INSTITUTIONAL REPOSITORY
SUBMISSION COVER PAGE

Project Title:

City of Pendleton, Oregon McKay Creek Sediment Removal

☑Biological Opinion
☐Concurrence Letter

Consultation Conducted By:

Interior Columbia Basin Area Office, West Coast Region, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce

Series Name and Number:

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
Portland, Oregon 97232-1274

Refer to NMFS No: WCRO-2019-03620

January 27, 2020

William D. Abadie
Chief, Regulatory Branch
U.S. Army Corps of Engineers, Portland District
P.O. Box 2946
Portland, OR 97208-2946

Re: Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the City of Pendleton, Oregon, McKay Creek Sediment Removal Project.

Dear Mr. Abadie:

Thank you for your letter of December 12, 2019, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for City of Pendleton, Oregon, McKay Creek Sediment Removal. This consultation was conducted in accordance with the 2019 revised regulations that implement section 7 of the ESA (50 CFR 402, 84 FR 45016).

Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA)(16 U.S.C. 1855(b)) for this action. We have included the results of that review in Section 3 of this document.

After reviewing the current status of the species, the environmental baseline, the effects of the proposed action and the cumulative effects, NMFS concludes that the proposed project is not likely to jeopardize the continued existence of ESA-listed Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss*). NMFS also determined the action will not destroy or adversely modify designated critical habitat for MCR steelhead. Rationale for our conclusions is provided in the attached Biological Opinion (opinion). The enclosed opinion is based on information provided in your Biological Assessment, discussions, field visits, and other sources of information cited in the opinion.

As required by section 7 of the ESA, NMFS provided an incidental take statement (ITS) with the opinion. The ITS includes reasonable and prudent measures (RPMs) that NMFS considers necessary or appropriate to minimize incidental take associated with the proposed action. The take statement sets forth nondiscretionary terms and conditions, including reporting requirements that the U.S. Army Corps of Engineers (Corps) and any person who performs the action must

comply with to carry out the RPMs. Incidental take from the proposed action that meets these terms and conditions will be exempt from the ESA take prohibition.

Our EFH analysis includes one conservation recommendation to avoid, minimize, or otherwise offset potential adverse effects to EFH. If your response is inconsistent with the EFH conservation recommendations, the Corps must explain why, including the justification for any disagreements over the effects of the action and the recommendations. In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, in your statutory reply to the EFH portion of this consultation, we ask that you clearly identify the number of conservation recommendations accepted.

Please contact Colleen Fagan, La Grande, Oregon, (541) 962-8512 or colleen.fagan@noaa.gov, if you have any questions concerning this consultation, or if you require additional information.

Sincerely,

Michael P. Tehan
Assistant Regional Administrator
Interior Columbia Basin Office
NOAA Fisheries, West Coast Region

Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response

City of Pendleton, Oregon McKay Creek Sediment Removal

NMFS Consultation Number: WCRO-2019-03620

Action Agency: U.S. Army Corps of Engineers, Portland District

Affected Species and NMFS' Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	Is Action Likely To Jeopardize the Species?	Is Action Likely to Adversely Affect Critical Habitat?	Is Action Likely To Destroy or Adversely Modify Critical Habitat?
Middle Columbia River steelhead (*Oncorhynchus mykiss)*	Threatened	Yes	No	Yes	No

Fishery Management Plan That Identifies EFH in the Project Area	Does Action Have an Adverse Effect on EFH?	Are EFH Conservation Recommendations Provided?
Pacific Coast Salmon	Yes	Yes

Consultation Conducted By: National Marine Fisheries Service, West Coast Region

Issued By: _____

Michael P. Tehan
Assistant Regional Administrator

Date: January 27, 2020

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ACRONYM GLOSSARY

A&P	Abundance and Productivity
BA	Biological Assessment
BMP	Best Management Practice
CHART	Critical Habitat Analytical Review Team
City	City of Pendleton
Corps	U.S. Corps of Engineers
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
cu yd	Cubic Yard(s)
DPS	Distinct Population Segment
DQA	Data Quality Act
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FR	Federal Register
HUC	Hydrologic Unit Code
IPCC	Intergovernmental Panel on Climate Change
ICTRT	Interior Columbia Basin Technical Recovery Team
ISAB	Independent Scientific Advisory Board
ITS	Incidental Take Statement
LWD	Large Woody Debris
MCR	Middle Columbia River
MPG	Major Population Group
MSA	Magnuson–Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
NPCC	Northwest Power and Conservation Council
NWFSC	Northwest Fisheries Science Center
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
OHWM	Ordinary High Water Mark
opinion	Biological Opinion
PAH	Polycyclic Aromatic Hydrocarbon
PBF	Physical or Biological Features
PCE	Primary Constituent Element
PFMC	Pacific Fishery Management Council
Reclamation	Bureau of Reclamation
RM	River Mile
RPM	Reasonable and Prudent Measure
SS/D	Spatial Structure and Diversity
VSP	Viable Salmonid Population

1. INTRODUCTION

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3, below.

1.1. Background

The National Marine Fisheries Service (NMFS) prepared the Biological Opinion (opinion) and incidental take statement (ITS) portions of this document in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.), and implementing regulations at 50 CFR 402, as amended.

We also completed an essential fish habitat (EFH) consultation on the proposed action, in accordance with section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801 et seq.) and implementing regulations at 50 CFR 600.

We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (DQA) (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available within 2 weeks at the NOAA Library Institutional Repository [https://repository.library.noaa.gov/welcome]. A complete record of this consultation is on file at the NMFS La Grande, Oregon, office.

1.2. Consultation History

On August 21, 2019, NMFS staff participated in a conference call with representatives from the City of Pendleton (City), the U.S. Army Corps of Engineers (Corps), the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), and the Oregon Department of Fish and Wildlife (ODFW) to discuss McKay Creek flooding and sediment removal. Meeting participants discussed the purpose and scope of a sediment removal project, the in-water work window, and conservation measures.

On November 6, 2019, NMFS staff toured the project site with representatives of the City.

On December 12, 2019, NMFS received a request to initiate formal consultation and a Biological Assessment (BA) from the Corps. The Corps concluded that the proposed action is "likely to adversely affect" Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss*) and its designated critical habitat. The Corps also concluded that EFH as designated by Section 305 of the Magnuson-Stevens Fishery Conservation and Management Act may also be adversely affected.

On December 13, 2019, NMFS spoke to ODFW District Fish Biologist Bill Duke. Bill Duke provided spawner-to-spawner progeny-parent analyses for Umatilla natural and hatchery brood year's 1993–2015 and links to two ODFW annual reports: "Evaluation of Juvenile Salmonid Outmigration and Survival in the Lower Umatilla River Basin 2018 Annual Report" and "Umatilla Hatchery Monitoring and Evaluation Annual Report: 2018". He also provided a link to

the CTUIR annual report "The Umatilla Basin Natural Production Monitoring and Evaluation Project 2018 Annual Progress Report".

On December 13, 2019, NMFS requested additional information from the Corps regarding the amount of vegetation that would likely be removed during project implementation, dimensions of each sediment removal site, distance of staging areas from McKay Creek, and predicted lengths of sediment plumes. The requested information was provided by Anderson Perry & Associates on December 16, 2019.

On December 17, 2019, NMFS contacted CTUIR Fisheries Program Fish Habitat Program Supervisor Mike Lambert for additional information on McKay Creek. He provided Tetra Tech's report "Assessment Report for the Reintroduction of Anadromous Fish, McKay Creek Drainage within the Umatilla River Subbasin", prepared for CTUIR.

On January 3, 2020, NMFS provided the Corps NMFS' 30-day letter regarding completeness of the initiation package.

