UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Blvd., Suite 1100
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Refer to NMFS No.: WCRO-2019-02713

November 1, 2019

Sojonara Tipuric
Operations Engineer
Federal Highway Administration
3050 Lakeharbor Lane, Suite 126
Boise, Idaho 83703-621

Lt. Col. Christian Dietz
U.S. Army Corps of Engineers
Idaho Falls Regulatory Office
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Idaho Falls, Idaho 83402

Jim DeMaagd
Forest Supervisor
Sawtooth National Forest
370 American Avenue
Jerome, Idaho 83338

Re: Endangered Species Act Section 7(a)(2) Biological Opinion for the Elk Creek Bridge State Highway 21 Culvert Replacement Project (Key No. 20131), HUC #170602011404 – Elk Creek, Custer County, Idaho

Dear Ms. Tipuric, Lt. Col. Dietz, and Mr. DeMaagd:

Thank you for your letter dated September 18, 2019 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 Elk Creek Bridge Project. Updates to the regulations governing interagency consultation (50 CFR part 402) were effective on October 28, 2019 [84 FR 44976]. This consultation was pending at that time, and we are applying the updated regulations to the consultation. 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 and Snake River spring/summer Chinook salmon and concurs that the action will not likely adversely affect designated critical habitat for these species.

The Federal Highway Administration (FHWA) determined the proposed action would have "no effect" on Snake River sockeye salmon and their designated critical habitat. The regulations implementing section 7 of the ESA do not require NMFS to review or concur with "no effect" determination; therefore, NMFS did not include an analysis of effects to sockeye salmon 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 the FHWA, U. S. Army Corps of Engineers, Sawtooth National Forest, 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.

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination you made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. In this case, NMFS concluded the action would not adversely affect EFH. Thus, consultation under the MSA is not required for this action.

If you have questions regarding this consultation, please contact Chad Fealko, Southern Snake Branch Office, at (208) 756-5105, or chad.fealko@noaa.gov.

Sincerely,

Michael P. Tehan
Assistant Regional Administrator
Interior Columbia Basin Office

Enclosure

cc: C. Jones – ITD
K. Flannigan – SNF
R. Brochu – COE
S. Fisher – USFWS
C. Colter – SBT

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

Elk Creek Bridge State Highway 21 Culvert Replacement Project (Key No. 20131), HUC #170602011404 – Custer County, Idaho

NMFS Consultation Number: WCRO-2019-02713

Action Agencies: Federal Highway Administration, U.S. Army Corps of Engineers, Sawtooth National Forest

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 – Species; No – Critical habitat	No	No
Snake River spring/summer Chinook Salmon (*O. tshawytscha*)	Threatened	Yes – Species; No – Critical habitat	No	No

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

Issued By: Michael P. Tehan
Assistant Regional Administrator

Date: November 1, 2019

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ACRONYMS

ACRONYMN	DEFINITION
BA	Biological Assessment
BMP	Best Management Practices
CMP	Corrugated Metal Pipe
COE	U.S. Army Corps of Engineers
CPPI	Cured-in-Place Pipe
CWA	Clean Water Act
DPS	Distinct Population Segment
DQA	Data Quality Act
ECO	Environmental Consultation Organizer
eDNA	Environmental Deoxyribonucleic Acid
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FHWA	Federal Highway Administration
IDEQ	Idaho Department of Environmental Quality
ITD	Idaho Transportation Department
ITS	Incidental Take Statement
LGD	Lower Granite Dam
MPG	Major Population Groups
NMFS	National Marine Fisheries Service
NTU	Nephelometric Turbidity Units
OHWM	Ordinary High Water Mark
Opinion	Biological Opinion
PBF	Physical or Biological Feature
PCE	Primary Constituent Element
PPP	Pollution Prevention Plan
RPM	Reasonable and Prudent Measures
SH-21	State Highway 21
SNF	Sawtooth National Forest
USFWS	U.S. Fish and Wildlife Service
VSP	Viable Salmonid Population
yd^3	cubic yards

1. INTRODUCTION

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

1.1 Background

The National Marine Fisheries Service (NMFS) prepared the biological opinion (Opinion) and incidental take statement (ITS) portions of this document in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.), and implementing regulations at 50 CFR 402, as amended. We 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' Environmental Consultation Organizer (ECO) (https://eco.fisheries.noaa.gov/suite/sites/eco). A complete record of this consultation is on file at the NMFS office in Boise, Idaho.

Updates to the regulations governing interagency consultation (50 CFR part 402) were effective on October 28, 2019 [84 FR 44976]. This consultation was pending at this time, and we are applying the updated regulations to the consultation. As the preamble to the final rule adopting the regulations noted, "[t]his final rule does not lower or raise the bar on section 7 consultations, and it does not alter what is required or analyzed during a consultation. Instead, it improves clarity and consistency, streamlines consultations, and codifies existing practice." We have reviewed the information and analyses relied upon to complete this Opinion in light of the updated regulations and conclude the Opinion is fully consistent with the updated regulations.

1.2 Consultation History

The Federal Highway Administration (FHWA) proposes to fund the replacement of a failing metal culvert crossing of Elk Creek, north of Stanley, Idaho. The FHWA will provide funding to the Idaho Transportation Department (ITD) to administer the project.

The U.S. Army Corps of Engineers (COE) proposes to issue a Clean Water Act (CWA) section 404 permit for the project. Additionally, the Sawtooth National Forest (SNF) proposes to issue a special use permit under the Federal Land Policy and Management Act (43 U.S.C. 1761(a)(4)). This consultation also addresses these two related federal actions, with the FHWA as the lead federal action agency.

