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

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December 2, 2024

Refer to NMFS No: WCRO-2024-01906

Lieutenant Colonel Kathryn A. Werback
U.S. Army Corps of Engineers
Walla Walla District
201 North Third Avenue
Walla Walla, Washington 98362-1836

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Lewiston Water Intake Maintenance Dredging Project (PPL-C-2024-00222), Nez Perce County, Idaho, HUC 17060306.

Dear Lieutenant Colonel Werback:

Thank you for your June 21, 2024, request to initiate formal 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 Lewiston Water Intake Maintenance Dredging Project. Your email request included a letter dated June 18, 2024, and a biological assessment (BA).

In the enclosed biological opinion (opinion), NMFS concludes that the action, as proposed, is not likely to jeopardize the continued existence of Snake River fall Chinook salmon (*Oncorhynchus tshawytscha*) or Snake River Basin steelhead (*O. mykiss*). NMFS also determined the action will not destroy or adversely modify designated critical habitat for these species. Rationale for our conclusions is provided in the attached opinion.

As required by section 7 of the ESA, NMFS provides an incidental take statement (ITS) with the opinion. The ITS describes reasonable and prudent measures (RPMs) NMFS considers necessary or appropriate to minimize the impact of incidental take associated with this action. The take statement sets forth terms and conditions, including reporting requirements, that the U.S. Army Corps of Engineers (USACE), and any permittee who performs any portion of the action, must comply with an order to be exempt from the ESA take prohibition.

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1855(b)). This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. NMFS concluded that the action would adversely affect EFH designated under the Pacific Coast Salmon Fishery Management Plan. Therefore, we have

included the results of that review in this document. Included in this review are three EFH conservation recommendations.

As required by section 305(b)(4)(B) of the MSA, the USACE 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 time frames 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)).

Please contact Aurele LaMontagne with the Northern Snake Branch at (208) 378-5686 or aurele.lamontagne@noaa.gov if you have any questions concerning this consultation, or if you require additional information.

Sincerely,

Nancy L Munn

Nancy L. Munn, Ph.D.
Acting Assistant Regional Administrator
Interior Columbia Basin Office

Enclosure

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

Lewiston Water Intake Maintenance
Dredging

NMFS Consultation Number: WCR-2024-01906

Action Agency: U.S. Army Corps of Engineers

Affected Species and NMFS' Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	If Likely to Adversely Affect, Is Action Likely to Jeopardize the Species?	Is Action Likely to Adversely Affect Critical Habitat?	If Likely to Adversely Affect, Is Action Likely to Destroy or Adversely Modify Critical Habitat?
Snake River fall Chinook salmon (*Oncorhynchus tshawytscha)*	Threatened	Yes	No	Yes	No
Snake River Basin steelhead (*O. mykiss*)	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: Nancy L Munn
Nancy L. Munn, Ph.D.
Acting Assistant Regional Administrator

Date: December 2, 2024

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ACRONYMS

BA	Biological Assessment
BMP	Best Management Practices
cfs	cubic feet per second
City	City of Lewiston
DAP	Department of Army Permit
USACE	U.S. Army Corps of Engineers
DPS	Distinct Population Segment(s)
DQA	Data Quality Act
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit(s)
FMP	Fisheries Management Plan
HAPC	Habitat Areas of Particular Concern
ICTRT	Interior Columbia Basin Technical Recovery Team
ITS	Incidental Take Statement
MPG	Major Population Group(s)
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
NTU	Nephelometric Turbidity Unit
Opinion	Biological Opinion
PBF	Physical and Biological Feature(s)
PCE	Primary Constituent Elements
PFMC	Pacific Fishery Management Council
RPA	Reasonable and Prudent Alternative
RPM	Reasonable and Prudent Measure(s)
SRB	Snake River Basin Steelhead
SRF	Snake River Fall Chinook Salmon
USACE	U.S Army Corps of Engineers
USGCRP	U.S. Global Change Research Program
VSP	Viable Salmonid Population

1. INTRODUCTION

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

1.1 Background

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.), as amended, and implementing regulations at 50 CFR 402. We also completed an essential fish habitat (EFH) consultation on the proposed action, in accordance with section 305(b)(2) of the Magnuson–Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801 et seq.) and implementing regulations at 50 CFR 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 2 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 Boise office.

1.2 Consultation History

NMFS issued a biological opinion (NMFS No: WCR-2016-5998) for a similar maintenance action at this location with the U.S Army Corps of Engineers (USACE) on February 27, 2017.

On December 21, 2023, the USACE sent a request for formal consultation and a Biological Assessment (BA) for this maintenance action to occur in 2024 and 2028. On January 12, 2024, the USACE notified NMFS of the need for emergency consultation to allow for intake maintenance due to the extremely high potential for the City of Lewiston (City) to lose their ability to supply water. Freezing conditions iced over the Clearwater River causing lost capacity of the water intake. On the same day, NMFS issued a response to the emergency including recommended best management practices (BMPs) for fish salvage and sediment management during the emergency action. On April 4, 2024, the USACE emailed a follow-up report to NMFS stating: (1) the BMPs from the December BA were employed to control sediment during isolated in water work; (2) there were no fish present prior to isolating the dredging area; (3) approximately 100 cubic yards of sediment was dredged from the intake channel; (4) there were no visible turbidity plumes outside the turbidity curtain; and (5) water supply to the City was restored.

Following the emergency, NMFS and the USACE identified updates that needed to be made to the BA submitted to NMFS on December 21, 2023. The USACE submitted a request for formal consultation and updated BA (USACE 2024a) to NMFS on June 21, 2024. The USACE concluded that the proposed action was likely to adversely affect Snake River Basin steelhead (SRB steelhead) (*Oncorhynchus mykiss*) and Snake River fall-run Chinook salmon

(SRF Chinook salmon) (*O. tshawytscha*), but not likely to adversely affect their critical habitat or EFH. NMFS sent a letter to the USACE on August 13, 2024, stating the BA was sufficient and initiated formal consultation on June 21, 2024. NMFS does not concur with the USACE determination that the proposed action is not likely to adversely affect SRF Chinook salmon and SRB steelhead designated critical habitat. Our analysis of effects to designated critical habitat for these two species is included in Section 2.5.6 of this opinion. Similarly, NMFS does not agree with the USACE determination that the proposed action would not adversely affect EFH. Our EFH analysis is included in section 3 of this opinion.

