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National Oceanic and Atmospheric Administration
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March 8, 2021

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Re: Endangered Species Act Section 7(a)(2) Biological Opinion for Forest Road 8270 Flood Repair Activities the Deer Creek Subwatershed (HUC 170601050603), Wallowa County, Oregon

Dear Mr. Montoya and Lt. Col. Childers:

Thank you for your letter of December 23, 2020, 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 Forest Road 8270 Flood Repair Activities. This consultation was conducted in accordance with the 2019 revised regulations that implement section 7 of the ESA (50 CFR 402, 84 FR 45016).

In this biological opinion (Opinion), NMFS concludes that the action, as proposed, is not likely to jeopardize the continued existence of Snake River Basin steelhead. NMFS also determined the action will not destroy or adversely modify designated critical habitat for Snake River Basin steelhead. Rationale for our conclusions is provided in the attached opinion.

As required by section 7 of the ESA, NMFS provides an incidental take statement (ITS) with the opinion. The ITS describes reasonable and prudent measures (RPMs) NMFS considers necessary or appropriate to minimize the impact of incidental take associated with this action. The take statement sets forth nondiscretionary terms and conditions, including reporting requirements, that Wallowa-Whitman National Forest, U.S. Army Corps of Engineers, and any permittee who performs any portion of the action must comply with to carry out the RPM. Incidental take from actions that meet these terms and conditions will be exempt from the ESA take prohibition.



Please contact Sarah Fesenmyer, NMFS Boise Office, at 208-378-5660 or email at sarah.fesenmyer@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

Enclosure

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Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion

Forest Road 8270 Flood Repair Activities

NMFS Consultation Number: **WCRO-2020-03545**

Action Agencies: Wallowa-Whitman National Forest, U.S. Army Corps of Engineers

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?
Snake River steelhead (<i>Oncorhynchus mykiss</i>)	Threatened	Yes	No	Yes	No

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



Issued By: Michael P. Tehan
Assistant Regional Administrator

Date: March 8, 2021

TABLE OF CONTENTS

TABLE OF CONTENTS	I
TABLE OF FIGURES	II
TABLE OF TABLES	II
ACRONYMS	III
1. INTRODUCTION	1
1.1 Background.....	1
1.2 Consultation History.....	1
1.3 Proposed Federal Action.....	1
2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT	6
2.1 Analytical Approach.....	7
2.2 Rangewide Status of the Species and Critical Habitat	8
2.2.1 Climate Change Implications for ESA-listed Species and their Critical Habitat.....	10
2.3 Action Area.....	11
2.4 Environmental Baseline.....	12
2.5 Effects of the Action.....	13
2.5.1 Effects to Species.....	14
2.5.1.1 Injury or Mortality from Fish Handling at MP 7.7.....	14
2.5.1.2 Injury or Mortality from Rock Placement.....	15
2.5.1.3 Temporary Passage Obstruction	15
2.5.1.4 Turbidity.....	16
2.5.1.5 Noise and Disturbance	17
2.5.1.6 Chemical Contamination.....	17
2.5.2 Effects to Critical Habitat.....	17
2.6 Cumulative Effects	18
2.7 Integration and Synthesis.....	19
2.8 Conclusion	20
2.9 Incidental Take Statement	20
2.9.1 Amount or Extent of Take.....	20
2.9.2 Effect of the Take	21
2.9.3 Reasonable and Prudent Measures	21
2.9.4 Terms and Conditions.....	21
2.10 Conservation Recommendations.....	22
2.11 Reinitiation of Consultation.....	23
3. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW	23
3.1 Utility.....	23
3.2 Integrity.....	24
3.3 Objectivity	24
4. REFERENCES	25

TABLE OF FIGURES

Figure 1. Map of seven locations for proposed road repair.....2

Figure 2. Picture of LWD accumulation that WWNF will relocate from river left (red circle, existing location) to river right, proposed location). WWNF may choose to excavate the secondary channel downstream of the red circle to recreate the main channel.....4

TABLE OF TABLES

Table 1. Estimated fill needed and length of streambank impacted by repair activities.....3

Table 2. Conservation Measures.....5

Table 3. Most recent listing classification and date, status summary (including recovery plan reference and most recent status review), and limiting factors for species considered in this opinion.9

Table 4. Critical habitat, designation date, Federal Register citation, and status summary for critical habitat considered in this opinion.....10

Table 5. Current multi-species matrix habitat indicator ratings for the Deer Creek subwatershed.13

ACRONYMS

ACRONYM	DEFINITION
BA	Biological Assessment
BMP	Best Management Practices
COE	U.S. Army Corps of Engineers
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CWA	Clean Water Act
dB	Decibel
DPS	Distinct Population Segment
DQA	Data Quality Act
ESA	Endangered Species Act
ESU	Evolutionarily Significant Units
ITS	Incidental Take Statement
LWD	Large Woody Debris
MP	Mile Post
MPG	Major Population Group
NMFS	National Marine Fisheries Service
NPT	Nez Perce Tribe
NTU	Nephelometric Turbidity Unit
OWHM	Ordinary High Water Mark
Opinion	Biological Opinion
PBF	Physical or Biological Feature
PCE	Primary Constituent Element
RPM	Reasonable Prudent Measures
VSP	Viable Salmonid Population
WWNF	Walla-Whitman National Forest

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

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 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 NMFS' Boise Office.

1.2 Consultation History

The Wallowa-Whitman National Forest (WWNF) shared a draft biological assessment (BA) for this project with NMFS on July 27, 2020. NMFS provided comments on July 31, 2020. The WWNF shared a revised draft BA on October 21, 2020. NMFS responded with comments on November 17, 2020. The WWNF submitted a final BA on December 23, 2020 (WWNF 2020). This consultation is based on that final BA. The U.S. Army Corps of Engineers (COE) may issue a Clean Water Act (CWA) section 404 permit for the project, and this consultation also addresses the COE's issuance of the permit. In the BA, the WWNF determined that the proposed action is "likely to adversely affect" Snake River Basin steelhead and their designated critical habitat.

