UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
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Refer to NMFS No.: WCRO-2020-03646

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April 9, 2021

Lt. Col. Richard T. Childers
U.S. Army Corps of Engineers
Walla Walla District
201 North Third Avenue.
Walla Walla, Washington 99362

Re: Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Rusty Bentz Dock Installation Project in Idaho County, Idaho.

Dear Lt. Col. Childers:

Thank you for the letter of November 19, 2020, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the Rusty Bentz Dock Installation 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 your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act [16 U.S.C. 1855(b)] for this action.

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

As required by section 7 of the ESA, NMFS provides an incidental take statement (ITS) with the opinion. The ITS describes reasonable and prudent measures (RPM) 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 any permittee who performs any portion of the action, must comply with to carry out the RPM. Incidental take from actions that meet these terms and conditions will be exempt from the ESA take prohibition.

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 one Conservation Recommendation to avoid, minimize, or otherwise offset potential adverse effects on EFH. This Conservation Recommendation is 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 the Conservation Recommendations. If the response is inconsistent with the EFH Conservation Recommendation, the COE must explain why the recommendation will not be followed, including the justification for any disagreements over the effects of the action and the recommendation. 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.

Please contact Mr. Brad DeFrees, Northern Snake Branch, at 208-993-1240 or brad.defrees@noaa.gov, if you have any questions concerning this consultation, or if you require additional information.

Sincerely,

Michael P. Tehan
Assistant Regional Administrator
Interior Columbia Basin Office

Enclosure

cc: W. Schrader--COE
C. Hacker – USFWS
M. Lopez – NPT

bcc: SBO – Read File, File copy, B. DeFrees, K. Troyer, M. Tehan (electronic only)

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

Rusty Bentz Dock Installation Project, Idaho County, Idaho

NMFS Consultation Number: WCRO-2020-03646

Action Agencies: U.S. Army Corps of Engineers

Affected Species and Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	Is Action Likely To Jeopardize the Species?	Is Action Likely to Adversely Affect Critical Habitat?	Is Action Likely To Destroy or Adversely Modify Critical Habitat?
Snake River steelhead (*Oncorhynchus mykiss*)	Threatened	Yes	No	Yes	No
Snake River fall Chinook salmon (*Oncorhynchus tshawytscha*)	Threatened	Yes	No	Yes	No
Snake River spring/summer Chinook salmon (*Oncorhynchus tshawytscha*)	Threatened	Yes	No	Yes	No

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

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

Issued By:

Michael P. Tehan
Assistant Regional Administrator

Date: April 09, 2021

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ACRONYM	DEFINITION
BA	Biological Assessment
BMP	Best Management Practices
cfs	Cubic feet per second
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	Evolutionary Significant Units
HAPC	Interior Columbia Technical Recovery Team
ICTRT	Habitat Areas of Particular Concern
IDFG	Idaho Department of Fish and Game
ISAB	Independent Scientific Advisory Board
ITS	Incidental Take Statement
MPG	Major Population Groups
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
OHWM	Ordinary High Water Mark
Opinion	Biological opinion
PBF	Physical and Biological Features
PCE	Primary Constituent Element
PFMC	Pacific Fishery Management Council
RHA	Rivers and Harbors Act
RPA	Reasonable and Prudent Alternative
RPM	Reasonable and Prudent Measures
Tribe	Nez Perce Tribe
USGCRP	U.S. Global Change Research Program
VPS	Variable 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

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 U.S.C. 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 July 20, 2020, pursuant of Section 10 of the Rivers and Harbors Act (RHA), Mr. Rusty Bentz (Applicant) submitted a Joint Application for Permits to the U.S. Army Corps of Engineers (COE) for the proposed boat dock. The dock would be located on the right bank of the Snake River approximately 10 river miles downstream, or northwest, of Pittsburg Landing Boat Ramp, Idaho County, Idaho.

The COE submitted a Biological Assessment (BA) and letter requesting consultation to NMFS on November 19, 2020. NMFS reviewed the BA and met with the COE on January 27, 2021 to get clarification on a few items. Based on the BA and clarifications, NMFS determined the BA contained sufficient information to initiate formal consultation. In a February 3, 2021 letter to the COE, NMFS confirmed the information was sufficient for formal consultation, and November 19, 2020 was considered the initiation of the consultation.

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 (Opinion) to the Nez Perce Tribe (Tribe) on March 16, 2021. The Tribe responded on March 30, 2021 that they did not anticipate the construction of the dock would have direct impacts on aquatic resources. However, the Tribe stated that future presence of the dock has the potential to indirectly affect juvenile fall Chinook due to the addition of artificial habitat, which may attract predatory species and alter their predation rates on juvenile fall Chinook. However, the Tribe did not expect the structure to impact the overall abundance predator species. Due to additional changes to the proposed action, the Tribe provided further comment on April 8 2020 indicating a juvenile acclimation facility will be located below Pittsburgh Landing from April to June. Impacts from the dock placement activities to the acclimation facility have been considered in the analysis of the proposed action. The Tribe also stated that all their concerns had been addressed.

1.3 Proposed Federal Action

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

The Project proposes the installation of a T-shaped floating log dock consisting of three large logs as a base covered with plank (4x4 and 2x6 boards). An example of this construction method is provided in Figure 1. The dimensions of the dock are approximately 33 feet long by 7 feet wide along the walkway and approximately 20 feet by 7 feet wide along the landing. This creates a dock covering 371 square feet. The purpose of the proposed action is to provide access to a residential development; specifically, the dock will facilitate construction material transportation to a home building site, as the shoreline is rocky and does not allow for easy boat access. The dock will remain in place permanently.

The dock will be installed at the high water mark and will rest on the rocky shore as the water recedes during lower flows. The log design has been selected to provide structural support while the dock is beached on the rocky shore. As the water recedes the square footage of water covered area will decrease. The landing, 140 square feet, will likely be below the OHWM lifetime of the dock placement.

Figure 1. Example of a dock using log ballast and structure (left) covered with plank deck (right)
Cables will be used to anchor the dock. These cables will be run from two deadman anchors on the shore to six points along the dock, three on either side attaching to one of the anchors (Figure 2). These cables will provide anchorage for the dock without the need for driving piles or causing disturbance below the ordinary high water mark (OHWM).

Construction of the dock will be completed offsite or at Pittsburg Landing, and then hauled to the Pittsburg Landing boat ramp. The dock will be launched at Pittsburg Landing boat ramp and then towed downstream to the installation site. Installation will likely take place during a low flow period between August 1 and December 30; however, the work may occur outside this window pending permitting timeframes. The dock will provide access for cabin construction, and it may be installed as soon as possible (pending permitting timeframes).

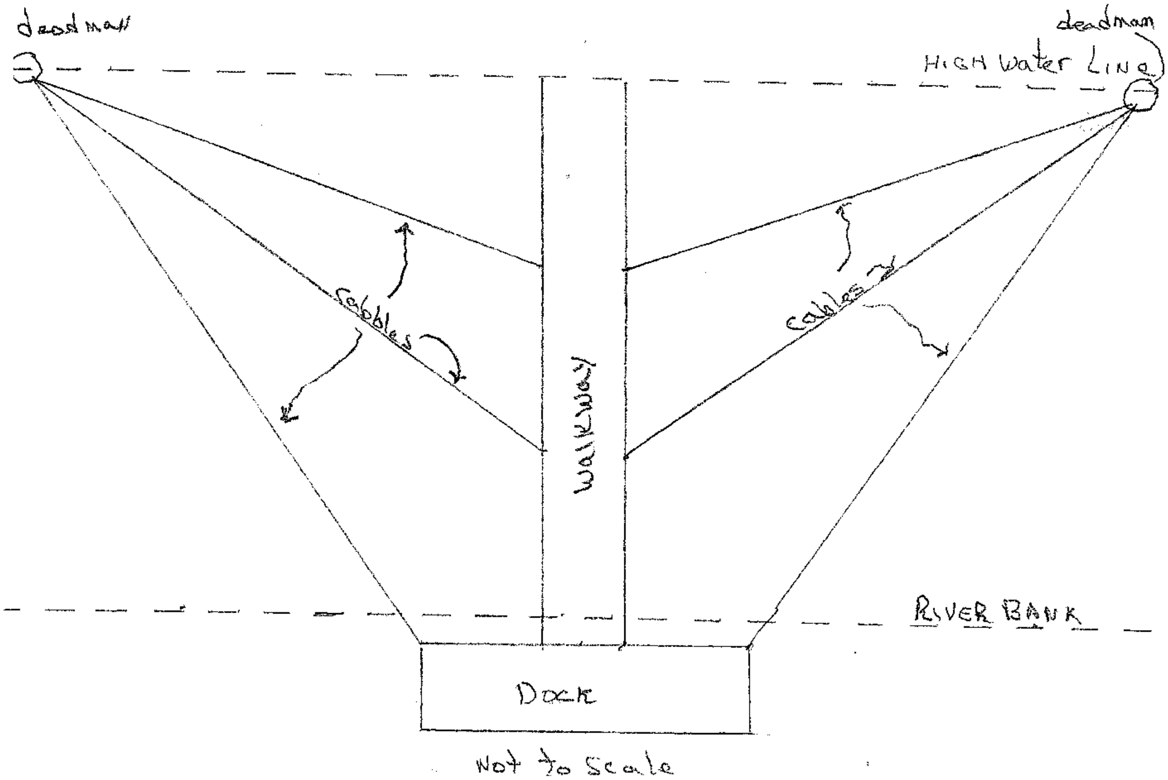

Figure 2. Plan view of the proposed dock installation, which included the installation of six stabilization cables.

