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.: WCRO-2019-00711

November 25, 2019

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 and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Doumecq Bridge Pier Repair Project, Salmon River, HUC 170602090504, Idaho County, Idaho

Dear Lt. Col. Dietz:

Thank you for your letter dated June 4, 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 Doumecq Bridge Pier Repair Project. This consultation was conducted in accordance with the 2019 revised regulations that implement section 7 of the ESA (50 CFR 402, 84 FR 45016).

Thank you also for the subsequent information modifying the proposed timing of the project, extending the work window to January 15th (email from Megan Biljan of your staff to NMFS, October 29, 2019). 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, Snake River spring/summer Chinook salmon, and Snake River fall Chinook salmon, or result in the destruction or adverse modification of designated critical habitat for these species. NMFS also concludes that the action is "Not Likely to Adversely Affect" (NLAA) Snake River sockeye salmon or their critical habitat (see Section 2.12).

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 U.S Army Corps of Engineers (COE) 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 two 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 Mr. Bob Ries, Northern Snake Branch Office, at (208) 882-6148, or bob.ries@noaa.gov.

Sincerely,

Michael P. Tehan
Assistant Regional Administrator
Interior Columbia Basin Office

Enclosure

cc: M. Biljan – COE
S. Sweeney – USFWS
M. Lopez – NPT

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

Doumecq Bridge Pier Repair Project
Salmon River, HUC 170602090504, Idaho County, Idaho

NMFS Consultation Number: **WCRO-2019-00711**

Action Agencies: 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
Snake River sockeye salmon (O. nerka)	Endangered	No	No	No
Snake River spring/summer Chinook salmon (*O. tshawytscha*)	Threatened	Yes	No	No
Snake River fall Chinook salmon (*O. tshawytscha*)	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 25, 2019

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ACRONYM	DEFINITION
BE	Biological Evaluation
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
ESU	Evolutionarily Significant Unit
HAPC	Habitat Areas of Particular Concern
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
ITS	Incidental Take Statement
MPG	Major Population Groups
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
NLAA	Not Likely to Adversely Affect
NPT	Nez Perce Tribe
NTU	Nephelometric Turbidity Unit
Opinion	Biological Opinion
PBF	Physical and Biological Features
PCE	Primary Constituent Element
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, as amended.

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

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

1.2 Consultation History

On March 14, 2019, an in-person coordination meeting was held between the U.S Army Corps of Engineers (COE) and NMFS to discuss repairs to the piers at the Doumecq Bridge on the Salmon River, near Whitebird, Idaho. After considering comments by NMFS and other parties, the COE provided a draft biological evaluation (BE) on April 25, 2019, with a "may affect, not likely to adversely affect" determination for Snake River Basin steelhead, Snake River sockeye salmon, Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon, and their designated critical habitats. The BE also indicated that the proposed action would have no effect on Pacific salmon EFH.

A phone conversation between the COE and NMFS was held on May 6, 2019, to further discuss proposed activities. The fish salvage portion of the action was also discussed in relation to effects determinations. NMFS subsequently submitted written comments to the COE for the draft BE on May 10, 2019. The COE submitted a revised BE to NMFS on May 22, 2019. The revised BE contained "may affect, likely to adversely affect" determinations for all species. However, effects determinations for designated critical habitat for each species as well as Pacific salmon EFH was not defined. NMFS responded indicating that the determinations should be specified. The COE submitted a final BE to NMFS on June 4, 2019 with the revised determinations. Upon further analysis NMFS then determined that action was "Not Likely to Adversely Affect" Snake River sockeye salmon and their critical habitat. This analysis is contained in Section 2.12 below. Consultation was initiated on the same date that the final BE was received.

While this Opinion was being drafted, COE contacted NMFS to make a substantial modification of the proposed action, expanding the work window from July 15–September 30 to July 15–January 15. In this Opinion NMFS analyzed the action with the expanded work window.

Because this action has the potential to affect tribal trust resources, NMFS provided copies of the draft proposed action and terms and conditions for this Opinion to the Nez Perce Tribe (NPT) on October 2, 2019. The NPT did not respond. NMFS followed up with a November 18, 2019 phone call, and discussed with NPT staff the proposed change in work window. The NPT staff did not have comments.

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

The COE has proposed to issue a permit to the Doumecq Highway District for the purpose of filling a scour hole that has formed at the base of a bridge pier at the Doumecq Bridge on the Salmon River near Whitebird, Idaho. The bridge is approximately 0.53 miles upstream from the confluence of White Bird Creek with the Salmon River, within Idaho County, Idaho.

When the bridge pier was inspected by the Idaho Transportation Department on September 6, 2017, scouring was detected around the eastern pier (Pier 2). The location is at risk for additional scouring, which could further jeopardize structural integrity. The existing scour hole surrounding the bridge pier is presently approximately 15 feet in diameter and 6 feet deep, located mainly on the upstream side of the structure. Approximately 37 cubic yards of clean, angular rock will be utilized to fill the scour hole. Rock material will be approximately 24 to 36 inches in diameter. An excavator will be used to place the material and will be operated on dry land. Prior to rock material placement, personnel from the Idaho Department of Fish and Game (IDFG) will isolate the work area by placing a barrier screen around the scour hole in a manner that prevents fish from swimming under the screen. If any fish remain in the isolated work area, IDFG will salvage remaining fish using electroshocking methods.

The proposed action is expected to result in a reduced risk of future scouring and associated damage. The construction window for this project is July 15 through January 15. The actual work period for this projected is estimated to be one day sometime within that work window.

Figure 1. View of Doumecq Road Bridge facing north. Photo taken during Idaho Transportation Department's bridge inspection on September 27, 2017 (COE 2019).

Figure 2. View of Doumecq Bridge work area. The red line indicates the access route for equipment (COE 2019).