Because this action has the potential to affect tribal trust resources, NMFS provided copies of the draft proposed action and terms and conditions for this opinion to the Nez Perce Tribe (NPT) and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) on February 10, 2021. The NPT did not respond. The CTUIR responded with no comments.

1.3 Proposed Federal Action

Under the ESA, "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).

High stream flows during the early spring melt in 2019 resulted in damage along Forest Road 8270 (FR 8270) at seven locations (Figure 1). High flows and channel movement as the result of large wood accumulations resulted in the stream eroding the road embankment. High stream flows during the spring of 2020 worsened damage to the road in the vicinity of mile post (MP) 7.7, one of the seven locations. The WWNF proposes to repair the road at these seven locations.

FR 8270 is a main thoroughfare adjacent to Deer Creek, a tributary to the Wallowa River. The road provides access to private timberlands and National Forest lands and is a main travel route in the area for the public and Forest Service personnel.

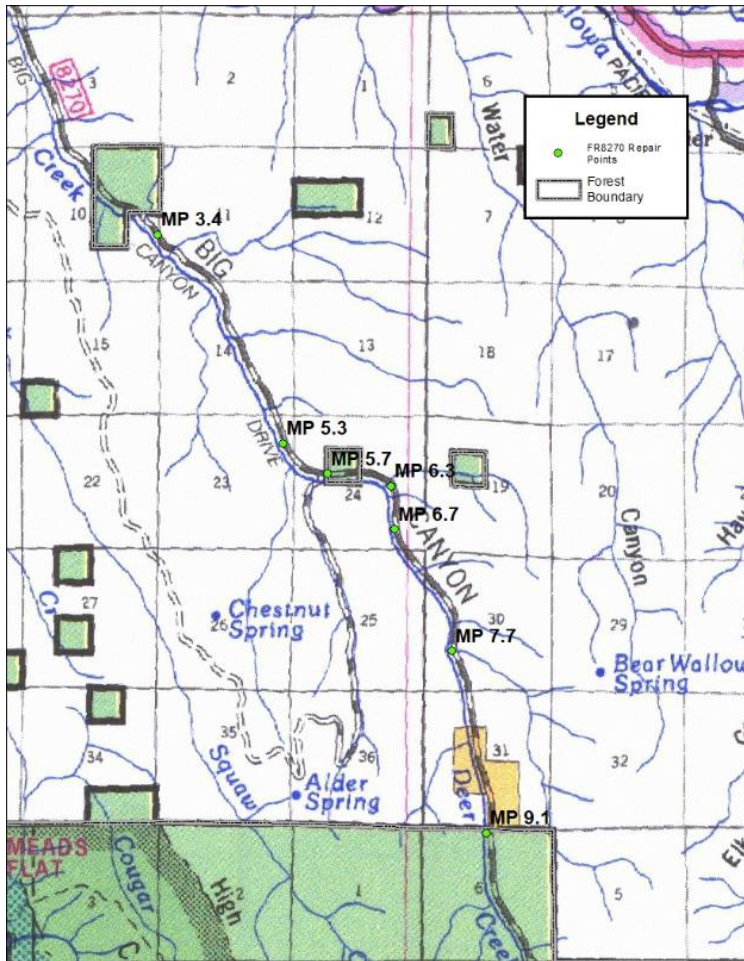


Figure 1. Map of seven locations for proposed road repair.

The WWNF will repair the flood-damaged sections of FR 8270 by reconstructing roadbeds and armoring the toe slopes of the roadbeds with large boulders. Heavy equipment will be operated from the existing road prisms during the repair work. Work within the ordinary high-water mark (OHWM) will be limited to placement of armoring and fill material with the bucket of an excavator at all sites except the MP 7.7 site. At MP 7.7, additional work in the stream channel is needed, as explained below. Large clean riprap will be utilized to stabilize the road embankments at and below the OHWM. An estimated total 815 cubic yards will be used to repair an estimated 250 feet of flood damaged road prism (Table 1). These numbers are cumulative for all seven sites. These estimates include additional fill and length of road that may be needed to repair any further damage to the MP 7.7 site that occurred during the 2021 spring runoff. Bioengineering techniques, such as planting of riparian shrubs at the base of riprap or incorporation of additional large woody debris (LWD) for bank stabilization, will be used to mitigate adverse effects of riprap on aquatic and riparian habitats. All plant material used will be native to the project area.

Table 1. Estimated fill needed and length of streambank impacted by repair activities.

Site	Est. Fill Needed (cubic yards)	Length of Streambank (feet)	Notes
MP 3.4	52	17	
MP 5.3	145	48	
MP 5.7	44	15	
MP 6.7	22	7	
MP 7.7	550	160	Current estimate is 250 cubic yards and 80 feet of disturbance
MP 9.1	2	3	
Total	815	250	

Note: The WWNF (2020) did not report any fill needed at MP 6.3.

The MP 7.7 damage area requires the most work to repair. About 250 cubic yards of heavy riprap and gravel will be placed in the stream up to 15 feet out from the existing eroded roadbed, to match existing fill slopes at each end of the repair (about 80 feet in length). This fill will be built up to the existing height of roadbed (about eight feet in height). Base riprap will be placed in the streambed and then backfilled with gravel and tapered accordingly for road stabilization. The existing 18-inch ditch relief culvert will be removed and replaced. The top of the road shoulder will be packed with 2- to 3-inch rock before finishing with approximately 25 cubic yards of surface aggregate to match existing road surface materials.