Between November 2018 and August 2019, NMFS discussed the proposed project with FHWA and ITD via phone calls, emails, and site visits. The ITD provided a draft biological assessment (BA) to NMFS for informal review on December 3, 2018. The ITD provided several attachments to the BA in the following few days. NMFS returned comments to ITD on December 20, 2018. A follow-up meeting occurred on February 12, 2019, and included NMFS, ITD, and the U.S. Fish and Wildlife Service (USFWS). Main discussion points were fish passage needs, project timing, action descriptions/methods, and design specifications.

A revised draft BA was submitted to NMFS on June 28, 2019. On July 26, 2019, NMFS returned comments, and suggested only minor changes were necessary. All parties met on site on August 29, 2019, and reviewed the action and implementation schedule. NMFS received the final BA and request for formal consultation on September 19, 2019. This Opinion is based on information provided in that final BA, including all provided attachments. The final BA determined that the proposed action is likely to adversely affect Snake River Basin steelhead (*Oncorhynchus mykiss*) and Snake River spring/summer Chinook salmon (*O. tshawytscha*), and is not likely to adversely affect designated critical habitat for these species.

NMFS shared draft excerpts of the opinion with the FHWA, COE, SNF, and ITD on October 22, 2019. ITD responded on October 24, 2019, identifying the omission of a temporary access road in their original BA's proposed action. Our description of the action now accurately reflects the complete proposed action. 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 Shoshone Bannock Tribes on October 22, 2019. The Shoshone Bannock Tribes 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 the funding and permitting replacement of a structurally-deficient metal culvert with a new clear-span bridge over Elk Creek. The crossing is located at milepost 123.06 on State Highway 21 (SH-21), northwest of Stanley, Idaho (Section 14; Township 11 N.; Range 12 E). The current structure is 16 feet 7 inches wide, 10 feet 1 inch tall, 92 feet long, and impairs fish passage at some flows. The new bridge will be a precast concrete stiff-leg structure that is 28 feet wide and 97 feet long. All bridge components will be located outside the ordinary high water mark (OHWM).

The proposed structure is wide enough that the contractor can expose about half the width of the existing culvert, cut it lengthwise approximately halfway up the vertical axis and again at its apex – allowing about one quarter of the existing culvert to be removed. The bottom half of the existing culvert will be retained to pass Elk Creek through the site during bridge construction, avoiding significant in-water work. Abutments and spread-footings will be buried below the channel and scour depths. Concrete wing walls on each end of the bridge will extend the total structure length to approximately 123 feet. One-lane traffic will be retained throughout bridge construction by using temporary shoring to retain the existing roadway embankment. Temporary shoring consists of an earth retention and support system installed during excavation using top-down construction techniques. Contractors will build a temporary roadway on top of geotextile-reinforced backfill to allow traffic to move around the work area in one lane while half of the new bridge is being built. Traffic control will be reset for one lane of travel over the new bridge, and the process will be repeated to replace the second half. After both halves are constructed

they will be joined with a grout closure strip. Grout may also be used for all closures on the new bridge, abutments, and wing walls.

Post-bridge construction, ITD will build a temporary access route (approximately 100 feet long) north of and parallel to SH-21. This route will allow access for dewatering, removal of the current culvert, and final channel grading. The route will be removed and the area revegetated when construction is complete. After the new bridge is constructed, the work area will be dewatered to remove the bottom half of the existing culvert, to place riprap, to restore the channel bed, and place scour protection. Dewatering is necessary to complete the instream work activities and maintain State water quality standards (e.g., turbidity/sediment). One dewatering event and one rewatering event will occur.

Elk Creek will be temporarily bypassed into a 42-inch diameter, 89-foot long culvert/pipe with temporary cofferdams consisting of non-erodible materials only (e.g., gravel bags). The 42-inch pipe is sized to accommodate all anticipated flows that must pass under the roadway (including potential storm events). This is the maximum size that will fit between the existing pipe and the new bridge abutment. The bypass pipe will be set at 0.44 percent grade and is sized to provide juvenile fish passage for flows anticipated during the proposed work period. Six-inch baffles, placed at 5-foot intervals inside the bypass pipe, will assist with upstream juvenile fish passage. The bypass outlet will be located to facilitate safe reentry of fish into the stream channel. A maximum of 145 feet of Elk Creek (inclusive of the 92-foot long existing culvert) will be dewatered. Channel width is expected to be approximately 20 feet during the proposed instream work period (August 1 through September 12 – 42 days).

While dewatered, contractors will over-excavate and then install a minimum of 2.7-foot deep layer of riprap scour protection (median diameter of 1-foot) followed by a 2-foot thick layer of natural streambed material specifically designed to match natural channel substrate size. Both layers will include a low flow channel. Final streambed grade will be 0.5 percent, matching upstream (0.57 percent) and downstream (0.54 percent) gradient. Riprap depth was designed to accommodate the scour depth of a 100-year flow event and to protect the abutments during a 500-year flood event. Additional riprap will be placed on the slopes along the wing wall bases – this will be the only exposed riprap above the OHWM. In total, approximately 375 cubic yards (yd^3) of riprap will be installed[1]. During construction, approximately 30 yd^3 of sacked riprap[2] will be removed, including approximately 15 yd^3 below the OHWM.

A concrete waterproofing system will be placed on the new bridge after its completion. Specific details on each of two potential systems are described in the final BA. After bridge construction, approximately 500 feet of road on each side will be reconstructed to existing roadway dimensions (24 feet wide with 2-foot wide shoulders).

An existing 6-foot, 6-inch by 5-foot, 4-inch plate culvert exists 80 feet north of the Elk Creek crossing. Flood analyses suggest this culvert is not active at 500-year discharge levels. While equipment is on-site, this culvert will be extended approximately 15 feet on each end of the

[1] Quantity of riprap is greater than 200 yd^3 and is the only reason the proposed action did not fit under the existing ITD programmatic ESA consultation.
[2] Concrete originally placed in burlap bags, stacked, and allowed to cure in place as long-term erosion protection.

current road prism to accommodate the regraded roadway slopes. Culvert extensions will be installed by equipment staged on the roadway and work will be completed entirely in-the-dry.