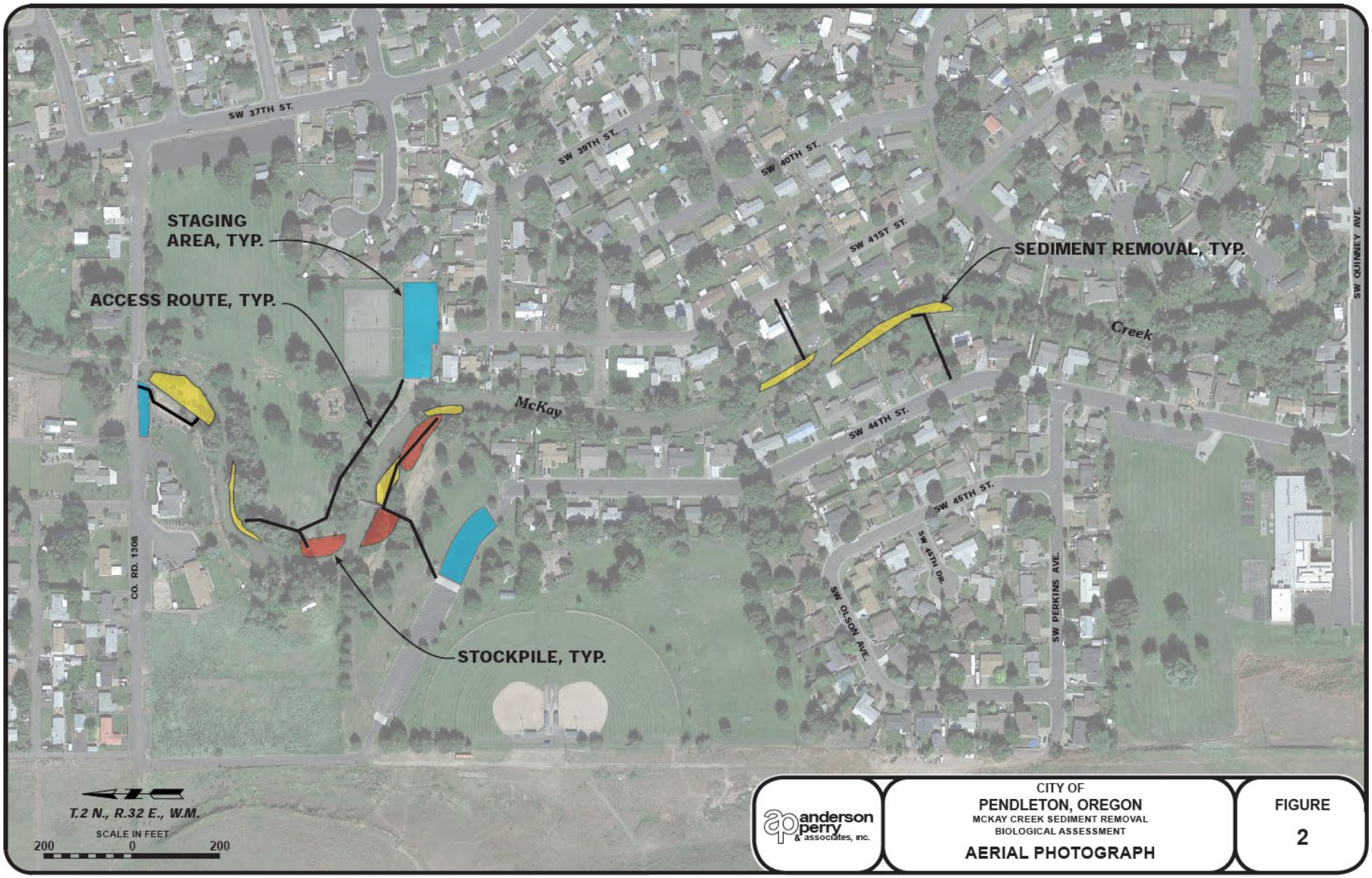
Consultation was initiated on December 12, 2019.

1.3. Proposed Federal Action

"Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies (50 CFR 402.02). For the purpose of ESH consultation, a federal action means any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by a federal agency (50 CFR 600.910).

The Corps is evaluating an application from the City for discharge of fill and dredge material (temporary construction activities, site access, and site isolation and dewatering) related to excavation of accumulated sediment on McKay Creek, River Mile 1.6. The Corps is evaluating the proposal under their regulatory authority found in Section 404 of the Clean Water Act.

The Project includes the excavation of accumulated sediment, from spring 2019 high flow events, within McKay Creek at six locations between the Struve and Quinney bridges. Approximately 1,380 linear feet of McKay Creek will be dredged to remove approximately 8,029 cubic yards (cu yd) of sediment from the streambed (Figure 1). Removal of sediment will increase McKay Creek flow capacity up to 1,500 cubic feet per second (cfs), thereby reducing future flood risk. The total area of the proposed project, including the proposed staging areas, is approximately 2.5 acres. The proposed project will not increase the amount of impervious surface. Project construction will occur within the in-water work window of McKay Creek, December 1, 2019 to March 31, 2020, when flows are typically lowest (McKay Creek is almost entirely regulated by McKay Dam, upstream of the action area).


SW 37TH ST.
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SW 40TH ST.
SW 41ST ST.
SW 44TH ST.
SW 45TH ST.
SW 45TH DR.
SW OLSON AVE.
SW PERKINS AVE.
SW QUINNEY AVE.
CO. RD. 1308
STAGING AREA, TYP.
ACCESS ROUTE, TYP.
SEDIMENT REMOVAL, TYP.
STOCKPILE, TYP.
McKay
Creek
T.2 N., R.32 E., W.M.
SCALE IN FEET
200
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anderson perry & associates, inc.
CITY OF
PENDLETON, OREGON
MCKAY CREEK SEDIMENT REMOVAL
BIOLOGICAL ASSESSMENT
AERIAL PHOTOGRAPH
FIGURE
2

The Project consists of removing recently accumulated sediment below the ordinary high water mark (OHWM) and from previous upland emergency stockpile locations along McKay Creek (Table 1). Sediment removal will take approximately 6 weeks and will require equipment to enter areas below the OHWM. Wheel loaders, track-mounted excavators, and rubber-tired dump trucks will be used on this project. To minimize impacts to listed fish species, work area isolation and fish salvage will occur for each reach of the streambed that is being excavated. Material taken from the streambed will be placed in designated upland stockpile areas.

Table 1. Dimension and volume of six sediment removal areas in McKay Creek, Oregon, proposed for dredging as part of the City of Pendleton, Oregon McKay Creek Sediment Removal Project.

Sediment Removal Area	Length (feet)	Width (feet)	Depth (feet)	Area (square feet)	Volume (cubic yards)
1	170	22	5	3,740	831
2	210	12	1	2,520	112
3	110	30	1.5	3,300	220
4	90	11	1.5	990	66
5	160	11	1.5	1,760	117
6	310	48.5	10	15,035	6,682
Total				27,345	8,028

Some vegetation along the streambank may be removed to access sediment removal sites. Efforts will be taken to minimize impacts to vegetation. Once sediment removal activities are complete, riparian and upland disturbed areas will be revegetated and returned as close to the original condition as possible.

Sediment removal will occur section by section. The anticipated sequence for sediment removal is site preparation, work area isolation and fish salvage, excavation of the built-up streambed sediment and removal of material from the site, rewatering, and site restoration.

Construction access for this project will be from County Road 1308, SW 41st Street, private residences, and the City park on each side of McKay Creek. The staging for this project will occur on three City-owned properties. The staging areas are in upland areas outside the OHWM and will be sufficiently isolated from the creek to prevent sediment or other potential pollutant release. One staging area is located west of Struve Bridge within City right-of-way. The other two staging areas are in parking lots that are part of the Pendleton Community Park, one at the north end of SW 41st Street on the east side of McKay Creek and one at the north end of SW 44th Street, west of McKay Creek. Staging areas will be used for equipment storage, fueling, and limited material stockpiling.

Some of the target sediment may be inundated by McKay Creek during the work window. These sites will be isolated and fish salvage will occur before sediment excavation. Work area isolation barriers constructed of sandbags or other appropriate materials will be used to isolate the work area while leaving a portion of the channel open to allow water flow and fish passage. Between 67 and 211 cu yd of temporary fill below the OHWM will be used for isolation barriers,

depending on the sediment removal area. Flows will be concentrated adjacent to the working area to the opposite streambank.

Once flows have been diverted from the work area, fish salvage will be conducted to remove any fish in the isolated area. Fish in the isolated area will be removed first by seining or using dip nets, then by electrofishing if needed. Electrofishing will be completed according to NMFS and ODFW electrofishing guidelines by an ODFW or other qualified biologist. All handled fish will be recorded. Captured fish will be placed in aerated buckets, examined, identified, and then released outside the project area in similar habitat from which they were obtained, or pools located outside the project area. Any fish injuries observed will result in a modification to the electrofishing settings. Fish capture will be conducted when stream temperatures are at or below 15°C (59°F), to the extent practical. Electrofishing will be conducted early in the day to minimize stress to salmonids. Predators (if any are captured) will not be comingled in buckets with prey species. To reduce impacts, the amount of time fish spend in the buckets will be minimized. Any listed fish will be noted, and if mortality occurs to a listed fish species, it will be collected according to NMFS requirements.

Each of the six sediment removal areas will require a separate work area isolation and fish salvage event, and each work area isolation barrier will remain in place for up to 7 days to allow the necessary work to be accomplished.

Following completion of the project, any temporary site modifications, such as nets, silt fencing, and access ramps, will be removed and the area will be returned to prior conditions. All disturbed riparian and upland areas that were previously vegetated will be seeded with a native upland grass seed mix to prevent erosion and aid in stabilizing the disturbed area. All removed trees will be replanted.

We considered whether or not the proposed action would cause any other activities and determined that it would not.

2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. As required by section 7(a)(2) of the ESA, each federal agency must ensure that its actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. Per the requirements of the ESA, federal action agencies consult with NMFS and section 7(b)(3) requires that, at the conclusion of consultation, NMFS provide an opinion stating how the agency's actions would affect listed species and their critical habitats. If incidental take is reasonably certain to occur, section 7(b)(4) requires NMFS to provide an ITS

that specifies the impact of any incidental taking and includes non-discretionary reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

2.1. Analytical Approach

This opinion includes both a jeopardy analysis and an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "jeopardize the continued existence of" a listed species, which is "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR402.02). Therefore, the jeopardy analysis considers both survival and recovery of the species.

This opinion relies on the definition of "destruction or adverse modification," which "means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species" (50 CFR 402.02).

The designation of critical habitat for MCR steelhead uses the term primary constituent element (PCE) or essential features. The 2016 critical habitat regulations (50 CFR 424.12) replaced this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a "destruction or adverse modification" analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

The 2019 regulations define effects of the action using the term "consequences" (50 CFR 402.02). As explained in the preamble to the regulations (84 FR 44977), that definition does not change the scope of our analysis and in this opinion we use the terms "effects" and "consequences" interchangeably.