As part of the MP 7.7 repair work, the WWNF will move a LWD jam from its current location (Figure 2). The LWD jam is directing flow against the FR 8270 road prism and has resulted in erosion of the road prism and has shifted the channel about 15 feet into the road prism. The WWNF proposes to move the LWD to the river right bank of Deer Creek. This will divert streamflow away from the road prism and into the original stream channel. The LWD jam will be moved by winching from the road or with an excavator operating from the road. Additionally, the WWNF proposes to excavate substrate from the side channel downstream of the LWD jam's current location to recreate a main channel. The substrate will be excavated with heavy equipment operating from outside the stream channel. This side channel was the location of the main channel prior to the development of the LWD jam.



Figure 2. Picture of LWD accumulation that WWNF will relocate from river left (red circle, existing location) to river right, proposed location). WWNF may choose to excavate the secondary channel downstream of the red circle to recreate the main channel.

The current estimate of repair work at MP 7.7 is 250 cubic yards of fill and 80 feet of streambank and stream channel disturbance. Additional damage to the road prism may occur during the 2021 spring runoff. To account for the potential increase in the damaged road prism at this location, the WWNF has increased the estimate to 550 cubic yards of fill and 160 feet of stream affected.

Table 2 lists conservation measures that the WWNF will follow when implementing the proposed action. Conservation measures concern instream work, stream habitat, sediment control, and equipment spill and leak prevention.

Table 2. Conservation Measures

Category	Specific Measures
<p style="text-align: center;"><i>Instream Work</i></p>	<ul style="list-style-type: none"> <li data-bbox="451 279 1390 443">• Instream Work Window (All Sites): All work within the active channel will be completed in accordance with the Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife resources (ODFW 2008, or the most recent version). The instream work window for Deer Creek in vicinity of the action area is from July 15 to August 15. <li data-bbox="451 485 1390 1482">• Work Area Isolation (MP 7.7. Site): Work Area Isolation and Fish Capture and Release general conservation measures from ARBOII programmatic consultation will be incorporated into the proposed action (NMFS 2013, pp 14-15). These include (1) – Isolate Capture Area. Install blocknets at upstream and downstream locations outside of the construction zone to exclude fish from entering the project area. Leave nets secured to the stream channel bed and banks until construction activities within the stream channel are complete. If blocknets or traps remain in place more than one day, monitor the nets and or traps at least on a daily basis to ensure they are secured to the banks and free of organic accumulation and to minimize fish predation in the trap. (2) – Capture and Release. Fish trapped within the isolated work area will be captured and released as prudent to minimize the risk of injury, then released at a safe release site, preferably upstream of the isolated reach in a pool or other area that provides cover and flow refuge. Collect fish in the best manner to minimize potential stress. Fish must be handled with extreme care and kept in water the maximum extent possible during transfer procedures. A healthy environment for the stressed fish shall be provided—large buckets (five-gallon minimum to prevent overcrowding) and minimal handling of fish. Place large fish in buckets separate from smaller prey-sized fish. Monitor water temperature in buckets and well-being of captured fish. If buckets are not being immediately transported, use aerators to maintain water quality. As rapidly as possible, but after fish have recovered, release fish. In cases where the stream is intermittent upstream, release fish in downstream areas and away from the influence of the construction. Capture and release will be supervised by a fishery biologist experienced with work area isolation and safe handling of all fish. (3) Electrofishing – Use electrofishing only where other means of fish capture may not be feasible or effective. If electrofishing will be used to capture fish for salvage, NMFS’ electrofishing guidelines will be followed (NMFS 2000). <li data-bbox="451 1524 1390 1688">• Work Area Isolation (MP 7.7. Site): The MP 7.7 repair work area will be isolated with block nets prior to start of repair activities and fish will be removed using approved electrofishing techniques. Blocknets will be present during the extent of in-water work activities. Blocknets will be checked as needed to ensure they are clear of debris and functioning. <li data-bbox="451 1730 1390 1820">• LWD Debris Jam Relocation (MP 7.7. Site): The WWNF project fish biologist or hydrologist will be present during this activity to provide advice and on relocating the LWD debris jam.

Category	Specific Measures
<i>Habitat</i>	<ul style="list-style-type: none"> • Riprap Placement (All Sites): Utilize bioengineering techniques, such as planting of riparian shrubs within and at the base of riprap or incorporation of additional LWD, to mitigate adverse effects of riprap on aquatic and riparian habitats. All plant material used will be native to the project area. Bioengineering techniques will be discussed with the Level 1 Team and project fish biologist or hydrologist prior to beginning repair work.
<i>Sediment Control</i>	<ul style="list-style-type: none"> • A pollution and erosion control plan will be developed to minimize the risk and scale of pollution and/or erosion from equipment or from the site. The plan must include practices to minimize erosion and sedimentation associated with all aspects of the project (e.g., staging areas, stockpiles, grading); to prevent construction debris from dropping or otherwise entering any stream or waterbody; and to prevent and control hazardous material spills. • Work activities will be modified or stopped if a visible turbidity plume is present 50 feet downstream of the work areas. The WWNF will visually monitor turbidity during road repair work. • All heavy equipment will be operated from the FR 8270 road prism. Heavy equipment will be selected and operated as necessary to minimize adverse effects on the environment (e.g., minimally-sized, low pressure tires, minimal hard turn paths for tracked vehicles, temporary mats or plates within wet areas or sensitive soils).
<i>Equipment Spill and Leak Prevention</i>	<p>All vehicles and other heavy equipment will be used as follows:</p> <ul style="list-style-type: none"> • Stored, fueled, and maintained in a vehicle staging area placed 150 feet or more from any waterbody, or in an isolated hard zone such as a paved parking lot. • Inspected daily for fluid leaks before leaving the vehicle staging area for operation within 50 feet of any waterbody. • Equipment will be washed prior to arrival at the site in order to prevent the spread of noxious weeds.

We considered whether or not the proposed action would cause any other activities and determined that it would not. Repairing the road at these seven locations will not lead to increased vehicle traffic on this road, because the road remains open despite the damage.

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 CFR 402.02). 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 designations of critical habitat for species 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 each species that would be adversely affected by the proposed action. The status is determined by the level of extinction risk that the listed species face, 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.