A third culvert (36-inch corrugated metal pipe [CMP]) exists about 120 feet southeast of the Elk Creek crossing being replaced. This crossing does provide overflow capacity for the existing undersized crossing. After bridge construction is complete this CMP will also be extended approximately 15 feet on each end to accommodate roadway changes and then slip-lined with cured-in-place pipe (CIPP)[3]. This work will be completed by equipment working from the road surface. Dewatering is not necessary at this culvert given fall flow levels, although pumps may be used to remove groundwater.

Upon completion of the culvert extensions and CIPP repair activities, all access areas to the site will be restored to the approximate original condition. All imported materials not part of the permanent installation shall be removed to an approved waste site off the SNF. Following the slip-lining/CIPP activities, approximately 10 yd^3 of riprap may be placed at the pipe's outlet to prevent erosion. Riprap will be arranged to conform to the existing overflow channel and to match the surrounding ground grade.

Except for continued ITD-directed maintenance of SH-21, no other State or private actions are known to be planned or proposed within the action area and there are no known interrelated or interdependent actions.

1.3.1 Conservation Measures

The FHWA proposes the following conservation measures to minimize the impacts of bridge construction and other proposed activities on ESA-listed fish and their habitat:

Table 1. Conservation Measures.

Category	Specific Measures
Sediment and storm water control	• The contractor will develop and implement an ITD-approved pollution prevention plan (PPP). • The PPP shall outline all best management practices (BMPs) to prevent erosion and sedimentation from all project sites (e.g., fiber wattles and silt fence). A supply of emergency erosion control materials will be on-hand. • All erosion controls will be inspected daily during rainy periods, and weekly during the dry season to ensure they are working correctly. Crews will address ineffective controls immediately. Sediment must be removed from erosion controls once reaching one-third of the exposed height of the control. • No machinery will enter the active waterway at any time. • The ITD will approve site-use plans for all off-site areas (e.g., staging, material sources, waste sites, etc.). Site-use plans will include type of activity, equipment used, and specification for all necessary sediment and erosion control BMPs. • All off-site areas will be located in uplands, more than 150 feet from waterbodies/wetlands.

[3] The CIPP is a trenchless process used to reinforce and extend the service life of existing drainage features. A thin epoxy soaked liner is pulled into position, set against the existing pipe with air pressure, and then cured-in-place with exposure to ultraviolet light.

Category	Specific Measures
	• All excess material from disturbed sites will be removed and disposed according to state and federal regulations. • Riprap will be free of clay or silt prior to placement. • When tree and/or shrub removal is required, root mass will be left in place for stabilization purposes. • Exposed soils will be seeded and/or planted with native vegetation and covered with appropriate mulch after construction is complete.
Equipment spill and leak prevention	• The contractor's PPP shall include, at a minimum, the following: o A prohibition on intentional discharge of petroleum products and hazardous material to any type to waterway. o All fueling and hydraulic or radiator fluid transfer/storage shall take place 150 feet from the river/stream channel, drop inlets or other surface waters/wetlands. If this is not possible due to topographic, construction, or other constraints, then the contractor shall ensure that BMPs and secondary containments are in place to capture 125% of stored fuel or other liquid chemicals/materials transferred. o Equipment, machinery, and chemical (including grout) staging will occur in designated areas at least 150 feet from any drop inlet, water body, or wetland, and located to minimize the possibility of chemicals from reaching waterbodies or drainage systems. o Oil-absorbing floating booms, and other equipment such as absorption pads appropriate for the volume of chemicals present and stream hydraulics, shall be available onsite during all phases of construction. Booms/pads shall be placed to facilitate an immediate response to potential leaks, spills, or other unwanted chemical discharges. o Reporting and remediation guidelines required by the Idaho Department of Environmental Quality (IDEQ) and Environmental Protection Agency shall be followed. Any spills reported to any of these agencies must also be reported to NMFS/USFWS. o Petroleum products will be used, stored, generated, and maintained following all manufacturers' recommendations. o If stored fuel will exceed 660 gallons in a single unit, or 1,320 gallons for all combined units, the engineer of record shall review and approve a written Hazardous Materials and Spill Prevention Control and Containment Plan. o All equipment shall be steam cleaned of external oil, grease, dirt, and mud prior to arrival onsite. Equipment shall be free of damaged hoses, fittings, lines or tanks. All equipment maintenance shall be done where hazardous materials cannot enter waterbodies or soils. o All equipment shall have spill containment kits available and sized to contain 125% of the volume of fuel or petroleum product present. o Only necessary quantities of grout, mortars, or bonding agents will be mixed and mixing location and practices shall be located at least 150 feet of any area susceptible to storm water or surface water movement. Grout washout will occur in designated areas appropriate for the amount of material and washout areas will be reclaimed. • Hydraulic fluids in machinery used for instream work will be nontoxic, eco-friendly fluids (e.g., vegetable oil).
Concrete Waterproofing	• Sealing penetrant will be applied according to manufacturer's recommendation and during appropriate environmental conditions (e.g., weather, temperature, precipitation, etc.). • Spray will only be applied when winds are less than 15 miles per hour and temperatures are between 40 and 100° Fahrenheit. • Any deck drains will be plugged to prevent material from leaving work area. • Bridge rehabilitation activities will not occur during wet weather.

