UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Blvd., Suite 1100
PORTLAND, OREGON 97232-1274

Refer to NMFS No.: WCR-2018-10444

November 30, 2018

Cheryl F. Probert
U.S. Forest Service
Nez Perce-Clearwater National Forest
903 Third Street
Kamiah, Idaho 83536

Lt. Col. Christian N. Dietz
U.S. Army Corps of Engineers
Walla Walla District
201 North Third Avenue
Walla Walla, Washington 99362

Re: Endangered Species Act Section 7 Formal Consultation for the Imnamatnoon Road 568 Road Repair Project, Idaho County, Idaho, Imnamatnoon Creek Watershed, HUC 1706030302

Dear Ms. Probert and Lt. Col. Dietz:

Thank you for your letter dated July 31, 2018, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the Imnamatnoon Road 568 Road Repair Project. The enclosed document contains a biological opinion (Opinion) prepared by NMFS on the effects of your proposed project. In this Opinion, NMFS concludes that the action, as proposed, is not likely to jeopardize the continued existence of Snake River Basin steelhead, or result in the destruction or adverse modification of designated critical habitat for this species.

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 the Nez Perce-Clearwater National Forest (NPCNF), U.S. Army Corps of Engineers, and/or any person who performs the action must comply with to carry out the RPMs. Incidental take from actions that meet these terms and conditions will be exempt from the ESA take prohibition.

This document also includes the results of our analysis of the action's effects on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and includes three Conservation Recommendations to avoid, minimize, or otherwise offset potential adverse effects on EFH. These Conservation Recommendations are similar but not identical to the ESA Terms and Conditions. Section 305(b)(4)(B) of the MSA requires federal agencies provide a detailed written response to NMFS within 30 days after receiving these recommendations.

If the response is inconsistent with the EFH Conservation Recommendations, the action agencies must explain why the recommendations will not be followed, 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, NMFS asks that you clearly identify the number of Conservation Recommendations accepted.

If you have questions regarding this consultation, please contact Brad DeFrees, Northern Snake Branch Office, at (208) 378-5698, or brad.defrees@noaa.gov.

Sincerely,

Michael P. Tehan
Assistant Regional Administrator

Enclosure

cc: K. Smith – NPCNF
J. Lutes – NPCNF
A. Connor – NPCNF
B. Knapton – NPCNF
D. Bawdon – NPCNF
A. Rogerson – NPT
D. Forestieri – NPT
K. Fitzgerald – USFWS

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

Imnamatnoon Road 568 Road Repair Project, Idaho County, Idaho, Imnamatnoon Creek Watershed, HUC 1706030302

NMFS Consultation Number: **WCR-2018-10444**

Action Agencies: U.S. Forest Service (Nez Perce-Clearwater National Forest), U.S. Army Corps of Engineers

Affected Species and Determinations:

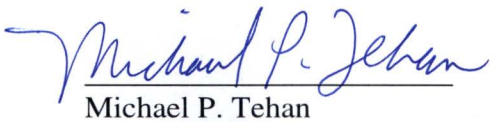
ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species or Critical Habitat?	Is Action Likely to Jeopardize the Species?	Is Action Likely to Destroy or Adversely Modify Critical Habitat?
Snake River Basin steelhead (*Oncorhynchus mykiss*)	Threatened	Yes	No	No

Essential Fish Habitat (EFH):

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: November 30, 2018

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ACRONYMN	DEFINITION
BA	Biological Assessment
BMP	Best Management Practices
COE	U.S. Army Corps of Engineers
CWA	Clean Water Act
DPS	Distinct Population Segment
DQA	Data Quality Act
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FS	Forest Service
IHRP	Idaho Habitat Restoration Programmatic
ITS	Incidental Take Statement
MPG	Major Population Groups
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
NPCNF	Nez Perce-Clearwater National Forest
NPT	Nez Perce Tribe
NTU	Nephelometric Turbidity Units
Opinion	Biological Opinion
PBF	Physical and Biological Features
RPM	Reasonable and Prudent Measures
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.

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 402.

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 through NMFS' Public Consultation Tracking System https://pcts.nmfs.noaa.gov/pcts-web/homepage.pcts. A complete record of this consultation is on file at the NMFS office in Boise, Idaho.

1.2 Consultation History

The Nez Perce-Clearwater National Forest (NPCNF), in conjunction with the Nez Perce Tribe (NPT) as the project sponsor, proposes to permanently redirect streamflow from a channel adjacent to Forest Service (FS) Road 568 into two existing overflow channels on Imnamatnoon Creek. After redirection of streamflow, the NPCNF proposes to repair FS Road 568 and install a vegetated streambank adjacent to the road.

On June 26, 2018, the NPCNF submitted a description, photos, and pre-project checklist for the project to NMFS for consultation under the Idaho Habitat Restoration Programmatic (IHRP). NMFS responded on July 5, 2018, concluding that the project did not qualify under the IHRP because it is not a routine restoration project. The NPCNF provided a draft biological assessment (BA) to NMFS on July 23, 2018, with a "may affect, likely to adversely affect" determination for Snake River Basin steelhead and their designated critical habitat. The BA also indicated that the proposed action may adversely affect Chinook salmon Essential Fish Habitat (EFH). After review, NMFS concluded that more information was needed prior to initiation of consultation. The NPCNF submitted a revised BA on July 27, 2018. After review, NMFS concluded that more information was needed and a phone call was held on July 31, 2018, between NPCNF, U.S. Fish and Wildlife Service, NPT, and NMFS to discuss additional details of the project and necessary information for the BA. The NPCNF submitted a revised BA to NMFS on the same day as the phone call. Consultation was initiated on July 31, 2018.