In preparing this opinion, NMFS relied upon information from the BA (USACE 2024a) and its supporting documentation, published scientific literature, and other documents (e.g., government reports). This information provided the basis for our determinations as to whether the USACE can ensure that their proposed action is not likely to jeopardize the continued existence of ESA-listed species, and is not likely to result in the destruction or adverse modification of designated critical habitat.

Updates to the regulations governing interagency consultation (50 CFR part 402) were effective on May 6, 2024 (89 FR 24268). We are applying the updated regulations to this consultation. The 2024 regulatory changes, like those from 2019, were intended to improve and clarify the consultation process, and, with one exception from 2024 (offsetting reasonable and prudent measures), were not intended to result in changes to the Services' existing practice in implementing section 7(a)(2) of the ESA (89 FR 24268; 84 FR 45015). We have considered the prior rules and affirm that the substantive analysis and conclusions articulated in this biological opinion and incidental take statement would not have been any different under the 2019 regulations or pre-2019 regulations.

Because this action has the potential to affect tribal trust resources, NMFS provided copies of the draft proposed action and terms and conditions for this opinion to the Nez Perce Tribe. On November 7, 2024, the Nez Perce Tribe responded stating they had no comments.

1.3 Proposed Federal Action

"Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (50 CFR 402.02). Under the 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 Walla Walla District of USACE proposes to issue a 5-year license to the City of Lewiston (hereinafter referred to as the City or the applicant), to provide adequate area to complete the water intake dredging actions in Nez Perce County, Idaho (Google Maps 46.43472, -116.95583). The maintenance dredging actions will require a Department of the Army permit (DAP) under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) from the USACE Regulatory Division. The DAP would authorize the excavation of sediments and associated work riverward of the ordinary-high-water mark of the Clearwater River. The City will likely perform dredging around the water intake in or around 2028. The intake structure supplies 90% of the City's year-round water demand.

Figure 1. Location of Lewiston Water Intake structure and inlet channel proposed for dredging with measures to reduce sediment delivery to the Clearwater River.

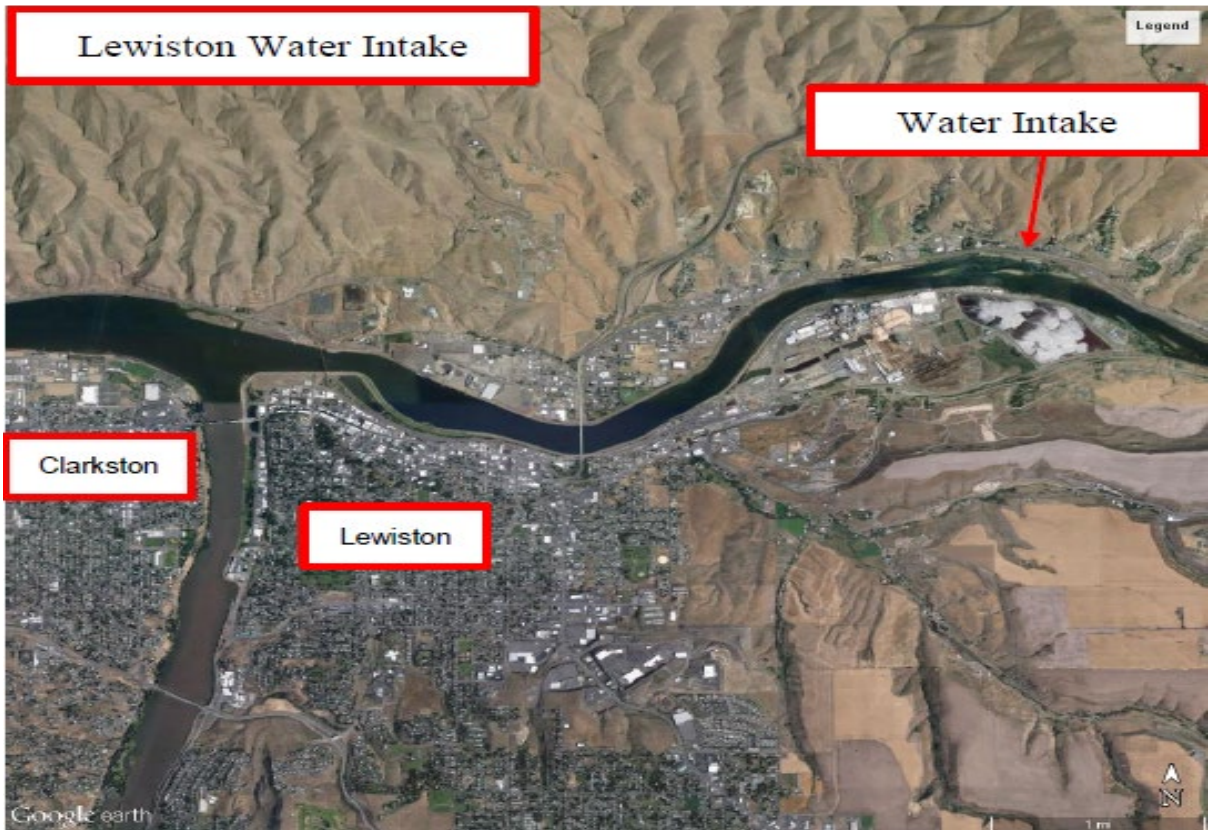

Figure 2. Location of the Lewiston Water Intake on the North shore of the Clearwater River, 4.5 miles upstream from the confluence with the Snake River.