Category	Specific Measures
	• All work will be completed from the existing bridge. • Appropriate BMPs will be used to prevent debris from falling into the river channel (e.g., suspended tarps, vacuums, temporary platform, etc.) • The PPP will include measures to minimize potential introduction of hazardous material to aquatic system.
In-stream work	• A qualified fish biologist will survey the action area for salmonid redds prior to initiating instream work. NMFS will be notified immediately in the event any redds are identified. • The contractor will divert the stream into a temporary bypass pipe during final stream channel construction. • In-stream work will occur between August 1 to September 12 – overlapping with seasonal low flows, in order to reduce disturbance and control erosion. • Only one dewatering/rewatering event will occur on Elk Creek. • The bypass pipe will be sized appropriately to handle estimated stream flows through the full length of the proposed in-water work window (42-inch diameter), and will provide passage for juvenile salmonids. • The pipe will be placed between the existing culvert and the new abutment, allowing stream channel reconstruction to occur adjacent to the pipe. • Any groundwater required to be removed from the work area during construction will be pumped to temporary storage locations and cleaned to meet IDEQ water quality standards prior to release. • Dewatering will be done slowly to prevent lost surface water connection. • The new channel will be pre-washed prior to full activation and then rewatered slowly to minimize turbidity. • Water pumps will have screens meeting NMFS criteria (NMFS 2011). • Equipment will be cleaned prior to use in the area to prevent spread of aquatic invasive organisms. • Work will occur daily between 7:00 AM and 8:00 PM. • An approved monitor will conduct ITD-approved turbidity and pH monitoring (visual and metered) during instream work. The monitoring plan will comply with CWA 404 certification and IDEQ water quality standards, including "Turbidity shall not exceed background turbidity by more than 50 nephelometric turbidity units (NTUs) instantaneously (at any point in time) or 25 NTUs over 10 consecutive days (IDAPA 58.01.02.250.02.e)." • Construction will cease if any water quality standards are exceeded. Work will not resume until levels drop below 25 NTUs over background, and corrective actions are taken. • pH must remain between 6.5 and 9.0 (IDAPA 58.01.02.250.01.a).
Fish salvage	• After installing cofferdams, but before fully dewatering worksite, an ITD-approved fish biologist will determine how to remove ESA-listed fish with least harm to the fish. Either passive movement of fish out of the project reach through slow dewatering, or active fish removal may occur. Should active removal be warranted, the biologist will remove fish using seining, dipping, or electrofishing – depending on site conditions. Fish salvage will follow NMFS approved protocols (NMFS 2000).

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

2.1 Rangewide Status of the Species

The status of Snake River Basin steelhead and Snake River spring/summer Chinook salmon (Chinook hereafter) is determined by the level of extinction risk the listed species face, 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 species status section also helps inform the description of the species' current "reproduction, numbers, or distribution" as described in 59 CFR 402.02.

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 basin. The Snake River spring/summer Chinook evolutionarily significant unit (ESU) consists of 28 extant individual populations, three functionally extirpated populations, and one extirpated population. Having multiple viable populations makes a DPS less likely to become extinct from a single catastrophic event (ICBTRT 2007). 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 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/ESU.

Table 2 summarizes the status and available information on the Snake River Basin steelhead DPS and Chinook salmon ESU. The summaries are 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, most individual populations are not meeting recovery plan abundance and productivity targets and both species remain threatened with extinction.

The proposed action will occur in the Elk Creek watershed, a tributary to Valley Creek. For steelhead, the Upper Mainstem Salmon River steelhead population, within the Salmon River Major Population Group (MPG), occupies this area.

Historical estimates of steelhead production for the entire Snake River basin are not available, but the basin is believed to have supported more than half the total steelhead production from the Columbia River basin (Mallet 1974, as cited in Good et al. 2005). The Clearwater River drainage alone may have historically produced 40,000 to 60,000 adults (Ecovista et al. 2003), and historical harvest data suggests that steelhead production in the Salmon River was likely higher than in the Clearwater (Hauck 1953). In contrast, at the time of listing in 1997, the 5-year geomean abundance for natural-origin steelhead passing Lower Granite Dam, which includes all

but one population in the DPS, was 11,462 adults (Ford 2011). Abundance began to increase in the early 2000s, with the single year count and the 5-year geomean both peaking in 2015 at 45,789 and 34,179, respectively (ODFW & WDFW 2019). Since 2015, the numbers have declined steadily with only 10,717 natural-origin adult returns counted in 2018 (ODFW & WDFW 2019). Even with the recent decline, the 5-year geomean abundance for natural-origin adult returns was 23,100 in 2018 (ODFW & WDFW 2019) which is more than twice the number at listing and substantially greater than the 5-year geomean of 18,847 tabulated in the most recent status review (i.e., Ford 2011). The 2019 return remains low, with just 9,174 unclipped fish crossing Lower Granite Damn (LGD) as of October 16, 2019, about 29 percent of the 10-year average for the date (FPC 2019).

Current abundance/productivity estimates for the Upper Mainstem Salmon River population suggest it likely meets thresholds for maintained status, but available data is an extrapolation from adult/juvenile interrogations at LGD and is not population specific. This highlights the potential uncertainty in the current status rating (NWFSC 2015; NMFS 2017). Estimated Upper Salmon wild steelhead returns to LGD mirror the DPS scale returns discussed above – dropping from 2,132 in 2014-2015 (Stark et al. 2017) to 1,278 in 2015–2016 (Stark et al. 2018).