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 applies to COE's issuance of the permit. NMFS and the Walla Walla District of the COE have an informal agreement concerning consultations where another federal agency is the lead action agency but for which the action may also require a COE permit. Per this agreement, NMFS includes the COE as an action agency in the consultation and the COE agrees to ensure that any terms which the COE applies to a permit for the action are consistent with the project description and conservation measures in the lead action agency's BA and the terms and conditions in NMFS' Opinion.

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 NPT on October 15, 2018. The NPT did not respond.

1.3 Proposed 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). Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration (50 CFR 402.02). There are no interrelated or interdependent actions associated with this action.

The proposed action is redirecting streamflow on Imnamatnoon Creek, repairing FS Road 568, and maintaining the stream channel adjacent to FS Road 568 as an overflow channel for high-flow events. All project activity will take place 0.25 miles north from the intersection of FS Road 568 with Highway 12 within the Nez Perce-Clearwater National Forest in Idaho County, Idaho.

Due to large fallen woody debris, beaver activity, and high-flow events, Imnamatnoon Creek streamflow rerouted in May 2018, causing significant roadbed and bank erosion spanning 210 feet along FS Road 568. The proposed action will redirect the streamflow from the active channel (i.e. the road-adjacent channel) into two existing overflow channels further away from the roadway. The overflow channels will be slowly watered and the road-adjacent channel will be slowly dewatered. The difference in inlet channel depth between the active channel and the overflow channels is approximately 0.6 feet. The stream width of the active channel is approximately 24 feet, while the stream width in each overflow channel is approximately 18 feet. The overflow channels are similar in grade and substrate to the active channel, with a higher component of gravels and higher channel complexity. To reroute streamflow, woody debris and stream substrate will be slowly and incrementally excavated at the inlet of each overflow channel adjacent to the active channel. If necessary, sandbags will be incrementally placed in the active channel downstream of the overflow channel inlets to assist the reroute of flow.

After redirection of streamflow, FS Road 568 will be repaired. Approximately 1,000 cubic yards of roadbed material and 35 yards of Class II and III riprap will be placed to rebuild the road in its current location. The riprap will be placed streamside and will not exceed the bankfull depth elevation or require excavation to install. A cross drain culvert will be removed from the eroded roadbed. Future ditchline runoff will be redirected to an existing culvert downstream from the

project site. A narrow streambank will be constructed at the toe of the road by placing unclassified borrow (i.e. dirt and rock mixture) over the riprap. The material will be graded to match the slope of existing streambank on the other side of the stream-adjacent channel. After construction, the road-adjacent channel will exist at 75 percent of its current width, and will function as an active channel during high-flow events.

All disturbed areas will be revegetated with native riparian vegetation for erosion control, floodplain stability, and habitat diversity. The proposed action is expected to result in a reduced risk of future road failure associated with natural migration of steam channels. The construction window for this project is July 15, 2019 to August 15, 2019. Instream work is expected to be completed in less than 1-day. Roadwork and streambank construction is expected to be completed in 2 days.

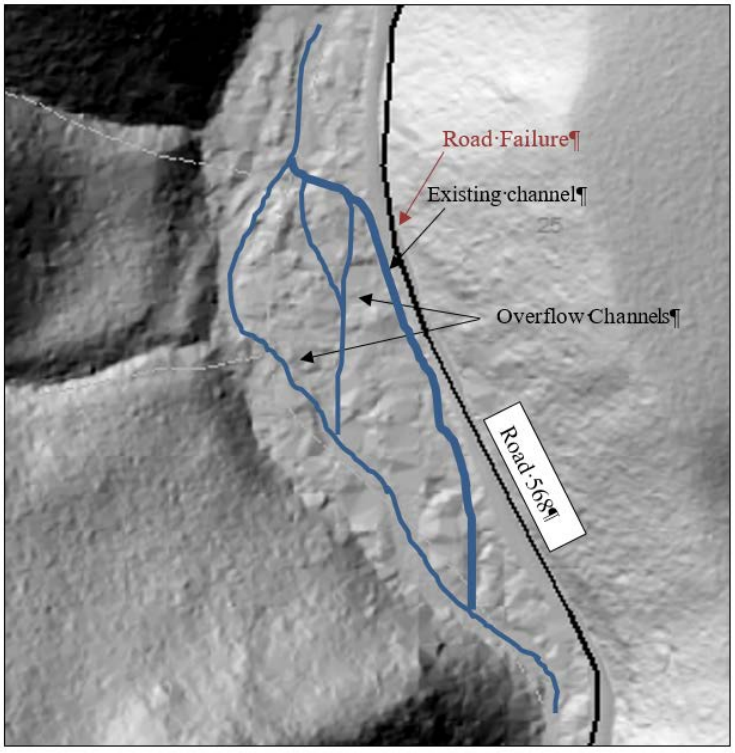

Figure 1. Road failure location in relation to stream channels (NPCNF 2018).

1.3.1 Conservation Measures

The NPCNF proposes the following conservation measures to minimize the impacts of the proposed action on ESA-listed fish and their habitat:

Table 1. Conservation Measures.

Category	Specific Measures
Sediment and storm water control	• Sediment barriers and erosion controls (e.g., silt fences, weed-free straw matting/bales, or fiber wattles) will be required in all work areas where overland sediment delivery may occur during typical rain events for the area.