1.3.1 Conservation Measures and Best Management Practices (BMP)

1.3.1.1 Project Timing:

- In-water activities will likely take place during a low flow period between August 1 and December 30; however, the work may occur outside this window, per COE correspondence with the residential developer.

1.3.1.2 Soil Erosion and Sediment Controls:

- Use of native vegetation is the preferred method to treat soil erosion and stabilize areas disturbed during deployment, installation, operation, and removal of the dock. Eroded and/or disturbed areas shall be replanted with native vegetation and stabilized until vegetative root mass can become established, unless the District Engineer determines this is not practicable. Non-biodegradable materials, such as chicken or hog wire or plastic netting that may entrap wildlife or pose a safety concern will not be used for soil stabilization.

1.3.1.3 Vegetation Protection and Restoration:

- The permittee shall avoid and minimize the removal of native vegetation in riparian areas to the maximum extent practicable. Areas subject to temporary vegetation removal in riparian areas during construction shall be replanted with appropriate native species by the end of the first growing season following the disturbance except as waived by the District Engineer.

1.3.1.4 General USACE Permit Conditions:

- Responsibility for Contracted Work: The permittee is 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.

- Permit Expiration: The time limit for completing the work authorized ends three years from date of issuance. If the permittee needs more time to complete the authorized activity, the permittee needs to submit a request for a time extension to the COE Walla Walla District office for consideration at least 1 month before the above date is reached.

- Project Maintenance: The permittee must maintain the activity authorized by the permit in good condition and in conformance with the terms and conditions of the permit. The permittee are not relieved of this requirement if the permittee abandons the permitted activity, although the permittee may make a good faith transfer to a third party in compliance with General Conditions. Should the permittee wish to cease to maintain the authorized activity or should the permittee desire to abandon it without a good faith transfer, the permittee must obtain a modification of this permit from the COE Walla Walla district office, which may require restoration of the area.

- Navigation Safety: The permittee shall install and maintain at the permittee’s expense, any safety lights and signals, as prescribed by the U.S. Coast Guard, through regulations or otherwise, on authorized facilities in navigable waters of the U.S.

- Navigation Authority: The permittee understands and agrees that, if future operations by the U.S. require the removal, relocation, or other alteration of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his/her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.

We considered, under the ESA, whether or not the proposed action would cause any other activities and determined that it would cause the following activities:

- A cabin will be constructed upland of the dock site. But for the installation of the dock, construction of this permanent structure would not be possible. The cabin will be located away from the proposed dock site and upland from the Snake River. Therefore, activity directly associated with this structure (e.g. septic and landscaping) is not expected to impact riparian areas or the Snake River. However, boat traffic to the cabin will likely continue throughout the lifespan of the dock. This future boat traffic to the cabin will require permanent dock placement at the project site in the future. Thus, the effects of construction and operation of a permanent dock are analyzed in this consultation.

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

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

2.1 Analytical Approach

This opinion includes both a jeopardy analysis and an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "jeopardize the continued existence of" a listed species, which is "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02). Therefore, the jeopardy analysis considers both survival and recovery of the species.

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

The designation(s) of critical habitat for (species) use(s) the term primary constituent element (PCE) or essential features. The 2016 critical habitat regulations (50 CFR 424.12) replaced 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, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

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

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

- Evaluate the rangewide status of the species and critical habitat expected to be adversely affected by the proposed action.
- Evaluate the environmental baseline of the species and critical habitat in the action area.
- 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 (RPA) 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 that make up the designated area, and discusses the function of the PBFs that are essential for the conservation of the species.

Table 1. Listing status, status of critical habitat designations and protective regulations, and relevant Federal Register decision notices for ESA-listed species considered in this opinion.

Species	Listing Status	Critical Habitat	Protective Regulations
Chinook salmon *(Oncorhynchus tshawytscha)*			
Snake River spring/summer-run	T 6/28/05; 70 FR 37160	10/25/99; 64 FR 57399	6/28/05; 70 FR 37160
Snake River fall-run	T 6/28/05; 70 FR 37160	12/28/93; 58 FR 68543	6/28/05; 70 FR 37160
Steelhead (*O. mykiss*)			
Snake River Basin	T 1/05/06; 71 FR 834	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160

Note: Listing status 'T' means listed as threatened under the ESA; 'E' means listed as endangered.

2.2.1 Status of the Species

This section describes the present condition of the Snake River spring/summer Chinook salmon and Snake River fall Chinook salmon evolutionarily significant units (ESUs), and the Snake River basin steelhead distinct population segment (DPS). NMFS expresses the status of a salmonid ESU or DPS in terms of likelihood of persistence over 100 years (or risk of extinction over 100 years). NMFS uses McElhany et al.'s (2000) description of a viable salmonid population (VSP) that defines "viable" as less than a 5 percent risk of extinction within 100 years and "highly viable" as less than a 1 percent risk of extinction within 100 years. A third category, "maintained," represents a less than 25 percent risk within 100 years (moderate risk of extinction). To be considered viable, an ESU or DPS should have multiple viable populations so that a single catastrophic event is less likely to cause the ESU/DPS to become extinct and so that the ESU/DPS may function as a metapopulation that can sustain population-level extinction and recolonization processes (ICTRT 2007). The risk level of the ESU/DPS is built up from the aggregate risk levels of the individual populations and major population groups (MPGs) that make up the ESU/DPS.

Attributes associated with a VSP are: (1) abundance (number of adult spawners in natural production areas); (2) productivity (adult progeny per parent); (3) spatial structure; and (4) diversity. A VSP needs sufficient levels of these four population attributes in order to: safeguard the genetic diversity of the listed ESU or DPS; enhance its capacity to adapt to various environmental conditions; and allow it to become self-sustaining in the natural environment (ICTRT 2007). These viability attributes are influenced by survival, behavior, and experiences throughout the entire salmonid life cycle, characteristics that are influenced in turn by habitat and other environmental and anthropogenic conditions. The present risk faced by the ESU/DPS informs NMFS' determination of whether additional risk will appreciably reduce the likelihood that the ESU/DPS will survive or recover in the wild.

The following sections summarize the status and available information on the species and designated critical habitats considered in this opinion based on the detailed information 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). Status review update for Pacific salmon and steelhead listed under the Endangered Species Act: Pacific Northwest (NWFSC 2015), and 2016 5-year review: Summary and evaluation of Snake River spring-summer Chinook, Snake River fall-run Chinook, Snake River Basin steelhead (NMFS 2016)]. Additional information (e.g., abundance estimates) has become available since the latest status review (NMFS 2016) and its technical support document (NWFSC 2015). This latest information represents the best scientific and commercial data available and is summarized in the following sections.

Snake River Spring/Summer Chinook Salmon
The Snake River spring/summer Chinook salmon ESU was listed as threatened on April 22, 1992 (57 FR 14653). This ESU occupies the Snake River basin, which drains portions of southeastern Washington, northeastern Oregon, and north/central Idaho. Large portions of historical habitat were blocked in 1901 by the construction of Swan Falls Dam on the Snake River, and later by construction of the three-dam Hells Canyon Complex from 1955 to 1967. Dam construction also blocked and/or hindered fish access to historical habitat in the Clearwater River basin as a result of the construction of Lewiston Dam (removed in 1973 but believed to have caused the extirpation of native Chinook salmon in that subbasin). The loss of this historical habitat substantially reduced the spatial structure of this species. The production of SR spring/summer Chinook salmon was further affected by the development of the eight federal dams and reservoirs in the mainstem lower Columbia/Snake River migration corridor between the late 1930s and early 1970s (NMFS 2017a).

Several factors led to NMFS' conclusion that Snake River spring/summer Chinook salmon were threatened: (1) abundance of naturally produced Snake River spring and summer Chinook runs had dropped to a small fraction of historical levels; (2) short-term projections were for a continued downward trend in abundance; (3) hydroelectric development on the Snake and Columbia Rivers continued to disrupt Chinook runs through altered flow regimes and impacts on estuarine habitats; and (4) habitat degradation existed throughout the region, along with risks associated with the use of outside hatchery stocks in particular areas (Good et al. 2005). Additional factors threatening the recovery of the species include adding climate change and predation (i.e., avian and pinniped predators). On May 26, 2016, in the agency's most recent 5-year review for Pacific salmon and steelhead, NMFS concluded that the species should remain listed as threatened (81 FR 33468).