We use the following approach to determine whether a proposed action is likely to jeopardize listed species or destroy or adversely modify critical habitat:

- Evaluate the rangewide status of the species and critical habitat expected to be adversely affected by the proposed action.
- Evaluate the environmental baseline of the species and critical habitat.
- Evaluate the effects of the proposed action on species and their habitat using an exposure-response approach.
- Evaluate cumulative effects.
- In the integration and synthesis, add the effects of the action and cumulative effects to the environmental baseline, and, in light of the status of the species and critical habitat, analyze whether the proposed action is likely to: (1) directly or indirectly reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species, or (2) directly or indirectly result in an alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.
- If necessary, suggest a reasonable and prudent alternative to the proposed action.

2.2. Rangewide Status of the Species and Critical Habitat

This opinion examines the status of MCR steelhead which will be adversely affected by the proposed action. The status is determined by the level of extinction risk that the species faces, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species' likelihood of both survival and recovery. The species status section also helps to inform the description of the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. The opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the function of the essential PBFs that help to form that conservation value.

One factor affecting the status of MCR steelhead, and aquatic habitat at large, is climate change. Climate change is likely to play an increasingly important role in determining the abundance and distribution of MCR steelhead, and the conservation value of its designated critical habitat. These changes will not be spatially homogeneous across the range of MCR steelhead. The largest hydrologic responses are expected to occur in basins with significant snow accumulation, where warming decreases snow pack, increases winter flows, and advances the timing of spring melt (Mote et al. 2014, Mote et al. 2016). Rain-dominated watersheds and those with significant contributions from groundwater may be less sensitive to predicted changes in climate (Tague et al. 2013, Mote et al. 2014).

During the last century, average regional air temperatures in the Pacific Northwest increased by 1 to 1.4°F as an annual average, and up to 2°F in some seasons (based on average linear increase per decade; Abatzoglou et al. 2014, Kunkel et al. 2013). Warming is likely to continue during the next century as average temperatures are projected to increase another 3 to 10°F, with the largest increases predicted to occur in the summer (Mote et al. 2014).

Decreases in summer precipitation of as much as 30 percent by the end of the century are consistently predicted across climate models (Mote et al. 2014). Precipitation is more likely to occur during October through March, less during summer months, and more winter precipitation will be rain than snow (ISAB 2007, Mote et al. 2014). Earlier snowmelt will cause lower stream flows in late spring, summer, and fall, and water temperatures will be warmer (ISAB 2007, Mote et al. 2014). Models consistently predict increases in the frequency of severe winter precipitation events (i.e., 20-year and 50-year events), in the western United States (Dominguez et al. 2012). The largest increases in winter flood frequency and magnitude are predicted in mixed rain-snow watersheds (Mote et al. 2014).

Overall, about one-third of the current cold-water salmonid habitat in the Pacific Northwest is likely to exceed key water temperature thresholds by the end of this century (Mantua et al. 2009). Higher temperatures will reduce the quality of available salmonid habitat for most freshwater life stages (ISAB 2007). Reduced flows will make it more difficult for migrating fish to pass physical and thermal obstructions, limiting their access to available habitat (Mantua et al. 2010). Temperature increases shift timing of key life cycle events for salmonids and species forming the base of their aquatic foodwebs (Crozier et al. 2011, Tillmann and Siemann 2011, Winder and Schindler 2004). Higher stream temperatures will also cause decreases in dissolved oxygen and may also cause earlier onset of stratification and reduced mixing between layers in lakes and

reservoirs, which can also result in reduced oxygen (Meyer et al. 1999, Winder and Schindler 2004). Higher temperatures are likely to cause several species to become more susceptible to parasites, disease, and higher predation rates (Crozier et al. 2008, Wainwright and Weitkamp 2013).

As more basins become rain-dominated and prone to more severe winter storms, higher winter stream flows may increase the risk that winter or spring floods in sensitive watersheds will damage spawning redds and wash away incubating eggs (Goode et al. 2013). Earlier peak stream flows will also alter migration timing for salmon smolts and may flush some young salmon and steelhead from rivers to estuaries before they are physically mature, increasing stress and reducing smolt survival (McMahon and Hartman 1989, Lawson et al. 2004).

In addition to changes in freshwater conditions, predicted changes for coastal waters in the Pacific Northwest as a result of climate change include increasing surface water temperature, increasing but highly variable acidity, and increasing storm frequency and magnitude (Mote et al. 2014). Elevated ocean temperatures already documented for the Pacific Northwest are highly likely to continue during the next century, with sea surface temperature projected to increase by 1.0 to 3.7ºC by the end of the century (IPCC 2014). Habitat loss, shifts in species' ranges and abundances, and altered marine food webs could have substantial consequences to anadromous, coastal, and marine species in the Pacific Northwest (Tillmann and Siemann 2011).

Moreover, as atmospheric carbon emissions increase, increasing levels of carbon are absorbed by the oceans, changing the pH of the water. A 38 to 109 percent increase in acidity is projected by the end of this century in all but the most stringent CO_2 mitigation scenarios, and is essentially irreversible over a time scale of centuries (IPCC 2014). Regional factors appear to be amplifying acidification in Northwest ocean waters, which is occurring earlier and more acutely than in other regions and is already impacting important local marine species (Barton et al. 2012, Feely et al. 2012). Acidification also affects sensitive estuary habitats, where organic matter and nutrient inputs further reduce pH and produce conditions more corrosive than those in offshore waters (Feely et al. 2012, Sunda and Cai 2012).

Global sea levels are expected to continue rising throughout this century, reaching likely predicted increases of 10 to 32 inches by 2081–2100 (IPCC 2014). These changes will likely result in increased erosion and more frequent and severe coastal flooding and shifts in the composition of nearshore habitats (Tillmann and Siemann 2011). Estuarine-dependent salmonids such as chum and Chinook salmon are predicted to be impacted by significant reductions in rearing habitat in some Pacific Northwest coastal areas (Glick et al. 2007). Historically, warm periods in the coastal Pacific Ocean have coincided with relatively low abundances of salmon and steelhead, while cooler ocean periods have coincided with relatively high abundances, and therefore these species are predicted to fare poorly in warming ocean conditions (Scheuerell and Williams 2005, Zabel et al. 2006). This is supported by the recent observation that anomalously warm sea surface temperatures off the coast of Washington from 2013 to 2016 resulted in poor coho and Chinook salmon body condition for juveniles caught in those waters (NWFSC 2015). Changes to estuarine and coastal conditions, as well as the timing of seasonal shifts in these habitats, have the potential to impact a wide range of listed aquatic species (Tillmann and Siemann 2011, Reeder et al. 2013).

The adaptive ability of these threatened and endangered species is depressed due to reductions in population size, habitat quantity and diversity, and loss of behavioral and genetic variation. Without these natural sources of resilience, systematic changes in local and regional climatic conditions due to anthropogenic global climate change will likely reduce long-term viability and sustainability of populations in many of these Evolutionarily Significant units (ESU) (NWFSC 2015). New stressors generated by climate change, or existing stressors with effects that have been amplified by climate change, may also have synergistic impacts on species and ecosystems (Doney et al. 2012). These conditions will possibly intensify the climate change stressors inhibiting recovery of MCR steelhead in the future.

2.2.1 Status of the Species

For Pacific salmon and steelhead, we commonly use the four "viable salmonid population" (VSP) criteria (McElhany et al. 2000) to assess the viability of the populations that, together, constitute the species. These four criteria (spatial structure, diversity, abundance, and productivity) encompass the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. When these parameters are collectively at appropriate levels, they maintain a population's capacity to adapt to various environmental conditions and allow it to sustain itself in the natural environment.

Spatial structure refers both to the spatial distributions of individuals in the population and the processes that generate that distribution. A population's spatial structure depends on habitat quality and spatial configuration, and the dynamics and dispersal characteristics of individuals in the population.

Diversity refers to the distribution of traits within and among populations. These range in scale from DNA sequence variation in single genes to complex life history traits (McElhany et al. 2000).

Abundance generally refers to the number of naturally-produced adults (i.e., the progeny of naturally-spawning parents) in the natural environment (e.g., on spawning grounds).

Productivity, as applied to viability factors, refers to the entire life cycle (i.e., the number of naturally-spawning adults produced per parent). When progeny replace or exceed the number of parents, a population is stable or increasing. When progeny fail to replace the number of parents, the population is declining. McElhany et al. (2000) use the terms *population growth rate* and *productivity* interchangeably when referring to production over the entire life cycle. They also refer to *trend in abundance*, which is the manifestation of long-term population growth rate.

For species with multiple populations, once the biological status of a species' populations has been determined, we assess the status of the entire species using criteria for groups of populations, as described in recovery plans and guidance documents from technical recovery teams. Considerations for species viability include having multiple populations that are viable, ensuring that populations with unique life histories and phenotypes are viable, and that some viable populations are both widespread to avoid concurrent extinctions from mass catastrophes and spatially close to allow functioning as metapopulations (McElhany et al. 2000).

The summary that follows describes the status of MCR steelhead, and its designated critical habitat. MCR steelhead is the one ESA-listed species that occurs within the geographic area of this proposed action and is considered in this opinion. More detailed information on the status and trends of this listed resource, and its biology and ecology, are in the listing regulations and critical habitat designations published in the Federal Register (Table 2). These documents are available on the NMFS West Coast Region website (http://www.westcoast.fisheries.noaa.gov/).

Table 2. Listing status, status of critical habitat designation and protective regulations, and relevant Federal Register (FR) decision notices for ESA-listed Middle Columbia River steelhead considered in this opinion.