Category	Specific Measures
	• Storm water that comes into contact with disturbed areas will be contained, controlled, and filtered to prevent it from entering the stream and associated wetland and/or riparian areas. • Existing vegetation will be protected to the extent possible and disturbed areas will be promptly rehabilitated. Riparian vegetation removed by construction will be salvaged and stockpiled for use in revegetation of disturbed streambanks. • Riparian vegetation consisting of shrubs and grasses will be installed on the constructed streambank adjacent to FS Road 568 to prevent long-term erosion.
Equipment spill and leak prevention	• The contractor will have fuel spill containment plan and materials onsite in the event of a fuel spill and their employees will be trained in the proper application and use of those materials. The plan will be available for review 15 days prior to beginning construction. • When spills or releases of hazardous substances or materials that are suspected to be hazardous occur, the following procedures will be implemented immediately: o Work will be suspended immediately. o The source of the spill or leak will be identified and controlled. o Containment actions such as earthen berms, use of sorbet booms and/or pads, or excavating a shallow ditch to capture the release will be implemented. o The NPT, project contracting officer representative, the Idaho Department of Fish and Game, the contractor's project manager, and the National Response Center will be notified immediately. • The machine staging area, including fuel storage and machine fueling, will occur on FS Road 568 near the intersection of US Hwy 12. This area is more than 250 feet away from Imnamatnoon Creek and the Lochsa River. • Equipment used for instream work will be cleaned of external oil, grease, dirt and mud; and leaks repaired; prior to arriving at the project site. All equipment will be inspected by the construction contractor before unloading at site. Equipment will be inspected daily for leaks or accumulations of grease, and any identified problems corrected before entering streams or areas that drain directly to streams or wetlands. • For the streamflow diversion activities, the excavator will walk across logs to reach the inlet of the overflow channels, which will minimize equipment contact with water during the stream crossing. The excavator will not conduct work while sitting in water. • For the road reconstruction activities, the excavator bucket will be the only piece of the equipment working in the stream channel and will only occur during riprap installation. • The excavator will be cleaned and inspected for presence of invasive plants prior to start of work.
Instream work	• Substrate pulled from the inlets of the overflow channels will be excavated in a slow, incremental manner to minimize turbidity level increases as a result of water flowing into the channels. • Instream work will be conducted over a 3-day period. • The excavator will walk across logs to access the overflow channels in order to minimize disturbance to the streambed. • The streamflow will be diverted into the overflow channels during roadwork and streambank construction.

Category	Specific Measures
	• Monitoring of baseline suspended sediments will be conducted upstream and downstream of the construction area. Turbidity monitoring will occur 600 feet downstream from the project site. If turbidity exceeds 50 NTU over background, then the activity will cease until turbidity returns to near background levels and the procedure is modified to reduce turbidity.
Fish salvage	• Any channel where work is occurring will have a block net placed upstream and downstream from the work area to prevent fish from moving into the channel. A fish salvage crew will walk the stream channel downstream from the block net to move fish out of the channels. • Most fish present in the diverted (i.e., road adjacent) channel are expected to leave volitionally due to dropping water levels as the overflow channels are slowly watered and the road-adjacent channel is slowly dewatered. Fish salvage experts will closely monitor the channel during streamflow diversion and will conduct fish salvage efforts if necessary. • The NPT personnel trained in salvage of ESA-listed fish will conduct fish salvage during fish salvage operations. If electrofishing is necessary, NPT personnel will follow NMFS electrofishing guidelines. • A Smith-Root LR-24 backpack electrofishing unit will be used if electrofishing is necessary. • It is anticipated that some pools will still hold residual water which could contain fish. If deemed necessary, these pools will be electroshocked a final time after the water is diverted. • Any captured fish will be moved using buckets fitted with aerators and released upstream from the project site and block nets. Fish will be observed prior to release to ensure they have recovered and are able to swim.

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

2.1 Rangewide Status of the Species and Critical Habitat

This Opinion considers the status of the Snake River Basin steelhead. The Snake River Basin steelhead distinct population segment (DPS) is composed of 24 individual populations which spawn and rear in different watersheds across the Snake River basin. Having multiple viable populations makes a DPS less likely to become extinct from a single catastrophic event (ICBTRT 2010). NMFS expresses the status of a DPS in terms of the status and extinction risk of its individual populations, relying on McElhany 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) describes these four parameters in detail and the parameter values needed for persistence of individual populations and for recovery of the DPS.

The status of the Snake River Basin steelhead is determined by the level of extinction risk that the listed species faces, based on parameters considered in documents such as the recovery plan, status reviews, and listing decisions. This informs the description of the species' likelihood of

both survival and recovery. The condition of critical habitat throughout the designated area is determined by the current function of the essential physical and biological features (PBFs)[1] that help to form that conservation value.

Table 2 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) and *Status review update for Pacific salmon and steelhead listed under the Endangered Species Act: Pacific Northwest* (NWFSC 2015). These two documents are incorporated by reference here. Although species abundance has increased since the time of listing in 1997, many individual populations are not meeting recovery plan abundance and productivity targets and the species remains threatened with extinction.

Table 2. 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 Classification and Date	Status Summary	Limiting Factors
Snake River Basin steelhead	Threatened 1/5/06	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. Although abundance has increased since the time of listing, 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, most recent species status review).	• 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.

The proposed action will occur in Imnamatnoon Creek of the Upper Lochsa River watershed, which is occupied by the Lochsa River steelhead population. The population is currently rated at moderate risk for abundance/productivity, low risk for spatial structure/diversity, and is likely achieving maintained status for an overall viability rating (NMFS 2017).

[1] We use the term PBF to mean primary constituent element; the shift in terminology does not change the approach used (81 FR 7414).

Table 3 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 for the species (NMFS 2017), which is incorporated by reference here. 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. Across the designations, 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 3. 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. Migration corridor habitat quality has been severely affected by the development and operation of the dams and reservoirs of the Federal Columbia River Power System.