Spatial structure and diversity. The Snake River ESU includes all naturally spawning populations of spring/summer Chinook in the mainstem Snake River (below Hells Canyon Dam) and in the Tucannon River, Grande Ronde River, Imnaha River, and Salmon River subbasins (57 FR 23458), as well as the progeny of 13 artificial propagation programs (85 FR 81822). The hatchery programs include the McCall Hatchery (South Fork Salmon River), South Fork Salmon River Eggbox, Johnson Creek, Pahsimeroi River, Yankee Fork Salmon River, Panther Creek, Upper Salmon River (Sawtooth Hatchery), Tucannon River, Lostine River, Catherine Creek, Lookingglass Creek, Upper Grande Ronde River, and Imnaha River programs. The historical Snake River ESU likely also included populations in the Clearwater River drainage and extended above the Hells Canyon Dam complex.

Within the Snake River ESU, the Interior Columbia Technical Recovery Team (ICTRT) identified 28 extant and 4 extirpated or functionally extirpated populations of spring/summer-run Chinook salmon, listed in Table 2 (ICTRT 2003; McClure et al. 2005). The ICTRT aggregated these populations into five MPGs: Lower Snake River, Grande Ronde/Imnaha Rivers, South Fork Salmon River, Middle Fork Salmon River, and Upper Salmon River. For each population,

Table 2 shows the current risk ratings that the ICTRT assigned to the four parameters of a VSP (spatial structure, diversity, abundance, and productivity).

Spatial structure risk is low to moderate for most populations in this ESU (NWFSC 2015) and is generally not preventing the recovery of the species. Spring/summer Chinook salmon spawners are distributed throughout the ESU albeit at very low numbers. Diversity risk, on the other hand, is somewhat higher, driving the moderate and high combined spatial structure/diversity risks shown in Table 2 for some populations. 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 need to be lowered in multiple populations in order for the ESU to recover (ICTRT 2007; ICTRT 2010; NWFSC 2015).

***Abundance and productivity*.** Historically, the Snake River drainage is thought to have produced more than 1.5 million adult spring/summer Chinook salmon in some years (Matthews and Waples 1991), yet in 1994 and 1995, fewer than 2,000 naturally produced adults returned to the Snake River (ODFW and WDFW 2019). From the mid-1990s and the early 2000s, the population increased dramatically and peaked in 2001 at 45,273 naturally produced adult returns. Since 2001, the numbers have fluctuated between 32,324 (2003) and 4,425 (2017), and the trend for the most recent 5 years (2016–2020) has been generally downward (ODFW and WDFW 2021). Furthermore, the most recent returns indicate that all populations in the ESU were below replacement for the 2013 brood year (Felts et al. 2019)[1], which reduced abundance across the ESU. Although most populations in this ESU have increased in abundance since listing, 27 of the 28 extant populations remain at high risk of extinction due to low abundance/productivity, with one population (Chamberlin Creek) at moderate risk of extinction (NWFSC 2015). All currently extant populations of Snake River spring/summer Chinook salmon will likely have to increase in abundance and productivity in order for the ESU to recover (Table 2).

Table 2. Summary of viable salmonid population (VSP) parameter risks and overall current status for each population in the Snake River spring/summer Chinook salmon evolutionarily significant unit (NWFSC 2015).

Major Population Group	Population	VSP Risk Parameter		Overall Viability Rating
		Abundance/ Productivity	Spatial Structure/ Diversity	
South Fork Salmon River (Idaho)	Little Salmon River	*Insuf. data*	Low	High Risk
	South Fork Salmon River mainstem	High	Moderate	High Risk
	Secesh River	High	Low	High Risk
	East Fork South Fork Salmon River	High	Low	High Risk
Middle Fork Salmon River (Idaho)	Chamberlain Creek	Moderate	Low	Maintained
	Middle Fork Salmon River below Indian Creek	*Insuf. data*	Moderate	High Risk
	Big Creek	High	Moderate	High Risk
	Camas Creek	High	Moderate	High Risk
	Loon Creek	High	Moderate	High Risk
	Middle Fork Salmon River above Indian Creek	High	Moderate	High Risk

[1] The return size is not known until 5 years after the brood year. Preliminary results for the 2019 redd counts indicate that the 2014 brood year will be below replacement for the vast majority (possibly all) of the populations in the Snake River spring/summer Chinook salmon ESU.

Major Population Group	Population	VSP Risk Parameter		Overall Viability Rating
		Abundance/ Productivity	Spatial Structure/ Diversity	
	Sulphur Creek	High	Moderate	High Risk
	Bear Valley Creek	High	Low	High Risk
	Marsh Creek	High	Low	High Risk
Upper Salmon River (Idaho)	North Fork Salmon River	*Insuf. data*	Low	High Risk
	Lemhi River	High	High	High Risk
	Salmon River Lower Mainstem	High	Low	High Risk
	Pahsimeroi River	High	High	High Risk
	East Fork Salmon River	High	High	High Risk
	Yankee Fork Salmon River	High	High	High Risk
	Valley Creek	High	Moderate	High Risk
	Salmon River Upper Mainstem	High	Low	High Risk
	Panther Creek			*Extirpated*
Lower Snake (Washington)	Tucannon River	High	Moderate	High Risk
	Asotin Creek			*Extirpated*
Grande Ronde and Imnaha Rivers (Oregon/ Washington)	Wenaha River	High	Moderate	High Risk
	Lostine/Wallowa River	High	Moderate	High Risk
	Minam River	High	Moderate	High Risk
	Catherine Creek	High	Moderate	High Risk
	Upper Grande Ronde River	High	High	High Risk
	Imnaha River	High	Moderate	High Risk
	Lookingglass Creek			*Extirpated*
	Big Sheep Creek			*Extirpated*

Snake River Fall-run Chinook Salmon

The Snake River fall Chinook salmon ESU was listed as threatened on April 22, 1992 (57 FR 14653). This ESU occupies the Snake River basin, which drains portions of southeastern Washington, northeastern Oregon, and north/central Idaho. Snake River fall Chinook salmon have substantially declined in abundance from historic levels, primarily due to the loss of primary spawning and rearing areas upstream of the Hells Canyon Dam complex (57 FR 14653). Additional concerns for the species have been the high percentage of hatchery fish returning to natural spawning grounds and the relatively high aggregate harvest impacts by ocean and in-river fisheries (Good et al. 2005). Additional factors threatening the recovery of the species include adding climate change and predation (i.e., avian and pinniped predators). On May 26, 2016, in the agency's most recent five-year status review for Pacific salmon and steelhead, NMFS concluded that the species should remain listed as threatened (81 FR 33468).

Life history. Snake River fall Chinook salmon enter the Columbia River in July and August, and migrate past the lower Snake River mainstem dams from August through November. Fish spawning takes place from October through early December in the mainstem of the Snake River, primarily between Asotin Creek and Hells Canyon Dam, and in the lower reaches of several of the associated major tributaries including the Tucannon, Grande Ronde, Clearwater, Salmon, and Imnaha Rivers (Connor and Burge 2003; Ford 2011). Spawning has occasionally been observed in the tailrace areas of the four-mainstem dams (Dauble et al. 1999; Dauble et al. 1995; Dauble et al. 1994; Mueller 2009). Juveniles emerge from the gravels in March and April of the following year.

Until relatively recently, Snake River fall Chinook were assumed to follow an "ocean-type" life history (Dauble and Geist 2000; Good et al. 2005; Healey 1991; NMFS 1992) where they migrate to the Pacific Ocean during their first year of life, normally within 3 months of emergence from spawning substrate as age-0 smolts, to spend their first winter in the ocean. Ocean-type Chinook salmon juveniles tend to display a "rear as they go" rearing strategy, in which they continually move downstream through shallow shoreline habitats their first summer and fall until they reach the ocean by winter (Connor and Burge 2003; Coutant and Whitney 2006). Tiffan and Connor (2012) showed that sub-yearling fish favor water less than six feet deep.

Several studies have shown that another life history pattern exists where a significant number of smaller Snake River fall Chinook juveniles overwinter in Snake River reservoirs prior to outmigration. These fish begin migration later than most, arrest their seaward migration and overwinter in reservoirs on the Snake and Columbia Rivers, then resume migration and enter the ocean in early spring as age-one smolts (Connor and Burge 2003; Connor et al. 2002; Connor et al. 2005; Hegg et al. 2013). Connor et al. (2005) termed this life history strategy "reservoir-type." Scale samples from natural-origin adult fall Chinook salmon taken at Lower Granite Dam have indicated that approximately half of the returns overwintered in freshwater (Ford 2011).

Spatial structure and diversity. The Snake River fall Chinook salmon ESU includes one extant population of fish spawning in the mainstem of the Snake River and the lower reaches of several of the associated major tributaries including the Tucannon, Grande Ronde, Clearwater, Salmon, and Imnaha Rivers. The ESU also includes four artificial propagation programs: Lyons Ferry Hatchery, Fall Chinook Acclimation Ponds, Nez Perce Tribal Hatchery, and Idaho Power Program (85 FR 81822). Historically, this ESU included one large additional population spawning in the mainstem of the Snake River upstream of the Hells Canyon Dam complex, an impassable migration barrier (NWFSC 2015). Four of the five historic major spawning areas in the Lower Snake population currently have natural-origin spawning. Spatial structure risk for the existing ESU is therefore low and is not precluding recovery of the species (NWFSC 2015).