Species	Listing Status	Critical Habitat	Protective Regulations
Middle Columbia River Steelhead	Threatened 3/25/1999; 64 FR 14517 Reaffirmed 5/26/2016; 81 FR 33458	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160

Status of MCR Steelhead

A recovery plan is available for this species (NMFS 2009) and this plan details much of the existing status information for the MCR steelhead. This species includes all naturally-spawned steelhead populations originating below natural and manmade impassable barriers from the Columbia River and its tributaries upstream of the Wind and Hood Rivers (exclusive) to and including the Yakima River; excluding steelhead originating from the Snake River Basin. This Distinct Population Segment (DPS) does include steelhead from seven artificial propagation programs (USDC 2014). The DPS does not currently include steelhead that are designated as part of an experimental population above the Pelton Round Butte Hydroelectric Project in the Deschutes River Basin, Oregon (USDC 2013). The Interior Columbia Basin Technical Recovery Team (ICTRT) identified 17 extant populations in this DPS (ICTRT 2003, McClure et al. 2005). The populations fall into four major population groups (MPGs): Cascade eastern slope tributaries (five extant and two extirpated populations), the John Day River (five extant populations), the Walla Walla and Umatilla rivers (three extant and one extirpated populations), and the Yakima River (four extant populations) (ICTRT 2003, McClure et al. 2005). Viability ratings for these populations range from extirpated to viable (Table 3) (NMFS 2009, NWFSC 2015).

Updated Biological Risk Summary. The following is a summary from the status review update. More detailed information on the status and trend of these listed resources, and their biology and ecology are in the status update (NWFSC 2015).

There have been improvements in the viability ratings for some of the component populations, but the Mid-Columbia River Steelhead DPS is not currently meeting the viability criteria described in the Mid-Columbia Steelhead Recovery Plan. In addition, several of the factors cited by the ICTRT (2005) remain as concerns or key uncertainties. Natural origin returns to the majority of populations in two of the four MPGs in this DPS increased modestly relative to the levels reported in the previous 5-year review. Abundance estimates for two of three populations with sufficient data in the remaining two MPGs (Eastside Cascades and Umatilla/Walla-Walla)

were marginally lower. Natural-origin spawning estimates are highly variable relative to minimum abundance thresholds across the populations in the DPS. Three of the four MPGs in this DPS include at least one population rated at low risk for abundance and productivity (NWFSC 2015). The survival gaps for the remaining populations are generally smaller than those for the other Interior Columbia Basin listed DPSs (NWFSC 2015). Updated information indicates that stray levels into the John Day River populations have deceased in recent years. Out of basin hatchery stray proportions, although reduced, remain high in spawning reaches within the Deschutes River Basin populations. In general, the majority of population level viability ratings remained unchanged from prior reviews for each MPG within the DPS.

Table 3. Major population groups, populations, and scores for the key elements of abundance and productivity (A&P), diversity, and spatial structure and diversity (SS/D), used to determine current overall viability risk for MCR steelhead (NWFSC 2015). Risk ratings included very low (VL), low (L), moderate (M), high (H), very high (VH), and extirpated (E). Maintained (MT) population status indicates that the population does not meet the criteria for a viable population but does support ecological functions and preserve options for recovery of the Distinct Population Segment.

Major Population Group	Population (Watershed)	A&P	Natural Processes Risk	Diversity	Integrated SS/D	Overall Viability Risk
Cascade Eastern Slope Tributaries	Fifteenmile Creek	M	VL	L	L	MT
	Klickitat River	M	L	M	M	MT
	Deschutes Eastside	L	L	M	M	Viable
	Deschutes Westside	H	L	M	M	H
	Rock Creek	*	M	M	M	H
	White Salmon	N/A	N/A	N/A	N/A	E
	Crooked River	N/A	N/A	N/A	N/A	E
John Day River	Upper John Day	M	VL	M	M	MT
	North Fork John Day	VL	VL	L	L	Highly Viable
	Middle Fork John Day	L	L	M	M	Viable
	South Fork John Day	L	VL	M	M	Viable
	Lower John Day Tribs	M	VL	M	M	MT
Walla Walla and Umatilla rivers	Umatilla River	M	M	M	M	MT
	Touchet River	H	L	M	M	H
	Walla Walla River	M	M	M	M	MT
Yakima River	Satus Creek	L	L	M	M	Viable
	Toppenish Creek	L	L	M	M	Viable
	Naches River	M	L	M	M	M
	Upper Yakima	M	M	H	H	H

* Re-introduction efforts underway (NMFS 2009)

Limiting Factors. Limiting factors for this species include (NMFS 2009, NOAA Fisheries 2011):

- Degradation of floodplain connectivity and function, channel structure and complexity, riparian areas, fish passage, stream substrate, stream flow, and water quality.
- Mainstem Columbia River hydropower-related impacts.
- Degraded estuarine and nearshore marine habitat.
- Hatchery-related effects.

- Harvest-related effects.
- Effects of predation, competition, and disease.

MCR steelhead in the Umatilla Basin. The proposed action will take place within the Umatilla/Walla Walla Basin MPG boundaries and will affect the Umatilla River population. The Umatilla River population occupies the Umatilla River Subbasin as well as three additional tributaries that flow directly into the Columbia River (Alder, Glade, and Fourmile creeks) on the Washington side just downstream of the mouth of the Umatilla River. Within the Umatilla River Subbasin, 10 of 13 watersheds are occupied by MCR steelhead. Current spawning distribution is somewhat limited relative to historical distribution and is concentrated in Birch Creek, Isk'uulpa Creek, Meacham Creek, Upper Umatilla River, and the North and South Forks of the Umatilla River.

Adult steelhead returns to the Umatilla Basin have been monitored at Three Mile Falls Dam since 1967. Up through 1989, fish were enumerated by a mechanical counter and it is possible that adult steelhead returns were overestimated in some years because the counter could not account for steelhead that fell back over the dam and then re-ascended, counting the same fish at least two or three times, if not more. Beginning in 1990, however, all adult steelhead have been trapped and counted at Three Mile Falls Dam, which provides more accurate count data.

Counts of MCR steelhead passing Three Mile Falls Dam from 1990 through 2018 have averaged 2,962 fish per year, with a range of 1,111 (1991) to 6,072 (2015). Of these total fish returns it is estimated that 2,190 fish (73.9 percent) were wild or naturally-produced steelhead. The recent 5-year and 10-year annual average counts are 2,971 (85.2 percent wild or natural) and 3,110 (82.3 percent wild or natural), respectively.

NMFS (2009) noted that the Umatilla River population does not meet the ICTRT-recommended viability criteria and is currently rated as "maintained" since both the Abundance/Productivity and the Spatial Structure/Diversity metrics are rated at moderate risk. The recent 10-year geometric mean of 2,899 for natural spawners (6,013 total spawners) is above the minimum abundance threshold of 1,500 for a "large" sized population. A large population must also have sufficient intrinsic productivity (greater than 1.26 recruits per spawner at the minimum abundance threshold) to achieve a 5 percent or less risk of extinction over a 100-year timeframe. Progeny to spawner ratios average 1.43 and range from 0.70 to 4.96 for brood years 1990–2012. The recent 10-year (brood years 2003–2012) geometric mean productivity is 1.28. The recent 5-year geometric mean productivity is 0.99, below the minimum of 1.26 required at the threshold abundance.

The action area provides limited habitat and no spawning habitat to the Umatilla River population of MCR steelhead. Steelhead are only present in the lower McKay Creek drainage in limited numbers due to the adult fish barrier near the mouth, and do not occur above the McKay Reservoir Dam at river mile (RM) 6. In 1995, the Bureau of Reclamation (Reclamation) and ODFW installed an adult fish barrier at the mouth of McKay Creek to exclude adult salmon and steelhead from taking advantage of the creek's cooler water during the early fall months. This was necessary because releases from McKay Reservoir would cease, to enable refill, at the end of each irrigation season, resulting in the loss of fish and redds. The barrier is effective at

excluding adult salmon and steelhead, but juvenile salmonids and other resident fish can move through the barrier. Since 2001, Reclamation has released 10 cfs from the reservoir during the winter so that juvenile salmonids could continue to take advantage of habitat in the creek.

The CTUIR have radio-tracked a few steelhead beyond the adult barrier weir (mouth of McKay Creek), and have incidentally sighted a few adults and redds located in the lower reach of McKay Creek. The total number of adult fish that get past the barrier weir depends on how well the weir is functioning and how often it is cleaned after high debris loads (Contor 2015).

2.2.2 Status of Critical Habitat

This section examines the status of designated critical habitat affected by the proposed action by examining the condition and trends of the essential PBFs of that habitat throughout the designated area (Table 4). These features are essential to the conservation of the ESA-listed species because they support one or more of the species' life stages (e.g., sites with conditions that support spawning, rearing, migration and foraging). Range-wide, all habitat types are impaired to some degree, even though many of the watersheds comprising the fully designated area are ranked as providing high conservation value. The proposed action, however, affects only freshwater rearing and freshwater migration habitats.

For salmon and steelhead, NMFS' critical habitat analytical review teams (CHARTs) ranked watersheds within designated critical habitat at the scale of the fifth-field hydrologic unit code (HUC5) in terms of the conservation value they provide to each ESA-listed species that they support (NMFS 2005). The conservation rankings are high, medium, or low. To determine the conservation value of each watershed to species viability, the CHARTs evaluated: the quantity and quality of habitat features (e.g., spawning gravels, wood and water condition, side channels), the relationship of the area compared to other areas within the species' range, and the significance of the population occupying that area to the species' viability criteria.