The Lewiston Water Intake is located on the north shore of the Clearwater River, 4.5 miles upstream from the confluence with the Snake River (Figure 2). The water intake and inlet channel were constructed in the mid-1970s and the City has dredged the inlet channel about once every 10 years to remove accumulated sediment and debris. Sediment and debris impede the flow of water into the intake structure, especially during low river flows in the late summer and fall. When the pumps are run to meet peak demand, water drawn into the intake structure erodes a channel through the sediment and carries sediment into the pumps. During cold weather, bottom (anchor) ice forms in the shallow water outside the intake structure and can block the flow of river water into the pumps.

The City estimated that they will need to dredge about 500 cubic yards of sediment from the inlet channel in an area 75-feet wide by 110-feet long (8,250 square feet; ft^2). The material to be dredged appears to be silt and fine sand with some small woody debris. The City will use a track-mounted crane equipped with a dragline bucket to remove the material from the inlet. The crane will be positioned on the downstream bank of the inlet channel and will be able to reach the entire inlet from this position. This location has a solid gravel and cobble base that will not need to be modified for the dredging operation. The crane will lower the dragline bucket into the sediment and will then pivot in place to deposit the dredged sediment at a temporary disposal area on the downstream side of the inlet. The filled crane bucket will not be swung over any water other than the inlet channel. No riparian vegetation will need to be removed for this maintenance action.

The City will temporarily place the dredged material on a relatively level, upland area about 6,300 square feet in size, adjacent to the inlet. The surface soil of this area is free-draining, mixed alluvial material. The City will leave the dredged material at the site until it has completely dewatered, which is expected to take up to 6 months. Once the material is dry enough to be transported, the City will load the material into dump trucks and haul the material to one or more upland sites approved by the City. The City will use existing roads to access the dredge crane position, dewatering area, equipment staging area, and fueling area. The City will clean and restore the work site to its pre-dredging operation condition once the dredging is complete and all of the dredged material has been removed.

The work will occur in the summer in-water work window of July 15 to August 30, or the winter in-water work window of December 15 to March 1. The work will take approximately five days, and an estimated additional 6 months before the dredged material dries and is removed from the USACE property (5-year license to the City).

Conservation Measures

The City will implement the following four impact minimization measures to avoid or minimize the potential for adverse impacts from the proposed action to ESA-listed species and their designated critical habitat. The first measure is to conduct the work either during the summer (July 15 to August 31) or the winter (December 15 to March 1) in-water work window.

The second measure is to install a silt/turbidity curtain across the entrance to the inlet. The City will use the same curtain it has used for previous dredging actions. The curtain will be attached to concrete blocks placed temporarily on the ground surface at the shoreline on both sides of the inlet entrance (Figure 1). The blocks will be pre-cast concrete blocks about two feet by two feet by six feet long and weighing about 3,600 pounds. The blocks will be placed and removed using a hydraulic excavator or front-end loader. The City will not use posts or buried anchors to secure the curtain. The curtain will be supported on the top by integral floats and be weighted at the bottom with an integral chain. The curtain will extend across the full width of the inlet entrance and provide an impermeable barrier five feet below the surface. The lower edge of the curtain will be about one foot above the bottom of the center of the channel. This will allow aquatic organisms to escape the dredging area and permit river water to flow into the inlet if the City needs to operate the intake after dredging has ceased for the day. The curtain will be removed slowly to minimize sediment transport to a short distance downstream of the inlet.

The third measure the City will use to protect water quality is to install silt fences at the dredge material dewatering area (Figure 1). The City will install a wire-backed silt fence around the lower edge of the dredge material dewatering area. The silt fence will be constructed using Idaho Transportation Department design standards. The City does not expect any direct discharge of dredged material seepage into the Clearwater River or seepage under the silt fence based on previous dredging and disposal actions. However, as a contingency action, the City will be prepared to install a secondary silt fence below the access road and below the dredge crane area if any turbid water passes through the primary filter fence. If necessary, the City will construct a soil berm within the dewatering area to redirect flow paths away from the access road at the west end of the dewatering area. Conceptually, surface seepage from the dewatering area will be routed to the intake inlet when the silt curtain is in place.

The fourth measure the City will use to protect water quality is turbidity monitoring. Turbidity monitoring will be conducted in the Clearwater River at least 100 feet upstream from the inlet (for background data) and 300 feet downstream of the inlet (for compliance data). Turbidity measurements will be recorded in 60-minute intervals. If turbidity exceeds 50 Nephelometric Turbidity Units (NTUs) above background (or there is a visible turbidity plume extending 300 feet downstream from the inlet), the dredging work would stop until the water has cleared and a plume is no longer visible.

The City will also use the following conservation measures to minimize the chance of fuel or other chemical contaminants from entering the Clearwater River during the proposed action:

- Dedicated fueling areas shall be protected from stormwater run-on and runoff, and shall be located at least 150 feet from downstream drainage facilities and watercourses.

- Mobile fueling of construction equipment throughout the site shall be minimized. Whenever practical, equipment shall be transported to the designated fueling area. Where possible, fueling should be performed on level-grade areas.

- Any fuel stored in the fueling area will be placed within a lined containment basin that is large enough to hold the entire volume of fuel.

- Drip pans or absorbent pads shall be used during vehicle, equipment fueling, and when parked, unless the fueling is performed over an impermeable containment area in a dedicated fueling area.

- Nozzles used in vehicle and equipment fueling shall be equipped with an automatic shut-off to control drips. Fueling operations shall not be left unattended and tanks will not be "topped off." Use of vapor recovery nozzles helps control drips as well as air pollution where required by air quality permits and regulations. The nozzle shall be secured upright when not in use.

- Construction equipment shall be kept in good repair without fuel, hydraulic or lubricating fluid leaks. Vehicle and equipment leaks shall be repaired immediately offsite on problem vehicles, or equipment shall be removed from the project site.

- All equipment shall be inspected and washed at a staging area before entering the project area to prevent the spread of noxious weeds.

- Spills shall be immediately cleaned up. Absorbent spill clean-up materials and spill kits shall be available and appropriately identified in fueling and maintenance areas and used on small spills instead of hosing down or burying techniques. The spent absorbent material shall be removed promptly and disposed of properly. An ample supply of spill cleanup material shall be kept on-site.