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

One factor affecting the ESA-listed species and critical habitat is climate change. Likely changes in temperature, precipitation, wind patterns, and sea-level height have implications for survival of Snake River Basin steelhead in both their freshwater and marine habitats. As the climate changes, air temperatures in the Pacific Northwest are expected to increase 2°C to 8°C by the 2080s (Mantua et al. 2009). While total precipitation changes are uncertain, increasing air temperature will result in more precipitation falling as rain rather than snow in watersheds across the basin (NMFS 2017). 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: (a) Winter flooding in transient and rainfall-dominated watersheds may reduce overwintering habitat for juveniles; (b) 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; (c) timing of smolt migration may change due to a modified timing of the spring freshet ; and (d) lethal water temperatures may occur in the mainstem river migration corridor or in holding tributaries resulting in higher mortality rates (NMFS 2017). Climate factors will likely reduce suitable rearing areas and limit run timing under warmer future conditions, and thereby make it more challenging to increase abundance and recover the species.

2.2 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

project work site in and around Imnamatnoon Creek, as well as Imnamatnoon Creek from 100 feet upstream of the road repair, extending downstream 1,000 feet from the road repair (the likely extent of potential downstream sediment effects).

2.3 Environmental Baseline

The environmental baseline is defined at 50 CFR 402.02.

The project site is located approximately 0.25 miles upstream of the confluence of Imnamatnoon Creek and the Lochsa River. The action area is located on U.S. Forest Service land within the NPCNF. Imnamatnoon Creek, within the project site, is a low-gradient braided channel system. A moderate amount of large woody debris within the channels control grade and have modified channel function in the past. The natural floodplain in the action area has been slightly constrained due to the construction of FS Road 568. Imnamatnoon Creek drains to the Lochsa River west of Powell, Idaho. The NPCNF has conducted work with the NPT to decommission roads and improve fish passage throughout the Lochsa River watershed. The NPCNF has also replaced several culverts within the watershed to improve aquatic organism passage. Multiple timber harvests have occurred on 2,300 acres of NPCNF land and 3,100 acres of private lands within the Imnamatnoon watershed between 1955 and 2005. Pacific Anadromous Fish Strategy buffers have been implemented on all NPCNF timber sales since 1995. Timber harvest on private lands have followed Idaho Forest Practices Act guidelines (NPCNF 2018).

The following further detail baseline conditions:

- Imnamatnoon Creek has a “Fully Supporting” status for the beneficial use of Cold Water Aquatic Life and Salmonid Spawning in the Idaho Department of Environmental Quality 2014 Integrated Report (IDEQ 2017).

- The FS Road 568 road prism parallels the stream in the project site and encroaches into the floodplain.

- The action area has reduced natural riparian vegetation due to road presence along a section of the creek.

Steelhead use the Imnamatnoon Creek watershed for both spawning and rearing. Adult steelhead generally arrive at the mouth of the Clearwater River from September through November, and migrate to tributary streams from January through May. Spawning occurs from February through early June, typically prior to peak stream flows (Miller et al. 2014). Aquatic surveys completed by the Idaho Department of Environmental Quality in 1996, 2002, and 2010 identified steelhead/rainbow trout in Imnamatnoon Creek (IDEQ 2017).

2.4 Effects of the Action

"Effects of the action" is defined at 50 CFR 402.02.

2.4.1 Effects to Species

The in-water portion of the proposed action would take place between July 15 and August 15 (when juvenile steelhead will be the only potential life stage present in the action area). Adult steelhead are only likely to enter tributaries of the Clearwater River from February through early June. Fry incubation and immergence generally occurs between February and mid-August (Miller et al. 2014). Juvenile steelhead in the action area could experience the following adverse effects from the proposed action:

- Death or injury from dewatering and fish salvage;
- exposure to short-term turbidity plumes downstream of the project site;
- increased sediment deposition that alters stream substrate function for juvenile fish and invertebrate prey;
- exposure to construction noise;
- exposure to chemical contamination; and
- streambank alteration associated with diversion of streamflow.

The proposed action includes best management practices (BMPs) to help avoid and/or minimize adverse effects to juvenile steelhead. The likelihood of exposure and the magnitude of response to these effects of the action are discussed below.

The proposed action may result in beneficial effects for the species through an increases in habitat area as the water is rerouted through two more complex channels instead of the present singular channel. The present channel is bounded by FS Road 568, while the other channels exhibit natural streambank and riparian vegetation components. However, diversion of flow from one channel into two channels could result in less flow quantity in each channel. NMFS anticipates that each of the two channels is likely to have sufficient flow to maintain fish passage for steelhead.

2.4.1.1 Fish Salvage

Diverting stream flow from the active channel into overflow channels, as well as dewatering the active channel during construction, requires fish salvage from the work area. The goal of the fish-handling BMPs is to capture fish using non-lethal methods, and then release or relocate them downstream with minimal handling. Following these BMPs (listed in Table 1) will minimize the risk of injury and mortality to ESA-listed fish 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, particularly those 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 would likely die after ending up stranded in dewatered areas.

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. A literature review by Nielson (1998), on the other hand, suggests that 25 percent of the total number of fish electrofished could be injured or killed.

For this project, we make the following assumptions about injury and death rates during fish salvage activities:

- An area of up to 487 square meters (5,250 square feet) of the road-adjacent channel of Imnamatnoon Creek will be de-watered for construction (NPCNF 2018).

- Based on NPCNF fish survey data from 2008 to 2013, in which researchers found an average of 16 juvenile steelhead per 100 square meters in the mainstem of Imnamatnoon Creek where the action will take place (NPCNF 2018), 77 juvenile steelhead could be present in the dewatered area and would be captured or stranded.