For Chinook salmon, the action occurs in and affects the Valley Creek population of the Upper Salmon River MPG. Current abundance/productivity estimates for the Valley Creek population suggest it is at high risk for spatial structure diversity and abundance and productivity – resulting in a high risk of extinction (NMFS 2017; NWFSC 2015). Since the last status review in 2015, observations of coastal ocean conditions suggest the 2015–2017 outmigrant year classes experienced below average ocean survival during a marine heatwave and its lingering effect, which led researchers to predict a corresponding drop in adult returns through 2019 (Werner et al. 2017). The negative impacts on juvenile salmonids associated with the marine heatwave had subsided by spring 2018, but other aspects of the ecosystem (e.g., temperatures below the 25 meter surface layer) had not returned to normal (Harvey et al. 2019). Recent adult counts at LGD reflect projections of poor marine survival. Adult spring/summer Chinook returns to LGD in 2017-2019 were just 22 percent to 32 percent of the 5-year geomean adult return for the 2009–2013 period, which was already very low compared to historical returns. At the time of the last 5-year status review (2015) natural spawner abundance in Valley Creek was just 121 adults, an improvement from prior status reviews but still far below the 500 adult minimum abundance threshold (NWFSC 2015). The geomean abundance for 2016–2018 is approximately 90 spawners (unpublished data obtained from: https://idfg.idaho.gov/data) suggesting that this population is currently declining.

Table 2. 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 MPGs. Currently, five populations are tentatively rated at high risk of extinction, 17 populations are rated as maintained (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).	• 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 freshwater habitat. • Harvest-related effects, particularly for B-run steelhead • Predation in the migration corridor.
Snake River spring/summer Chinook salmon	Threatened 6/28/05	This ESU comprises 28 extant and four extirpated populations, organized into five MPGs, none of which are meeting the viability goals laid out in the recovery plan (NMFS 2017). All except one extant population (Chamberlin Creek) are at high risk of extinction (NWFSC 2015). Most populations will need increased abundance and productivity for the ESU to recover. Several populations have a high proportion of hatchery-origin spawners—particularly in the Grande Ronde, Lower Snake, and South Fork Salmon MPGs—diversity risk will also need to be lowered in multiple populations for the ESU to recover (ICBTRT 2007; ICBTRT 2010; NWFSC 2015).	• Adverse effects related to the mainstem Columbia and Snake River hydropower system and modifications to the species' migration corridor. • Degraded freshwater habitat, including altered streamflows and degraded water quality. • Harvest-related effects • Predation in the migration corridor. • Potential effects from high proportion of hatchery fish on natural spawning grounds.

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 its 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 and Chinook salmon 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 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 warmer future conditions.

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 is Elk Creek, including 200 feet upstream of the bridge site (for noise and dewatering) and extends downstream approximately 1,000 feet for turbidity impacts. All access routes, staging areas, 1,000 feet of SH-21, and the adjacent right-of-way are also included in the action area.

2.3 Environmental Baseline

The environmental baseline is defined at 50 CFR 402.02.

There has been extensive land disturbance in the action area associated with the existing bridge and its abutments and development on either side of the stream (i.e., SH-21, SNF's Elk Creek Campground, and bank riprap), the action area also burned in the 2016 Dry Creek Fire. The existing SH-21 crossing of Elk Creek appears to be a barrier to fish passage at some flows (SNF 2017). Upstream land uses currently include minor timber harvesting, firewood cutting, dispersed recreation (hiking, biking, camping, hunting, etc.). Historically, mining, grazing, and irrigation withdrawal likely affected action area conditions. Although presently in a SNF-managed allotment, grazing last occurred in 1992 and any livestock impacts in the action area predate contemporary management. In 2009, the SNF removed the Elk Creek 2 Diversion, located almost two miles upstream of the SH-21 crossing. This eliminated the only definitive seasonal barrier in Elk Creek and added approximately 1.6 cubic feet per second of water to summer flows. The Elk Creek 1 Diversion is approximately 700 feet downstream of the action area (~1,730 feet downstream of the bridge). Prior to removal of the upstream diversion, Elk

Creek 2 encumbered upstream migration due to low flows (SNF 2017). Its current status as a fish barrier is not definitively known. Historical and current activities, both within the action area and upstream from it, have caused the following impacts to stream habitat in the action area (SNF 2017):

- Water temperatures increase substantially from headwater reaches moving toward the mouth. Near the mouth, daily maximum temperatures can reach 68°F. Extensive open meadow systems are present throughout the drainage and likely influence observed conditions. However, historic impacts from past grazing (widened channels, reduced riparian vegetation) along with more recent wildfire impacts may still exacerbate natural conditions. Impacts of water withdrawal occur downstream but likely affect fish distribution in the action area.

- The action area has recovering riparian vegetation. Although most vegetation was consumed in the 2016 Dry Creek Fire, and most overstory trees were killed and are now falling into the channel, willows and other riparian shrubs and forbs appear to be recovering and streambanks are well vegetated and stable.

- Floodplain connectivity upstream of the bridge is high, with recent tree recruitment creating multi-thread channels and backwaters. SH-21 and the existing undersized crossing back up floodwaters, reducing connectivity. Rock riprap was placed downstream of the current crossing when it was built and prevents lateral migration of the channel and complete floodplain connection. Riprap contributes to the single thread nature immediately below the crossing and likely simplifies habitat.

- Substantial quantities of large wood are present in the channel above and below the SH-21 crossing, mostly resulting from post-fire recruitment.

- Surface fine sediment levels in the action area are generally near 12 percent and likely functioning appropriately. Upstream sediment levels, in historically grazed meadows, remain elevated.

Although most of Elk Creek's habitat is functioning appropriately or improving from historic impacts, anadromous fish occupancy of Elk Creek remains low. In addition to low abundance ESU/DPS-wide, fish passage at the SH-21 crossing and potentially the downstream Elk Creek 1 Diversion, along with high summer water temperatures near the mouth may still restrict routine occupancy of the watershed. Chinook salmon spawning in Elk Creek was last documented in 2001. Electrofishing surveys in 2007 only observed non-native brook trout (*Salvelinus fontinalis*). Surveys in 2014 located a single juvenile Chinook salmon, approximately 1-mile upstream of the SH-21 crossing. Juvenile steelhead were observed in 2001 and 2014 surveys below the meadows and likely occupy the watershed. Environmental deoxyribonucleic acid (eDNA) sampling in August 2015 identified Chinook salmon as present upstream of SH-21. Steelhead were not part of the 2015 eDNA assay. Based on available information, juvenile anadromous fish may be present in the action area, but likely at low densities. Spawning Chinook salmon are likely absent and steelhead spawning is unknown.