- The contractor shall make every effort to use environmentally safe chemicals and substances.

- If straw is used, only certified weed-free straw used for erosion control during construction and restoration activities will be allowed.

We considered, under the ESA, whether or not the proposed action would cause any other activities and determined that it would cause other activities. Diversion of flow from the Clearwater River and operation of the water intake structure are a consequence of the proposed dredging action. The diversion of water at the intake structure is a consequence of the proposed action because continued water withdrawal would not be possible without dredging. Between 2011 and 2015, the average annual diversion flow was 4.5 cubic feet per second (cfs), with monthly averages ranging from 1.6 cfs and 10.1 cfs (USACE 2016). Additionally, the intake structure has a fish screen that requires ongoing operation and maintenance. The fish screen was designed in 1988 and does not meet current NMFS fish screening criteria. The City is planning to build a new water intake, at a separate location, in the summer of 2025 and, therefore, does not plan to update the screen. In our opinion, NMFS assumes that other intake maintenance (e.g., cleaning of the screen or adjusting water intake flow) will be performed in the 5-year time frame of 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 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 also 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 of critical habitat for SRF Chinook salmon and SRB steelhead uses the term primary constituent element (PCE) or essential features. The 2016 final rule (81 FR 7414; February 11, 2016) that revised the 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 ESA Section 7 implementing regulations define effects of the action using the term "consequences" (50 CFR 402.02). As explained in the preamble to the final rule revising the definition and adding this term (84 FR 44976, 44977; August 27, 2019), that revision does not change the scope of our analysis, and in this opinion, we use the terms "effects," "consequences," and "impacts" interchangeably.

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

- Evaluate the rangewide status of the species and critical habitat expected to be adversely affected by the proposed action.
- Evaluate the environmental baseline of the species and critical habitat.
- Evaluate the effects of the proposed action on species and their critical 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" for the jeopardy analysis. 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. The Federal Register notices and notice dates for the species and critical habitat listings considered in this opinion are included in Table 1.

Table 1. Federal Register notices for rules that list species, designate critical habitat, or apply protective regulations to evolutionarily significant units (ESUs)/distinct population segments (DPSs) considered in this consultation.

Species ESU/DPS	Listing Status	Critical Habitat	Protective Regulations
Chinook salmon (*Oncorhynchus tshawytscha*)			
Snake River fall-run	T 4/22/92; 57 FR 14653	12/28/93; 58 FR 68543	6/28/05; 70 FR 37160
Steelhead (*O. mykiss*)			
Snake River Basin	T 8/18/97; 62 FR 43937	9/2/05; 70 FR 52630	6/28/05; 70 FR 37160

Note: Listing status "T" means listed as threatened under the ESA

2.2.1 Rangewide Status of the Species

This section describes the present condition of the SRF Chinook salmon evolutionarily significant unit (ESU) and the SRB 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 these documents: ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon & Snake River Basin Steelhead (NMFS 2017a) and ESA Recovery Plan for Snake River Fall Chinook Salmon (NMFS 2017b); Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest (Ford 2022); 2022 5-Year Review: Summary & Evaluation of Snake River Fall-Run Chinook Salmon (NMFS 2022a); and 2022 5-Year Review: Summary & Evaluation of Snake River Basin Steelhead (NMFS 2022b). These five documents are incorporated by reference here.

2.2.1.1 Snake River fall-run Chinook Salmon

A summary of the current status of the SRF Chinook salmon ESU can be found on NMFS' publicly available intranet site (https://www.fisheries.noaa.gov/s3/2024-08/status-species-snake-river-fall-chinook-salmon-jul-2024.pdf).

The status of this ESU has improved since the time of listing. While the population is currently considered to be viable, it is not meeting its recovery goals. This is due to: (1) low population productivity; (2) uncertainty about whether the elevated natural-origin abundance can be sustained over the long term; and (3) high levels of hatchery-origin spawners in natural spawning areas (NMFS 2022a). This ESU also continues to face threats from tributary and mainstem habitat loss, degradation, or modification; disease; predation; harvest; hatcheries; and climate change (NMFS 2022a).

Adult SRF Chinook salmon numbers passing over Lower Granite Dam have increased in the last several years. The latest 10-year average (2014 – 2023) is 46,000. The previous 10-year average was 39,026 (USACE 2024a). The one, large, extant population in the ESU is currently viable, per the ICTRT's criteria, but must reach a status of "highly viable with high certainty" for the ESU as a whole to meet recovery goals (NMFS 2022a).

2.2.1.2 Snake River Basin Steelhead

A summary of the current status of the SRB steelhead DPS can be found on NMFS' publicly available intranet site (https://www.fisheries.noaa.gov/s3/2024-08/status-species-snake-river-basin-steelhead-july-2024.pdf).

Based on information available for the 2022 viability assessment (Ford 2022), none of the five MPGs are meeting their recovery plan objectives and the viability of many populations remains uncertain. The recent, sharp declines in abundance are of concern and are expected to negatively affect productivity in the coming years. Overall, available information suggests that SRB steelhead continue to be at a moderate risk of extinction within the next 100 years. This DPS continues to face threats from tributary and mainstem habitat loss, degradation, or modification; predation; harvest; hatcheries; and climate change (NMFS 2022b).

Populations that may be affected by the proposed action include all 6 of those from the Clearwater River MPG. The current status of these populations ranges from low to high risk of extinction within the next 100 years (NMFS 2022b). For the MPG to be viable and, therefore, support recovery of the DPS, at least three populations must be at a low risk of extinction (with one of these populations achieving a very low risk of extinction) and the remaining three populations must be at least a moderate risk of extinction (NMFS 2017a).

2.2.2 Rangewide 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 PBFs essential to the conservation of the listed species (e.g., spawning gravels, water quality and quantity, side channels, or food) (Table 2).