This estimate likely overestimates fish numbers exposed to handling or stranding because gradual dewatering will cause some or most fish to leave the area volitionally. Fish salvage experts will conduct fish handling efforts. NMFS expects that the fish salvage experts will be adept at observing handled fish for signs of stress. It is likely that they will know proper handling and transport methods, and how and when to adjust electrofishing equipment to minimize stress on fish. McMichael et al. (1998) indicated electrofishing injury rates during fish salvage efforts for natural-origin salmonids were only 5 percent. However, NMFS notes that as many as 25 percent (Nielson 1998), or 19 out of the 77 juvenile steelhead potentially present in the dewatered area, could be injured due to capturing and handling. The higher injury rate accounts for variable site conditions and experience levels. The result of these injuries could be fatal. Up to 5 percent of the fish captured or handled (Hudy 1985; McMichael et al. 1998), or three out of the 77 juvenile steelhead potentially present in the dewatered area, could be killed immediately. The three fish potentially killed immediately are a part of the 19 fish that could be injured due to capturing and handling. The remaining fish handled are expected to be released in suitable habitat and avoid further harm from the action. A small number of fish could be stranded in stream substrates during electrofishing, resulting in death. However, fish salvage experts will complete multiple passes prior to complete dewatering, which will likely minimize potential stranding.

Given mean smolt-to-adult return rates of 1.58 percent from 1997–2012 (Comparative Survival Study Oversight Committee and Fish Passage Center 2015), the injury or loss of 19 juvenile steelhead in the Lochsa River population would mean a one-time loss of less than one adult equivalent (0.304) returning to spawn.

2.4.1.2 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 Imnamatnoon Creek during construction, and thus minimizing potential increases in turbidity. Despite implementation of BMPs, turbidity plumes extending downstream from the construction site are expected to occur during diversion of flow from the active channel to the overflow channels, dewatering of the active channel, and potential re-watering of the active channel during a high-flow event. Turbidity plumes occurring during the excavator stream crossing are expected to be minimal due to the use of logs. Based on data from a similar road repair and stream diversion project in Waw'áałamnima Creek on the NPCNF, turbidity occurred up to 600 feet downstream from the project site but persisted for less than 30 minutes after in-stream activity (A. Connor, personal communication, 2018). Additionally, turbidity spikes generally did not exceed 50 NTU with use of proper BMPs (A. Connor, personal communication, 2018). One isolated turbidity spike over 50 NTU lasted less than 10 minutes and construction activity immediately ceased to implement further sediment control measures (A. Connor, personal communication, 2018). Exposure to this intensity of turbidity for this amount of time would not likely cause lethal impacts for juvenile salmonids, based on an index of severity of effects of suspended sediment developed by Newcombe and Jensen (1996) and assuming a ratio of 2.4 milligrams per liter suspended sediment to 1-NTU (Schroeder 2014). NMFS presumes that turbidity plumes caused by the proposed action will be similar to that described for Waw'áałamnima Creek, likely last less than 2 hours, but may last for up to 24 hours (at reduced intensities, as described above) upon channel diversion, dewatering, and re-watering (Connor 2014; Jakober 2002; Casselli 2000; Eisenbarth 2013). We expect turbidity plumes will not exceed state standards of 50 NTU instantaneous for more than 2 hours at 600 feet downstream (Connor 2014; Foltz et al. 2013), and that visible turbidity will not extend past 1,000 feet downstream from the project site (NPCNF 2018). Juvenile salmonids will likely respond to such short-term turbidity plumes by trying to avoid the plume and temporarily being displaced from preferred habitat. Juvenile salmonids that do not avoid the sediment plumes will be exposed to the sublethal impacts described above.

To estimate the number of juvenile steelhead that could be exposed to adverse effects from a turbidity plume, we made the following assumptions:

- Turbidity will affect juvenile steelhead below the convergence of the road-adjacent channel with the overflow channels.

- A turbidity plume of 50 NTU extending 600 feet downstream from the channel and spanning a singular 24-foot channel will cover an area of 1,337 square meters (14,400 square feet).

- Based on an estimate of 16 juvenile steelhead per 100 square meters, per NPCNF fish survey data, approximately 213 juvenile steelhead may be present in the turbidity plume and thus be exposed to sublethal impacts from turbidity.

2.4.1.3 Sediment Deposition

Turbidity plumes from construction work will deposit a small amount of sediment in Imnamatnoon Creek downstream from the project site. Any mobilized sediment is expected to be deposited up to 600 feet downstream of the project site, until it is dispersed by high flows in the following winter or spring. Effects to individual fish could include reduction of available cover for juveniles, or changes to primary and secondary productivity which could affect food supply for the fish.

Fine sediment deposition in spawning gravel reduces interstitial water flow, leading to depressed dissolved oxygen concentrations, and it can physically trap emerging fry in the gravel (Koski 1966; Everest et al. 1987; Meehan and Swanston 1977). Fish eggs deposited in gravel with a high percentage of fine sediments have a reduced rate of survival. Egg survival and fish abundance decrease rapidly when fine sediment exceeds a threshold of approximately 30 percent fines by volume (Everest et al. 1987; Spence et al. 1996). The most concentrated sediment deposits caused by the proposed action are likely to be patches of localized deposition that persist for several months through fall and winter when steelhead redds are not present. High-flow events are likely to disperse the sediment deposits in spring, causing only slight increases in the amount of fine sediment deposition in spawning and rearing areas. Also, within the timeframe of months, the minor sediment inputs from the construction phase of the project will likely be outweighed by substantial sediment delivery reductions resulting from repair of FS Road 568. Consequently, the effects of the project on deposited sediment/substrate are likely to be adverse but minor in the short term and beneficial in the long term.

All areas with disturbed ground will be immediately stabilized and revegetated to prevent long-term sediment delivery to the streams. By diverting the majority of streamflow away from FS Road 568, reinforcing the toe of the road, and planting riparian vegetation (including shrubs and grasses), less erosion of the streambank is expected to occur. In addition, the diversion of water from the active channel into more complex overflow channels is expected to result in higher quality and quantity of fish habitat. This will likely result in beneficial, long-term effects to steelhead and habitat.