Figure 3. View of Doumecq Bridge Pier 2 with visible scour hole (COE 2019).

1.3.1 Conservation Measures

The COE 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 Stormwater Control	• A site-specific erosion control plan will be developed to minimize the risk and scale of erosion/sediment from the site. o The plan will include practices to minimize erosion and sedimentation associated with all aspects of the project, including staging areas, stockpiling of materials, and grading of materials. • As needed, sediment and erosion control measures would include the use of sediment fences, straw bales or wattles. • If erosion controls are improperly functioning, work will stop immediately. Repairs, replacements, or the installation of additional erosion control measures will be completed before work resumes. • Rock fill material will be stockpiled in a location away from the Salmon River. • Large, angular rock will be used to fill the scour hole. The use of this material will likely prevent future scouring from occurring at this location.
Equipment Spill and Leak Prevention	• A site-specific pollution control plan will be developed to minimize the risk and scale of pollution from equipment or from the site. o The plan will include practices to prevent construction debris from entering any stream or waterbody. The plan will also include practices to prevent and control hazardous material spills. • All fuel storage and refueling will occur outside of the banks of the Salmon River and in designated sites away from water sources.

Category	Specific Measures
	• Spill prevention and containment kits will be required to be onsite during all periods of construction activity. • All vehicles and other heavy equipment will be used as follows: o Stored, fueled, and maintained in a vehicle staging area placed 150 feet or more from any waterbody, or in an isolated hard zone such as a paved parking lot. o Inspected daily for fluid leaks before leaving the vehicle staging area for operation within 50 feet of any waterbody. o Before operation below ordinary high water mark, vehicles and heavy equipment will be steam-cleaned; they will be re-cleaned as often as necessary to remain free of all external oil, grease, mud, seeds, organisms and other visible contaminants for operation below ordinary high water mark.
Instream Work	• All heavy equipment will be operated from land. • Equipment will be washed prior to arrival at the site in order to prevent the spread of noxious weeds. • All work within the active channel will be completed within a July 15 to January 15 work window.
Monitoring	• Turbidity, below any applicable mixing zone set by the Idaho Department of Environmental Quality (IDEQ), will not exceed background turbidity by more than 50 nephelometric turbidity units (NTU) instantaneously or more than 25 NTU for more than 10 consecutive days (IDAPA 58.01.02.250.02e). Per IDEQ monitoring requirements, if a visible plume is observed during construction activities turbidity measurements will be collected as close to the discharge point as practicable, and a downstream sample will be taken immediately following the upstream sample. If the downstream sample is greater than 50 NTU all work will stop and steps will proceed per IDEQ requirements per the Final 401 Water Quality Certification issued for 2017 U.S. Army Corps of Engineers 404 Nationwide Permits. • Permittee shall be responsible for all work done by any contractor. The permittee shall ensure any contractor who performs the work is informed of and follows all the terms and conditions of this authorization (including any special conditions listed above). The permittee shall also ensure these terms and conditions are incorporated into engineering plans and contract specifications.
Fish Salvage	• The IDFG personnel will walk within the scour hole to displace fish from the project site. The IDFG personnel will then isolate the work area by slowly walking a barrier screen from the shoreline out to the river-ward edge of the scour hole. • The project site will be surveyed for ESA-listed fish presence prior to and following placement of a barrier screen surrounding the scour hole. • If fish remain in the isolated area, IDFG will salvage fish with electroshocking, using NMFS electrofishing guidelines and relocate the fish to a site unaffected by the action. • Fish salvage will be conducted during a time of day when ESA-listed fish are not likely to be utilizing the scour hole for thermal refugia (e.g., during summer, early morning hours prior to daily river temperature rises).

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

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. As required by section 7(a)(2) of the ESA, each Federal agency must ensure that its actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. Per the requirements of the ESA, federal action agencies consult with NMFS and section 7(b)(3) requires that, at the conclusion of consultation, NMFS provide an

opinion stating how the agency's actions would affect listed species and their critical habitats. If incidental take is reasonably certain to occur, section 7(b)(4) requires NMFS to provide an ITS that specifies the impact of any incidental taking and includes non-discretionary RPMs and terms and conditions to minimize such impacts.

Through discussion with COE, NMFS determined the proposed action is not likely to adversely affect Snake River sockeye salmon nor its critical habitat. Our concurrence is documented in the "Not Likely to Adversely Affect" Determinations section (Section 2.12, below).

2.1. Analytical Approach

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

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

The designations of critical habitat for Snake River Basin steelhead, Snake River fall Chinook salmon, and Snake River spring/summer Chinook salmon use the terms primary constituent element (PCE) or essential features. The 2016 critical habitat regulations (50 CFR 424.12) replaced those 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, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this biological opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

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

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

- Evaluate the rangewide status of the species and critical habitat expected to be adversely affected by the proposed action.

- Evaluate the environmental baseline of the species and critical habitat.

- Evaluate the effects of the proposed action on species and their habitat using an exposure-response approach.

- Evaluate cumulative effects.

- In the integration and synthesis, add the effects of the action and cumulative effects to the environmental baseline, and, in light of the status of the species and critical habitat, analyze whether the proposed action is likely to: (1) Directly or indirectly reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species; or (2) directly or indirectly result in an alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.

- If necessary, suggest a reasonable and prudent alternative to the proposed action.

2.2 Rangewide Status of the Species and Critical Habitat

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

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

Table 2 summarizes the status and available information on the Snake River spring/summer Chinook salmon ESU, the Snake River fall Chinook salmon ESU, and 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 2017a), ESA Recovery Plan for Snake River Fall Chinook Salmon (NMFS 2017b), and Status review update for Pacific salmon and steelhead listed under the Endangered Species Act: Pacific Northwest (NWFSC 2015). These three documents are incorporated by reference here. The three species have remained threatened with extinction since the time of their initial listing (1992, 1992, and 1997, respectively). Almost all of the individual populations of the species are not meeting recovery plan abundance and/or productivity targets.

