Alternative 3 would not satisfy the purposes of and need for the proposed action is that it may not provide sufficient time for the completion of HCPs. *Id.* at 2-9 (explaining that the completion of the Commenters' HCP within seven years "may not be realized if funding is not readily available"). First, as the Draft EA recognizes, the Commenters may not be able to complete their HCP within the seven-year time period, even though they have been working on the HCP for a number of years already. Second, other affected local interests interested in developing an HCP will need even more time than the Commenters to complete an HCP.

d. Alternative 4: NEP designation would extend for five years after NMFS issues a final rule designating the experimental population; after five years, NMFS would reevaluate whether to extend the designation period.

Alternative 4 suffers from the same primary weakness as Alternative 3: it does not allow sufficient time for NMFS to gather information from successive generations of returning adult steelhead.[3] This time period is not justified with respect to the biology of the species, its population performance, the assessment of reintroduction success, or the evaluation of the

[3] NMFS admits that a designation that would expire when the first returning steelhead are passed above Round Butte Dam, which could be as little as 1 or 2 years, "would not permit enough time for NMFS to assess the efficacy of the reintroduction." Draft EA at 2-14. Alternative 4 would allow NMFS to gather little additional evidence because it would likely limit the information collected to one generation of returning steelhead.

experimental nature of the NEP. Further, as with Alternative 3, the initial length of the designation may not provide sufficient time for the completion of HCPs. *Id.* at 2-12 (explaining that the completion of the Commenters' HCP within five years "may not be realized if funding is not readily available"). The one advantage of Alternative 4 over Alternative 2 is that the expiration of the experimental population designation would not be automatic. Rather, NMFS would be required to reevaluate the need for the designation. This would give NMFS the opportunity to extend the designation.

However, Alternative 4 would allow, at most, only one successive generation of adult steelhead to return before NMFS was required to undertake a reevaluation of the designation. As explained above, this time period is not sufficient. Thus, it is clear, even today, that it will be necessary for NMFS to extend the designation beyond five years in order to gather adequate information. Rather than require NMFS to undertake an unnecessary evaluation of the designation, the timeframe for the designation should ensure that at least three successive generations of steelhead are passed above Round Butte Dam before NMFS considers whether to extend the period of the designation.

e. Proposed Hybrid Alternative

NMFS could improve the Draft EA by including in the Final EA a hybrid alternative (Alternative 2A) under which NMFS would reevaluate, rather than automatically terminate, the designation after three successive generations of adult steelhead are passed above Round Butte Dam. Basically, this approach would be a modification of Alternative 2 to include the "extension
6 option" from Alternative 4. This change would not require NMFS to prepare a supplement to the Draft EA because it is a minor variation on two of the alternatives already evaluated in the Draft EA and is qualitatively within the spectrum of alternatives that were discussed in the Draft EA. *See* CEQ, *Forty Most Asked Questions Concerning CEQ's NEPA Regulations*, Question 29b (Mar. 23, 1981) (explaining that no supplement to a draft environmental impact statement would be required where a commenter raised a reasonable alternative not already considered by the agency so long as the new alternative was "qualitatively within the spectrum of alternatives that were discussed in the draft").[4]

[4] Although Question 29b from the CEQ guidance document refers to environmental impact statements, rather than environmental assessments, courts have held that the same considerations are relevant to whether an agency must prepare a supplemental environmental assessment. *See, e.g.*, *S. Utah Wilderness Alliance v. Norton*, 301 F.3d 1217, 1238 (10th Cir. 2002).

This hybrid alternative would be consistent with section 10(j). Congress intended that section 10(j) would provide NMFS greater flexibility to manage reintroduced populations. NMFS should not tie its own hands by requiring a subsequent rulemaking to extend the time period for the designation. Instead, NMFS should increase its management flexibility by including in a hybrid Alterative 2A an extension option that NMFS could exercise if it determines that such an extension would further the recovery of MCR steelhead.

3. The Draft EA includes a brief discussion of the environmental impacts of the proposed action and alternatives.

a. Alternative 1: No Action

As discussed in Section II.C.2.a, *supra*, selection of Alternative 1 would increase opposition to the continued reintroduction effort, limit opportunities for cooperative development and implementation of conservation measures, and "would limit NMFS's management flexibility that
7 Congress intended through section 10(j)." *Id.* at 4-6. None of these outcomes would enhance the recovery of MCR steelhead.