This opinion considers the status of one species: Snake River Basin steelhead. The Snake River Basin steelhead distinct population segment (DPS) is composed of multiple populations, which spawn and rear in different watersheds across the Snake River basin. Having multiple viable populations makes an evolutionarily significant unit (ESU) or DPS less likely to become extinct from a single catastrophic event (ICBTRT 2010). NMFS expresses the status of an ESU or DPS in terms of the status and extinction risk of its individual populations, relying on McElhaney et al.'s (2000) description of a viable salmonid population (VSP). The four parameters of a VSP are abundance, productivity, spatial structure, and diversity. The recovery plan for Snake River spring/summer Chinook salmon and Snake River Basin steelhead (NMFS 2017) describe these four parameters in detail and the parameter values needed for persistence of individual populations and for recovery of the ESU or DPS.

Table 3 summarizes the status and available information on the Snake River Basin steelhead DPS, based on the detailed information on the status of individual populations, and the species as a whole provided by the *ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon & Snake River Basin Steelhead* (NMFS 2017), *Status review update for Pacific salmon and steelhead listed under the Endangered Species Act: Pacific Northwest* (NWFSC 2015¹), and additional more recent information. These two documents are incorporated by reference here. The species remain threatened with extinction due to many individual populations not meeting recovery plan abundance and/or productivity targets. The proposed action overlaps with the Wallowa River steelhead population, currently provisionally rated at moderate risk of extinction (NWFSC 2015).

¹ This document is not NMFS' 5-year review but is a technical document written by the Northwest Fisheries Science Center to support the 5-year species status review.

Table 3. Most recent listing classification and date, status summary (including recovery plan reference and most recent status review), and limiting factors for species considered in this opinion.

Species	Listing Status	Status Summary	Limiting Factors
Snake River Basin Steelhead	Threatened 1/5/06	<p>This DPS comprises 24 populations organized into five major population groups (MPGs). Currently, five populations are tentatively rated at high risk of extinction, 17 populations are rated at moderate risk of extinction, one population is viable, and one population is highly viable. Four out of the five MPGs are not meeting the population viability goals laid out in the recovery plan (NMFS 2017). In order for the species to recover, more populations will need to reach viable status through increases in abundance and productivity. Additionally, the relative proportion of hatchery fish spawning in natural spawning areas near major hatchery release sites remains uncertain and may need to be reduced (NWFSC 2015). Since 2015, abundance has declined steadily with only 10,717 natural-origin adult returns counted in 2018 (ODFW & WDFW 2019).</p>	<ul style="list-style-type: none"> • Adverse effects related to the mainstem Columbia and Snake River hydropower system and modifications to the species’ migration corridor. • Genetic diversity effects from out-of-population hatchery releases. Potential effects from high proportion of hatchery fish on natural spawning grounds. • Degraded fresh water habitat. • Harvest-related effects, particularly B-run steelhead. • Predation in the migration corridor.

Table 4 summarizes designated critical habitat for Snake River Basin steelhead, based on the detailed information on the status of critical habitat throughout the designation area provided in the recovery plan (NMFS 2017). NMFS describes critical habitat in terms of essential PBFs of that habitat to support one or more life stages (e.g., sites with conditions that support spawning, rearing, migration, and foraging). For Snake River Basin steelhead, PBFs include water quality, water quantity, spawning substrate, floodplain connectivity, forage, natural cover, and passage free of artificial obstructions. The current ability of PBFs to support the species varies from excellent in wilderness areas to poor in areas of intensive human land use.

Table 4. 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
Snake River Basin steelhead	9/02/05 70 FR 52630	Critical habitat encompasses 25 subbasins in Oregon, Washington, and Idaho. Habitat quality in tributary streams varies from excellent in wilderness and roadless areas, to poor in areas subject to heavy agricultural and urban development (NMFS 2017). Reduced summer stream flows, impaired water quality, and reduced habitat complexity are common problems.

The construction and operation of water storage and hydropower projects in the Columbia River basin, including the run-of-river dams on the mainstem lower Snake and lower Columbia Rivers, have altered biological and physical attributes of the mainstem migration corridor for juveniles and adults. However, several actions taken since 1995 have reduced the negative effects of the hydrosystem on juvenile and adult migrants. Examples include providing spill at each of the mainstem dams for smolts, steelhead kelts, and adults that fall back over the projects; and maintaining and improving adult fishway facilities to improve migration passage for adult salmon and steelhead.

2.2.1 Climate Change Implications for ESA-listed Species and their Critical Habitat

One factor affecting the status of the species and its critical habitat considered in this opinion is climate change. Likely changes in temperature, precipitation, wind patterns, and sea-level height have implications for survival of Snake River Basin steelhead species in both its freshwater and marine habitats. During the next century average temperatures in the Pacific Northwest are projected to increase 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). In general, these changes in air temperatures, river temperatures, and river flows are expected to cause changes in salmon and steelhead distribution, behavior, growth, and survival, although the magnitude of these changes remains unclear.

Climate change could affect Snake River Basin steelhead in the following ways (NMFS 2017):

- Warmer water temperatures during incubation may accelerate the rate of egg development and result in earlier fry emergence and dispersal, which could be either beneficial or detrimental, depending on location and prey availability.

- Reduced summer and fall flows may reduce the quality and quantity of juvenile rearing habitat, strand fish, or make fish more susceptible to predation and disease.
- Reduced flows and higher temperatures in late summer and fall may decrease parr-to-smolt survival.
- Warmer temperatures will increase metabolism, which may increase or decrease juvenile growth rates and survival, depending on availability of food.
- Overwintering survival may be reduced if increased flooding reduces suitable habitat.
- Timing of smolt migration may be altered due to a modified timing of the spring freshet, such that there is a mismatch with ocean conditions and predators.
- Increases in water temperatures in Snake and Columbia River reservoirs could increase consumption rates and growth rates of predators and, hence, predation-related mortality on juvenile spring/summer Chinook salmon and steelhead.
- Lethal water temperatures (temperatures that kill fish) may occur in the mainstem migration corridor or in holding tributaries, resulting in higher mortality rates.
- If water temperatures in the lower Snake River (especially Lower Granite Dam and reservoir) warm during late summer and fall sufficiently that they cannot be maintained at a suitable level by cold-water releases from Dworshak Reservoir, then migrating adult Snake River summer Chinook salmon and steelhead could have higher rates of mortality and disease.