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 Status	Status Summary	Limiting Factors
Snake River Spring/summer Chinook Salmon	Threatened 6/28/05	This ESU comprises 28 extant and four extirpated populations, organized into five major population groups (MPGs), none of which are meeting the viability goals laid out in the recovery plan (NMFS 2017a). All except one extant population (Chamberlin Creek) are at high risk of extinction (NWFSC 2015). Most populations will need to see increases in abundance and productivity in order 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—and diversity risk will also need to be lowered in multiple populations in order for the ESU to recover (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.
Snake River Fall Chinook Salmon	Threatened 6/28/05	This ESU comprises one extant population of fish spawning in the mainstem of the Snake River and the lower reaches of the associated major tributaries including the Tucannon, Grande Ronde, Clearwater, Salmon, and Imnaha Rivers. Historically, an additional population spawned and reared above where the Hells Canyon Dam complex now is. The ESU also includes four artificial propagation programs (NMFS 2017b). Therefore the population has a high proportion of hatchery-origin spawners. The population is considered viable, but this single-population ESU must be highly viable to achieve recovery; it will need an increase in productivity combined with a reduction in	• Adverse effects related to the mainstem Columbia and Snake River hydropower system and modifications to the species' migration corridor. • Historical harvest-related effects. • Potential effects from high proportion of hatchery fish on natural spawning grounds.

Species	Listing Status	Status Summary	Limiting Factors
		diversity risk for the ESU to recover (ICBTRT 2010; NWFSC 2015).	
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 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 2017a). 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.

For fall Chinook salmon, this section of the Salmon River may be occupied by all freshwater life stages of the Lower Snake River population, which is the single extant population for the ESU. This population includes fish spawning in the mainstem of the Snake River and lower reaches of several associated tributaries (NMFS 2017b). The population is currently rated at low risk for abundance and productivity, moderate risk for spatial structure, moderate risk for diversity, and has an overall rating of "viable" (NMFS 2017b). The Snake River fall Chinook ESU as a whole is not meeting the recovery goal described in the recovery plan for the species, which requires the single population to be "highly viable," (i.e., have a 1 percent or lower risk of extinction within 100 years) (NWFSC 2015).

For spring/summer Chinook salmon, this section of the Salmon River is occupied by the Little Salmon River population of the South Fork Salmon River MPG. The population includes returns from large-scale hatchery releases but some of its side tributary spawning sites likely have low hatchery contributions (NMFS 2017a). This population is currently rated at high risk abundance and productivity, but low risk for spatial structure and diversity (NMFS 2017a). Those factors combined give an overall rating of high risk for the population (NMFS 2017a).

For steelhead, this section of the Salmon River is occupied by the Little Salmon River population of the Salmon River MPG. The population has high potential for hatchery contributions in natural spawning areas (NMFS 2017a). The Little Salmon River population is currently rated at

moderate risk for abundance and productivity. There is uncertainty associated with the abundance and productivity estimates because they rely on extrapolation from estimates for other populations within the DPS. The population is currently rated moderate risk for spatial structure and diversity. These combined ratings give an overall rating of moderate risk (with uncertainty), (i.e., the population is estimated to have an extinction risk of less than 25 percent within 100 years) (NMFS 2017a).

Table 3 summarizes designated critical habitat for Snake River Basin steelhead, Snake River spring/summer Chinook salmon, and Snake River fall Chinook salmon, based on the detailed information on the status of critical habitat throughout the designation area provided in the recovery plan for each species (NMFS 2017a; NMFS 2017b, NMFS 2015), 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 spring/summer Chinook salmon, PBFs include spawning gravel, water quality, water quantity, food, riparian vegetation, water temperature, substrate, water velocity, cover/shelter, space, and safe passage. For Snake River fall Chinook salmon, PBFs are the same as for spring/summer Chinook salmon, but also include the term "access" (similar to safe passage). 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 Spring/summer Chinook Salmon	10/25/99 64 FR 57399	Critical habitat consists of river reaches of the Columbia, Snake, and Salmon Rivers, and all tributaries of the Snake and Salmon Rivers (except the Clearwater River) presently or historically accessible to this ESU (except reaches above impassable natural falls, and Dworshak and Hells Canyon Dams). 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 2017a). Reduced summer stream flows, impaired water quality, and reduced habitat complexity are common problems.
Snake River Fall Chinook Salmon	12/28/93 58 FR 68543	Critical habitat consists of all Columbia River estuarine areas, as well as river reaches upstream to the confluence of the Columbia and Snake Rivers, and all Snake River reaches from the confluence of the Columbia River upstream to Hells Canyon Dam. It also includes lower portions of the Palouse, Clearwater, Grande Ronde, Imnaha, and Salmon Rivers. Habitat quality in all reaches is influenced by various land uses, especially irrigated agriculture effects such as sediment and nutrient loading from irrigation returns (NMFS 2017b).
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

Species	Designation Date and Federal Register Citation	Critical Habitat Status Summary
		poor in areas subject to heavy agricultural and urban development (NMFS 2017a). Reduced summer stream flows, impaired water quality, and reduced habitat complexity are common problems.