Thus, even if a location had poor habitat quality, it could be ranked with a high conservation value if it were essential due to factors such as limited availability (e.g., one of a very few spawning areas), a unique contribution of the population it served (e.g., a population at the extreme end of geographic distribution), or the fact that it serves another important role (e.g., obligate area for migration to upstream spawning areas).

A summary of the status of critical habitats considered in this opinion is provided in Table 5. Critical habitat is designated for populations of MCR steelhead in McKay Creek, including the action area.

Table 4. Physical and biological features of critical habitat designated for ESA-listed species considered in this opinion, and corresponding species life history events.

Physical and Biological Features		Species Life History Event
Site Type	**Site Attribute**	
Freshwater spawning	Substrate Water quality Water quantity	Adult spawning Embryo incubation Alevin growth and development
Freshwater rearing	Floodplain connectivity Forage Natural cover Water quality Water quantity	Fry emergence from gravel Fry/parr/smolt growth and development
Freshwater migration	Free of artificial obstruction Natural cover Water quality Water quantity	Adult sexual maturation Adult upstream migration and holding Kelt (steelhead) seaward migration Fry/parr/smolt growth, development, and seaward migration
Estuarine areas	Forage Free of artificial obstruction Natural cover Salinity Water quality Water quantity	Adult sexual maturation and "reverse smoltification" Adult upstream migration and holding Kelt (steelhead) seaward migration Fry/parr/smolt growth, development, and seaward migration
Nearshore marine areas	Forage Free of artificial obstruction Natural cover Water quantity Water quality	Adult growth and sexual maturation Adult spawning migration Nearshore juvenile rearing
Offshore marine areas	Forage Water quality	Adult growth and sexual maturation Adult spawning migration Subadult rearing

Table 5. Critical habitat, designation date, Federal Register citation, and status summary for critical habitat considered in this opinion.

Species	Designation Date and Federal Register Citation	Critical Habitat Status Summary
Middle Columbia River steelhead	9/02/05 70 FR 52630	Critical habitat encompasses 15 subbasins in Oregon and Washington containing 111 occupied watersheds, as well as the Columbia River rearing/migration corridor. Most HUC5 watersheds with PBFs for salmon are in fair-to-poor or fair-to-good condition (NMFS 2005). However, most of these watersheds have some or a high potential for improvement. We rated conservation value of occupied HUC5 watersheds as high for 80 watersheds, medium for 24 watersheds, and low for 9 watersheds.

Interior Columbia Recovery Domain

Habitat quality in tributary streams in the Interior Columbia Recovery Domain range from excellent in wilderness and roadless areas to poor in areas subject to heavy agricultural and urban development (NMFS 2009, Wissmar et al. 1994). Critical habitat throughout much of the Interior

Columbia Recovery Domain has been degraded by intense agriculture, alteration of stream morphology (i.e., channel modifications and diking), riparian vegetation disturbance, wetland draining and conversion, livestock grazing, dredging, road construction and maintenance, logging, mining, and urbanization. Reduced summer stream flows, impaired water quality, and reduction of habitat complexity are common problems for critical habitat in developed areas.

Many stream reaches designated as critical habitat in the Interior Columbia Recovery Domain are over-allocated, with more allocated water rights than existing streamflow conditions can support. Withdrawal of water, particularly during low-flow periods that commonly overlap with agricultural withdrawals, often increase summer stream temperatures, block fish migration, strand fish, and alter sediment transport (Spence et al. 1996). Reduced tributary stream flow has been identified as a major limiting factor for MCR steelhead in this area (NMFS 2007, NMFS 2011).

Despite these degraded habitat conditions, the HUCs that have been identified as critical habitat for this species are largely ranked as having high conservation value. Conservation value reflects several factors, including: (1) how important the area is for various life history stages, (2) how necessary the area is to access other vital areas of habitat, and (3) the relative importance of the populations the area supports relative to the overall viability of the DPS.

Critical Habitat in the Umatilla River

The Umatilla River Basin is designated critical habitat for MCR steelhead. Critical habitat is designated for the population of MCR steelhead in McKay Creek, including the action area. The CHART rated habitat in the upper Umatilla River and Meacham Creek, upstream of the action area, as fair to good with a high potential for improvement. Birch Creek, which enters the Umatilla River below the action area, was also rated fair to good with a high potential for improvement. The Middle Umatilla River from Mission Creek (above the action area) to Alkali Canyon (below the action area) is rated fair to poor with some potential for improvement, and the lower Umatilla River downstream of Alkali Canyon is rated poor with some potential for improvement (NMFS 2005). McKay Creek (within the action area) is rated fair to poor with high improvement potential.

Anthropogenic activities including the Umatilla Basin Project, agriculture, forest practices, livestock grazing, transportation and navigation, and urbanization have degraded the habitat of the mainstem Umatilla River and its tributaries. The collective result of habitat degradation in the subbasin is an aquatic landscape characterized by inadequate stream flows, excessive water temperatures, structural impediments, inadequate riparian corridors, simplified and reduced instream habitat, and excessive erosion and sedimentation into streams (NPCC 2004).

Much of the Umatilla River Basin is listed as water-quality impaired on the Oregon Department of Environmental Quality's section 303(d) Clean Water Act list for parameters such as water temperatures, dissolved oxygen, sedimentation and toxicants (ODEQ 2001). Climate change, as described in Section 2.2, may reduce the conservation value of designated critical habitat in the action area.

The primary activities affecting critical habitat in the action area are urbanization and channel modifications. The PBFs that support rearing and migration are affected by these activities. Most, if not all, steelhead spawn above Meacham Creek, which is upstream of the action area. The Environmental Baseline section, below, describes the present condition of these PBFs in the action area.

2.3. Action Area

"Action area" means all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area is approximately 1.6 river miles upstream from McKay Creek's confluence with the Umatilla River and approximately 3.8 river miles downstream of the McKay Reservoir Dam. The action area includes the excavation sites within McKay Creek, upland staging areas, access routes, sediment stockpile locations, and 100 feet upstream and 500 feet downstream of each excavation site. These upstream and downstream lengths encompass the maximum expected sediment plumes that may occur during in-water work. The action area (including staging areas) totals approximately 2.5 acres. The substrate at the site is cobble and sandy material. The portion of McKay Creek within the action area serves as rearing habitat and a migratory corridor for MCR steelhead. An adult barrier is present at its mouth. The entire action area is designated EFH for fall- and spring-run Chinook salmon and coho salmon.

2.4. Environmental Baseline

The "environmental baseline" refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed federal projects in the action area that have already undergone formal or early section 7 consultations, and the impact of state or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02).

McKay Creek originates in the Blue Mountains and joins the Umatilla River at RM 50.5, draining approximately 197 square miles of land in eastern Oregon. The McKay Creek watershed has experienced a wide range of manipulation including timber harvest in the headwaters and construction of a dam and reservoir at RM 6. McKay Creek has been channelized and diked for flood control to protect development within the subbasin. There is little opportunity for the stream to interact with the floodplain.

Within the project area, McKay Creek is oversimplified, lacking in habitat diversity and large woody debris (LWD). Channelization, high width-to-depth ratios, increased sedimentation, and decreased riparian function and pool habitat decrease habitat conditions (NPCC 2004). Reclamation conducted a habitat assessment for the lower 6 miles of McKay Creek (from McKay Dam down to the confluence with the Umatilla River) within the low flow period of March 2006. The stream form was primarily a single-thread channel with the dominant habitat

types roughly equally split between glides (38.7 percent) and riffles (38.1 percent). Seventy-five pools comprised over 23 percent of the study reach (n=23 pools >3 feet in depth), which offer overwinter habitat for juvenile steelhead and other native fishes. Gravel was the dominant substrate type (Reclamation 2006).

The riparian zone along McKay Creek has been drastically altered by residential and agricultural development. Lower McKay Creek passes through Pendleton, Oregon, and its suburbs. Landowners and others have cleared riparian vegetation to facilitate the development of grass lawns and to provide landowner access to the stream (CTUIR 2001). Existing riparian vegetation in the action area includes grasses, sedges, shrubs, and trees, with some areas of the bank having little to no vegetation.

Other activities observed in the recent past include heavy equipment pushing gravel in the channel near Pendleton Community Park. The loss of riparian vegetation weakens channel banks and severely limits the input and availability of LWD.

Two barriers to upstream migration exist on McKay Creek: the adult fish weir at the mouth of McKay Creek and McKay Dam (RM 6). The adult fish barrier does not impede the passage of juvenile fish which can pass upstream and downstream between the slats of the structure. In December 1999, one adult steelhead, and 1,100 juvenile *O. mykiss* rearing upstream of the adult fish barrier were salvaged by ODFW and CTUIR as the McKay Reservoir releases were shut off. Thirty-seven juvenile *O. mykiss* were captured in 2000 and 67 in 2001 (CTUIR 2017).

McKay Dam, constructed in 1927, is a complete fish passage barrier, preventing access to approximately 40 miles of formerly productive habitat for summer steelhead (CTUIR 2017). McKay Dam alters the historical flows and completely blocks sediment movement between the lower creek and the rest of the drainage. The volume of water released from McKay Reservoir from early April through early September is well above historical base flows for that time of year. Since 2001, Reclamation has maintained a flow of 10 cfs or more in McKay Creek below the dam during the storage season to benefit salmonid rearing. The current 10 cfs minimum flow for overwintering juvenile survival in McKay Creek concentrates fish in pools, increases the risk of predation, and creates very shallow riffles, making migration difficult or impossible (CTUIR 2001). Low flows can result in extensive patches of frozen stream (Hoverson 2009).