There are several diversity concerns for Snake River fall Chinook salmon, leading to a moderate diversity risk rating for the extant Lower Snake population. One concern is the high proportion of hatchery fish spawning across the major spawning areas within the population (NWFSC 2015; NMFS 2017b). Between 2000 and 2014, the five-year average proportion of hatchery-origin fish has ranged from 38 percent (1990-1994) to 69 percent (2010-2014) (NWFSC 2015). The moderate diversity risk is also driven by changes in major life history patterns; shifts in phenotypic traits; high levels of genetic homogeneity in samples from natural-origin returns; selective pressure imposed by current hydropower operations; and cumulative harvest impacts (NWFSC 2015). Diversity risk will need to be reduced to low in order for this population to be considered highly viable, a requirement for recovery of the species. Low diversity risk would require that one or more major spawning areas produce a significant level of natural-origin spawners with low influence by hatchery-origin spawners (NWFSC 2015).

Abundance and productivity. Historical abundance of Snake River fall Chinook salmon is estimated to have been 416,000 to 650,000 adults (NMFS 2006), but numbers declined drastically over the 20th century, with only 78 natural-origin fish (WDFW and ODFW 2021) and

306 hatchery-origin fish (FPC 2019) passing Lower Granite Dam in 1990. Artificial propagation of fall Chinook salmon occurred from 1901 through 1909 and again from 1955 through 1973, but those efforts ultimately failed and, by the late 1970s, essentially all Snake River fall Chinook salmon were natural-origin. The large-scale hatchery effort that exists today began in 1976, when Congress authorized the Lower Snake River Compensation Plan to compensate for fish and wildlife losses caused by the construction and operation of the four lower Snake River dams. The first hatchery fish from this effort returned in 1981 and hatchery returns have comprised a substantial portion of the run every year since.

After 1990, abundance increased dramatically, and in 2014 the 10-year geometric mean (2005–2014) was 22,196 total adult returns (FPC 2019) and 6,148 natural-origin adult returns (NWFSC 2015). This is well above the minimum abundance of 4,200 natural-origin spawners needed for highly viable status. However, the productivity estimate for the 1990–2009 brood years is 1.5, which is below the 1.7 minimum needed for highly viable status. The best available scientific and commercial data available with respect to the adult abundance of this species indicates a substantial downward trend in the abundance of natural-origin spawners from 2013 to 2019. Five-year geometric means in the numbers of natural-origin spawners through 2019 have ranged from a high of 13,905 in 2015 to a low of 8,501 in 2019 (WDFW and ODFW 2020). Even with this decline, the overall abundance has remained higher than before 2005, and appear to remain above the minimum abundance threshold. NMFS will evaluate the viability risk of these more recent returns in the upcoming 5-year status review, expected in 2021.

Snake River Basin Steelhead

The Snake River basin steelhead listed as a threatened ESU on August 18, 1997 (62 FR 43937), with a revised listing as a DPS on January 5, 2006 (71 FR 834). This DPS occupies the Snake River basin, which drains portions of southeastern Washington, northeastern Oregon, and north/central Idaho. Reasons for the decline of this species include substantial modification of the seaward migration corridor by hydroelectric power development on the mainstem Snake and Columbia Rivers, loss of habitat above the Hells Canyon Dam complex on the mainstem Snake River, and widespread habitat degradation and reduced stream flows throughout the Snake River basin (Good et al. 2005). Additional factors threatening the recovery of the species include adding climate change and predation (i.e., avian and pinniped predators). Another major concern for the species is the threat to genetic integrity from past and present hatchery practices, and the high proportion of hatchery fish in the aggregate run of Snake River basin steelhead over Lower Granite Dam (Good et al. 2005; Ford 2011). On May 26, 2016, in the agency's most recent five-year status review for Pacific salmon and steelhead, NMFS concluded that the species should remain listed as threatened (81 FR 33468).

Life history. Adult Snake River basin steelhead enter the Columbia River from late June to October to begin their migration inland. After holding over the winter in larger rivers in the Snake River basin, steelhead disperse into smaller tributaries to spawn from March through May. Earlier dispersal occurs at lower elevations and later dispersal occurs at higher elevations. Juveniles emerge from the gravels in 4 to 8 weeks, and move into shallow, low-velocity areas in side channels and along channel margins to escape high velocities and predators (Everest and Chapman 1972). Juvenile steelhead then progressively move toward deeper water as they grow in size (Bjornn and Rieser 1991). Juveniles typically reside in fresh water for 1 to 3 years, although this species displays a wide diversity of life histories. Smolts migrate downstream during spring runoff, which occurs from March to mid-June depending on elevation, and typically spend 1 to 2 years in the ocean.

Spatial structure and diversity. This species includes all naturally-spawning steelhead populations below natural and manmade impassable barriers in streams in the Snake River basin of southeast Washington, northeast Oregon, and Idaho, as well as the progeny of six artificial propagation programs (85 FR 81822). The artificial propagation programs include the Dworshak National Fish Hatchery, Salmon River B-run, South Fork Clearwater B-run, East Fork Salmon River Natural, Tucannon River, and the Little Sheep Creek/Imnaha River programs. The Snake River basin steelhead listing does not include resident forms of *O. mykiss* (rainbow trout) co-occurring with steelhead.

The ICTRT identified 24 extant populations within this DPS, organized into five MPGs (ICTRT 2003). The ICTRT also identified a number of potential historical populations associated with watersheds above the Hells Canyon Dam complex on the mainstem Snake River, a barrier to anadromous migration. The five MPGs with extant populations are the Clearwater River, Salmon River, Grande Ronde River, Imnaha River, and Lower Snake River. In the Clearwater River, Dworshak Dam blocked the historic North Fork population from accessing spawning and rearing habitat. Current steelhead distribution extends throughout the DPS, such that spatial structure risk is generally low. For each population in the DPS, Table 3 shows the current risk ratings for the parameters of a VSP (spatial structure, diversity, abundance, and productivity).

The Snake River basin DPS steelhead exhibit a diversity of life-history strategies, including variations in fresh water and ocean residence times. Traditionally, fisheries managers have classified Snake River basin steelhead into two groups, A-run and B-run, based on ocean age at return, adult size at return, and migration timing. A-run steelhead predominantly spend one year in the ocean; B-run steelhead are larger with most individuals returning after two years in the ocean. New information shows that most Snake River populations support a mixture of the two run types, with the highest percentage of B-run fish in the upper Clearwater River and the South Fork Salmon River; moderate percentages of B-run fish in the Middle Fork Salmon River; and very low percentages of B-run fish in the Upper Salmon River, Grande Ronde River, and Lower Snake River (NWFSC 2015). Maintaining life history diversity is important for the recovery of the species.

Diversity risk for populations in the DPS is either moderate or low. Large numbers of hatchery steelhead are released in the Snake River, and the relative proportion of hatchery adults in natural spawning areas near major hatchery release sites remains uncertain. Moderate diversity risks for some populations are thus driven by the high proportion of hatchery fish on natural spawning grounds and the uncertainty regarding these estimates (NWFSC 2015). Reductions in hatchery-related diversity risks would increase the likelihood of these populations reaching viable status.

Table 3. Summary of viable salmonid population (VSP) parameter risks and overall current status for each population in the Snake River basin steelhead distinct population segment (NWFSC 2015). Risk ratings with "?" are based on limited or provisional data series.

Major Population Group	Population	VSP Risk Parameter		Overall Viability Rating
		Abundance/ Productivity	Spatial Structure/ Diversity	
Lower Snake River	Tucannon River	High?	Moderate	High Risk?
	Asotin Creek	Moderate?	Moderate	Maintained?
Grande Ronde River	Lower Grande Ronde	N/A	Moderate	Maintained?
	Joseph Creek	Very Low	Low	Highly Viable
	Wallowa River	N/A	Low	Maintained?
	Upper Grande Ronde	Low	Moderate	Viable
Imnaha River	Imnaha River	Moderate?	Moderate	Maintained?
Clearwater River (Idaho)	Lower Mainstem Clearwater River*	Moderate?	Low	Maintained?
	South Fork Clearwater River	High?	Moderate	High Risk?
	Lolo Creek	High?	Moderate	High Risk?
	Selway River	Moderate?	Low	Maintained?
	Lochsa River	Moderate?	Low	Maintained?
	North Fork Clearwater River			*Extirpated*
Salmon River (Idaho)	Little Salmon River	Moderate?	Moderate	Maintained?
	South Fork Salmon River	Moderate?	Low	Maintained?
	Secesh River	Moderate?	Low	Maintained?
	Chamberlain Creek	Moderate?	Low	Maintained?
	Lower Middle Fork Salmon River	Moderate?	Low	Maintained?
	Upper Middle Fork Salmon River	Moderate?	Low	Maintained?
	Panther Creek	Moderate?	High	High Risk?
	North Fork Salmon River	Moderate?	Moderate	Maintained?
	Lemhi River	Moderate?	Moderate	Maintained?
	Pahsimeroi River	Moderate?	Moderate	Maintained?
	East Fork Salmon River	Moderate?	Moderate	Maintained?
	Upper Mainstem Salmon River	Moderate?	Moderate	Maintained?
Hells Canyon	Hells Canyon Tributaries			*Extirpated*

*Current abundance/productivity estimates for the Lower Clearwater Mainstem population exceed minimum thresholds for viability, but the population is assigned moderate risk for abundance/productivity due to the high uncertainty associated with the estimate.