The construction and operation of water storage and hydropower projects in the Columbia River basin have altered biological and physical attributes of the mainstem migration corridor for the ESA-listed species addressed in this Opinion. These alterations have affected juvenile migrants to a much larger extent than adult migrants. However, changing temperature patterns have created passage challenges for summer migrating adults in recent years, requiring new structural and operational solutions (i.e., cold water pumps and exit "showers" for ladders at Lower Granite and Lower Monumental Dams). Actions taken since 1995 that have reduced negative effects of the hydrosystem on juvenile and adult migrants include: (1) Reducing winter drafts and increasing flows during peak spring passage; (2) releasing water from storage to increase summer flows; (3) releasing water from Dworshak Dam to reduce peak summer temperatures in the lower Snake River; (4) constructing juvenile bypass systems to divert smolts, steelhead kelts, and adults that fall back over the projects away from turbine units; (5) providing spill at each of the mainstem dams for smolts, steelhead kelts, and adults that fall back over the projects; (6) constructing "surface passage" structures to improve passage for smolts, steelhead kelts, and adults falling back over the projects; and, (7) maintaining and improving adult fishway facilities to improve migration passage for adult salmon and steelhead.

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

One factor affecting the 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, Snake River spring/summer Chinook salmon, and Snake River fall Chinook salmon, 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 2017a). 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 Snake River spring/summer 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 adult mortality rates (NMFS 2017a).

Climate change could affect Snake River fall Chinook salmon in the following ways: (a) Higher water temperatures during adult migration may lead to increased mortality or reduced spawning

success; (b) if water temperatures accelerate the rate of egg development, it could lead to earlier fry emergence and dispersal, which could be either beneficial or detrimental, depending upon location and prey availability; (c) warmer temperatures will increase metabolism, which may increase or decrease juvenile growth rates and survival, depending upon availability of food; (d) increases in water temperatures in Snake and Columbia River reservoirs could increase consumption rates and growth rates of predators and, hence, predation-related mortality on juvenile fall Chinook salmon; and (e) reduced flow in late spring and summer may lead to delayed migration of juvenile fall Chinook salmon and higher mortality passing dams (NMFS 2017b).

On the whole, climate change will likely reduce suitable spawning and rearing habitat and alter/limit run timing, and thereby make it more challenging to increase abundance and recover these species.

2.3 Action Area

"Action area" means all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area includes the project work site in and around the Salmon River, as well as the Salmon River from 100 feet upstream of the bridge pier repair (the likely extent of potential noise/disturbance), extending downstream 600 feet from the bridge pier repair (the likely extent of discernible downstream sediment effects). The action area also includes the equipment and material staging area adjacent to the project work site.

2.4 Environmental Baseline

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

The project site is located approximately 0.53 miles upstream from the confluence of White Bird Creek with the Salmon River. The action area is predominantly within the Salmon River, but also includes roadways and staging areas managed by the Doumecq Highway District. The Salmon River within the action area is a wide, shallow-sloped, rocky canyon with some woody riparian vegetation along the banks. There is extensive land disturbance in the action area associated with the existing bridge and its piers, as well as development on either side of the channel (i.e. roads, buildings, and parking/RV lots). This section of the Salmon River is a 303(d) listed, Category 5 impaired waterbody due to methylmercury found in fish tissues (IDEQ 2017). The Doumecq Highway District previously conducted maintenance repair work to the bridge in

1993 and 1999. This maintenance included poured concrete patching and collaring to protect Pier 2 from continual scouring.

The following further detail baseline conditions:

- Additional human uses of and impacts to the action area from activities nearby or farther upstream include: agriculture and ranching, transportation, seasonal rafting, boating, fishing, camping and other recreational activities that have occurred for many years and continue to occur each year within this reach of the river.

- The Salmon River is approximately 241 feet wide at the project site during normal summer flows.

- The physical characteristics of the Salmon River from the action area downstream to the mouth are largely unaltered by development due to the steepness of the canyon and paucity of roads.

Snake River Basin steelhead use the Salmon River within the action area for migration, rearing, and overwintering. Spawning occurs in tributary streams (COE 2019). Snake River spring/summer Chinook salmon use the Salmon River within the action area for rearing and migration. Spawning occurs farther upstream, in various tributary streams and the upper mainstem Salmon River (COE 2019). Snake River fall Chinook salmon use the Salmon River within the action area for spawning, early rearing, and migration. Fall Chinook salmon begin spawning in the Lower Salmon River in October. In 2015, four fall Chinook redds were observed approximately 0.5 miles downstream from the project site (B. Arnsberg, Fisheries Biologist NPT, personal communication, 2019). Fall Chinook spawning in this section of the Lower Salmon River usually begins in the third week of October (B. Arnsberg, Fisheries Biologist NPT, personal communication, 2019).

2.5 Effects of the Action

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see 50 CFR 402.17). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b).

2.5.1 Effects to Species

The in-water portion of the proposed action may take place from July 15 through January 15. The COE estimates that the in-water work will be completed 1 day. Salmonids present in the action area during the project implementation period could experience the following effects from the proposed action:

- Risk of injury or death of juvenile fish due to fish salvage activities or crushing by the rock fill;

- Exposure to short-term turbidity plumes and associated sediment deposition immediately downstream of the project site;

- Exposure to construction noise and disturbance; and

- Exposure to chemical contamination.

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

2.5.1.1 Fish Salvage

The majority of fish present in the work site/scour hole should be excluded from the site by barrier placement, clearing fish from the area and keeping them from swimming back in. If IDFG personnel observe fish at the scour site after barrier placement, electrofishing may be used to capture and relocate the remaining fish. If electrofishing is done, NMFS (2000) electrofishing criteria will be used to minimize injuries. Captured fish would be released downstream with minimal handling. Injuries and death are not always avoidable when electrofishing. 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 injury or death to some individuals, particularly those exposed to electrofishing (McMichael et al. 1998; Nielson 1998). Additionally, a small number of fish may elude capture by electrofishing and could die from being crushed by the rock fill.

In spite of best efforts to avoid injuries from electrofishing, it can cause spinal injury to individual fish, which can lead to slower growth rates (Dalbey et al. 1996) or abnormal development of juveniles. 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 exposed to electrofishing effects could be injured or killed.

For this project, we make the following assumptions fish salvage activities:

- An area of up to 16.5 square meters (177.6 square feet) will be isolated for the in-water work, and may be electrofished.