To estimate the number of juvenile steelhead that could be exposed to adverse effects from sediment deposition, we made the following assumptions:

- Sediment deposition will affect juvenile steelhead below the convergence of the road-adjacent channel with the overflow channels.

- Mobilized sediment will be deposited up to 600 feet downstream from the confluence of the overflow channels with the active channel and span a 24-foot channel, covering an area of 1,337 square meters (14,400 square feet).

- Based on an estimate of 16 juvenile steelhead per 100 square meters, per NPCNF fish survey data, approximately 213 juvenile steelhead may be present in the sediment deposition area and thus exposed to sublethal impacts. For purposes of quantifying adverse effects, the estimate of 213 fish involves the same fish noted above in the calculation of turbidity effects. Any adverse effects from sediment deposition (as with turbidity) would be short term and not likely to persist into the spring due to seasonal high-flow events mobilizing residual sediment.

2.4.1.4 Noise and Disturbance

Construction noise or visual stimulus may disturb nearby juvenile steelhead, causing them to move away from the project site. 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 be adversely affected by those changes in location. Noise from heavy construction equipment will not likely rise to the decibel level known to physically harm fish (FHWA 2008; Wysocki et al. 2007).

2.4.1.5 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 adversely 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. For example, equipment will be cleaned of external oil and checked for leaks prior to arrival at the project site. Equipment will be inspected daily for leaks or accumulations of grease. Any identified problems will be corrected immediately. Equipment will walk across logs when accessing overflow channels to minimize contact with water. No equipment will conduct work while sitting in water. All fuel, oil, and other hazardous materials will be stored away from the stream channel. Equipment refueling will also occur away from the stream channel. Based on the past success of these types of conservation measures in other projects, negative impacts to ESA-listed fish and fish habitat from fuel spills or leaks are unlikely.

2.4.1.6 Streambank Alteration

The placement of riprap on streambanks can adversely affect stream morphology, fish habitat, and fish populations (Schmetterling et al. 2001; Garland et al. 2002). Installation of riprap to the streambank adjacent to FS Road 568 could potentially reduce natural cover during high-flow

events when the channel is utilized. However, ordinary streamflow will be permanently routed into complex overflow channels with adequate natural cover for fish. Additionally, the riprap will be covered with soil and riparian vegetation. Therefore, installing riprap will have a minimal effect on natural cover at the project site and will minimally impact ESA-listed fish in the action area.

2.4.2 Effects to Critical Habitat

Implementation of the proposed project is likely to affect freshwater spawning, rearing, and migration habitat for Snake River Basin steelhead. The project may result in long-term benefits to fish habitat quality and quantity. The PBFs that could be adversely affected by the proposed action are water quality, spawning substrate, natural cover, food, fish passage, and floodplain connectivity. Each of these effects are described in more detail below:

Water quality. The proposed action could negatively affect water quality through chemical contamination or short-term increases in turbidity. As described in Section 2.4.1.5, we expect the proposed BMPs will reduce the risk of leaks or spills from machinery from entering Imnamatnoon Creek. We expect adverse effects from increases in turbidity (below 50 NTU) upon channel diversion, dewatering, and re-watering of the construction site to last several hours and extend no more than 600 feet downstream from the project site. These increases in turbidity will cover a small area, will be of low magnitude (sublethal to fish occupying the habitat), and will be short term. Riparian vegetation plantings may result in a reduction of instream sediment and associated turbidity in both the short and long term. Project effects on the water quality PBF will be very small, if even detectable, for chemical contamination, and small and temporary for turbidity. Neither effect is expected to change the function of the PBF.

Substrate. Turbidity plumes from construction work will deposit a small amount of sediment in Imnamatnoon Creek. Because of the expected effectiveness of the proposed sediment control BMPs, NMFS expects that any occurring sediment deposition will be small, localized, and temporary. Habitat quality will likely recover as fine sediments are flushed downstream during high flows in winter and spring after project completion, and will not reduce the function of the spawning substrate PBF.

Natural Cover. Natural cover could be slightly and temporarily negatively affected along the road-adjacent channel due to stream channel alterations and the removal of riparian vegetation. Installation of riprap to the streambank adjacent to FS Road 568 could reduce natural cover. However, diversion of the primary streamflow into the overflow channels with pre-existing natural features may result in a greater amount of natural cover along the watered channels. Additionally, the riprap adjacent to FS Road 568 will be covered with soil, and riparian vegetation will be installed. Therefore, this future high-flow channel may have more cover than it presently does. Because of these project design characteristics, the project could result in a small increase in function of the natural cover PBF in the long term.

Food. Diverting and dewatering the stream and other activities that increase turbidity and sediment deposition may temporarily reduce macroinvertebrate communities immediately adjacent to and downstream of (<600 feet) the project site. However, performing work only

during the low water work period and limiting the dewatering/instream construction to 3 days are expected to minimize both the magnitude and duration of effects on steelhead food sources. Additionally, diversion of the streamflow into the wider, more complex overflow channels is expected to maintain food source availability at the project site location in the long term. For these reasons, the proposed action is unlikely to result in appreciable effect on, or reduction in function of the forage PBF.

Fish Passage. Upstream and downstream passage within the project site may be temporarily impaired during diversion of streamflow from the active channel to the overflow channels. Passage will not be disrupted after the diversion of streamflow or during the road construction phase of the project. Redirecting streamflow from a single active channel into a braided channel system will likely result in similar to existing fish passage conditions and maintain function of the passage PBF.