Abundance and productivity. 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 and WDFW 2021). Since 2015, the numbers have declined steadily with only 9,634 natural-origin adult returns counted for the 2020-run year (ODFW and WDFW 2021).

Population-specific abundance estimates exist for some but not all populations. Of the populations, for which we have data, three (Joseph Creek, Upper Grande Ronde, and Lower Clearwater) were meeting minimum abundance/productivity thresholds based on information included in the 2015 status review; however, since that time, abundance has substantially decreased. Only the 5-year (2014-2018) geometric mean of natural-origin spawners of 1,786 for the Upper Grande Ronde population appears to remain above the minimum abundance threshold established by the ICTRT (Williams 2020). The status of many of the individual populations remains uncertain, and four out of the five MPGs are not meeting viability objectives (NWFSC 2015). In order for the species to recover, more populations will need to reach viable status through increases in abundance and productivity.

2.2.2 Status of Critical Habitat

In evaluating the condition of designated critical habitat, NMFS examines the condition and trends of PBFs, which are essential to the conservation of the ESA-listed species because they support one or more life stages of the species. Proper function of these PBFs is necessary to support successful adult and juvenile migration, adult holding, spawning, incubation, rearing, and the growth and development of juvenile fish. Modification of PBFs may affect freshwater spawning, rearing or migration in the action area. Generally speaking, sites required to support one or more life stages of the ESA-listed species (i.e., sites for spawning, rearing, migration, and foraging) contain PBF essential to the conservation of the listed species (e.g., spawning gravels, water quality and quantity, side channels, or food) (Table 4).

Table 4. Types of sites, essential physical and biological features (PBFs), and the species life stage each PBF supports.

Site	Essential Physical and Biological Features	Species Life Stage
Snake River basin steelhead[a]		
Freshwater spawning	Water quality, water quantity, and substrate	Spawning, incubation, and larval development
Freshwater rearing	Water quantity and floodplain connectivity to form and maintain physical habitat conditions	Juvenile growth and mobility
	Water quality and forage[b]	Juvenile development
	Natural cover[c]	Juvenile mobility and survival
Freshwater migration	Free of artificial obstructions, water quality and quantity, and natural cover[c]	Juvenile and adult mobility and survival
Snake River spring/summer Chinook salmon and fall Chinook		
Spawning and juvenile rearing	Spawning gravel, water quality and quantity, cover/shelter (Chinook only), food, riparian vegetation, space (Chinook only)	Juvenile and adult
Migration	Substrate, water quality and quantity, water temperature, water velocity, cover/shelter, food[d], riparian vegetation, space, safe passage	Juvenile and adult

[a] Additional PBFs pertaining to estuarine, nearshore, and offshore marine areas have also been described for Snake River steelhead and Middle Columbia steelhead. These PBFs will not be affected by the proposed action and have therefore not been described in this opinion.
[b] Forage includes aquatic invertebrate and fish species that support growth and maturation.
[c] Natural cover includes shade, large wood, log jams, beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
[d] Food applies to juvenile migration only.

Table 5 describes the geographical extent within the Snake River of critical habitat for each of the four ESA-listed salmon and steelhead species. Critical habitat includes the stream channel and water column with the lateral extent defined by the ordinary high-water line, or the bankfull elevation where the ordinary high-water line is not defined. In addition, critical habitat for the three salmon species includes the adjacent riparian zone, which is defined as the area within 300 feet of the line of high water of a stream channel or from the shoreline of standing body of water (58 FR 68543). The riparian zone is critical because it provides shade, streambank stability, organic matter input, and regulation of sediment, the formation of complex habitat, nutrients, and chemicals.

Table 5. Geographical extent of designated critical habitat within the Snake River for ESA-listed salmon and steelhead.

Evolutionarily Significant Unit (ESU)/ Distinct Population Segment (DPS)	Designation	Geographical Extent of Critical Habitat
Snake River spring/summer Chinook salmon	58 FR 68543; December 28, 1993 64 FR 57399; October 25, 1999	All Snake River reaches upstream to Hells Canyon Dam; all river reaches presently or historically accessible to Snake River spring/summer Chinook salmon within the Salmon River basin; and all river reaches presently or historically accessible to Snake River spring/summer Chinook salmon within the Hells Canyon, Imnaha, Lower Grande Ronde, Upper Grande Ronde, Lower Snake–Asotin, Lower Snake–Tucannon, and Wallowa subbasins.
Snake River fall Chinook salmon	58 FR 68543; December 28, 1993	Snake River to Hells Canyon Dam; Palouse River from its confluence with the Snake River upstream to Palouse Falls; Clearwater River from its confluence with the Snake River upstream to Lolo Creek; North Fork Clearwater River from its confluence with the Clearwater River upstream to Dworshak Dam; and all other river reaches presently or historically accessible within the Lower Clearwater, Hells Canyon, Imnaha, Lower Grande Ronde, Lower Salmon, Lower Snake, Lower Snake–Asotin, Lower North Fork Clearwater, Palouse, and Lower Snake–Tucannon subbasins.
Snake River Basin steelhead	70 FR 52630; September 2, 2005	Specific stream reaches are designated within the Lower Snake, Salmon, and Clearwater River basins. Table 21 in the Federal Register details habitat areas within the DPS's geographical range that are excluded from critical habitat designation.

Spawning and rearing habitat quality in tributary streams in the Snake River varies from excellent in wilderness and roadless areas to poor in areas subject to intensive human land uses (NMFS 2015; NMFS 2017a). Critical habitat throughout much of the Interior Columbia, (which includes the Snake River and the Middle Columbia River) has been degraded by intensive agriculture, alteration of stream morphology (i.e., channel modifications and diking), riparian vegetation disturbance, wetland draining and conversion, livestock grazing, dredging, road construction and maintenance, logging, mining, and urbanization. Reduced summer stream flows, impaired water quality, and reduction of habitat complexity are common problems for critical habitat in non-wilderness areas. Human land use practices throughout the basin have caused streams to become straighter, wider, and shallower, thereby reducing rearing habitat and increasing water temperature fluctuations.

In many stream reaches designated as critical habitat in the Snake River basin, stream flows are substantially reduced by water diversions (NMFS 2015; NMFS 2017a). Withdrawal of water, particularly during low-flow periods that commonly overlap with agricultural withdrawals, often increases summer stream temperatures, blocks fish migration, strands fish, and alters sediment transport (Spence et al. 1996). Reduced tributary streamflow has been identified as a major limiting factor for Snake River spring/summer Chinook and Snake River basin steelhead in particular (NMFS 2017a).

Many stream reaches designated as critical habitat for these species are listed on the Clean Water Act (CWA) 303(d) list for impaired water quality, such as elevated water temperature (IDEQ 2020). Many areas that were historically suitable rearing and spawning habitat are now unsuitable due to high summer stream temperatures, such as some stream reaches in the Upper Grande Ronde. Removal of riparian vegetation, alteration of natural stream morphology, high summer water temperatures exacerbated by climate change, and withdrawal of water for agricultural or municipal use all contribute to elevated stream temperatures. Water quality in spawning and rearing areas in the Snake River has also been impaired by high levels of sedimentation and by heavy metal contamination from mine waste (e.g., IDEQ and USEPA 2003; IDEQ 2001).

The construction and operation of water storage and hydropower projects in the Columbia River basin, including the eight run-of-river dams on the mainstem lower Snake and lower Columbia Rivers, have altered biological and physical attributes of the mainstem migration corridor. Hydro system development modified natural flow regimes, resulting in warmer late summer and fall water temperature. Changes in fish communities led to increased rates of piscivorous predation on juvenile salmon and steelhead. Reservoirs and project tailraces have created opportunities for avian predators to successfully forage for smolts, and the dams themselves have created migration delays for both adult and juvenile salmonids. Physical features of dams, such as turbines, have delayed migration for both adults and juveniles. Turbines and juvenile bypass systems have also killed some out-migrating fish. However, some of these conditions have improved. The Bureau of Reclamation and U.S. Army Corps of Engineers have implemented measures in previous Columbia River System hydropower consultations to improve conditions in the juvenile and adult migration corridor including 24-hour volitional spill, surface passage routes, upgrades to juvenile bypass systems, and predator management measures. These measures are ongoing and their benefits with respect to improved functioning of the migration corridor PBFs will continue into the future.