Table 2. 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 fall Chinook		
Spawning and juvenile rearing	Spawning gravel, water quality and quantity, cover/shelter (Chinook only), food, riparian vegetation, space (Chinook only), water temperature, and access (sockeye 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 areas have also been described for Snake River Basin 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 3 describes the geographical extent of critical habitat within the Snake River basin for SRF Chinook salmon and SRB steelhead. 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 SRF Chinook salmon 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, nutrients, and chemicals. Designated critical habitat for both species extends throughout much of their range in the Snake River basin, including the Clearwater River at the location of the Lewiston Water Intake.

Table 3. Geographical extent of designated critical habitat within the Snake River basin for ESA-listed salmon and steelhead

Evolutionarily Significant Unit (ESU)/ Distinct Population Segment (DPS)	Designation	Geographical Extent of Critical Habitat
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 2017a; NMFS 2017b). 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 streamflows, 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, streamflows are substantially reduced by water diversions (NMFS 2017a; NMFS 2017b). 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 SRB steelhead in particular (NMFS 2017a).

Many stream reaches designated as critical habitat for these species are listed on the Clean Water Act 303(d) list for impaired water quality, such as elevated water temperature (IDEQ 2022). 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, 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 2001; IDEQ and USEPA 2003).

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. Hydrosystem 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, also kill out-migrating fish. In-river survival is inversely related to the number of hydropower projects encountered by emigrating juveniles. However, some of these conditions have improved. The Bureau of Reclamation and USACE 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.

The present condition of the PBFs and the human activities that affect PBF trends within the action area are further described in the environmental baseline.

2.2.3 Climate Change

One factor affecting the rangewide status of Snake River salmon and steelhead, and aquatic habitat at large is climate change. As observed by Siegel and Crozier in 2019, long-term trends in warming have continued at global, national, and regional scales. 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), with 2023 being the hottest global temperature on record (https://www.nasa.gov/news-release/nasa-analysis-confirms-2023-as-warmest-year-on-record/). Events such as the 2014-2016 marine heatwave (Jacox et al. 2018) are likely exacerbated by anthropogenic warming, as noted in the annual special issue of Bulletin of the American Meteorological Society on extreme events (Herring et al. 2018). 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 (USGCRP 2018).

Climate change generally exacerbates threats and limiting factors, including those currently impairing salmon and steelhead survival and productivity. The growing frequency and magnitude of climate change related environmental downturns will increasingly imperil many ESA-listed stocks in the Columbia River basin and amplify their extinction risk (Crozier et al. 2019, 2020, 2021). This climate change context means that opportunities to rebuild these stocks

will likely diminish over time. As such, management actions that increase resilience and adaptation to these changes should be prioritized and expedited. For example, the importance of improving the condition of and access and survival to and from the remaining functional, high-elevation spawning and nursery habitats is accentuated because these habitats are the most likely to retain remnant snowpacks under predicted climate change (Tonina et al. 2022).

Climate change is already evident. It will continue to affect air temperatures, precipitation, and wind patterns in the Pacific Northwest (ISAB 2007; Philip et al. 2021), resulting in increased droughts and wildfires and variation in river flow patterns. These conditions differ from those under which native anadromous and resident fishes evolved and will likely increase risks posed by invasive species and altered food webs. The frequency, magnitude, and duration of elevated water temperature events have increased with climate change and are exacerbated by the Columbia River hydrosystem (EPA 2021a, 2021b; Scott 2020). Thermal gradients (i.e., rapid change to elevated water temperatures) encountered while passing dams via fish ladders can slow, reduce, or altogether stop the upstream movements of migrating salmon and steelhead (e.g., Caudill et al. 2013). Additional thermal loading occurs when mainstem reservoirs act as a heat trap due to upstream inputs and solar irradiation over their increased water surface area (EPA 2021a, 2021b, 2021c). Consider the example of adult sockeye salmon in 2015, when high summer water temperatures contributed to extremely high losses of Columbia River and Snake River stocks during passage through the mainstem Columbia and Snake River (Crozier et al. 2020), and through tributaries such as the Salmon and Okanogan rivers, below their spawning areas. Some stocks are already experiencing lethal thermal barriers during a portion of their adult migration. The effects of longer or more severe thermal barriers in the future could be catastrophic. For example, Bowerman et al. (2021) concluded that climate change will likely increase the factors contributing to prespawn mortality of Chinook salmon across the entire Columbia River basin.

Columbia River basin salmon and steelhead spend a significant portion of their life-cycle in the ocean, and as such the ocean is a critically important habitat influencing their abundance and productivity. Climate change is also altering marine environments used by Columbia River basin salmon and steelhead. This includes increased frequency and magnitude of marine heatwaves, changes to the intensity and timing of coastal upwelling, increased frequency of hypoxia (low oxygen) events, and ocean acidification. These factors are already reducing, and are expected to continue reducing, ocean productivity for salmon and steelhead. This does not mean the ocean is getting worse every year, or that there will not be periods of good ocean conditions for salmon and steelhead. In fact, near-shore conditions off the Oregon and Washington coasts were considered good in 2021 (NOAA 2022). However, the magnitude, frequency, and duration of downturns in marine conditions are expected to increase over time due to climate change. Any long-term effects of the stressors that fish experience during freshwater stages that do not manifest until the marine environment will be amplified by the less-hospitable conditions there due to climate change. Together with increased variation in freshwater conditions, these downturns will further impair the abundance, productivity, spatial structure, and diversity of the region's native salmon and steelhead stocks (ISAB 2007; Isaak et al. 2018). As such, these climate dynamics will reduce fish survival through direct and indirect impacts at all life stages (NOAA 2022).

All habitats used by Pacific salmon and steelhead will be affected by climate dynamics. However, the impacts and certainty of the changes will likely vary by habitat type. Some changes affect salmon at all life stages in all habitats (e.g., increasing temperature), while others are habitat-specific (e.g., stream-flow variation in freshwater, sea-level rise in estuaries, upwelling in the ocean). How climate change will affect each individual salmon or steelhead stock also varies widely, depending on the extent and rate of change and the unique life-history characteristics of different natural populations (Crozier et al. 2008; Crozier and Siegel 2023). The continued persistence of salmon and steelhead in the Columbia basin relies on restoration actions that enhance climate resilience (Jorgensen et al. 2021) in freshwater spawning, rearing, and migratory habitats, including access to high elevation, high quality cold-water habitats, and the reconnection of floodplain habitats across the interior Columbia River basin.