Both freshwater and marine productivity tend to be lower in warmer years for Snake River salmon and steelhead populations. Climate factors will likely make it more challenging to increase abundance and recover the species by reducing the suitable rearing areas and leading to a more limited run-timing under the warmer future conditions. Recent poor adult returns of salmon and steelhead to the Snake River basin may be linked to poor ocean conditions. These possibilities reinforce the importance of achieving survival improvements throughout the species' entire life cycle, and across different populations since neighboring populations with different habitat may respond differently to climate change.

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 includes the 7 segments of Deer Creek adjacent to proposed work, extending 2,500 feet downstream from the MP 7.7 site and 600 feet downstream from the other six work sites (the likely extent of potential downstream turbidity plumes). Thus, for the proposed action, the action area is comprised of seven discontinuous areas. The action area is used by all freshwater life history stages of threatened Snake River Basin steelhead. Streams within the action area are designated critical habitat for Snake River Basin steelhead.

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).

The action area is in the Deer Creek subwatershed, one of the tributaries occupied by the Wallowa River steelhead population. The Wallowa River steelhead population is provisionally rated at moderate risk of extinction, or “maintained” (NWFSC 2015). This population will need an increase in productivity combined with a reduction in diversity risk in order to reach viability. The Wallowa River population is a component population of the Grande Ronde River MPG. The recovery scenario for this MPG calls for the Wallowa River population to achieve at least maintained status (NMFS 2017). Steelhead in the Wallowa River population use the action area for spawning, rearing, and migration.

The Deer Creek subwatershed is rated at functioning at risk overall (WWNF 2020). The greatest impacts to aquatic habitat for listed fish species in this subwatershed have resulted from the presence of FR 8270, an improved native-surface road adjacent to Deer Creek. The road has resulted in reductions to floodplain width and streamside shade, and likely increased fine sediment delivery along portions of Deer Creek (although the subwatershed as a whole is functioning appropriately for sediment and turbidity). FR 8270 is adjacent to Deer Creek for the extent of the action area, constraining the stream channel on one side for those stream reaches. Stream banks are eroding at the seven locations proposed for flood damage. The WWNF rates both streambank condition and floodplain connectivity as functioning appropriately at the subwatershed scale.

Table 5 shows the WWNF’s current matrix of pathways and indicator ratings for the Deer Creek subwatershed (WWNF 2020). At the subwatershed scale, the WWNF rates road density and drainage network (as caused by the road system) in Deer Creek as functioning at unacceptable risk (WWNF 2020).

Table 5. Current multi-species matrix habitat indicator ratings for the Deer Creek subwatershed.

Diagnostic or Pathway Indicator	Functioning Appropriately	Functioning at Risk	Functioning at Unacceptable
Water Quality:			
Temperature		X	
Sediment/Turbidity	X		
Chemical Contamination/ Nutrients	X		
Habitat Access:			
Physical Barriers		X	
Habitat Elements:			
Substrate	X		
Large Woody Debris	X		
Pool Quality/ Frequency		X	
Off-Channel Habitat	X		
Refugia	X		
Channel Condition and Dynamics:			
Width/Depth Ratio		X	
Streambank Condition	X		
Floodplain Connectivity	X		
Flow/ Hydrology:			
Change in Peak/Base Flows	X		
Increase in Drainage Network			X
Watershed:			
Road Density			X
Disturbance History		X	
Riparian Conservation Areas		X	
Disturbance Regime		X	
Overall Rating		X	

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 to Species

All work within the active channel will be completed in accordance with the Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife resources (ODFW 2008, or the most recent version). The instream work window for Deer Creek in the action area is from July 15 to August 15. Juvenile steelhead may therefore be present during the work, but adult steelhead will not, nor will redds be present. Different sections of the project may be completed over multiple years, but no work within the active channel will occur outside the work window. Thus, the only life stage of steelhead exposed to the effects of the action will be rearing juveniles.

Juvenile steelhead present in the action area during the project implementation period could experience the following consequences from the proposed action:

- Risk of injury or death during fish handling at MP 7.7 or during rock placement at the other six locations (fish will not be removed from the work area the other six sites)
- Exposure to short-term turbidity plumes downstream from the project sites;
- Exposure to construction noise and disturbance;
- Exposure to chemical contamination from an accidental mechanical spill; and
- Temporary passage barrier.

The proposed action includes conservation measures to help avoid and/or minimize adverse effects to salmonids. The likelihood of exposure and the magnitude of response to these consequences are discussed below.

2.5.1.1 Injury or Mortality from Fish Handling at MP 7.7

Because the repairs at MP 7.7 involve instream work, the WWNF will remove fish from the project area following the conservation measures in the ARBO II programmatic consultation (NMFS 2013, pp 14-15, and as described in Table 2). The WWNF will isolate approximately 160 feet of stream with upstream and downstream blocknets and then remove fish from this reach by electrofishing. The goal of the fish handling conservation measures is to non-lethally capture fish and relocate them downstream with minimal handling. Following these conservation measures will minimize the risk of injury and mortality to juvenile steelhead to the extent possible. However, capturing and handling fish causes short-term stress for all individuals (Frisch and Anderson 2000; Hemre and Krogdahl 1996; Olla et al. 1995) and is likely to cause harm or death to some individuals exposed to electrofishing (McMichael et al. 1998; Nielson 1998). Additionally, a small number of fish may not be found by the fish capture crew and could end up injured or killed during the instream construction work.