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

One factor affecting the rangewide status of Snake River salmon and steelhead, and aquatic habitat at large is climate change. The U.S. Global Change Research Program (USGCRP) reports average warming in the Pacific Northwest of about 1.3ºF from 1895 to 2011, and projects an increase in average annual temperature of 3.3ºF to 9.7ºF by 2070 to 2099 (compared to the period 1970 to 1999), depending largely on total global emissions of heat-trapping gases (predictions based on a variety of emission scenarios including B1, RCP4.5, A1B, A2, A1FI, and RCP8.5 scenarios). The increases are projected to be largest in summer (Melillo et al. 2014, USGCRP 2018). The five warmest years in the 1880 to 2019 record have all occurred since 2015, while 9 of the 10 warmest years have occurred since 2005 (Lindsey and Dahlman 2020).

Several studies have revealed that climate change has the potential to affect ecosystems in nearly all tributaries throughout the Snake River (Battin et al. 2007; ISAB 2007). While the intensity of effects will vary by region (ISAB 2007), climate change is generally expected to alter aquatic habitat (water yield, peak flows, and stream temperature). As climate change alters the structure and distribution of rainfall, snowpack, and glaciations, each factor will in turn alter riverine hydrographs. Given the increasing certainty that climate change is occurring and is accelerating (Battin et al. 2007), NMFS anticipates salmonid habitats will be affected. Climate and hydrology models project significant reductions in both total snow pack and low-elevation snow pack in the Pacific Northwest over the next 50 years (Mote and Salathé 2009). These changes will shrink the extent of the snowmelt-dominated habitat available to salmon and may restrict our ability to conserve diverse salmon life histories.

In the Pacific Northwest, most models project warmer air temperatures, increases in winter precipitation, and decreases in summer precipitation. Average temperatures in the Pacific Northwest are predicted to increase by 0.1 to 0.6°C (0.2°F to 1.0°F) per decade (Mote and Salathé 2009). Warmer air temperatures will lead to more precipitation falling as rain rather than snow. As the snow pack diminishes, seasonal hydrology will shift to more frequent and severe early large storms, changing stream flow timing, which may limit salmon survival (Mantua et al. 2009). The largest driver of climate-induced decline in salmon populations is projected to be the impact of increased winter peak flows, which scour the streambed and destroy salmon eggs (Battin et al. 2007).

Higher water temperatures and lower spawning flows, together with increased magnitude of winter peak flows are all likely to increase salmon mortality. The Independent Scientific Advisory Board (ISAB 2007) found that higher ambient air temperatures will likely cause water temperatures to rise. Salmon and steelhead require cold water for spawning and incubation. As climate change progresses and stream temperatures warm, thermal refugia will be essential to persistence of many salmonid populations. Thermal refugia are important for providing salmon and steelhead with patches of suitable habitat while allowing them to undertake migrations through or to make foraging forays into areas with greater than optimal temperatures. To avoid waters above summer maximum temperatures, juvenile rearing may be increasingly found only in the confluence of colder tributaries or other areas of cold-water refugia (Mantua et al. 2009).

Climate change is expected to make recovery targets for salmon and steelhead populations more difficult to achieve. Climate change is expected to alter critical habitat by generally increasing temperature and peak flows and decreasing base flows. Although changes will not be spatially homogenous, effects of climate change are expected to decrease the capacity of critical habitat to support successful spawning, rearing, and migration. Habitat action can address the adverse impacts of climate change on salmon. Examples include restoring connections to historical floodplains and freshwater and estuarine habitats to provide fish refugia and areas to store excess floodwaters, protecting and restoring riparian vegetation to ameliorate stream temperature increases, and purchasing or applying easements to lands that provide important cold water or refuge habitat (Battin et al. 2007; ISAB 2007). In reference to the proposed action, the potential for increasing water temperatures in the action area is taken into consideration. Therefore, the effects of predator fish are likely to increase based on recent studies.

2.3 Action Area

"Action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area is located in the Snake River within Section 23 of Township 28 North, Range 02 West, near latitude 45.7543º N and longitude -116.5532º W, approximately nine miles downstream from the Pittsburg Landing Boat Ramp, Idaho County, Idaho.

The action area includes the upland activities such as dock construction away from the river (upland at Pittsburgh Landing or offsite), and the cabin construction (near the dock location but also away from the river) facilitated by the dock. The in-river portion of the action area includes the section of the Snake River from where the dock is launched at Pittsburgh Landing to approximately nine miles downstream, where it will be installed and operated. Effects of the dock placement include an approximately 100-foot area upstream and downstream of the dock where there will be increased concentration of boat activity because of the dock. The area around the dock, as well as the footprint of the dock itself, is thus considered part of the action area. Materials for project activities (i.e., logs for the dock) will be sourced from outside the action area.

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 Snake River is the major tributary to the Columbia River system. The project area occurs within the Hells Canyon section (Hydrologic Unit Code: 17060101) in the downstream Snake River Segment. The Snake River drains about 87 percent of the State of Idaho (roughly 73,000 square miles) and flows nearly 760 miles through southern and southwestern Idaho, with about 270 miles of this segment acting as the border between Oregon and Idaho.

The action area portion of the Snake River is a narrow, rapidly flowing river characterized by steep canyon walls and stretches of white water. Most areas, including the project area, are only accessible by boat. The flow and volume of this segment are almost completely driven by the outflow of the Hells Canyon Complex reservoirs and support substantial recreational uses year round (IDEQ 2004).

According to USGS gage data (gage ID: 13290450), mean peak flows of approximately 26,000 cubic feet per second (cfs) occur in April, falling down to approximately 9,000 cfs in November with flows picking up again in February.

The Idaho Water Quality Standards for the section of the Snake River in the action area designate cold-water aquatic life as beneficial uses, which are currently not being supported due to temperature and dissolved gas super saturation (IDEQ 2004).

The Snake River provides spawning and rearing habitat for salmonids and other fish species. Upstream of the action area, a full passage barrier for anadromous fish occurs at the Hells Canyon Dam. Snake River spring/summer Chinook salmon (*Oncorhynchus tshawytscha*), Snake River fall Chinook salmon (*O. tshawytscha*), and Snake River Basin steelhead (*Oncorhynchus mykiss*) are widely distributed throughout the Snake River below Hells Canyon Dam, as is their critical habitat. Smallmouth bass are abundant in the action area, and are known to prey on juvenile salmonids in the Snake River.

The project occurs on private property owned by Mr. Rusty Bentz. The shoreline on this portion of the Snake River is rocky and does not support easily beaching a boat; therefore, Mr. Bentz has proposed constructing a small dock to safely transport materials to the building site.

The COE indicated that the dock installation site is not favorable for spawning conditions due to inadequate substrate (i.e., large rocks) and river depth conditions. However, the site is typical of the description of the Snake River found above.

This section of the Snake River has a “Not Supporting” status for the beneficial use of Cold Water Aquatic Life in the Idaho Department of Environmental Quality 2014 Integrated Report due to inadequate water temperatures and dissolved gas super saturation (IDEQ 2017).

Three species of ESA-listed salmonids are present within the action area at various times of year, including Snake River fall Chinook, Snake River spring/summer Chinook, and Snake River Basin steelhead:

- For fall Chinook, the Lower Snake River population occupies this section of the Snake River, 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/productivity, moderate risk for spatial structure, moderate risk for diversity, and is likely achieving maintained status for an overall viability rating (NMFS 2017b). The Snake River fall Chinook ESU as a whole is not meeting the recovery goals described in the recovery plan for the species, which require the single population to be “highly viable with high certainty” (NWFSC 2015). Adult fall Chinook may be present from September to December. Spawning may occur within close proximity to the action area. Therefore, fall Chinook eggs and juveniles may be present from October through

June. Fall Chinook spawning is known to occur upstream and downstream from the boat dock site, but it is unlikely to occur at the project site due to unfavorable substrate and river depth conditions. Additionally, historical redd survey data does not indicate spawning at this site (Groves 2013, Groves 2001).

- Habitat analyses and historical records indicate historical and current presence of Snake River spring/summer Chinook in the action area. The area above Hells Canyon Dam once supported several anadromous populations of spring/summer Chinook (NMFS 2017a). Although the Hells Canyon reach of the Snake River does not currently support an independent population, spring/summer Chinook salmon do currently occur in the action area. While we suspect that the majority of spring/summer Chinook salmon occurring in the action area are most likely hatchery fish; adult, wild spring/summer Chinook protected under the ESA are occasionally caught at the Hells Canyon Dam trap facility. Because ESA-listed spring/summer Chinook salmon have access to the action area and could be present, effects on Snake River Spring/summer Chinook salmon are also evaluated in this opinion. Migrating spring/summer Chinook adults may be in the action area from June through August. Those fish will eventually move upstream of the action area to spawn in tributaries. Rearing and migrating juvenile spring/summer Chinook may be present in the action area year-round.