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 the water intake inlet itself (75 feet by 110 feet; 8,250 ft^2), and a portion of the Clearwater River extending 100 feet out from the inlet and 500 downstream of the inlet. This area of the Clearwater River represents the farthest extent of turbidity plumes that could affect SRF salmon and SRB steelhead. The action area is used by both juvenile and adult SRB steelhead and SRF Chinook salmon and is designated critical habitat for both species. The condition of these species and their designated critical habitat in the action area are described further below.

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 water intake structure is located at the upper end of the Lower Granite reservoir within the Clearwater River. The lower Clearwater River in the action area has been highly altered from its pre-dam condition. Historically, the area was primarily grass-shrub upland with a narrow riparian strip along the river below. The area changed considerably with the construction and subsequent raising of the water level caused by Lower Granite Lock and Dam, as this river reach changed from free-flowing to reservoir. Construction on the Lower Granite Lock and Dam began in the 1960s and was completed in 1975. Waters began filling the reservoir behind Lower Granite Lock and Dam in February 1975. The Lewiston water intake channel was also constructed in the mid-1970s. Prior to excavating the inlet channel, the area was upland shoreline. The inlet channel has been dredged periodically since it was constructed.

The action area in the Clearwater River is just outside the City, such that the river and riparian areas are influenced by urban and industrial development. Roads run parallel to both sides of the river, and the Lewiston paper mill is located across the river from the intake structure. From 1928 to 1971 the Clearwater River was used to transport timber downstream to Lewiston in large rafts. Log “drives” were typically conducted in May, but depended on the weather and spring runoff. This process affected the riverbed by scouring some suitable spawning and rearing habitat.

The intake channel was recently dredged in 2024 under an emergency action (USACE 2024b). Currently, there is no issue with excess sediment in the intake channel. It is anticipated that sediment will again fill the channel over the next few years (USACE 2024a). In the action area downstream from the inlet, there is a 50-foot-wide buffer of riparian vegetation between the river and a dirt access road. Except for during high flows, the Clearwater River in the action area generally has a low amount of suspended sediment. The sediment is not expected to contain significant quantities of contaminants based on water quality testing by the City. The intake is a primary source of Lewiston's drinking water, so the City routinely tests for organic and inorganic contaminants in the water from the intake. No significant levels of contaminants have been detected in the drinking water tests (NMFS 2017c). The City maintains Idaho Department of Water Resources municipal water rights (86-4034A, 86-4034B, and 86-7090) at the intake point of diversion for a combined year-round maximum diversion rate of 18.60 cubic feet per second; cfs).

The lower Clearwater River in the action area is highly influenced by operations at Dworshak Dam, located on the North Fork Clearwater above its confluence with the Clearwater River and roughly 38 miles upstream from the water intake. Current operation of the dam alters natural temperature and flow regimes in the Clearwater River. Dworshak Dam is operated to meet both local and regional flood control requirements during the winter and spring each year. Refilling the reservoir reduces spring flows in the lower Clearwater, Snake, and Columbia Rivers. Starting in 1992, summer releases at Dworshak Dam have been made to improve migration conditions (temperature and flow) in the lower Snake River for SRF salmon and SRB steelhead. Recent operations to cool temperatures and augment flows include water releases between late June and mid-September (NMFS 2017b).

In summary, the inlet channel is artificial, stagnant, and without rearing habitat. The Clearwater River and riparian and upland areas in the action area are heavily influenced by industry. The action area is critical habitat for both SRF Chinook salmon and SRB steelhead but is poor quality for spawning and rearing for both species. Adults of both species will migrate in deeper water away from the shallow nearshore habitat found in the action area. Juveniles for both species are expected to be in very low numbers during the winter work window but will be outmigrating using nearshore habitat during the summer work window.

SRF Chinook salmon and SRB steelhead, which are present in the action area, are threatened with extinction. For SRF Chinook salmon, the one remaining population in the ESU is currently viable, per the ICTRT’s criteria, but must reach a status of “highly viable with high certainty” for the ESU as a whole to meet recovery goals (NMFS 2022a). For SRB steelhead, all populations in the Clearwater River MPG migrate past the action area on their way to the ocean; and the current

status of these populations ranges from low to high risk of extinction with the (NMFS 2022b). The action area falls within the Lower Mainstem Clearwater Population boundary; the status of this population is highly viable (NMFS 2022a).

For both SRF Chinook salmon and SRB steelhead, the proposed action is most likely to affect juvenile life stages. For SRB steelhead, no spawning habitat is located in the action area, so the proposed action will not affect spawning adults or redds. Migrating juvenile and adult SRB steelhead both pass by the action area on their path to and from spawning areas in the Clearwater River MPG. Migrating adults are likely to stay in deeper water away from the inlet channel, whereas migrating juveniles are more likely to enter the inlet channel and utilize the shoreline habitat in the action area immediately downstream from the inlet. Most juvenile SRB steelhead will migrate past the action area in spring, but it is possible that individual juveniles could occupy the action area during the winter and summer. Researchers have found a very small number of juvenile SRB steelhead in Lower Granite Reservoir during the winter (Tiffan and Connor 2012). To summarize, during the in-water work windows juvenile SRB steelhead but not adults are likely to be in the action area, and therefore only juveniles for this species are likely to be adversely affected by the dredging action. On the other hand, both juveniles and adults are likely to be present in the action during other parts of the year, meaning that both life stages could be adversely affected by the ongoing consequences of the action of operating the water intake.