Based on previous projects in adjacent watersheds, the WWNF estimates that they will capture no more than 100 juvenile steelhead while electrofishing the 160-foot reach next to MP 7.7 (personal communication, Alan Miller, WWNF fisheries biologist, February 4, 2021). Electrofishing can cause spinal injury to individual fish, which can lead to slower growth rates (Dalbey et al. 1996). Following the NMFS (2000) electrofishing guidelines will minimize the levels of stress and mortality related to electrofishing. McMichael et al. (1998) found a 5.1 percent injury rate for juvenile middle Columbia River steelhead captured by electrofishing in the Yakima River subbasin. We therefore predict that fewer than 10 juvenile steelhead will be injured or killed through fish handling.

2.5.1.2 Injury or Mortality from Rock Placement

Placement of large rock below the OHWM for bank stabilization and road repairs at the other six locations has the potential to disturb, injure, or kill fish located at the project sites. Riprap lowered into the eroding streambank could crush juvenile steelhead. We expect that only a small number of rearing juveniles will potentially be crushed or injured during riprap placement because:

- Juvenile steelhead may relocate to other nearby suitable habitat as soon as heavy machinery moves into position and begins operating in the project area.
- The area where riprap will be placed below the OHMW has a relatively small footprint of roughly 90 feet long (for the six sites combined) by a few feet wide.
- The eroding roadbed at the edge of stream where the riprap will be placed does not provide high quality rearing habitat, reducing the number of juveniles likely to be present.
- Riprap will be placed during the instream work window, during low flow conditions, reducing the area of riprap placed in live water.

NMFS expects that although some fish may be killed or injured, the majority of juvenile fish present in the action area during the work window will not be exposed or will be readily able to relocate to nearby suitable habitat (i.e., behavioral response only) for the short duration of the project (3 days or less for each site). It will not be feasible to monitor the number of fish injured or killed as a result of riprap placement.

2.5.1.3 Temporary Passage Obstruction

Blocknets will be present during the extent of in-water work activities at MP 7.7, temporarily blocking upstream and downstream passage of juvenile steelhead. Construction is likely to take three days but could take up to three weeks. Because this temporary passage barrier will not occur during a migration period for juvenile or adult steelhead, it will have only a small, temporary effect on juvenile steelhead behavior. The temporary passage barrier could temporarily alter local movement of rearing juvenile steelhead between different patches of feeding habitat.

2.5.1.4 Turbidity

The effects of increased suspended sediment on salmonids vary based on exposure time and concentration. These effects were reviewed by Newcombe and Jensen (1996) and range from avoidance response, to minor physiological stress from increased rate of coughing, to injury from abrasion of gill tissue, to death. Salmonids are relatively tolerant of low to moderate levels of suspended sediment (Gregory and Northcote 1993). Salmon and steelhead tend to avoid suspended sediment above certain concentrations (Servizi and Martens 1992; McLeay et al. 1987). Avoidance behavior can mitigate adverse effects when fish are capable of moving to an area with lower concentrations of suspended sediment. Researchers have reported thresholds for salmonid avoidance behavior at turbidities ranging from 30 to 70 nephelometric turbidity units (NTU) (Lloyd 1987; Servizi and Martens 1992; Berg and Northcote 1985).

The proposed action incorporates multiple conservation measures aimed at preventing sediment from entering Deer Creek during road repairs, and thus minimizing potential increases in turbidity. Despite implementation of conservation measures, short-term turbidity plumes extending downstream from the construction sites are likely when riprap is placed in the streambed to rebuild the road prism; when the LWD jam is relocated to a different location in the channel at MP 7.7; and when streamflow enters the excavated side channel at MP 7.7. Larger turbidity plumes are likely from the activities at MP 7.7 than from riprap placement the other six locations. The WWNF will stop or modify work activities immediately if a visible turbidity plume is present 50 feet downstream of any of the work areas. Based on past project implementation monitoring, the WWNF (2020) predicts that any turbidity plumes will dissipate quickly and return to pre-project levels within less than one hour.

Although we do not expect visible turbidity plumes to extend farther than 50 feet downstream at locations other than MP 7.7, plumes could potentially extend as far downstream as 600 feet (USFWS 2004). Plumes are expected to be temporary and should last less than two hours in each location. Juvenile steelhead exposed to turbidity plumes along the right streambank, downstream from road repairs, could temporarily relocate to nearby suitable habitat. Impacts to juvenile steelhead from exposure to short-term, localized turbidity plumes, such as temporary reductions in feeding behavior, are therefore likely to be minimal.

For the activities at MP 7.7, turbidity plumes could be more substantial, particularly if the side channel is not fully dry when excavated. Visible turbidity could extend up to 2,500 feet downstream (Foltz et al. 2008). Turbidity plumes caused by the proposed action will likely last less than 2 hours, but may last for up to 24 hours (Connor 2014; Jakober 2002; Casselli 2000; Eisenbarth 2013a, Eisenbarth 2013b). Juvenile steelhead will likely respond to such short-term turbidity plumes by trying to avoid the plume and temporarily seeking refuge nearby. A small number of juvenile steelhead that do not avoid the sediment plumes will be exposed to the sublethal impacts described above (e.g., minor physiological stress from increased rate of coughing and injury from abrasion of gill tissue). It will not be feasible to monitor the number of fish injured as a result of exposure to turbidity.

2.5.1.5 Noise and Disturbance

Construction noise or visual stimulus may disturb nearby juvenile steelhead, causing them to move away from the project site. Although individual fish may move in response to equipment noise, noise from heavy construction equipment will not likely rise to the decibel level known to physically harm fish (FHWA 2008; Wysocki et al. 2007). If fish move, they are expected to move only short distances to an area where they feel more secure, and only for a few hours in any given day (Grant and Noakes 1987; Ries 1995; Olson 1996; SNF 2009). Because the stream habitat near the project site is relatively uniform, we expect that if fish are displaced temporarily into nearby areas they are unlikely to experience a reduction in fitness as a result of the displacement.