Floodplain Connectivity. The FS Road 568 is currently located within a small portion of the floodplain for Imnamatnoon Creek and will be repaired and maintained in the same location. Redirection of streamflow from the active channel into more complex overflow channels and retaining the road-adjacent channel for use during high-flow events will maintain moderately reduced floodplain width within this section of Imnamatnoon Creek. The project is not expected to reduce present function of the floodplain connectivity PBF.

2.5 Cumulative Effects

"Cumulative effects" is defined at 50 CFR 402.02).

The entire action area, as well as all upstream area that could affect the action area, is U.S. Forest Service land managed by the NPCNF; therefore, no cumulative effects are expected.

2.6 Integration and Synthesis

In this section, we add the effects of the action (Section 2.4) to the environmental baseline (Section 2.3) and the cumulative effects (Section 2.5), taking into account the status of the species and critical habitat (Section 2.1), 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 for the conservation of the species.

Species. Although Snake River Basin steelhead abundance has increased since the time of listing in 2006, many individual populations are not meeting recovery plan abundance and productivity targets, and the species remains threatened with extinction. Current abundance/productivity estimates for the Lochsa River steelhead population—where the proposed action will take place—are at moderate risk status (NWFSC 2015). Furthermore, climate factors will likely make it more challenging to increase abundance and recover the listed species (NMFS 2017). Stream habitat in the action area exhibits a constrained floodplain due to

road presence, but has a "Fully Supporting" status for the beneficial use of Cold Water Aquatic Life and Salmonid Spawning (IDEQ 2017).

Juvenile steelhead in the action area could potentially be affected by noise, chemicals, sediment, and streambank alterations; however, these effects are expected to be minor because of the proposed BMPs and the ability of fish to move out of the affected area into similar nearby habitats during construction. The following adverse effects are expected:

- Up to 77 juvenile steelhead are expected to be captured or stranded due to dewatering/salvage activities;

- Of those 77 juvenile steelhead, up to 19 fish could be injured during fish salvage or through stranding;

- Of those 19 juvenile steelhead, up to three fish could be killed as a result of fish salvage; and,

- 213 juvenile steelhead could be exposed to sublethal impacts from short-term turbidity plumes and sediment deposition.

The injury or death of up to 19 juvenile steelhead in the Lochsa River population would mean a one-time loss of less than one adult equivalent (0.304) returning to spawn. The exposure of juvenile steelhead to the sublethal short-term turbidity and sediment deposition impacts would not likely reduce the abundance and productivity of the respective population. The one-time loss of less than one adult equivalent returning to spawn would likely not affect the abundance and productivity for the species. Because we do not anticipate a change in the viability of the Lochsa River steelhead population, the proposed action will not likely affect the survival of the DPS. In addition, the probability of recovery for the species will not likely be affected.

Critical habitat. Critical habitat for Snake River Basin steelhead is present in the action area. The proposed action will cause small, short-term effects to water quality, substrate, natural cover, food, fish passage, and floodplain connectivity PBFs. However, due to the extremely small and short-lived nature of these effects, the conservation value of critical habitat for the conservation of the species would not likely be affected. Natural cover at the project site could slightly increase in the long term as a result of the project.

2.7 Conclusion

After reviewing the current status of the listed species and their designated critical habitat, the environmental baseline within the action area, the effects of 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.

2.8 Incidental Take Statement

Section 7(b)(4) and section 7(o)(2) of the ESA 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.

2.8.1 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 77 juvenile steelhead could be captured during fish salvage prior to and/or during dewatering of the construction site. The amount of take will be exceeded if more than three steelhead are killed during fish salvage, or if more than 77 juvenile steelhead are captured.

- **Short-term water quality impacts from turbidity and sediment deposition**. Although NMFS was able to estimate the number of fish we expect to be exposed to the turbidity plumes and sediment deposition, it is not possible to observe the number of fish actually exposed. That being the case, 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 amount of take that would occur. NMFS will consider the extent of take exceeded if turbidity plumes measured 600 feet downstream from the project site last more than 2 hours at levels over 50 NTU above background.

2.8.2 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 of the species.

2.8.3 Reasonable and Prudent Measures

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

The NPCNF shall:

1. Minimize incidental take from construction activities and implement all 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.

2.8.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and the NPCNF must comply with them in order to implement the reasonable and prudent measures (RPMs) (50 CFR 402.14). The NPCNF 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 (minimize take from construction activities), the NPCNF shall ensure the following:

    a. The construction contractor's diversion structures do not emit chronic visible turbidity into Imnamatnoon Creek.

    b. The construction contractor's slow removal of stream substrate from the inlet of each overflow channel does not produce chronic turbidity and bank scouring.

    c. The construction contractor's equipment is cleaned of external oil and grease prior to arrival at the project site. The construction contractor's equipment is inspected daily for leaks and accumulation of grease, and any identified problems are corrected prior to equipment contact with water.

    d. The construction contractor slowly re-waters stream channel margins to minimize a sudden increase in turbidity.

    e. The redirection of streamflow into the overflow channels provides adequate fish passage throughout construction period.

    f. If shrub removal is required, the contractor leaves the root mass in place for soil stabilization purposes where possible and, after project construction, plant an equivalent or greater amount of native shrubs and riparian vegetation to the amount removed.

    g. The construction contractor stabilizes all disturbed areas within 12 hours of any break in work unless construction will resume within 7 days.

    h. That any terms applied to the CWA 404 permit are consistent with the project description, conservation measures, and terms and conditions in the BA and this Opinion.

    i. That fish salvage experts conduct electrofishing in a manner that is compliant with measures described in NMFS' electrofishing guidelines (2000). The fish salvage experts shall also conduct three-pass electrofishing salvage of the dewatered reach to reduce the potential for fish to be stranded in the dewatered stream reach.