- For steelhead, the Hells Canyon Tributaries steelhead population of the Hells Canyon MPG historically occupied this section of the Snake River. This population is considered extirpated, and the Hells Canyon MPG is not expected to contribute to DPS recovery (NMFS 2017a). Tributaries available to steelhead below the Hells Canyon Dam are not considered large enough to support an independent population. The Hells Canyon reach of the Snake River does not currently support an independent population, although steelhead do occur in the action area. Although we suspect that the majority of steelhead occurring in the action area are likely hatchery fish, adult, wild steelhead protected under the ESA are regularly caught at the Hells Canyon Dam trap facility. Because ESA-listed steelhead have access to the action area and could be present, effects on Snake River Basin steelhead are evaluated in this opinion. Migrating and staging adult steelhead may be present from August through February. Those fish will eventually move upstream of the action area and spawn in tributaries. Rearing and migrating juvenile steelhead will move out of the tributaries and may be present in the action area all year.

2.5 Effects of the Action

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

2.5.1 Effects on Species

As noted above, juvenile spring/summer and fall Chinook salmon and steelhead may use the action area for rearing and migrating. Migrating and pre-spawning adults of the three species are likely to be present in the action area at certain times when the dock is there; however, the adult fish will tend to be offshore and have little to no interaction with the dock and associated boat traffic. The effects on the fish we considered include: (1) disturbance of fish from the activities of transporting the dock from Pittsburgh Landing to nine miles downriver, use of the dock near the cabin-construction site, and potential long term access of the site due to construction of a permanent dwelling; (2) effects from predator fish that may hide under the dock and kill or injure juvenile salmon and steelhead; and (3) effects from toxic chemicals (particularly fuel and oil) from boat use and fueling.

2.5.1.1 Fish Disturbance

The activities of launching and towing the dock has the potential of disturbing fish and causing them to relocate. Launching will be at Pittsburg Landing boat ramp and will likely not increase the disturbance any further than the normal use of the public boat ramp. Towing the ramp will likely be in the deepest part of the river, in which adult fish are most likely to be located. This activity may cause disturbance to fish but will likely be minimal because the ramp will be towed in one single trip. Thus eliminating repeated disturbance to fish in this section of the river. Additionally, the ramp will travel with the current, reducing the amount of boat motor disturbance in the water. The disturbance will be short lived and will likely cause fish to move only a short distance and to similar habitats.

The increased boat traffic at the dock location will continue for the lifetime of the dock. Boat traffic in the area immediately surrounding the dock has the potential to repeatedly disturb both adult and juvenile fish. These fish are likely to relocate from the area during boat docking and launching events, and will likely repopulate the area in between such intervals. Migrating adults passing the area would likely experience little to no effect from this small dock or boat traffic associated with it. This localized disturbance is most likely to impact juvenile fish that may be rearing close to shore, but also has the potential to impact adult fall Chinook that may be spawning in areas adjacent to the dock. However, while fall Chinook spawning is known to occur upstream and downstream from the boat dock site, it is unlikely to occur at the project site due to unfavorable substrate and river depth conditions. Additionally, historical redd survey data does not indicate spawning at this site (Groves 2013, Groves 2001). Although redds have not been surveyed in areas directly adjacent to the dock installation site, the potential for spawning activity remains. Boat traffic has the potential to temporarily spook spawning fish, which are likely to return to the redds shortly after a vessel has passed through the area. Such disturbances will be intermittent and short-lived.

In addition to the three-year construction phase, access to the cabin will continue throughout the lifespan of the dock. Therefore, it is presumed that disturbance to fish will continue in the area for the long term. However, since this is a private dock, boat activity is likely to be reduced and limited once construction of the cabin is completed. Further, the disturbance will be intermittent and short-lived. Also, the disturbed fish will likely move only a short distance and to similar habitat.

2.5.1.2 Increased Predation

The dock installation will create new predator fish habitat, leading to an increase in predation mortality for juvenile salmon and steelhead. Sub-yearling juvenile fish migrate and rear in cobble or sandy shallow shoreline areas of the Snake River. NMFS proposed recovery plans identify mortality from predator fish—primarily smallmouth bass in the free-flowing Snake River—as limiting factors for recovery of the species (NMFS 2015, NMFS 2016). Connor et al. (2015) estimated that smallmouth bass found in shoreline areas of the free-flowing Snake River consumed more than 600,000 sub-yearling fall Chinook salmon in 2014. For their study reach that overlaps with the action area, Connor et al. (2015) found that smallmouth bass diets were mainly composed of salmonids from March through May, after which they were composed mainly of crayfish. In the Columbia River basin, studies have found predation from smallmouth bass and other piscivorous fish to be most intense upon sub-yearling Chinook salmon (Chapman 1990, Connor et al. 2015).

Smallmouth bass have a strong affinity for in-water structures such as docks (Carrasquero 2001), where they can hide in the shadows to prey upon juvenile salmonids. In Lake Washington, Washington, 68 percent of all adult smallmouth bass were seen within two meters of a dock (Fresh et al. 2003). As light levels decrease (e.g., underneath docks), predation on juvenile salmonids by piscivorous fishes may increase due to a diminished ability for the juvenile salmonids to detect predators (Rondorf et al. 2010). The proposed dock will be in place all year, thus overlapping with the timeframe, during which juvenile salmon and steelhead rear in or move through the action area. We expect that the proposed dock would enhance habitat for predator fish and therefore increase predation upon juvenile salmon and steelhead.

Quantifying the increase in predation from the proposed dock is not possible due to the range of responses that individual predator and prey fish will have to the changed habitat. Therefore, we will use the approximate size of the dock (371 square feet) as a surrogate for the effect on the fish. The area where the dock will be installed is not likely preferred habitat for juvenile salmonids. However, the smallmouth bass density is likely high within the action area. The dock installation will likely result in a larger congregation of smallmouth bass in the area, therefore increasing the likelihood of juvenile salmonid being preyed upon if in the vicinity. The dock will be installed all year round, so an increase in predation associated with the dock would likely occur. Although the cabin construction activity is temporary, it is likely that boat access to the site will continue in the long term. This future boat traffic to the cabin will likely require permanent dock placement at the project site in the future. Thus, potentially providing enhanced predator fish habitat and increased predation on salmonids for the long term.

Because the footprint of the dock covers a very small area and very small portion of the habitat used by the species, advantages for predators caused by the dock will likely result in adverse effects on no more than a very small portion of the fish of these three species, including: the Hells Canyon Tributaries steelhead population of the Hells Canyon MPG, which is considered extirpated and is not expected to contribute to DPS recovery (NMFS 2017a); spring/summer

Chinook salmon, for which the Hells Canyon reach of the Snake River does not currently support an independent population; and the Lower Snake River population of fall Chinook, which is the single extant population for the ESU, and is currently rated at low risk for abundance/productivity, moderate risk for spatial structure, moderate risk for diversity, and is likely achieving maintained status for an overall viability rating (NMFS 2017b).

2.5.1.3 Toxic Chemicals

Delivery of chemicals to the river will likely be at most very small amounts because the applicant will use the following conservation measures when using machinery to install the land anchor: (1) all machinery will be fueled or lubricated at a distance of no less than 150 feet from live water; (2) machinery will be fueled over a surface that would facilitate spill remediation; (3) machinery shall be maintained in a petroleum leak-free condition; and (4) daily inspections of all fluid systems on equipment to be used in or near water shall be made to ensure no leaks or potential leaks exist prior to equipment use.

We also considered that fueling and boat use associated with the dock could leak fuel and oil into the river and cause toxicity effects on juvenile and adult salmon and steelhead. Fueling vessels or transferring fuels to a storage tank can be significant sources of pollution. Fuels carry contaminants that are harmful to fish, including heavy metals, and toxic hydrocarbons and other compounds. Delivery of chemicals - such as fuel, oil, and bilge products - to the river is expected to be very small because the applicant will use conservation measures, as identified by the Idaho State standards (IDEQ, 2005), when storing fuel, fueling boats, using boats to install the land anchor, and subsequently during normal boat use. Given these measures, any sources of chemical contaminants entering the river will be very small, episodic, and at a scale that is unlikely to harm fish.

2.5.2 Effects on Critical Habitat

Implementation of the proposed program is likely to affect freshwater rearing and migration habitat for all three listed species. The critical habitat PBFs are listed in Table 1. The PBFs that could be adversely affected by the proposed action are water quality and safe passage.

For the water quality PBF, delivery of chemicals to the river from construction activities facilitated by the dock is unlikely because those activities are away from the river and the applicant will use the conservation measures described above (Proposed Action, section 1.3). Watercraft use associated with the dock is likely to produce small amounts of fuel leakage into the river via boat engine drip, exhaust, and occasional removal of bilge water. The applicant already operates a boat, which he currently ties to the shore at the property. The activity for cabin construction may increase the boat use and associated fuel introduction into the river at this site during the three-year cabin construction and beyond. However, implementation of the state of Idaho requirements for boat fuel use and storage are expected to keep fuel leakage to a minimum. The small amounts of gasoline and boat oil introduced into the Snake River at this site are unlikely to change water quality detectably and unlikely to reduce the function of the PBF.

For the safe passage PBF, as discussed above in Effects on Species (section 2.5.1.2) there is likely to be a small increase in predation on rearing and migrating juvenile salmon and steelhead at the dock site because the dock will enhance habitat for predator fish (primarily smallmouth bass) in the action area. This effect will last for the lifetime of the dock placement. Thus, the effects to safe passage due to installation of the dock could remain for the long term. The area of critical habitat affected (at and immediately adjacent to the small dock) will be very small and the effects on the PBF will be short term for the temporary cabin construction phase.