2.5.1.6 Chemical Contamination

Use of construction equipment and heavy machinery adjacent to and within stream channels poses the risk of an accidental spill or leakage of fuel, lubricants, hydraulic fluid, antifreeze, or similar contaminants into the riparian zone, or directly into the water. If these contaminants enter the water, the substances could negatively affect habitat, injure or kill aquatic food organisms, or directly impact ESA-listed species (e.g., Neff 1985; Staples et al. 2001). The proposed action includes multiple conservation measures aimed at minimizing the risk of fuel, oil, or similar contaminant leakage into the stream (Table 2). For example, fueling will occur at least 150 feet away from streams, and equipment will be checked daily for leaks. Based on the past success of these types of conservation measures in other projects, impacts to ESA-listed steelhead and steelhead habitat from fuel spills or leaks are unlikely to occur.

2.5.2 Effects to Critical Habitat

Implementation of the proposed project is likely to affect freshwater rearing and migration habitat for Snake River Basin steelhead. Steelhead will not be using the action area for migration during construction, but migrating juvenile and adult steelhead will move through the area post construction. The PBFs that could be adversely affected by the proposed action are water quality, substrate, natural cover, and passage barriers. The proposed action will cause some temporary adverse effects to habitat in the action area, in addition to small, localized, longer-term negative impacts from streambank hardening. However, the proposed action should also provide long-term improvements to some critical habitat PBFs, primarily in the form of improved water quality through the stabilization of eroding streambanks at the seven sites.

Water Quality. The proposed action could negatively affect water quality through chemical contamination or short-term increases in turbidity. As described above in Section 2.5.1.4, we expect the proposed conservation measures will prevent leaks or spills from machinery from entering Deer Creek. We expect increases in turbidity from placing riprap to occur in short pulses (less than an hour) during construction and extend no more than 50 feet downstream from each construction site. These short-term increases in turbidity will not reduce the conservation value of critical habitat in the action area because the impacts will cover a small area and will be short term.

Substrate. Turbidity plumes from construction work will deposit a small amount of sediment in Deer Creek. Because of the expected effectiveness of the proposed sediment control conservation measures and the low levels of sediment expected to be suspended, NMFS does not expect that enough sediment deposition will take place to alter salmonid use of the habitat. The proposed action will use clean fill, and will address the chronic sediment delivery currently occurring as a result of the road failures. Habitat quality will likely recover as fine sediments are flushed downstream during high flows after project completion, and will not reduce the conservation value of critical habitat within the action area.

Natural Cover. Installation of riprap to the streambank for road repairs creates a hardened bank with no natural cover. The WWNF will use bioengineering techniques, such as planting of riparian shrubs at the base of riprap or incorporation of additional LWD for bank stabilization, to partially mitigate adverse effects of riprap on aquatic and riparian habitats. Because the existing streambank at the project site is the eroded roadbed, with no mature vegetation (or prospect for mature vegetation to develop in the future), installing new riprap will not affect natural cover at the project site and will not reduce the conservation value of critical habitat. Bioengineering techniques, such as planting of riparian shrubs at the base of riprap or incorporation of additional LWD for bank stabilization, could provide improvement in natural cover at the site scale.

Passage Barriers. Block netting the upstream and downstream ends of the project site at MP 7.7 creates a temporary passage barrier for juvenile steelhead. This short-term (3 days at most sites or up to 3 weeks at MP 7.7) migration obstruction will not reduce the conservation value of critical habitat in the action area because the impacts cover a small area, will be short term, and will not occur during a migration period for juvenile or adult steelhead.

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).

FR 8270 provides access to private timberlands and is a main travel route to Forest Service lands in the area. The road accesses two forest service trailheads along the northwestern portion of the Eagle Cap Wilderness. Public use of the road is likely to increase in the future as public land recreation increases. The associated effects of public road travel on Deer Creek will therefore either continue at current rates or increase.

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.

Species. Snake River Basin steelhead remains threatened with extinction. The action area falls within the range of the Wallowa River steelhead population, currently provisionally rated at moderate risk of extinction (NWFSC 2015). The recovery scenario for the Grande Ronde River MPG, of which the Wallowa River population is a component, calls for the Wallowa River population to be at least maintained at moderate risk of extinction (NMFS 2017). Furthermore, climate factors will likely make it more challenging to increase abundance and recover the species by reducing the suitable rearing areas and leading to a more limited run timing under the warmer future conditions (NMFS 2017). Within the action area, FR 8270 has resulted in reductions to floodplain width and streamside shade, and likely increased fine sediment delivery along portions of Deer Creek.

Juvenile steelhead in the action area could potentially be disturbed, injured, or killed during fish handling and rock placement, or through exposure to turbidity, noise, chemicals, or passage obstruction. For all but fish handling, rock placement, and turbidity plumes at MP 7.7, these effects are expected to be minor because of the proposed conservation measures and the ability of juvenile steelhead to avoid prolonged exposure by readily moving out of the affected area into similar nearby habitats during construction. For fish handling, we expect that fewer than 10 juvenile steelhead will be injured or killed. For rock placement, we expect an additional small number of juvenile steelhead to be injured or killed. For turbidity plumes from MP 7.7, we expect a small number of juvenile steelhead to be exposed to sublethal impacts such as temporary reduced feeding. The small number of juvenile steelhead that might be affected by the proposed action in this manner is too few to affect the abundance or productivity of the Wallowa River steelhead population, which is provisionally meeting its minimum recovery target of moderate risk of extinction. The proposed action is therefore unlikely to reduce the survival or recovery of Snake River Basin steelhead.