When compared with Alternatives 2 through 4, the deficiencies in Alternative 1 are significant. First, Alternative 1 does not provide a definite timeline for completion of HCPs. *See id.* at 4-7. Although potential funding sources for the development of HCPs remain uncertain under all of the proposed alternatives, Alternatives 2 through 4 will provide a definite target for which potentially affected parties can plan and manage. Second, Alternative 1 will encourage potentially affected parties to implement short-term conservation measures rather than long-term conservation measures that have the highest potential to enhance recovery efforts. *See id.* This shift in focus is because, when the potential for liability is high, conservation efforts are focused on limiting liability, rather than on enhancing recovery efforts. As the conservation projects described in Section II.B.4, *supra*, demonstrate, the Commenters and other local interests will work to develop and implement fish-focused, long-term conservation measures when the threat of liability associated with otherwise lawful activities is reduced and when there is time to plan and secure necessary funding.

b. Alternative 2: NEP designation would expire after three generations of adult steelhead passed above Round Butte Dam (approximately 12 years).

Of the alternatives analyzed in the Draft EA, Alternative 2 will best support the recovery of MCR steelhead in the upper Deschutes Basin and is most consistent with the purpose of section 10(j).

First, Alternative 2 is the only alternative that will provide sufficient time for the Commenters and other local interests to develop HCPs before expiration of the experimental population. The ability to complete HCPs prior to the expiration of the experimental population will minimize opposition to the reintroduction because it reflects a cooperative approach to the reintroduction that recognizes the benefits of protecting local interests from liability for otherwise lawful activities. The longer period of designation will also allow the Commenters and other local interests "to monitor effects, to realize benefits to species, and then to develop and implement modifications or additional conservation measures cooperatively with NMFS." *Id.* at 4-12.

Second, the Commenters agree with NMFS that Alternative 2 will lead to the development of conservation measures best targeted toward the recovery of MCR steelhead. As the Draft EA observes, "Alternative 2 would provide NMFS with the greatest opportunity to measure the reintroduction's progress and to gather information on what additional conservation measures are needed to minimize and mitigate for impacts on MCR steelhead and help support the reintroduction program." *Id.* Further, the longer period of designation "would provide a substantial period to complete planning and secure funding for conservation measures to mitigate for the effects of the HCP proponents' actions and other, ongoing conservation efforts in the action area." *Id.* Given sufficient time to develop, implement, and study the effects of various conservation measures, the Commenters and other local interests can develop conservation measures focused on minimizing and mitigating the potential effects of their actions on reintroduced steelhead. *See id.* at 4-13. As a result, the recovery of MCR steelhead will be enhanced.

c. Alternative 3: NEP designation would expire seven years after NMFS issues a final rule designating the experimental population.

Like Alternative 2, Alternative 3 has significant advantages over Alternative 1. First, Alternative 3 provides a definite timeline for completion of HCPs. The development and implementation of the associated conservation measures in the short term will enhance the recovery of reintroduced

steelhead. Second, NMFS will have greater management flexibility over the reintroduced population during the period of the experimental population designation. As recognized by the Draft EA, "HCP proponents and other entities would seek to develop more comprehensive, coordinated, and integrated conservation efforts with NMFS while the NEP designation is in effect under Alternative 3 when compared to the uncertain planning time frame under Alternative 1." *Id.* at 4-19.

However, when compared to Alternative 2, the Commenters believe that Alternative 3 is significantly weakened by the fact that the expiration date is not tied to the reintroduced population's performance. The Draft EA recognizes this weakness: "[U]nlike Alternative 2, the NEP designation termination period would have *no relationship* to the reintroduced population's performance, substantially reducing NMFS's ability to measure the progress of the reintroduction effort and to assess the effect of conservation endeavors by Federal, non-Federal private, and public entities." *Id.* at 4-19 (emphasis added). Further, the longer designation period under Alternative 2 will allow for the development and implementation of more focused conservation measures to support the reintroduced population. *Id.*

The Draft EA concludes that the Commenters will likely be able to complete the HCP within Alternative 3's seven-year timeframe. *Id.* at 4-18. Although completion of the HCP within that timeframe is possible, uncertainty regarding funding still exists. The Commenters believe that Alternative 2 provides a more realistic timeframe for completion of the HCP given the uncertainty that exists.

d. Alternative 4: NEP designation would extend for five years after NMFS issues a final rule designating the experimental population; after five years, NMFS would reevaluate whether to extend the designation period.

The advantages of Alternatives 3 over Alternative 1 discussed in the previous Section also apply to Alternative 4.[5] *See id.* at 4-24 to -25.