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 is the only privately owned parcel in along this stretch of the Snake River, and is surrounded by the Hells Canyon Recreation Area on all sides. Use of the Hells Canyon Recreational area requires permits during the main season of activity, from Memorial Day through Labor Day. The main cumulative effects in the action area will be from the continued recreational use. While recreational fishing for predatory fish such as smallmouth bass is encouraged by State fisheries management agencies, it is unlikely that this activity will decrease the presence of predatory fish in the action area and this section of the Snake River. Various management approaches have been tested but not widely adopted in these waters.

Additionally, the Hells Canyon Dam, which is operated by Idaho Power, is located several miles upstream from the action area. Discharge rates from the Hells Canyon Dam are adjusted on a regular basis. Changes in discharge rates will continue to affect streamflow volume and stream velocity of the Snake River within the action area.

2.7 Integration and Synthesis

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

Species. Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon, and Snake River Basin steelhead occur within the action area, which is a small portion of this reach of the Snake River, and a very small portion of the migration and rearing habitat used by the species. Many individual populations of Snake River Basin steelhead and Snake River spring/summer Chinook salmon are not meeting recovery plan abundance and productivity targets. The Hells Canyon reach of the Snake River is not included within the population boundaries of any Snake River Basin steelhead or Snake River spring/summer Chinook populations. The fish in this reach, however, are listed fish under the ESA. The Lower Snake River population of fall Chinook will need an increase in productivity combined with a reduction in diversity risk in order to recover. Therefore, each species remains threatened with extinction. Furthermore, climate factors could make it more challenging to increase productivity, decrease diversity risk, and recover the listed species (NMFS 2017b). River habitat in the action area exhibits a “Not Supporting” status for the beneficial use of Cold Water Aquatic Life (IDEQ 2017).

Salmonids in the action area could potentially be affected by boat traffic and disturbance, increased predation, and chemicals. The following adverse effects are expected:

Migrating adults passing the area would likely experience little to no effect from this small dock or boat traffic associated with it. Fall Chinook salmon spawn upriver and downriver from this reach; however, spawning near the dock installation site is unlikely to occur.

The habitat within the action area is not high quality rearing habitat for salmon and steelhead. However, juvenile salmon and steelhead rear in and migrate through this reach, and some of these fish would occur in the action area and be exposed to disturbance by boats, fuel leakage, and predator fish hiding under the dock. Effects from boat disturbance and fuels/chemicals will be very small and unlikely to harm the fish. For the lifetime of the dock placement, predation of juvenile fish, particularly by bass, will likely increase within the small area of the dock and immediately near it. We anticipate that a small number of juvenile fish of each of these species will be killed or injured by predator fish due to the installation and operation of the dock.

Additionally, a cabin will be constructed upland of the dock site. Boat traffic to the cabin will likely continue throughout the lifespan of the dock. This future boat traffic to the cabin will likely require permanent dock placement at the project site in the future.

Because the footprint of the dock covers a very small area and very small portion of the habitat used by the species, and the dock will be installed for a limited time period, advantages for predators caused by the dock will likely result in adverse effects on a very small number of fish in each of these three species. If injury or death occurs, it is likely to only impact a few individuals. Thus, the abundance and productivity of ESA-listed fish species would likely not be affected. Because we do not anticipate a change in the viability of the Lower Snake River fall Chinook salmon population, the proposed action will not likely affect the survival of the ESU. In addition, the probability of recovery for the species will not likely be affected. The number of steelhead or spring/summer Chinook that might be affected by the proposed action are too few to affect the abundance or productivity of nearby populations or the DPS or ESU as a whole. For this reason, the action is unlikely to reduce the survival or recovery of either of these species.

Critical Habitat. Critical habitat for Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon, and Snake River Basin steelhead is present in the action area. The effect of the proposed action on the water quality PBF will be extremely small and likely undetectable. The proposed action will cause small adverse effects to the safe passage PBF at the scale of the action area. Further, the action area is the only privately owned parcel in this section of the Snake River, and is surrounded by the Hells Canyon Recreation Area on all sides. The main cumulative effects will be from the continued recreational use. NMFS assumes that current effects from recreational use will continue into the future at their current rate.

Thus, due to the extremely small area involved relative to the size of the designated area, the short-lived nature of these effects and the lack of cumulative effects, the conservation value of critical habitat at the designation scale is not likely to be affected.

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 <u>the proposed action is not likely to jeopardize</u> the continued existence of Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon, and Snake River Basin steelhead, <u>or destroy or adversely modify their designated critical habitat</u>.

2.9 Incidental Take Statement

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

<u>2.9.1 Amount or Extent of Take</u>

In the opinion, NMFS determined that incidental take is reasonably certain to occur as follows: Increased Predation: The dock will increase overwater structure, which has the potential of attracting predators such as smallmouth bass. It is impossible to quantify the actual number of juvenile preyed upon because of the dock. Therefore, we will use the size of the dock as a surrogate for take. This is a rational surrogate for take because the size of the dock directly correlates with the number of ambush predators that can hide under the dock. NMFS will consider the extent of take exceeded if the size of the dock exceeds 400 square feet.

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 dock installation activities and operation.

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 reasonable and prudent measures (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 one (minimize take from the dock), the COE shall ensure the following by imposing funding or permitting conditions:

    a. The dock shall not exceed 400 square feet.

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

2.10 Conservation Recommendations

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

1. Plant native vegetation in any riparian areas above the OHWM that are disturbed during installation and use of the dock, as well as during the associated cabin construction.

2.11 Reinitiation of Consultation

This concludes formal consultation for the Rusty Bentz Dock Installation Project.

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

3. MAGNUSON–STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT ESSENTIAL FISH HABITAT RESPONSE

Section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. Under the MSA, this consultation is intended to promote the conservation of EFH as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the physical, biological, and chemical properties that are used by fish (50 CFR 600.10). 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) of the MSA also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset the adverse effects of the action on EFH [CFR 600.905(b)]

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

3.1 Essential Fish Habitat Affected by the Project

The action area, as described in Section 2.3 of the above opinion, is also EFH for Chinook salmon (PFMC 2014). The Pacific Fishery Management Council (PFMC) designated the following five habitat types as habitat areas of particular concern (HAPCs) for salmon: complex channel and floodplain habitat, spawning habitat, thermal refugia, estuaries, and submerged aquatic vegetation (PFMC 2014). The proposed action may adversely affect the following HAPCs: complex channel habitat.

The PFMC designated EFH for Chinook salmon, coho salmon, and Puget Sound pink salmon (PFMC 1998). The proposed action and action area for this consultation are described in the Introduction to this document. The action area is within designated EFH for Chinook salmon. The proposed action will affect EFH for rearing and migration life-history stages of Chinook salmon. The PFMC has identified five habitat areas of particular concern (HAPC), which warrant additional focus for conservation efforts due to their high ecological importance. Three of the five HAPC are applicable to freshwater and include: (1) Complex channels and floodplain habitats; (2) thermal refugia; and (3) spawning habitat. The proposed action will not adversely affect any of these HAPCs.

3.2 Adverse Effects on Essential Fish Habitat

Based on the information provided in the BA and the analysis of effects presented in the ESA portion of this document, NMFS concludes that the proposed action will have the following adverse effects on EFH designated for Chinook salmon:

1. Installation of the dock will seasonally diminish safe passage conditions for salmon EFH beneath and immediately adjacent to the dock structure and accompanying vessels. The dock is relatively small and will impact a very small area of this reach of the Snake River.

2. Boat usage as a result of the dock installation may temporarily affect water quality in the action area due to potential fuel leakage. However, implementation of the state of Idaho requirements for boat fuel use and storage are expected to keep fuel leakage to a minimum.

3.3 Essential Fish Habitat Conservation Recommendations

NMFS determined that the following conservation recommendations are necessary to avoid, minimize, mitigate, or otherwise offset the impact of the proposed action on EFH:

1. Ensure that proper construction plans, designs, and techniques are followed, and make sure that all precautionary measures are followed.

2. Ensure that an emergency spill containment kit is kept on site during construction activities and on-site personnel are knowledgeable and trained in the use of the spill containment equipment.

3. Plant native vegetation in any riparian areas above the OHWM that are disturbed during installation and use of the dock, as well as during the associated cabin construction.

Fully implementing these EFH conservation recommendations would protect, by avoiding or minimizing the adverse effects described in section 3.2, above, for Pacific Coast salmon.

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 the 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 [action agency] 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. The intended users of this opinion are the U.S. Army Corps of Engineers and any applicant. Other interested users could include permit or license applicants and the U.S. Fish and Wildlife Service. Individual copies of this opinion were provided to the U.S. Army Corps of Engineers. The document will be available within two weeks at the **NOAA Library Institutional Repository** (https://repository.library.noaa.gov/welcome). The format and naming adheres to conventional standards for style.

4.2 Integrity

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

4.3 Objectivity

Information Product Category: Natural Resource Plan

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

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion/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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