Critical habitat. Critical habitat for Snake River Basin steelhead is present in the action area. The proposed action will cause either small or short-term effects to PBFs (water quality, substrate, natural cover, and passage obstruction). Due to the small or short-lived nature of these effects, the conservation value of critical habitat in the action area will not likely be reduced. Furthermore, the proposed action will provide long-term improvements to some critical habitat PBFs at the site scale, primarily in the form of improved water quality through the stabilization of currently eroding streambanks. For this reason, the conservation value of critical habitat of or at the designation scale is not likely to be diminished.

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 Snake River Basin steelhead or destroy or adversely modify their 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). On an interim basis, NMFS interprets "harass" to mean "Create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." "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 is reasonably certain to occur as follows:

- **Fish handling.** We anticipate that up to 100 juvenile steelhead could be handled while removing fish from the project site at MP 7.7, and that up to 10 of those juveniles could be injured or killed. The amount of take will be exceeded if more than 10 juvenile steelhead are injured or killed during fish salvage.
- **Injury or death from rock placement.** It is not possible to observe the number of fish injured or killed from placing rock below the OHWM (injured or killed fish will either be flushed downstream or buried under the rock). NMFS will therefore use the length of streambank with road repairs as a surrogate for take. This is a rational surrogate for take because the greater length of stream with rock placement, the greater amount of take that could occur. Although this surrogate could be considered coextensive with the proposed action, monitoring and reporting requirements will provide opportunities to check throughout the course of the proposed action whether the surrogate is exceeded. For this reason, the surrogate functions as an effective reinitiation trigger. NMFS will consider the extent of take exceeded if rock is placed along more than 250 feet of stream.

- **Short-term water quality impacts from turbidity.** We predict that a small number of juvenile steelhead will be exposed to sublethal effects from turbidity plumes from activities at MP 7.7. Because it is not possible to observe the number of fish exposed to the turbidity plumes, NMFS will use the extent and duration of the turbidity plumes as a surrogate for take. This is a rational surrogate for take because the bigger the size and the longer the duration of turbidity plumes, the greater the likelihood of take. NMFS will consider the extent of take exceeded if visible turbidity extends more than 2,500 feet downstream from the MP 7.7 project site.

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 Snake River Basin steelhead or destruction or adverse modification of their 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 WWNF and COE (for those measures relevant to the CWA section 404 permit) shall:

1. Minimize incidental take from construction activities and implementation of the proposed conservation measures.
2. Ensure completion of a monitoring and reporting program to confirm that the terms and conditions in this ITS were effective in avoiding and minimizing incidental take from permitted activities and that the amount and extent of take was not exceeded.

2.9.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and the WWNF and the COE must comply with them in order to implement the RPMs (50 CFR 402.14). The WWNF and the COE have 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. The following terms and conditions implement RPM 1:
 - a. Any terms applied to the CWA 404 permit shall be consistent with the project description, conservation measures, and terms and conditions in the BA and this opinion.
 - b. Place riprap in a manner that minimizes the intensity of any resultant turbidity plumes and minimizes potential injury or death to fish. Do not end dump the riprap.

- c. Excavate the side channel and move the LWD jam in a manner that minimizes the intensity of any resultant turbidity plumes.
 - d. Ensure that the construction crew stabilizes all disturbed areas within 12 hours of any break in work unless construction will resume within 7 days.
2. The following terms and conditions implement RPM 2:
 - a. Notify NMFS immediately and ensure that the contractor ceases activities if more than 10 juvenile steelhead are killed or injured (extent of take).
 - b. Submit a report by email to the WWNF Level 1 Team and [NMFSWCR.SRBO@noaa.gov](mailto:NMFSSWCR.SRBO@noaa.gov) (include NMFS tracking number WCRO-2020-03545) by April 15 of the year following project completion with results of visual monitoring of turbidity plumes and number of juvenile steelhead handled, injured, and killed. Include before and after photos of each location.
 - c. NOTICE: If a steelhead or becomes sick, injured, or killed as a result of project-related activities but in a manner not addressed by this opinion, and if the fish would not benefit from rescue, the finder should leave the fish alone, make note of any circumstances likely causing the death or injury, location and number of fish involved, and take photographs, if possible. If the fish in question appears capable of recovering if rescued, photograph the fish (if possible), transport the fish to a suitable location, and record the information described above. Adult fish should generally not be disturbed unless circumstances arise where an adult fish is obviously injured or killed by proposed activities, or some unnatural cause. The finder must contact NMFS Law Enforcement at (206) 526-6133 as soon as possible. The finder may be asked to carry out instructions provided by Law Enforcement to collect specimens or take other measures to ensure that evidence intrinsic to the specimen is preserved.

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).

- Use bioengineering techniques for bank stabilization wherever possible, to create more natural cover and habitat complexity for fish.
- The WWNF should provide oversight of and closely coordinate with entities doing the construction to ensure that the project is implemented as described in the proposed action, and that BMPs, RPMs, and terms and conditions to ensure that the project is not

overbuilt, and that they are aware of all minimization and avoidance measures expected to be followed.

- The WWNF should work to identify more locations that are suitable for this and other roads in or bordering designated critical habitat. Evaluations should prioritize routes with the most severe current impacts or highest potential for future road failure.
- To mitigate the effects of climate change on ESA-listed salmonids, follow recommendations by the ISAB (2007) to plan now for future climate conditions by implementing protective tributary habitat measures. In particular, implement measures to protect or restore riparian buffers, wetlands, and floodplains; remove stream barriers; and to ensure late summer and fall tributary streamflows.

2.11 Reinitiation of Consultation

This concludes formal consultation for the WWNF's Forest Road 8270 Flood Repair Activities project.

As 50 CFR 402.16 states, reinitiation of consultation is required and shall be requested by the Federal agency or by NMFS 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 biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

3. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

The 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.

3.1 Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this opinion are the WWNF and the COE. Individual copies of this opinion were provided to the WWNF and the COE. 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.

3.2 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.

3.3 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 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 reviewed in accordance with West Coast Region ESA quality control and assurance processes.

4. REFERENCES

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