The weir on McKay Creek has become submerged several times when too much debris and/or flows are released from McKay Reservoir, allowing adult steelhead access into McKay Creek. Adults that pass into lower McKay Creek are at risk of being stranded by shallow depths during minimum 10 cfs flows.

2.5. Effects of the Action

Under the ESA, “effects of the action” are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved

in the action (see 50 CFR 402.17). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b).

2.5.1 Effects on Species

Presence and Exposure

The action area of lower McKay Creek is used by juvenile MCR steelhead throughout the year, and it is likely that some juvenile MCR steelhead will be present during the dredging activity. Adult steelhead will likely be absent from the action area during the seasonally lower flow period and ODFW in-water work window of December 1 through March 31.

Fish Passage

Fish passage will be maintained during construction within the natural channel, as the work area isolation barriers will not extend across the entire width of the channel. In-water work is anticipated to occur over approximately 6 weeks. At each location where work will take place below the OHWM, the work area isolation barriers are expected to be in place for up to 7 days to perform the sediment removal. Between 300 and 950 square feet of existing channel will be isolated at a time, depending on the sediment removal site.

Sediment plumes and noise disturbance from dredging are likely to briefly disrupt moving fish that encounter these operations, and force fish to swim around the areas disturbed by turbidity or noise. Fish that encounter disruptions generally return to their normal behavior soon after encountering a dredge or sediment plume (ENCORP 2009).

Work Area Isolation

An effort will be made to capture all steelhead present within the work isolation area and to release them at a safe location. However, direct injury or death could occur from fish salvage activities. Fish that are captured and transferred can experience trauma if care is not taken in the transfer process. The primary contributing factors to stress and death from handling are: (1) water temperature differences between the river and holding buckets; (2) dissolved oxygen conditions; (3) the amount of time that fish are held out of the water; and (4) physical trauma (from capture and handling). Stress from handling increases rapidly if water temperature exceeds 15°C, or if dissolved oxygen is below saturation.

The action area is from RM 1.6 to 2.2. Across the six sites, approximately 27,345 square feet, 1,378 linear feet, of riverbed will be dredged. There is no information regarding the production potential for the McKay Creek drainage. However, it is possible to derive a rough estimate of the number of juveniles that could be killed or injured by fish salvage in the work area. Contor et al. (1996) estimated salmonid densities and the total population of juvenile summer steelhead (ages 0+ through 3+) for the Umatilla River Basin by expanding quantitative electrofishing and habitat data collected during the summers of 1993–1995. Additional population estimates were made by comparing streams with empirical data to those not yet sampled quantitatively. Four tributaries to the Upper Umatilla River were sampled. Average salmonid density within these four tributaries in riffle habitat was 0.0035 salmonids per square foot.

In December 1999, CTUIR conducted fish salvage operations below McKay Dam (RM 0.1 to 6) and found more than 1,000 juvenile steelhead, 169.5 per mile. During the summer of 2000, CTUIR crews sampled lower McKay Creek and found juvenile salmonids throughout the reach. Salmonids captured included age 0+ *O. mykiss* (1.5 to 3.2 inch) with a few age 1+ steelhead. Tribal biologists sampled a 630 x 13 (8,180 square feet) section at RM 1.9 and a 630 x 16 foot (10,080 square feet) section at RM 5.9 in March 2001. Crews captured 27 *O. mykiss* (3.5 to 12.9 inch; 0.0033 fish per square foot) and 40 *O. mykiss* (3.3 to 6.5 inches; 0.0033 fish per square foot) at each site, respectively (CTUIR 2001).

It is likely that listed juvenile MCR steelhead will be injured and killed during fish salvage. Assuming fish densities reported in Contor et al. (1996) and CTUIR (2001), approximately 90 juvenile steelhead will be present in the areas to be isolated and dredged in McKay Creek. Work area isolation barriers will be constructed of sandbags or other appropriate material. Fish will be salvaged from the isolated area by seining or using dip nets, then by electrofishing according to NMFS guidelines. The action area is primarily a large riffle section with limited pools. Passage conditions at 10 cfs are unfavorable for juvenile steelhead. The deepest water depth over riffles measured in 2000 by CTUIR within the action area was 3 inches (CTUIR 2001). Water depth was shallower across most riffles, with depths frequently ranging from 0.2 to 2 inches. NMFS expects most steelhead in McKay Creek to be utilizing pools during the proposed action. NMFS also expects some of the steelhead within the work area will move out of the area volitionally while isolation barriers are being installed and herded out by seining. Therefore, NMFS estimates that 25 percent, or 23 juvenile steelhead will be in work area isolation areas and handled during fish salvage.

The electroshocking, capture, and relocation of listed fish during salvage is reasonably certain to increase the stress level of fish, increase energetic costs associated with their dispersal to new areas, and cause some injuries. Conservation measures related to the capture and release of fish during work area isolation will avoid most of these consequences, and ensure that most of the resulting stress is short-lived. However, NMFS expects 5 percent of the fish collected in the action area during in-water work and dewatering operations will be killed due to electroshocking effects and handling stress. Assuming 5 percent injury or mortality associated with fish salvage and relocation, NMFS estimates two juvenile steelhead may be injured or killed during fish salvage operations.

Mechanical Injury

Fish present in the footprint of in-water work are at risk of being crushed or captured with dredged sediment. The likelihood that fish will be killed or injured by dredge equipment depends on a variety of circumstances: the type of equipment used, the swimming abilities of the fish, and the likelihood that fish would be present at the dredge site. To minimize effects to fish from sediment removal activities during the required in-water work, work area isolation barriers will be installed prior to any in-stream construction. Fish will be removed using nets and electrofishing if necessary, before sediment excavation begins. For the proposed work, a track-mounted excavator and other heavy equipment will generally work from above the bank such that it is unlikely that tracks will crush any fish. The disturbance caused by operating a

mechanical dredge is likely to elicit a startle response in steelhead that are in the vicinity of the dredge and also discourage more distant fish from moving toward the dredge site.

The chances of a listed fish encountering dredge equipment are reduced by the timing and location of the activities. The winter work window ensures that steelhead in the action area would be large enough to have developed swimming abilities that enable them to avoid mechanical dredge equipment. At the proposed dredge sites, fish have ample room to avoid dredging activities since the river is substantially wider than the area affected by the dredge. In view of the above factors, listed steelhead are unlikely to be injured or killed by the dredging equipment.

Water Quality

The proposed action will affect water quality during vegetation clearing, installation and removal of fish isolation barriers, and dredging by temporarily increasing delivery of sediment to the waterway and increasing turbidity in the water column. Increased fine sediment can be detrimental to juvenile salmon and steelhead in several ways including avoidance of the area, abandonment of cover, stress, and reduced growth rates (Newcombe and Jensen 1996). Turbidity from increased fine sediment may disrupt steelhead feeding and territorial behavior and may displace fish from preferred feeding and resting areas.

Because the in-water work area will be isolated from the flowing channel and erosion control measures will be implemented during construction, very little sediment is expected to be released from the project site. As the work area isolation barrier is removed and water is returned to the channel, some residual sediment release associated with substrate disturbance is likely to occur. This impact will be localized and temporary and is expected to last no more than a few minutes, settling quickly in the expected low flows. No changes to impervious surfaces are anticipated from the proposed project.

Turbidity will be visually monitored during periods of in-stream disturbance (sediment removal and fish isolation installation and removal). If plumes lasting more than a few minutes and extending more than 200 feet downstream of the action area are detected, the contractor will stop work and implement/modify best management practices (BMPs) until plumes are reduced.

NMFS expects that the turbidity levels generated by this action will be sufficient in the action area to cause temporary behavioral changes to steelhead that include changes in feeding and movement of fish within turbidity plumes (Berg And Northcote 1985). However, NMFS does not expect any fish to be injured or killed by exposure to turbidity caused by this action.

Additional impairment of water quality may result from accidental releases of fuel, oil, and other contaminants that can injure or kill aquatic organisms. Petroleum-based contaminants, such as fuel, oil, and some hydraulic fluids, contain polycyclic aromatic hydrocarbons (PAHs), which can kill salmon at high levels of exposure, and can cause sublethal, adverse effects at lower concentrations (Meador et al. 2006). The operation of equipment will predominantly be on adjacent areas upland of the waterway. Minimal in-channel operation of machinery within isolated areas is expected for the proposed project. Since fish will be removed from the in-

channel work area of the Umatilla River during construction, they are unlikely to be exposed to accidental spills. Spills that make their way into McKay Creek could harm fish. However, NMFS anticipates PAH releases of only very small quantities (ounces) are likely with each accidental release or spill. Conservation measures will be implemented to minimize the use of toxic substances and prevent or contain any spill that may occur (e.g., using biodegradable lubricants in equipment, staging equipment in a protected location, and minimizing direct contact with the water). These should minimize the opportunity for contaminants to enter the waterway and affect steelhead. NMFS does not expect any fish to be injured or killed by exposure to accidental releases of fuel, oil, and other contaminants caused by this action.