- Particularly during summer and early fall, ESA-listed fish may be concentrated in the scour hole if it provides thermal refugia, and those fish may be present in numbers up to ten times greater than average for the general area.

- Wading in the water to deploy the barrier screen and installation of the screen around the scour hole will effectively exclude any adult salmonids in the area from the scour hole for the duration of the activity.

The Northwest Power Planning Council smolt density database ratings (Hall-Griswold and Petrosky 2002) merge smolt density ratings with habitat quality within respective stream reaches. Habitat quality for the lower mainstem of the Salmon River is not rated. Therefore, NMFS assumes the highest habitat quality rating of Excellent. Using these ratings, expected smolt densities per 100 square meters are 108 juvenile spring/summer Chinook salmon, 108 juvenile fall Chinook salmon, and 20 juvenile steelhead. However, particularly if the work occurs during summer or early fall, the scour hole may provide cover or a thermal refuge for salmonids and have fish densities much higher than in the river reach as a whole. For this reason, the expected fish density is assumed to be up to ten times higher than average. Using the multiplier, this translates into approximately 178 juvenile spring/summer Chinook salmon, 178 juvenile fall Chinook salmon, and 33 juvenile steelhead present at the 16.5 square meter site before fish are excluded.

After IDFG walks the barrier screen out from the shoreline (keeping the screen in contact with the river substrate) and places it at the riverward edge of the scour hole where it will continue to exclude fish, NMFS expects that at least 75 percent of the fish that were within the 16.5 square meter area will be moved out of the area. The fish remaining at the site within the area enclosed by the barrier screen (45 juvenile spring/summer Chinook salmon, 45 juvenile fall Chinook salmon, and eight juvenile steelhead) could be injured or killed from electrofishing and associated handling. NMFS expects that IDFG field crews will be adept at observing handled fish for signs of stress, knowing proper handling and transport methods, and they will know how and when to adjust electrofishing equipment to minimize that stress. Although McMichael et al. (1998) indicated electrofishing injury rates for natural-origin salmonids were only 5 percent, NMFS notes that as many as 25 percent of the fish could be injured or killed during salvage efforts (Nielson 1998); therefore, NMFS uses 25 percent for calculating the effect on fish in this case. Based on the assumptions above, including ten-fold higher than average fish densities and a substantial portion of fish not effectively excluded by the screen and a high estimator for injury and mortality, NMFS estimates that as many as 11 juvenile spring/summer Chinook salmon, 11 fall Chinook salmon, and two juvenile steelhead could be injured or killed by the electrofishing and handling.

Those estimates are also based on the assumption that all fish remaining in the isolated area would be captured by electrofishing (i.e., no fish would elude capture). However, it is possible that some fish would elude capture, given the depth of the scour hole at the base of the bridge pier; and fish that do elude capture within the isolated area may be subject to the effects of rock fill placement, as discussed below.

2.5.1.2 Rock Fill

Rock material placed in the scour hole will occur in an area that was previously filled with riprap and native riverbed material. Voids may be created between the rocks and used as cover by smallmouth bass, which are a predator for juvenile salmonids. However, the action area as a

whole provides little cover for smallmouth bass and the small amount of rocks added to the river are unlikely to improve predator habitat.

In-water placement of rock fill has the potential to injure or kill fish located at the project site through physical trauma during rock placement or soon thereafter if the rocks shift or move after initial placement. Approximately 37 cubic yards of rock will be used to stabilize and fill the scour hole. Rock size will vary between 24-inch and 36-inch diameters. Although unlikely during low-flow conditions, some material could shift or move downstream at higher flows. NMFS expects that few if any fish would be crushed by the rock fill, because fish present at the site will likely be either temporarily displaced from the area with barrier placement or will be salvaged out of the isolated area before the rock fill is deployed.

However, to further ensure that adverse effects are not underestimated, NMFS estimated how many fish would be injured or killed if electrofishing is only 50 percent effective at capturing fish remaining within the isolated area. In that scenario, of the 45 juvenile spring/summer Chinook salmon, 45 juvenile fall Chinook salmon, and eight juvenile steelhead noted above (see Section 2.5.1.1), half of those fish would be captured and half would remain in the isolated area and potentially be killed or injured by placement of rock fill. In other words, up to 23, 23, and four fish of those species respectively could be killed or injured by the rock fill; and six, six, and one fish could be killed or injured by the electrofishing and handling. Those likely highest impact calculations yield totals of 29 juvenile spring/summer Chinook salmon, 29 juvenile fall Chinook salmon, and five juvenile steelhead killed or injured by the combination of fish salvage and placement of rock fill.

Given mean smolt-to-adult return rates of 1.1 percent (spring/summer Chinook salmon), 0.5 percent (fall Chinook salmon, estimated) and 1.58 percent (steelhead) from 1997–2012 (Comparative Survival Study Oversight Committee and Fish Passage Center 2015), the injury or loss of 29 juvenile spring/summer Chinook salmon, 29 juvenile fall Chinook salmon and five juvenile steelhead would mean a one-time loss for each species of less than one adult equivalent returning to spawn.

2.5.1.3 Suspended Sediment

Placement of rock within the wetted channel will create brief pulses of suspended sediment from mobilizing fine materials previously deposited in the riverbed. With all machinery operating from dry area on the riverbank, pulses of suspended sediment from rock placement are likely to be brief and quickly dissipate as materials are dispersed downstream. Only the first layer of rocks will create suspended sediment by making direct contact with the substrate. Subsequent layers of rocks are unlikely to create suspended sediment since the rocks will be washed before being placed in the stream and they will not make contact with sediment. Therefore, the duration and extent of exposure to suspended sediment is expected to be short-term and localized, with little impact to ESA-listed fish.