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 August 1 and September 12. Juvenile steelhead and Chinook may be present, but as described above, at low densities. Adult Chinook salmon are not expected to be present given their absence since 2001 and continued low adult returns. Although Chinook redds are also unexpected, proposed pre-project redd surveys will identify any redds that may occur and FHWA is required to contact NMFS immediately to determine if or how the project will proceed. The recent absence of redds combined with the redd survey are expected to avoid impacts to adult Chinook salmon. Adult steelhead spawn in the spring, with juveniles emerging in mid-summer, resulting in avoidance of these life stages.

Beneficial effects to species may include improved fish passage. Juvenile steelhead and Chinook 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;
- Exposure to construction noise;
- Exposure to chemical contamination; and
- Exposure to increased sediment deposition.

The likelihood of exposure and the magnitude of response to these effects of the action are discussed below. The bridge structure itself is not expected to affect fish because the abutments are located outside of the OHWM, will allow for natural river processes by not constraining the floodplain, and it will improve fish passage.

2.4.1.1 Fish Salvage

Diverting the stream into a pipe during construction is likely to require fish salvage from the work area. The goal of the fish handling conservation measures is to capture fish using non-lethal methods, and then release or relocate them downstream with minimal handling. Following the conservation measures (see Table 1) will minimize the risk of injury and mortality to 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 could end up stranded.

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.

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

- The existing culvert is 92 feet long and about 16 feet wide and contains essentially no substrate. Juvenile fish are assumed to not occupy the area within the culvert itself due to swift water and a lack of habitat.

- Excluding the 92-foot long culvert, the dewatered channel length will be approximately 53 feet long. At about 20 feet in width, the dewatered area capable of supporting fish is approximately 1,060 square feet of Elk Creek.

- Based on Hall-Griswold and Petrosky (1996) estimated juvenile fish densities for "fair" habitat conditions, we assume one juvenile steelhead and four juvenile Chinook salmon per 100 square feet. This suggests that approximately 11 (10.6) juvenile steelhead and up to 42 (42.4) juvenile Chinook could be present in the dewatered area.

- Fifty percent of fish present will likely volitionally leave dewatered areas as streamflow is cut off and avoid capture and 50 percent (five steelhead and 21 Chinook salmon) may be salvaged, handled, injured, killed, and/or stranded.

These estimates are likely overestimates because: (1) Population abundance is extremely low across their range; (2) recent Elk Creek sampling has observed few individuals; and (3) the action area is high elevation and juvenile parr may start downstream migrations in late summer and fall (Healey 1991). Exposed fish will generally be parr. There is substantial variability in survival from parr-to-smolt life stages across the range of the species and among populations and years. For example, Achord et al (2007) reported survival of juvenile wild Chinook salmon parr-to-smolt (measured from natal tributary to LGD) from 1991 to 2003 averaged 16 percent (range 8 to 25 percent). We assumed steelhead parr-to-smolt survival would be similar, but this likely overestimates survival since juvenile steelhead may rear in natal streams several years longer than Chinook salmon. Applying the 16 percent average parr-to-smolt survival rate to the expected number of fish salvaged, handled, injured, and/or stranded results in an estimate of up to one fewer steelhead and 3.36 fewer Chinook salmon smolts as a result of fish salvage activities.

Given mean smolt-to-adult return rates of 1.6 percent from 1997–2012 (Comparative Survival Study Oversight Committee and Fish Passage Center 2015), projected injury or loss at the project scale would mean a one-time loss of less than one adult equivalent steelhead or Chinook salmon 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 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 NTU (Lloyd 1987; Servizi and Martens 1992; Berg and Northcote 1985).

The proposed action incorporates multiple conservation measures aimed at preventing sediment from entering Elk Creek during construction, and thus minimizing potential increases in turbidity. Despite implementation of conservation measures, turbidity plumes extending downstream from the construction site are likely when the diversion barriers are set in place to dewater the work area and they are removed and the reconstructed channel crossing is rewatered.

The FHWA's final BA presented monitoring data from similar projects, that applied design criteria and monitoring plans similar to the proposed action. That data suggest typical turbidity pulses will last less than 10 minutes, reach approximately 20 NTUs above background, and affect less than 150 feet of stream downstream of the construction area. Sediment could potentially be visible up to 1,000 feet downstream.

Exposure to this intensity of turbidity for this amount of time would not 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). Monitoring is designed to ensure turbidity does not exceed 50 NTU over background and the action contains triggers to reevaluate work and address construction practices if turbidity is observed to be rising toward the limit. For this reason we expect turbidity will not exceed state standards of 50 NTU instantaneous over background levels and that visible turbidity will not extend more than 1,000 feet downstream. Juvenile steelhead and Chinook salmon will likely respond to such short-term and low intensity turbidity plumes by trying to avoid the plume and temporarily seeking refuge nearby. Juvenile fish that do not avoid the plume will be exposed to such low levels of turbidity for such a brief period of time that effects will be very minor and unlikely to rise to the level of harm or harassment.

2.4.1.3 Noise and Disturbance

Construction noise or visual stimulus may disturb nearby juvenile steelhead and Chinook salmon and cause them to move away from the worksite. 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 worksite site is relatively uniform, we expect that if fish are displaced temporarily into nearby areas. Such displacement is a minor behavioral modification and unlikely to cause biologically

meaningful effects. Noise from construction equipment will not rise to the decibel level known to physically harm fish (FHWA 2008; Wysocki et al. 2007).