Vegetation Removal

Vegetation removal, including removal of some trees, will be required to access and excavate sediment from the sediment removal sites. Vegetation will not be removed when it can be avoided. Less than 0.5 of an acre of removal is anticipated, with some removal occurring in riparian areas. Less than 10 trees are anticipated to be removed and these would be replanted if removed. Loss of riparian habitat can decrease shading of the stream channel, and decrease input of LWD, insects and other forage to McKay Creek. To minimize the effects of riparian vegetation removal, a site restoration plan will be implemented to restore all impacted aquatic and riparian habitat. Riparian vegetation will be replanted and returned to as near original conditions as possible. All impacted upland and riparian areas will be reseeded and revegetated. NMFS expects the effects of vegetation removal will be minimal.

Large Woody Debris

Large woody debris is not anticipated to be removed for this project. If removal of large woody debris is required, this material will be relocated to a suitable location, instream and within the Umatilla Basin, preferably within McKay Creek, in coordination with ODFW. Therefore, NMFS expects there will be no effect to fish from large woody debris removal.

Forage

The proposed action will have a short-term effect on benthic invertebrates by crushing, covering, or dislodging them during dredging activities. Dredging will disturb approximately 27,345 square feet (0.63 acres) of river bottom. The alteration of the riverbed will cause localized reductions in invertebrate populations found in the sediment and on the sediment surface (benthic invertebrates). The reductions are likely to be short-lived as disturbed areas are likely to be recolonized within several months after project completion (Fowler 2004; Yount and Nemi 1990; Griffith and Andrews 1981).

Flow/Hydrology

Basin hydrology (peak/base flow) and the drainage network will be affected by this project. The proposed sediment removal is expected to return the channel to a flow capacity of up to 1,500 cfs. However, water flow will remain artificially regulated by McKay Dam.

Relevance of Effects on Individual Fish to Salmonid Population Viability

NMFS assesses the importance of effects in the action area (on individual fish) to an ESU or DPS by examining the relevance of those effects to the characteristics of VSPs. The characteristics of VSPs are sufficient abundance, population growth rate (productivity), spatial structure, and diversity. While these characteristics are described as unique components of population dynamics, each characteristic exerts significant influence on the others. For example, declining abundance can reduce spatial structure of a population; and when habitats are less varied, then diversity among the population declines.

Abundance. The proposed action is conservatively estimated to injure or kill two juvenile MCR steelhead. Based on the location of dredging and fish salvage, the affected steelhead would be members of the Umatilla River population of MCR steelhead. Based on the mean (1995–2015) Umatilla tributary smolt-to-adult return rate of 5.7 percent (Hanson et al. 2019), killing and injuring two juveniles would be expected to reduce returns of adult steelhead to the basin by less than one tenth (0.114) of one adult equivalent. This loss is not expected to appreciably alter the abundance of the Umatilla River population or appreciably affect population trends. Altered behavior from temporary increases in turbidity is not expected to reduce returns of adult steelhead to the basin, nor affect population trends.

Productivity. The proposed action will have a very small effect on freshwater productivity by leading to the injury or death of an estimated two juveniles. However, the scale of impact is so small that it will not appreciably affect productivity.

Spatial Structure. The proposed action will not affect spatial structure.

Diversity. The proposed action will not affect genetic or life-history diversity.

2.5.2 Effects on Critical Habitat

Critical habitat for MCR steelhead is designated for McKay Creek. The area is not identified as spawning habitat. It consists primarily of freshwater rearing sites and a freshwater migration corridor, and their essential PBFs. The PBFs that support freshwater rearing and migration will be temporarily affected by degraded water quality, vegetation clearing, and loss of forage within the action area. The effects of the proposed action on these features are summarized below as a subset of the habitat-related effects of the action that were discussed more fully above.

Water Quality

Water quality will be reduced within the isolated work areas for up to 6 weeks. The action is expected to suspend fine sediment during installation and removal of the isolation and erosion control measures and dredging, increasing turbidity in McKay Creek. This increase is not expected to last for more than a few minutes and, according to Anderson Perry & Associates, for previous similar activities, is expected to affect about 500 feet below the work site. NMFS also expects minor leaks and spills of petroleum-based fluids (not more than ounces) that will be contained in isolated work areas.

Natural Cover

Cover will decline slightly due to the removal of minor amounts of riparian vegetation to provide access to the work area.

Forage

In the short term, forage organisms within the in-channel isolated work areas will be killed or made unavailable. Following reconnection of the isolated areas with the flowing channel, forage will improve and return to what is currently available. Over time, pre-project forage conditions will return in the action area. Thus, any effects to benthic species resulting from dredging and sedimentation are expected to be minimal and short-term.

A site restoration plan will be implemented to restore riparian and upland areas impacted by the proposed action. The temporary nature of the degradation of water quality and loss of forage, combined with its limited magnitude and spatial extent, render the effects of the action on the PBFs to be minor. Therefore, the proposed action will have short-term adverse impacts on the conservation value of critical habitat in the action area.

2.6. Cumulative Effects

"Cumulative effects" are those effects of future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation (50 CFR 402.02 and 402.17(a)). Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Some continuing non-federal activities are reasonably certain to contribute to climate effects within the action area. However, it is difficult if not impossible to distinguish between the action area's future environmental conditions caused by global climate change that are properly part of the environmental baseline vs. cumulative effects. Therefore, all relevant future climate-related environmental conditions in the action area are described in the environmental baseline (Section 2.4).

In 2017, the population growth rate of Umatilla County was 0.53 percent. NMFS assumes that the population for these counties will remain relatively stable over the next 5 years. Future private and state actions will continue within the action area at approximately the same level at which they are occurring now since the population will likely not see much change. As the human population in the action area remains somewhat constant, demand for agricultural, commercial, or residential development, and recreation is likely to remain relatively constant as well.

2.7. Integration and Synthesis

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section,

we add the effects of the action (Section 2.5) to the environmental baseline (Section 2.4) and the cumulative effects (Section 2.6), taking into account the status of the species and critical habitat (Section 2.2), to formulate the agency's opinion as to whether the proposed action is likely to: (1) reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

2.7.1 Umatilla River

The threatened status of the MCR DPS is largely a result of low viability (abundance, productivity, spatial structure, and diversity) in four populations. Seven populations in the DPS exhibit moderate or maintained viability, while six populations are rated as viable or highly viable. The DPS cannot achieve viability and the associated low risk of extinction without significant improvements in abundance, productivity, and diversity for many populations. The Umatilla River MCR steelhead population is currently at a moderate risk for abundance, productivity, spatial structure, and diversity (NWFSC 2015).

Critical habitat is designated for the population of MCR steelhead in McKay Creek, including the action area. The environmental baseline in the action area is degraded due to the impacts of land use practices, including urbanization (roads and bridges), residential development (homes and parks), vegetation clearing, an altered hydrograph associated with operation of McKay Creek Dam, and channel straightening.

The proposed action would not affect existing spawning habitat, since this occurs upstream of the action area. The action will reduce the amount of rearing and migration habitat available while dredged areas are isolated, and will reduce rearing habitat quality temporarily during turbidity events and while dredged habitat is not fully populated by prey species.

Species

As described in Section 2.5.1, the proposed action will have effects on individual MCR steelhead. The action will only affect juveniles of the Umatilla River population. Temporary increases in turbidity will alter steelhead behaviors including avoidance of the area and abandonment of cover, increasing exposure to predators. An estimated two juveniles will be injured or killed by the proposed action. NMFS estimates that the proposed action will reduce the number of adults returning by less than one tenth of one adult. This reduction is not expected to appreciably alter the abundance, productivity, spatial structure, or diversity of the Umatilla River population or appreciably affect any population trends. Because the action will not appreciably alter the abundance, productivity, spatial structure, or diversity of the Umatilla River population, and considering the baseline, status of the species, and cumulative effects, the action will also not likely reduce the likelihood of the survival and recovery of MCR steelhead.

Critical Habitat

As noted in Section 2.2, climate change is likely to impact MCR steelhead and their critical habitat. Increases in water temperature and changes to the hydrological regime will reduce suitable salmon habitat and cause earlier migration of smolts. Warmer temperatures will likely

lead to increased predation on juvenile salmonids in mainstem reservoirs (ISAB 2007). This is particularly true of non-native species such as bass and channel catfish where climate change will likely further accelerate their expansion (ISAB 2007). In addition, the warmer water temperatures will increase consumption rates by predators due to increased metabolic rates, which influence food demand.

The potential impact of the proposed action on MCR steelhead critical habitat is described in Section 2.5.2. The proposed action will have temporary effects on water quality, natural cover, and forage. Degradation of water quality (turbidity and pollutants) and loss of natural cover and forage will be limited to the extent that the proposed action will not greatly affect the conservation value of the PBFs that support freshwater rearing and migration in the action area. Considering this and the status of critical habitat, baseline, and cumulative effects, the proposed action will not likely reduce the conservation value of critical habitat at the scale of the MCR steelhead designation.

Anticipated cumulative effects from human population growth, development and continued agricultural practices over time in the action area are likely to continue to impair water quantity and quality, restrict floodplain connectivity, and reduce reestablishment of well-functioning riparian habitat or side channels.

2.8. Conclusion

After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' opinion that the proposed action is not likely to jeopardize the continued existence of MCR steelhead or destroy or adversely modify its designated critical habitat.