2. To implement RPM 2 (monitoring and reporting), the NPCNF shall:

    a. Ensure that the construction contractor monitors turbidity plumes created by the action. The construction contractor will immediately cease work if turbidity plumes exceed state standards (50 NTU instantaneous above background) at 600 feet downstream from the project site and last for more than 2 hours. The construction contractor shall implement and document BMPs to reduce the magnitude and duration of turbidity plumes before continuing work. Notify NMFS immediately (extent of take) if these turbidity conditions occur.

    b. Report to NMFS the number of steelhead that are handled, injured, or killed during fish salvage (amount of take). Ensure that the construction contractor immediately ceases activities and contact NMFS if more than 77 juvenile steelhead are handled, or if more than three juvenile steelhead are killed during fish salvage.

        Submit a monitoring report (with information on turbidity plumes and fish salvage) by April 15 of the year following project completion to the Snake Basin Office email: nmfswcr.srbo@noaa.gov.

2.9 Conservation Recommendations

Conservation recommendations are defined at 50 CFR 402.02, and, for this consultation, are as follows:

1. The construction contractor should contour the road-adjacent constructed streambank in a manner that conforms to natural channel processes in the project site, increases stream channel complexity, and further reduces potential for future streambank erosion.

2.10 Reinitiation of Consultation

This concludes formal consultation for the Imnamatnoon Road 568 Road Repair Project.

As 50 CFR 402.16 states, reinitiation of formal consultation is required 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 agency action is subsequently modified in a manner that causes an effect on the listed species or critical habitat that was not considered in this 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 NPCNF and descriptions of EFH for Pacific Coast salmon (PFMC 2014) contained in the fishery management plans developed by the Pacific Fishery Management Council and approved by the Secretary of Commerce.

3.1 Essential Fish Habitat Affected by the Project

The proposed action (Section 1.3) and action area (Section 2.2) for this consultation are described earlier in this Opinion. Chinook salmon EFH will be affected by the proposed action. Project-generated sediment may reasonably extend up to 1,000 feet downstream of the project site. FS Road 568 will be repaired in its existing location, which slightly constrains the floodplain of Imnamatnoon Creek.

Habitat areas of particular concern that may be adversely affected include: spawning habitat and floodplain habitat.

3.2 Adverse Effects on Essential Fish Habitat

Because the action area's designated critical habitat for steelhead is similar to EFH for Chinook salmon the effects are also the same. Effects to critical habitat were discussed in Section 2.4.2, and are incorporated as reference for the effects to EFH. To summarize the conclusions in the Opinion, the following adverse effects to EFH will occur:

1. Turbidity pulses will produce brief and temporary water quality related impacts when streamflow diversion, dewatering, and re-watering occur. Individual pulses are not expected to exceed 50 NTUs, will likely persist less than 2 hours, and affect less than 1,000 feet of stream below the project site. Negative effects of sediment deposition may occur within 600 feet below the project site and include small fines deposited in spawning gravel. Deposited sediment will likely remain at the point of deposition until it is dispersed by high flows in the winter or spring.

2. Maintaining FS Road 568 in its current location will continue to maintain reduced natural cover and floodplain connectivity in the project site. The existing roadway reduces the

amount of riparian vegetation in the project site and slightly constrains the floodplain for Imnamatnoon Creek.

3.3 Essential Fish Habitat Conservation Recommendations

1. To minimize effects to Chinook salmon EFH, the NPCNF should impose the following permitting conditions to ensure:

    a. The construction contractor's diversion structures do not emit chronic visible turbidity into Imnamatnoon Creek.

    b. The construction contractor's slow removal of stream substrate from the inlet of each overflow channel does not produce chronic bank scouring and turbidity.

    c. The construction contractor's equipment is cleaned of external oil and grease prior to arrival at the project site. The construction contractor's equipment is inspected daily for leaks and accumulation of grease, and any identified problems are corrected prior to equipment contact with water.

    d. The construction contractor slowly re-waters stream channel margins to minimize a sudden increase in turbidity.

    e. The redirection of streamflow into the overflow channels provides adequate fish passage throughout construction period.

    f. If shrub removal is required, the contractor leaves the root mass in place for soil stabilization purposes where possible and, after project construction, plant an equivalent or greater amount of native shrubs and riparian vegetation to the amount removed.

    g. The construction contractor stabilizes all disturbed areas within 12 hours of any break in work unless construction will resume within 7 days.

    h. That any terms applied to the CWA 404 permit are consistent with the project description, conservation measures, and terms and conditions in the BA and this Opinion.

2. Ongoing construction practices should be modified when observed turbidity levels approach or exceed 50 NTUs over background when measured approximately 600 feet downstream of the source. All practicable means should be used to monitor the actual turbidity plume itself rather than areas proximal to the visible plume.

3. The construction contractor should contour the road-adjacent constructed streambank in a manner that conforms to natural channel processes in the project site, increases stream channel complexity, and further reduces potential for future streambank erosion.

3.4 Statutory Response Requirement

As required by section 305(b)(4)(B) of the MSA, the NPCNF 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 timeframes 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 NPCNF 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

Section 515 of the Treasury and General Government Appropriations Act of 2001 (Public Law 106-554) (DQA) specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity.

4.1 Utility

"Utility" principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users.

This ESA consultation concludes that the proposed action will not jeopardize the affected listed species and will not destroy or adversely modify designated critical habitat for the listed species. Therefore, the NPCNF can fund and permit the proposed action. The intended users of this Opinion are the NPCNF and any of their cooperators, contractors, or permittees. A copy of this Opinion was provided to the NPCNF. This consultation will be posted on NMFS West Coast Region website (http://www.westcoast.fisheries.noaa.gov). 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/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 implementation, and reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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