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[5] The Draft EA states: "As under *Alternative 4*, HCP proponents would have more incentive to complete the HCP and to work cooperative with NMFS to develop conservation measures aimed at recovery of MCR steelhead than under Alternative 1." Draft EA at 4-24 (emphasis added). The Commenters believe NMFS intended to refer to Alternative 2 or 3, rather than Alternative 4.

When compared to Alternatives 2 and 3, Alternative 4 has both strengths and weaknesses. As one of its strengths, Alternative 4 is the only alternative that incorporates a reevaluation of the success of the reintroduction effort at the end of the initial designation period, instead of a definite expiration of the experimental population designation. For the reasons provided in Section II.C.2.e, *supra*, Alternatives 2 and 3 could be improved by incorporating the "extension option" from Alternative 4. Another strength of Alternative 4, when compared to Alternative 3, is that the extension option allows NMFS to consider the reintroduced population's performance before deciding whether to allow the experimental population designation to expire.

The primary weakness of Alternative 4 is the unnecessarily short period of the initial designation. First, even if the Commenters were able to complete their HCP within the next five years, other entities that may decide to undertake the development of the HCP would unlikely be able to complete their HCPs within five years. Further, the Draft EA recognizes that "the 5-year period may not be enough time for entities to garner necessary resources to implement meaningful long-term measures focused on reintroduction success." *Id.* at 4-47. Second, if the first adults are not passed above Round Butte Dam until after 2012, the successive generation of adults will not return until after the five-year period of the initial designation. As such, NMFS will have insufficient information from which to evaluate the success of the reintroduction effort. *See id.* at 4-25. Thus, Commenters suggest that NMFS discuss in the Final EA whether a longer initial designation period would strengthen Alternative 4.

The Draft EA concludes that the Commenters will likely be able to complete the HCP within Alternative 4's five-year timeframe. *Id.* at 4-24. Although completion of the HCP within that timeframe is possible, uncertainty regarding funding still exists. Further, as explained above, other entities are unlikely to be able to complete HCPs within this timeframe. Thus, the Commenters believe that Alternative 2 provides a more realistic timeframe for completion of their HCP and other HCPs given the uncertainties that exist.

4. Miscellaneous Comments Regarding the Draft EA

The Commenters offer the following suggestions for resolving inconsistencies in and strengthening the Draft EA:

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- Page 3-6, line 8, of the Draft EA states: "At present, the Deschutes Eastside population is at moderate risk of extinction due largely to threats posed by habitat degradation and interbreeding with stray out-of-basin MCR steelhead thought to carry maladapted genetic material (Carmichael and Taylor 2010)." This statement conflicts with an earlier

statement in the Draft EA where the Eastside population is described as "viable." Draft EA at 1-10, ln. 23.

9 • Page 1-14, line 21 of the Draft EA states: "The NEP would be treated as a *candidate species* . . . ." (Emphasis added.) The language used in section 10(j) is "species proposed to be listed." 16 U.S.C. § 1539(j). To avoid creating ambiguity, the Final EA should replace "candidate species" with "species proposed to be listed."

10 • The NMFS (2009) Recovery Plan concludes that only two of the three Deschutes River populations are needed to achieve viability status for a DPS recovery designation. However, the last full sentence on page 1-16 of the Draft EA states: "All the extirpated and existing populations are critical for proper functioning of the DPS, and they must be viable to contribute to recovery." Because this statement is inconsistent with the Recovery Plan, the statement should be revised in or removed from the Final EA.

11 • Page 2-1, line 26-28 of the Draft EA states: "The HCP . . . would be part of the basis for a potential ESA *section 7* incidental take permit (ITP) issued by NMFS." (Emphasis added.) This statement is incorrect. The Final EA should replace "section 7" with "section 10."

12 • Page 2-14, line 26 of the Draft EA states: "This scenario was not analyzed further as an alternative because information in the recovery plan indicates that this experimental population would not be essential to the continued existence of the species and would, therefore, not meet the purpose of supporting reintroduction efforts." The Commenters suggest this statement be revised to read: "This scenario was not analyzed further as an alternative because information in the recovery plan indicates that this experimental population would not be essential to the continued existence of the species. Therefore, NMFS would lack any legal basis for designating it an essential experimental population."

• Page 4-19, line 1, and page 4-15, line 20, for Alternatives 3 and 4, respectively, of the Draft EA state: "colonization of MCR steelhead in some areas that require restoration, may not occur since [the time period] may not be enough time to accomplish this restoration goal." Use of the term "colonization" is ambiguous and perhaps misleading in this sense because the restoration goal is the development of a "self-sustaining" population.