For fall Chinook salmon, the Nez Perce Tribe undertakes an annual comprehensive redd survey of the Clearwater River. Although greater than 90 percent of fall Chinook spawning in the Clearwater River occurs below Dworshak Dam (Billy Arnsberg, Nez Perce Tribe, personal communication October 17, 2024), the most downstream annual spawning occurs just upstream of the action area and above the Lower Granite Dam pool (NMFS 2017c). Neither spawning adults nor redds are therefore likely to be affected by the proposed action. Migrating fall Chinook salmon adults and juveniles will pass the action area on their way to or from spawning habitat, with juveniles far more likely than adults to enter the shallow water of the inlet channel. Subyearling fall Chinook salmon in the lower Snake River reservoirs use shallow water shoreline habitat throughout the spring and summer but are generally not found in shallow water or close to shore in the winter (Tiffan and Connor 2012). Therefore, as with SRB steelhead, although it is not their preferred winter habitat, a small number of individual juvenile fall Chinook salmon could be present in the action area during the winter in-water work window. To summarize, during the winter and summer in-water work windows juvenile fall Chinook salmon but not adults are likely to be in the inlet channel action area, and therefore only juveniles for this species are likely to be exposed to dredging. Both juveniles and adults are likely to be present in the action area during other parts of the year, meaning that both life stages could be adversely affected by the ongoing consequence of operating the water intake.

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 (see 50 CFR 402.02). 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 402.02).

2.5.1 Effects of the Action on Species

We do not expect adults of either species to be present in the shallow water inlet channel during the winter in-water work window because dredging will be performed when the inlet channel is very shallow from sediment buildup; during the 2024 winter emergency clearing of the inlet channel, no fish were present in the channel. In addition, SRF Chinook salmon adults are absent from the Snake Basin during the winter, and SRB steelhead adults present in the Clearwater River during the winter are likely to be holding in deeper water. During the summer in-water work window, SRF adults and SRB steelhead adults are not expected to be migrating into the shallow intake channel or shallow near-shore habitat in the action area.

During year-round operation of the intake, both juveniles and adult SRB steelhead and SRF Chinook salmon are likely to be present in the action area during other parts of the year, meaning that both life stages could be exposed to the ongoing consequences of the action of operating the water intake. Because adult SRB steelhead and SRF Chinook salmon are expected to be in deeper water away from shore and able to volitionally move away from any operation, maintenance, or disturbance associated with the intake, adverse effects to adults are unlikely.

The proposed action could adversely affect juvenile SRB steelhead and SRF Chinook salmon found in the action area in the following ways discussed below.

2.5.1.1 Harm to juvenile salmonids occupying the inlet channel during dredging

Although not their preferred winter habitat, it is possible that a very small number of juveniles of either species could be present in the inlet channel during dredging. The City will install a turbidity curtain across the mouth of the inlet channel, separating the 75-foot by 110-foot (8,250 ft^2) inlet from the Clearwater River for the estimated 5 days of dredging (500 cubic yards of sediment from the intake channel) and afterwards until the curtain is removed slowly to reduce turbidity. The lower edge of the curtain will be about 1-foot above the bottom of the center of the channel, allowing river water to flow into the inlet if the City needs to operate the intake after dredging has ceased for the day. It is possible that juveniles in the inlet channel at the time of curtain installation could volitionally leave the inlet at any time through this gap; however, we assume that juvenile salmonids may remain in the inlet channel during dredging. The USACE indicated in an email to NMFS on December 21, 2016, that the ice covering the surface of the inlet channel would likely prevent the City from seining the inlet channel prior to dredging to remove ESA-listed fish from the area; this condition was also true for the emergency dredging in 2024 (USACE 2024b).

It is not possible to estimate how many individual juveniles of either species will be present in the inlet channel during dredging, but we assume the number will be very low given the low quality of the habitat. Tiffan and Connor (2012) found that almost all juvenile SRB Chinook salmon found in Lower Granite Reservoir in fall and winter were pelagically-oriented and rarely entered shallow water habitat. For those few fish that did enter shallow water habitat, median time spent at the site was less than 1.4 hours. The researchers found even fewer juvenile SRB steelhead in shallow habitat during fall and winter. In spring and summer, when fall Chinook

salmon make extensive use of shallow water habitat in Lower Granite Reservoir in the Snake and Clearwater Rivers, Tiffan and Connor (2012) estimated a mean density of 0.035 juvenile fall Chinook salmon per square meter for habitat less than 2 meters depth (0.00325 fish per square foot). Since 2012, adult return numbers at Lower Granite Dam through 2023 have been similar or less than the years around 2012 (Young et al. 2023); therefore, NMFS assumes the juvenile densities from Tiffan and Connor (2012) are still valid. Applying this number to the inlet channel area of 8,250 ft^2 gives an estimate of 27 juvenile fall Chinook salmon in the inlet channel during spring and summer (8,250 ft^2*0.00325=27). Winter densities for salmonids in shallow water are not available, but we assume that in winter this number would be far smaller for both species, based on Tiffan and Connor (2012) and (USACE 2024a). The small number of juvenile salmonids that could be present in the inlet channel during dredging could be injured or killed by contact with the dredge bucket, exposed to prolonged turbidity, lack of food, or a combination of these factors. Because of the inhospitable conditions and low visibility while dredging in the isolated intake channel, it is not possible to account for, or differentiate between, injured and killed fish, we, assume that all juveniles occupying the inlet channel during the approximate 5 days of dredging will be injured or killed.

2.5.1.2 Exposure to turbidity plumes downstream from the inlet channel

Suspended sediment can affect fish through a variety of pathways: abrasion (Servizi and Martens 1992), gill trauma (Bash *et al.* 2001), behavioral effects such as gill flaring, coughing, and avoidance (Berg and Northcote 1985; Bisson and Bilby 1982; Servizi and Martens 1992; Sigler *et al.* 1984), interference with olfaction and chemosensory ability (Wenger and McCormick 2013); and changes in plasma glucose levels (Servizi and Martens 1987). For salmonids, these effects generally decrease with sediment particle size and increase with particle concentration and duration of exposure (Bisson and Bilby 1982; Gregory and Northcote 1993; Servizi and Martens 1987, Newcombe and Jensen 1996). Although increased amounts of suspended sediment cause numerous adverse effects on fish and their environment, salmonids are relatively tolerant of low to moderate levels of suspended sediment. Gregory and Northcote (1993) have shown that moderate levels of turbidity (35 to 150 nephelometric turbidity units [NTUs]) can accelerate foraging rates among juvenile Chinook salmon, likely because of reduced vulnerability to predators (camouflaging effect).