2.4.1.4 Chemical Contamination

Use of construction equipment and heavy machinery adjacent to stream channels poses the risk of an accidental spill 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 or oil leakage into the stream (see Table 1). Based on the past success of these types of conservation measures in other projects, negative impacts to ESA-listed fish from fuel spills or leaks are unlikely.

Use of precast concrete for the new structure results in only the grout strip closure between the two bridge halves and potential grout use on wingwalls presenting any potential for pH impacts. Proposed conservation measures (see Table 1) ensure grout will be contained and not enter Elk Creek or groundwater. Proposed pH monitoring is expected to validate containment and trigger work stoppage prior to experiencing harmful pH levels.

Small amounts of chemicals from future vehicle use could also enter the water if they leak onto the bridge road surface and then are delivered to the stream by run-off from storms. However, stormwater drainage will direct flow off the bridge such that run-off will be filtered by riparian vegetation before entering the stream.

2.4.1.5 Sediment Deposition

Turbidity plumes from construction work will deposit a small amount of sediment in Elk Creek downstream from the worksite. Effects to individual fish could include reduction of available cover for juveniles or changes to primary and secondary productivity, affecting food supply for the fish. As described above in the Turbidity section, only small amounts of sediment are expected to be mobilized, thus there will only be a small amount of sediment available for deposition. Because of the expected effectiveness of the proposed sediment control BMPs, NMFS does not expect that enough sediment deposition will take place to alter salmonid use of the habitat. Additionally, it is unlikely that primary or secondary production will be greatly affected. Habitat quality will likely recover as fine sediments are flushed downstream during the next season's high flows.

2.5 Cumulative Effects

"Cumulative effects" is defined at 50 CFR 402.02 and 402.17(a).

All of the action area is on lands managed by the SNF. The ITD manages SH-21, which passes through the action area. Current ITD maintenance of the route (e.g., snow removal, right-of-way clearing, line painting, surface maintenance, etc.) is expected to continue consistent with current

practices. Any effects from future road maintenance will be similar to effects that have generated the environmental baseline.

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 (Section 2.1). This allows us to formulate the agency's Opinion as to whether the proposed action is likely to reduce appreciably, the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution.

Species. Although Snake River Basin steelhead and Snake River spring/summer Chinook salmon abundance has increased since the time of listing, increases are minor and most individual populations are not meeting recovery plan abundance and productivity targets, and the species remain threatened with extinction. Current abundance/productivity estimates for the Upper Mainstem Salmon River steelhead population exceed minimum thresholds for low risk status, but the population is assigned moderate risk for abundance/productivity due to high uncertainty (NWFSC 2015). The Valley Creek Chinook salmon population remains at high risk of extinction for low abundance/productivity and spatial structure risks (NWFSC 2015). Climate factors will likely make it more challenging to increase abundance and recover both species (NMFS 2017). Recent poor adult returns at the MPG and individual population levels, which are likely tied to ocean conditions (Werner 2017; Harvey et al. 2019), demonstrate this challenge. Stream habitat in the action area is generally good, with water temperature, floodplain impacts, and passage barriers being slightly impaired. These factors are also identified as limiting factors at the population scale (i.e., Upper Mainstem Salmon steelhead and Valley Creek Chinook salmon) (NMFS 2017).

Juvenile steelhead in the action area could potentially experience adverse effects associated with noise, turbidity/sediment, and chemicals; however, these effects are expected to be minor to none because of the proposed conservation measures' effectiveness and the ability of fish to move out of the action area during construction. The following adverse effects are expected:

- Up to 11 juvenile steelhead 42 juvenile Chinook salmon could be disturbed during dewatering activities; and

- Up to five juvenile steelhead and 21 Chinook salmon may be salvaged, handled, injured, killed, and/or stranded during dewatering activities.

Given the applied life-stage survival rates (discussed in Section 2.4.1.1), assuming captured, salvaged, handled, injured, and/or stranded individuals eventually die from the action; the Upper Mainstem Salmon steelhead population and Valley Creek Chinook salmon population losses would translate to a one-time impact of less than one adult equivalent returning to spawn. Additionally, replacement of the undersized crossing is expected to allow more juvenile and adults from each population to migrate upstream. This will benefit all year-classes for the anticipated 75-year lifespan of the structure. Whether increased passage translates to improved

survival is unknown, but barrier removal is called for in existing recovery plans for both populations (NMFS 2017).

The described small effects would not likely reduce the abundance and productivity of the affected populations. Because we do not anticipate a change in the viability of the Upper Mainstem Salmon steelhead or Valley Creek Chinook salmon populations, the proposed action will not likely reduce the survival of the DPS/ESU or negatively affect the species' probability of recovery.

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 Snake River spring/summer Chinook salmon.

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 five juvenile steelhead and 21 juvenile Chinook salmon may be salvaged, handled, injured, killed, and/or stranded during dewatering activities. The amount of take will be exceeded if more than five juvenile steelhead or 21 juvenile Chinook salmon are injured or killed during fish salvage.

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 to 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 FHWA, COE, and SNF 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 extent of take was not exceeded.

2.8.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and the FHWA, SNF, or COE must comply with them in order to implement the reasonable and prudent measures (RPMs) (50 CFR 402.14). The FHWA, COE, and SNF 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. To implement RPM 1 (minimize take from construction activities), the FHWA, COE, and SNF shall ensure the following by imposing funding or permitting conditions:
    a. For the FHWA, ensure site dewatering and rewatering worksite is done in a slow and controlled fashion to maximize volitional fish movement out of the area prior to salvage.

    b. For the FHWA, ensure final fish salvage is completed with electrofishing gear to reduce potential for juvenile fish to be stranded and killed in stream substrates.

        i. Ensure all electrofishing complies with NMFS guidelines (2000).

    c. For the COE, ensure 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.

    d. For the SNF, ensure that any terms of the special use permit issued under the Federal Land Policy and Management Act are consistent with the project description, conservation measures, and terms and conditions in the BA and this Opinion.