III. CONCLUSION

Commenters support NMFS's proposed designation of MCR steelhead above the Pelton Round Butte Hydroelectric Project as a nonessential experimental population. The designation will further the recovery of MCR steelhead by building support for this and future reintroduction efforts and by informing the development and implementation of conservation efforts. The designation is consistent with the requirements of section 10(j), existing case law, and previous designations by FWS. Once final, the designation will serve as a model for future NMFS reintroduction efforts while protecting those who engage in lawful activities from liability for the unintentional "take" of a member of the experimental population.

Commenters believe a sound biological basis exists for issuing a final rule that extends beyond 12 years, or altogether eliminates, the specific expiration date contained in the proposed rule. A hybrid alternative would be for NMFS to reevaluate, rather than automatically terminate, the designation after three successive generations of adult steelhead are passed above Round Butte Dam. In the event NMFS decides to implement some definite expiration date, Commenters propose that NMFS promulgate a modified section 4(d) rule that would become effective at the expiration of the experimental population designation that would continue to provide some limits on Commenters' potential ESA liability for otherwise lawful activities.

Thank you for your consideration.

Very truly yours,

David E. Filippi

cc: Mr. Steven Johnson, Chair, Deschutes Basin Board of Control
Mr. Steve Forrester, City Manager, City of Prineville
Mr. Scott Carlon, National Marine Fisheries Service

Appendix A-1. Responses to Comments

Stoel Rives Comments
Letter Dated July 18, 2011

The following responses reply to comments submitted by Stoel Rives, a law firm representing the City of Prineville and the Deschutes Basin Board of Control that represents irrigation interests in central Oregon. Each response corresponds to margin numbers added to the Stoel Rives comment letter. Note that the margin numbers begin on Page 18 of the Stoel Rives letter where the NEPA EA comments begin.

As the commenter noted, most of the NEPA comment section of the document highlights the strengths of the EA, and makes suggestions for corrections to include in the final EA. NMFS is not responding to the parts of the comments that reiterate or support the EA, but is responding to suggestions.

1. Comment noted.

2. NMFS modified the draft EA to state that the Deschutes River steelhead hatchery stock was not listed at the time (Subsection 1.2, Middle Columbia River Steelhead Listing).

3. NMFS recognizes that broad local support is indispensable for success of the reintroduction.

4. Comment noted.

5. Comments noted regarding support for the alternatives reviewed and for the analysis of each alternative in the EA. To clarify, the letters issued by the Regional Administrator referenced in this comment were not actual "enforcement discretion" letters but were commitments to not recommend prioritizing enforcement actions by NMFS against irrigation activities within the districts under the Deschutes Basin Board of Control (DBBC). These letters were issued on the DBBC's commitment to actions that promote water and fish conservation. Irrespective of what final action NMFS takes on the proposed designation, the letters of commitment to not recommend enforcement action would not continue for an indefinite period of time.

6. NMFS does not agree with the proposed hybrid alternative. It is not NMFS's intent to extend the designation beyond the 12 years; including an option to do so would not provide the private or public sector certainty regarding planning and operating their facilities and lands.

7. Comments noted regarding support for the specific alternative analyses. NMFS modified the draft EA for clarification as noted in footnote 5 of the commenter's letter. "Alternative 4" has been changed to "Alternatives 2 and 3" (Subsection 4.2.1.5, Alternative 4).

8. The Deschutes Eastside overall population status was mischaracterized in the draft EA by confusing it with the rating of "moderate risk" for spatial structure (habitat condition and access) and diversity (genotypic/phenotypic variation). The overall risk rating for the Deschutes Eastside population is considered "viable" under the ICTRT criteria. NMFS modified the draft EA to clarify this distinction (Subsection 3.1.1.1, MCR Steelhead).

9. NMFS modified the draft EA. "Candidate" has been changed to "proposed." (Subsection 1.3.5, Non-essential Experimental Population Designation Criteria and Regulatory Restrictions).

10. The context of the discussion referred to in the comment letter is about the viability of the Middle Columbia River (MCR) steelhead “major population groups,” not the “demographically independent populations” that make up the major population groups. NMFS modified the draft EA to clarify the context of this discussion (Subsection 1.5.2, Need for the Action).

11. NMFS modified the draft EA. The Endangered Species Act (ESA) section number “7” has been changed to ESA section “10” (Subsection 2.1, Alternative 1, No-action Alternative).

12. Comments noted.