The effects of 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 NTU (Lloyd 1987; Servizi and Martens 1992; Berg and Northcote 1985), which indicates that fish move away from suspended sediment in an effort to avoid harmful effects. The small amount of turbidity from the proposed action is likely to cause no more than avoidance behavior and/or brief exposures to low concentrations of turbidity.

Plumes of suspended sediment from the proposed action will be at highest concentrations in close proximity of the project site and are unlikely to span the channel width at this location. Channel width at the project site during the proposed work window is approximately 241 feet. As a plume moves downstream from the project site, it will be quickly diluted by the high volume of water that flows in the Salmon River. Fish exposed to suspended sediment the project site may temporarily relocate to nearby areas to avoid harm. Although visible turbidity from culvert replacements in small streams can extend as far as 2,500 feet downstream (Foltz et al. 2008), placement of rocks in a scour hole is unlikely to produce a similar amount of turbidity.

The proposed action does not involve excavation or rerouting the stream channel as occurs with culvert replacements; and the riverbed materials in the scour hole are composed almost entirely of large rocks and gravels that are too large to become suspended in the river at base flows when the work will occur. Sediments small enough to remain suspended in the water column for a great distance are unlikely to accumulate in a scour hole where hydraulic conditions are capable of washing away everything but large rocks. Consequently, very little sediment is likely to become suspended from rock placement, and pulses of suspended sediment are unlikely to reach concentrations or durations that are harmful to fish.

With a limited amount of sediment in the substrate, brief duration of disturbance by rock placement upon the native substrate, BMPs to minimize creation of suspended sediment, and high discharge rate available to disperse suspended sediment, juvenile and adult fish in the action area are unlikely to be exposed to more than small, brief increases in turbidity and are unlikely to experience harmful effects from suspended sediment.

2.5.1.4 Fine Sediment Deposition

Fine sediments are composed of sands, silts, and clays that are readily mobilized as suspended sediment in flowing water when riverbed materials are moved. Suspended sediments mobilized by rock placement (described above) will be re-deposited downstream from the project site. Incubating eggs and newly hatched fry can be killed by deposition of fine sediment in redds when the sediment reaches a threshold of approximately 30 percent fines by volume (Everest et al. 1987; Spence et al. 1996). 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). Fine

sediment may also affect fish by reducing the availability of spaces between rocks that may be used as cover or winter rearing if the volume is sufficient to fill the voids between rocks.

The proposed action will mobilize riverbed sediments but add no new sediment to the river. Streambed sediment will be mobilized in a brief series of pulses when rocks are placed directly on the riverbed. Since the project site is a scour hole where the transport energy is high enough to wash away all but the largest rocks, only a minute volume of sediment is likely to be present in the scour hole. When a small volume of fine sediment is dispersed and redeposited in a river as large as the Salmon River, changes in the amount of fine sediment deposited downstream are likely to be immeasurable and cause no adverse effects to fish. The nearest known spawning area for salmonids is approximately 0.54 miles downstream from the project site, below the extent of discernable sediment deposition caused from the proposed action.

Because of the limited potential to mobilize fine sediment and the expected effectiveness of the proposed sediment control BMPs, the proposed action is unlikely to cause a sufficient amount of sediment deposition to cause adverse effects to fish.

2.5.1.5 Noise and Disturbance

Construction noise or visual stimulus may disturb nearby salmonids, 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 (Grant and Noakes 1987; Ries 1995; Olson 1996; SNF 2009). Because the river habitat near the project site is relatively uniform, we expect that if fish are displaced 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).

2.5.1.6 Chemical Contamination

Use of construction equipment and heavy machinery adjacent to and within stream channels poses the risk of an accidental spill or leakage of fuel, lubricants, hydraulic fluid, antifreeze, or similar contaminants into the riparian zone, or directly into the water. If these contaminants enter the water, the substances could 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 refueling will also occur away from the river channel. Based on the past success of these types of conservation measures in other projects, introduction of fuels, etc. into the water either will not occur or will occur in extremely small amounts that are rapidly diluted. NMFS therefore anticipates the project will not have discernible effects from contaminants on water quality nor associated negative impacts to ESA-listed fish.

2.5.2 Effects to Critical Habitat

Implementation of the proposed project is likely to affect freshwater rearing and migration habitat for ESA-listed salmonids. The PBFs affected by the proposed action are water quality, substrate, natural cover, and forage. Each of these effects are described in more detail below.

2.5.2.1 Water Quality

The proposed action could potentially negatively affect water quality through chemical contamination or short-term increases in turbidity. However, decreases in water quality from chemical contamination are not likely. As described in Section 2.5.1.6, we expect that proposed BMPs will reduce the risk of leaks or spills from machinery from entering the Salmon River. As described in Section 2.5.1.3, we expect visible plumes of suspended sediment (>50 NTU) to occur during rock placement to last no more than a few hours and extend no more than 600 feet downstream from the project site. These instances of turbid water will be of low magnitude and will quickly dissipate due the large amount of discharge in the Salmon River relative to the volume of suspended sediment. Project effects on the water quality PBF will be very small, if even detectable, for chemical contamination and small and temporary for turbidity. None of the effects are expected to change the function of the water quality PBF.

2.5.2.2 Substrate

Substrate will be affected by deposition of fine sediments that becomes mobilized by rock placement activities. As described above, fine sediment deposition is unlikely to cause measurable changes to substrate characteristics. The substrate PBF will be virtually unchanged beyond the area where rocks will be placed. However, in the immediate area where the rock is placed, there will be a short-term degradation of substrate quality. This effect will persist until subsequent flow events deliver enough sediment to cover over the rocks and bring the area into a condition resembling the surrounding substrate. The area of rock placement at the base of the pier is so small that project-caused changes there will not appreciably change the function of the substrate PBF at a river reach scale.