2.9. Incidental Take Statement

Section 9 of the ESA and federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

2.9.1 Amount or Extent of Take

In the opinion, NMFS determined that incidental take of MCR steelhead in the form of death is reasonably certain to occur. The action area is used by MCR steelhead juveniles for rearing and

migration. NMFS expects juvenile MCR steelhead to be present in the project vicinity during the work window exposing them to effects from work area isolation and fish salvage activities and degraded water quality.

The estimated amount of take is based on the 1996 CTUIR surveys of the Umatilla Basin and CTUIR salvage and electrofishing conducted in McKay Creek in 1999 and 2000. The 2000 surveys were conducted in the same area as the project during the in-water work window. Specifically, NMFS expects that up to 23 juvenile steelhead will be captured and relocated out of the in-water work area. Of these, two may be killed.

Take in the form of harm caused by the temporary increases in turbidity will be manifested in altered behaviors including avoidance of the area, abandonment of cover, and exposure to predators. In contrast to the fish affected by capture, NMFS is unable to estimate the number of fish harmed by increased turbidity.

In circumstances where NMFS cannot numerically predict the amount of take, we estimate the extent of take by describing the extent of habitat modified by the proposed action (June 3, 1986, 51 FR 19926 at 19954). While this approach can lead to descriptions of the extent of take that appear to be co-extensive with parameters of the action itself, these habitat-extent estimates are not merely repeated descriptions of the proposed action. Instead, they represent observable metrics of the extent of take, which if exceeded, would trigger reinitiating consultation (see H.R. Rep. No. 97-567, 97th Cong., 2d Sess. 27 (1982)).

The extent of modified habitat is equivalent to the maximum area of riverbed that will be isolated (27,345 square feet). The extent of modified habitat also includes the water column up to 500 feet downstream from each work are, corresponding to the limit of the temporary turbidity plume in the action area. These descriptions of the extent of modified habitat are the extent of take exempted from the prohibition against take in this statement.

The amount of take and the extent of take are the thresholds for reinitiating consultation. If any of these limits are exceeded during project activities, the amount of take would increase beyond that examined in this consultation, and thus the reinitiating provisions of this opinion apply.

2.9.2 Effect of the Take

In the opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

2.9.3 Reasonable and Prudent Measures

"Reasonable and prudent measures" are nondiscretionary measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

The Corps shall:

1. Avoid or minimize incidental take due to construction by limiting the operation of heavy equipment and sediment disturbance in the riparian area and river channel.
2. Minimize incidental take due to capture of individual fish during work area isolation and salvage efforts by following NMFS's guidelines for safe fish capture and release.
3. Track and monitor the proposed action to ensure that the amount and extent of take are not exceeded.

NMFS believes that full application of project minimization measures included as part of the proposed action, together with use of the RPMs and terms and conditions described below, are necessary and appropriate to minimize the likelihood of incidental take of listed species due to completion of the proposed action.

2.9.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and the Corps or any applicant must comply with them in order to implement the RPMs (50 CFR 402.14). The Corps or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. To implement RPM 1 (operation of heavy equipment) the Corps shall:
    a. Implement all proposed impact minimization measures and BMPs as described in the Proposed Action section of this opinion and in the BA dated December 12, 2019.
    b. Stage, service, store, and fuel all vehicles and construction equipment 150 feet or more from any natural waterbody.
    c. Select heavy equipment that will have the least possible adverse effect to the environment, considering factors including, but not limited to, equipment that has the ability to conduct work from existing disturbed areas, exert the least soil compaction impact, and minimize the amount of vibration and noise that could disturb aquatic species.
    d. To the extent feasible, work with heavy equipment from the top of the McKay River bank, unless work from another location would result in less habitat disturbance.
2. To implement RPM 2 (fish capture), the Corps shall:
    a. Complete work below the OHWM between December 1 and March 31. In-water work occurring outside of this timeframe will require written approval from NMFS.
    b. Implement all isolation and relocation activities as described in the Proposed Action section of this opinion.

c. Where electro-fishing will be used to capture fish for salvage, the NMFS electrofishing guidelines (NMFS 2000) will be followed.
d. If the amount or extent of take is exceeded, stop project activities and notify NMFS immediately.
e. Post prominently at the worksite the following notice:

NOTICE: If a sick, injured or dead specimen of a threatened or endangered species is found in the action area, the finder must notify NMFS Law Enforcement at (206) 526-6133 or (800) 853-1964, through the contact person identified in the transmittal letter for this opinion, or through the NMFS Interior Columbia Basin Branch. The finder must take care in handling sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder should carry out instructions provided by Law Enforcement to ensure evidence intrinsic to the specimen is not disturbed unnecessarily.

3. To implement RPM 3 (track and monitor) the Corps shall:
    a. Submit a completion of project report to NMFS 2 months after project completion. The completion report shall include, at a minimum, the following:
        i. Starting and ending dates for work completed, with in-water work period specified.
        ii. Total area of dredging.
        iii. Total area of vegetation removal.
        iv. Any daily observed sediment plume from the in-channel work area to 500 feet downstream during the 6-week in-water construction period. Observations shall occur daily both before during and after commencement of construction activities and compared to observable sediment load upstream of the action area.
        v. A summary of pollution and erosion control inspection results, including results of implementing required BMPs, and including a description of any erosion control failure, contaminant release, and efforts to correct such incidences.
        vi. Number and species of fish observed injured or killed in McKay Creek, or in dredge spoils.
        vii. Description of all capture and release methods employed including:
            1) Supervisory fish biologist name and address.
            2) Methods used.
            3) Number of fish captured by species.
            4) Location and condition of all fish released.
            5) Observation of injury or mortality.
        viii. Reference to NMFS consultation number WCRO-2019-03620.
    b. All reports will be sent to:

        National Marine Fisheries Service
        Columbia Basin Branch
        304 South Water Street, Suite 201
        Ellensburg, Washington 98926.

c. If the amount or extent of take is exceeded, stop project activities and notify NMFS immediately.

2.10. Conservation Recommendations

Section 7(a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

The proposed dredging of built-up sediment is anticipated to be a reoccurring issue. The City excavated 2,300 cu yd of McKay Creek under an emergency action in 2019. Basin partners have discussed, and NMFS recommends, that the City complete a basin-wide assessment that includes evaluating options for flood protection without dredging McKay Creek.

2.11. Reinitiation of Consultation

This concludes formal consultation for City of Pendleton, Oregon McKay Creek Sediment Removal.

As 50 CFR 402.16 states, reinitiation of consultation is required and shall be requested by the federal agency or by the Service where discretionary federal agency involvement or control over the action has been retained or is authorized by law and if: (1) the amount or extent of incidental taking specified in the ITS is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action.

3. Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response

Section 305(b) of the MSA directs federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. The MSA (section 3) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside of it and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH.

This analysis is based, in part, on the EFH assessment provided by the Corps and descriptions of EFH for Pacific Coast salmon (PFMC 2014) contained in the fishery management plans developed by the PFMC and approved by the Secretary of Commerce.

3.1. Essential Fish Habitat Affected by the Project

The proposed project action area includes EFH for juvenile rearing and migration of Chinook salmon (*O. tshawytscha*) and coho salmon (*O. kisutch*) (PFMC 2014).

3.2. Adverse Effects on Essential Fish Habitat

Based on information provided in the BA and the analysis of effects presented in Section 2 of this document, NMFS concludes that the proposed action will adversely affect EFH designated for Chinook and coho salmon. These effects include a reduction in water quality due to increased resuspension of fine sediment and increased turbidity, and a reduction in forage and natural cover.

3.3. Essential Fish Habitat Conservation Recommendations

We provide the following conservation recommendation:

> Implement RPM 1 and RPM 3, and their terms and conditions described in the ITS in the ESA portion of this document, to minimize adverse effects to EFH due to operation of heavy equipment and sediment disturbance, and to ensure completion of monitoring and reporting to confirm that these terms and conditions are effective for avoiding and minimizing adverse effects to EFH.

Fully implementing these EFH Conservation Recommendations would protect, by avoiding or minimizing the adverse effects described in Section 3.2, above, approximately 27,345 square feet (0.63 acres) of designated EFH for Pacific Coast salmon.

3.4. Statutory Response Requirement

As required by section 305(b)(4)(B) of the MSA, the Corps must provide a detailed response in writing to NMFS within 30 days after receiving an EFH Conservation Recommendation. Such a response must be provided at least 10 days prior to final approval of the action if the response is inconsistent with any of NMFS' EFH Conservation Recommendations unless NMFS and the federal agency have agreed to use alternative time frames for the federal agency response. The response must include a description of measures proposed by the agency for avoiding, minimizing, mitigating, or otherwise offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations, the federal agency must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects (50 CFR 600.920(k)(1)).

In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how

many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, we ask that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of conservation recommendations accepted.

3.5. Supplemental Consultation

The Corps must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendations (50 CFR 600.920(l)).

4. Data Quality Act Documentation and Pre-Dissemination Review

The Data Quality Act (DQA) specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the opinion addresses these DQA components, documents compliance with the DQA, and certifies that this opinion has undergone pre-dissemination review.

4.1. Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended user of this opinion is the Corps. Other interested users could include the City, ODFW, CTUIR, and private landowners adjacent to the project area. Individual copies of this opinion were provided to the Corps. The document will be available within 2 weeks at the NOAA Library Institutional Repository [https://repository.library.noaa.gov/welcome]. The format and naming adheres to conventional standards for style.

4.2. Integrity

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

4.3. Objectivity

Information Product Category: Natural Resource Plan

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 CFR 600.

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion and EFH consultation contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA and MSA, and reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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