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

    a. Report to NMFS the number of steelhead and Chinook salmon that are handled, injured, or killed during fish salvage (amount of take). Ensure that ITD directs the construction contractor to immediately cease activities and contact NMFS if more than five juvenile steelhead or 21 juvenile Chinook salmon are handled 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: Snake River 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 FHWA should require ITD to plant willow clumps or other native shrubs in areas covered by riprap (i.e., along wing walls) where feasible, to accelerate development of vegetation within the riprap.

2. The SNF should utilize their authorities to evaluate the effects of the Elk Creek 1 irrigation diversion on fish passage and fish growth/survival. Following collection of this information, the SNF should ensure the diversion's future use avoids or minimizes potential adverse effects to ESA-listed fish.

2.10 Reinitiation of Consultation

This concludes formal consultation for the Elk Creek Bridge Replacement.

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.

2.11 "Not Likely to Adversely Affect" Determinations

The previous discussion focused on the action's adverse effects to steelhead and Chinook salmon. The FHWA determined the proposed action may affect, but will not likely adversely affect designated critical habitat for Snake River spring/summer Chinook salmon (October 25, 1999; 64 FR 57399) and critical habitat for Snake River Basin steelhead (September 02, 2005: 70 FR 52630).

The critical habitat designations for Chinook salmon and steelhead use the term primary constituent element (PCE) or essential features. Revised critical habitat regulations (81 FR 7414) replace these terms with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a ''destruction or adverse modification'' analysis. In this section, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

Implementation of the proposed action is likely to affect freshwater spawning, rearing, and migration habitat for each species. The PBFs that could be affected by the proposed action are water quality, spawning substrate, floodplain connectivity, free passage, and natural cover.

Water quality. The proposed action could negatively affect water quality through chemical contamination or short-term increases in turbidity. As described above in Section 2.4.1.4, we expect the proposed conservation measures will prevent leaks or spills from machinery from entering Elk Creek and that filtration by riparian vegetation will prevent chemicals from vehicle use of the bridge from entering the stream. As discussed above in Section 2.4.1.2, we expect increases in turbidity upon rewatering and dewatering the construction site to last approximately 10 minutes, reach approximately 20 NTUs above background and affect less than 150 feet of stream downstream of the construction area. Sediment could potentially be visible up to 1,000 feet downstream. Low levels of turbidity are expected given past experience with similar conservation measures and our expectation for strict compliance with the proposed monitoring plan. Anticipated turbidity increases are minor, temporary, and will affect a small amount of habitat. For these reasons, effects of the action on this PBF will be insignificant.

Substrate. Turbidity plumes from construction work will deposit a small amount of sediment in Elk Creek, primarily related to the one-time dewatering/rewatering event at the bridge site, see Section 2.4.1.5. Because of the expected effectiveness of the proposed sediment control BMPs, and strict compliance with proposed monitoring plan, NMFS does not expect that enough sediment deposition will take place to alter salmonid use of the habitat. Small amounts of deposited sediment will be flushed downstream during high flows after project completion. Collectively, the minor amount of sediment delivered to the channel, small amount of habitat affected, and one-time temporary nature of the effect result in insignificant effects to this PBF.

Floodplain Connectivity. Increasing the SH-21 crossing's span and increasing accessibility to and extending the lifespan of the two existing floodplain drainage culverts will improve floodplain connectivity. Flow modeling presented in the BA demonstrated the SH-21 crossing will back up less water during runoff compared to existing conditions. The action will permanently fill 1,100 square feet (0.025 acres) of wetland. The small size of wetland loss and the improved floodplain connectivity are expected to be too minor to influence this PBF. For this reason effects are insignificant to this PBF.

Free Passage. Replacing the SH-21 culvert crossing with a bridge will simulate natural channel conditions. Installing a structure that will maintain natural substrate through the crossing and be wider than Elk Creek's natural bankfull width, particularly at the proposed 0.5 percent gradient, will restore fish passage year-round. Restoration of passage is a target in existing recovery plans (NMFS 2017). During construction, Elk Creek will be diverted into a temporary bypass pipe for up to 42 days. The bypass was sized to accommodate the typical discharge for the work period and any added flow from a typical storm event for that time period. Hydrologic modeling subsequently validated the design will provide safe upstream/downstream fish passage, consistent with NMFS' criteria (2011). Effects to this PBF will be insignificant during construction and beneficial in the long-term.

Natural Cover. Replacing the current culvert with a free-span bridge will result in approximately 92 feet of additional useable habitat. The culvert currently does not retain substrate and is unusable habitat. The new crossing will include a 2-foot deep layer of native substrate – increasing the quantity of fish habitat at the site scale. No riparian vegetation will be permanently removed and any cleared vegetation will have all root systems left intact.

Vegetation will return to pre-action conditions within one growing season. Installation of riprap along the proposed bridge's wing walls will only affect cover when Elk Creek is above the OHWM. By definition, this occurs infrequently and for brief time periods. The minor riprap footprint and episodic impact result in insignificant effects to cover. Additionally, because the existing streambank adjacent to the crossing is hardened with sacked riprap, the area is constrained with no mature vegetation (or prospect for mature vegetation to develop in the future) – installing new riprap of similar extent will have insignificant effects on this PBF.

3. 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.

3.1 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 that we concur that it is not likely to adversely affect designated critical habitat for the listed species. Therefore, FHWA, COE, and the SNF can fund and permit the proposed action. The intended users of this Opinion are FHWA, COE, SNF, and any of their cooperators, contractors, or permittees. We provided copies of this Opinion to each action agency. This consultation will be posted on the ECO website (https://eco.fisheries.noaa.gov/suite/sites/eco). 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/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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