2.5.2.3 Natural Cover

At present, the scour hole at the bridge pier likely provides cover during base flows. Filling the scour hole with rocks eliminates the cover provided by the hole; however, a hole created by a bridge pier and river hydraulics is not a natural cover element. The 24-inch to 36-inch diameter rocks to be placed in the hole will be much larger than would occur naturally, thus creating voids that fish could also use for cover. However, the voids between the rocks are likely to eventually fill with finer material, thus any changes in cover provided by the large rocks will be temporary. Overall, no natural cover would be affected but on the whole, the small area of artificial cover provided by the scour hole at base flows would be lost. This represents a loss of cover for all three species considered in this Opinion.

The loss of a 15-foot diameter pool, 6 feet in depth is, however, small because natural deep-water areas of much greater size are prevalent throughout this stream reach. Because the action

affects only a small amount of artificial cover that is eclipsed by many areas of natural cover in this section of river, the project is not likely to change the function of the natural cover PBF.

2.5.2.4 Forage

The proposed action is likely to kill or displace a small number of macroinvertebrates that serve as the principle food source for juvenile salmon and steelhead. Installation of rock material will cause short-term pulses of suspended sediment and sediment deposition that may kill or displace macroinvertebrates in the immediate vicinity of the scour hole, but downstream effects on macroinvertebrates beyond the immediate vicinity are unlikely likely to occur. As described previously, the amount of sediment mobilized from the proposed action is limited to small amounts by site characteristics and BMPs to control off-site movement of sediment. There is not enough sediment in the scour hole to sustain a large increase in turbidity over time or to measurably change substrate composition beyond the immediate area surrounding the scour hole. For these reasons, the proposed action is unlikely to result in appreciable effect on, or reduction in function of the forage PBF.

2.6 Cumulative Effects

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

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

The action area consists of the Salmon River channel at the project site and within 600 feet downstream, along with a small area of the floodplain adjacent to the bridge pier. There are no known state or private actions planned to occur within the action area apart from the continuation of agriculture and ranching, transportation, seasonal rafting, boating, fishing, camping and other recreational activities that regularly occur on or adjacent to the Salmon River. It is likely that cumulative effects will continue at levels approximating what currently occurs.

2.7 Integration and Synthesis

In this section, we add the effects of the action (Section 2.5) to the environmental baseline (Section 2.4) and the cumulative effects (Section 2.6), taking into account the status of the species and critical habitat (Section 2.2), to formulate the agency's Opinion as to whether the proposed action is likely to: (1) Reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or

(2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

Species

Many individual populations of Snake River Basin steelhead, Snake River spring/summer Chinook salmon, and Snake River fall Chinook salmon are not meeting recovery plan abundance and productivity targets. For steelhead, the Little Salmon River population is currently at moderate risk for abundance and productivity, and moderate risk for spatial structure and diversity (NMFS 2017a). For spring/summer Chinook salmon, the Little Salmon River population is currently at a high risk for abundance and productivity, and a low risk for spatial structure and diversity (NMFS 2017a). For fall Chinook salmon, the Lower Snake River population is currently a low risk for abundance and productivity, and a moderate risk for spatial structure and diversity. Therefore, each species remains threatened or endangered with extinction. Furthermore, climate factors could make it more challenging to increase productivity, decrease diversity risk, and recover the listed species (NMFS 2017b).

The proposed action is unlikely to cause adverse effects to listed salmonids in the action area from suspended sediment, sediment deposition, noise, and chemicals because of the limited nature of the action, proposed BMPs, and the ability of fish to move out of the small affected area in this wide reach of river. The following adverse effects are expected to occur:

- After the barrier screen is deployed, up to 45 juvenile spring/summer Chinook salmon, 45 juvenile fall Chinook salmon, and eight juvenile steelhead could remain within the isolated work area. Of those fish, up to 29 juvenile spring/summer Chinook salmon, 29 juvenile fall Chinook salmon, and five juvenile steelhead may be harmed or killed by electrofishing, or trauma from rock placement or shifting rocks.

The injury or death of up to 29 juvenile spring/summer Chinook salmon of the Little Salmon River population, 29 juvenile fall Chinook salmon of the Lower Snake River population, and five juvenile steelhead of the Little Salmon River population would mean a one-time loss of fewer than one adult equivalent returning to spawn for each species. Juvenile salmonids exposed to several hours of increased turbidity or displacement by the turbidity are unlikely to be harmed by the brief incidents. The one-time loss of well less than one adult equivalent returning to spawn would likely not affect the long-term trends in abundance and productivity of listed steelhead and Chinook species. Because the action will not cause a long-term change in species numbers or factors affecting viability of each respective salmonid population group, the proposed action will not likely affect the survival of each respective ESU or DPS. For similar reasons, the probability of recovery for each species will not likely be affected.

Critical habitat

Critical habitat for Snake River Basin steelhead, Snake River spring/summer Chinook salmon, and Snake River fall Chinook salmon is present in the action area. The proposed action will cause small and short-term effects to water quality, substrate, natural cover, and forage PBFs. Due to the small or short-lived nature of these effects, the conservation value of critical habitat

for the conservation of each species would not likely be affected to appreciable degree. When cumulative effects are added to the baseline and effects of the action, critical habitat is likely to return to baseline conditions soon after the action is completed.

2.8 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, Snake River spring/summer Chinook salmon, and Snake River fall Chinook salmon, nor destroy or adversely modify their associated designated critical habitats.

2.9 Incidental Take Statement

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

2.9.1 Amount or Extent of Take

In the Opinion, NMFS determined that incidental take is reasonably certain to occur as follows:

Fish may be injured or killed from trauma caused by placement or movement of rocks or electrofishing. We anticipate that up to 45 juvenile spring/summer Chinook salmon, 45 juvenile fall Chinook salmon, and eight juvenile steelhead could be captured during fish salvage of the project site. The amount of take will be exceeded if the number of fish handled exceeds 45 juvenile spring/summer Chinook salmon, 45 juvenile fall Chinook salmon, and eight juvenile steelhead. For determining take by species, NMFS notes that fall Chinook salmon will not likely be present unless the action is conducted during the July portion of the work window. If the work is conducted in July, any Chinook fry captured will be assumed to be fall Chinook salmon. If the action is conducted after July, all Chinook salmon captured will be assumed to be spring/summer Chinook salmon.

2.9.2 Effect of the Take

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

2.9.3 Reasonable and Prudent Measures

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

The COE 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.

2.9.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and the COE must comply with them in order to implement the RPMs (50 CFR 402.14). The COE 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 COE shall ensure the following:

    a. 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.

    b. The construction contractor shall not end-dump rock materials in the river. Rocks will be placed with an excavator to minimize turbidity and risk of injuring or killing fish.

    c. In-water work is confined to the work window of July 15 through January 15.

    d. That any terms applied to the Clean Water Act (CWA) 404 permit are consistent with the project description, conservation measures, and terms and conditions in the BA and this Opinion.

e. Electrofishing will be with measures described in NMFS' electrofishing guidelines (2000).

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

   a. Report to NMFS the number of juvenile salmonids that are handled, injured, or killed during fish salvage. Immediately cease activities and contact NMFS if the amount of take described in Section 2.9.1 is exceeded**.**

   b. Submit a monitoring report specifying information on fish salvage by April 15 of the year following project completion to the Snake Basin Office email: nmfswcr.srbo@noaa.gov.

2.10 Conservation Recommendations

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

The conservation recommendation for this consultation is as follows:

> If possible, the construction contractor should contour the placed rock material in a manner that conforms to natural channel processes in the project site and further reduces potential for future scouring.

2.11 Reinitiation of Consultation

This concludes formal consultation for the Doumecq Bridge Pier 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.

2.12 "Not Likely to Adversely Affect" Determinations

NMFS does not anticipate the proposed action will have adverse effects on Snake River sockeye salmon. Juvenile sockeye salmon are not expected to be present within the action area during the proposed work window. Only adult sockeye salmon might be present in the action area during project implementation and they would readily avoid project activities. Since there will not be

adults present in the scour hole, they will not be subject to fish removal activities; for this reason, the risk of harm to sockeye salmon from fish removal activities will be discountable.

Also, adult sockeye salmon will likely avoid the action area due to disturbance caused by project activities. They will also be able to easily avoid the turbidity plume caused by the project. Any exposure to turbidity will therefore be insignificant. As described above, the amount of fine sediment that would be deposited in the action area from project activities would be insignificant. Any resulting effects on associated PBFs would therefore also be insignificant. Since all effects to sockeye and their habitat will be insignificant or discountable, NMFS concurs that the proposed action is not NLAA Snake River sockeye salmon or their critical habitat.

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 COE 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 2.3) for this consultation are described earlier in this Opinion. The action area includes areas designated as EFH for rearing and migration life-history stages of Chinook salmon. Environmental effects of the proposed action may adversely affect EFH. The affected EFH possesses areas containing the features and habitat function consistent with habitat areas of particular concern (HAPC). Identifying HAPCs helps focus conservation efforts on particular habitats that are of high ecological importance. The HAPC for Pacific coast salmon potentially affected by the proposed action is complex channels.

3.2 Adverse Effects on Essential Fish Habitat

The proposed project "may adversely affect" EFH for Chinook salmon as a result of bridge pier repair activities within the Lower Salmon River watershed. However, the impact avoidance and BMPs described in Section 1.3.1 are expected to effectively minimize the effects. Effects to

critical habitat were discussed in Section 2.5.2, and are incorporated as reference for the effects to EFH. The following adverse effects to EFH may occur:

1. Placement of rock material within the scour hole could result in temporary minor increases in turbidity and a small amount of sediment deposition. Additionally, minimal negative impacts to natural cover, forage, and water velocity are expected. As described in Section 2.5.2.1, increases in turbidity (below 50 NTU) upon rock material placement are expected to last for a few hours and extend no more than 600 feet downstream from the project site. As described in Section 2.5.2.2, with the expected effectiveness of the proposed sediment control BMPs, sediment deposition is expected to be of small amounts, localized, and temporary. Habitat quality will likely recover as fine sediments are flushed downstream during high flows in spring after project completion, and will not reduce the function of the substrate.

2. As described in Section 2.5.2.3, a decrease in deep water/hole area will result from rock material placement. That is expected to have minor negative effects on cover, while the increase in rock size in comparison to the original fill could partially offset this effect by providing a small amount of artificial cover.

3. The short-term pulses of turbidity and sediment deposition, noted above in item 1, may temporarily reduce macroinvertebrate communities immediately adjacent to the project site. However, pulses of turbidity and sediment deposition are expected to only affect a small area, and deposited sediment will likely be flushed out during high flow events in the spring. Therefore, effects to the forage component of EFH are expected to be minimal.

3.3 Essential Fish Habitat Conservation Recommendations

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

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

    b. The construction contractor shall not end-dump rock materials in the river. Rocks will be placed with an excavator to minimize turbidity.

    c. In-water work should be confined to the work window of July 15 through January 15.

    d. 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.

e. Fish salvage experts should conduct electrofishing in a manner that is compliant with measures described in NMFS' electrofishing guidelines (2000).

2. If possible, the construction contractor should contour the placed rock material in a manner that conforms to natural channel processes in the project site and further reduces potential for future scouring.

3.4 Statutory Response Requirement

As required by section 305(b)(4)(B) of the MSA, the COE 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 COE 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 COE can issue a CWA 404 permit for the proposed action. The intended users of this Opinion are the COE, and any of their cooperators, contractors, or permittees. A copy of this Opinion was provided to the COE. 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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