Salmon and steelhead tend to avoid suspended sediment above certain concentrations. Avoidance behavior can mitigate adverse effects when fish are capable of moving to an area with lower concentrations of suspended sediment. To avoid turbid areas, salmonids may move downstream or laterally (Servizi and Martens 1992). Researchers have reported thresholds for salmonid avoidance behavior at turbidities ranging from 30 to 70 NTU (Lloyd 1987, Servizi and Martens 1992, Berg and Northcote 1985).

Turbidity could enter the Clearwater River from both drainage of dredged material on land adjacent to the Clearwater River, and the in-water dredge work in the intake channel. We expect that the silt fence which the City will install around the drying dredged material from the channel will capture almost all sediment from the dredged material and that only a very small amount of increased turbidity will result in the Clearwater River from these dredged drying sediments.

We expect that the turbidity curtain across the inlet channel will prevent most turbidity from in-water dredging from entering the Clearwater River. However, a small amount of suspended sediment may pass through the opening at the bottom of the curtain and flow a few hundred feet downstream before dispersing. During dredging in late January of 2024, the USACE looked for and did not see any visible turbidity escaping into the Clearwater River from behind the silt curtain installed across the water intake channel inlet (USACE 2024b).

During the estimated 5 days of dredging for the proposed action, NMFS assumes that turbidity plumes may spread downstream from the inlet channel. The USACE proposes to monitor turbidity during the 5 days of dredging and cease work if turbidity is greater than 50 NTUs above background, resuming work after the turbidity clears. Although in the last two dredging actions for the inlet channel there was no visible turbidity outside of the turbidity curtain in the Clearwater River, we assume that if there are turbidity plumes, they will spread no more 500 feet downstream from the inlet and generally last for a few minutes at a time and would be of 50 NTU instantaneous or less above background turbidity. As cited above, 50 NTUs is within the range of concentrations for minor movement away from the turbidity and within the range of concentrations for increased feeding. Juvenile SRF Chinook salmon and SRB steelhead in the action area, in the Clearwater River outside the turbidity curtain, will likely respond to such short-term turbidity plumes along the channel margin by temporarily seeking refuge nearby in similar, suitable habitat or increased feeding. As stated above, adult SRF Chinook salmon and SRB steelhead are not expected to be in the action area during the dredging in-water work windows.

2.5.1.3 Exposure to Chemical Contamination

Use of construction equipment and heavy machinery adjacent to stream channels poses the risk of an accidental spill of fuel, lubricants, hydraulic fluid, or similar contaminants into the riparian zone, or directly into the water. If these contaminants enter the water, these substances could adversely affect habitat, injure or kill aquatic food organisms, or directly impact ESA-listed species. Petroleum-based contaminants such as fuel, oil, and some hydraulic fluids contain poly-cyclic aromatic hydrocarbons, which can cause chronic sublethal effects to aquatic organisms (Neff 1985). Ethylene glycol, the primary ingredient in antifreeze, has been shown to result in sublethal effects to rainbow trout at concentrations of 20,400 milligrams per liter (Beak Consultants Ltd. 1995, as cited in Staples 2001). Brake fluid is also a mixture of glycols and glycol ethers, and has about the same toxicity as antifreeze.

The proposed action includes multiple conservation measures aimed at minimizing the risk of fuel or oil leakage into the stream. With the exception of the excavator bucket, equipment will not enter the stream channel, which further limits the potential for chemical contamination. All equipment fueling, maintenance, and staging will be at least 150 feet from the Clearwater River. Equipment will be maintained clean and free of leaks, and the contractor will inspect equipment daily. Spill kits and cleanup materials will be available during operations. Due to the conservation measures built into the proposed action, NMFS expects that any exposure to SRF Chinook and SRB steelhead from chemical contamination during the use of heavy equipment would be minor, temporary, and not adversely affect rearing or migrating juveniles or migrating adults.

If the sediment in the inlet channel contains chemical contaminants, then dredging could liberate the contaminants from the sediment and expose fish to the contaminants. No toxic levels of contaminants have been detected in the drinking water tests, and analysis of sediment samples from the inlet showed that the samples were less than 20% fines and less than 0.5% total organic carbon (NMFS 2017c). This information indicates that the intake is filling with clean river sediments free of contaminants at levels harmful to juvenile or adult SRF Chinook salmon or SRB steelhead. Based on these results, and that the sediment is being removed from the river system, NMFS determined that the proposed action will not expose juvenile or adult SRF Chinook salmon or SRB steelhead to harmful levels of chemical contaminants that may be released from the dredged material during and after dredging.

2.5.1.4 Entrainment and impingement due to water diversion

Continued operation of the water intake structure is a consequence of the proposed action and will result in impingement and entrainment of juvenile salmonids. Entrainment is the unwanted passage of fish through a water intake, which is generally caused by an absent or inadequate screen surrounding the water intake. Impingement is the physical contact of a fish with the screen due to intake velocities which are too high to allow the fish to escape. Entrainment of a fish into a water diversion can ultimately result in death of the fish if the fish is unable to swim back out, and impingement can either injure or kill the fish. Both entrainment and impingement can be minimized with a well-designed intake screen structure—screen mesh size must be small enough that fish are physically unable to pass through and the screen must be located at appropriate water depth and velocities.

NMFS engineering staff reviewed the plans for the existing screen on the Lewiston water intake and determined that the screen most likely does not meet NMFS (1996) juvenile fish screen criteria for pump intakes (J. Brown, NMFS engineer, personal communication to S. Fesenmyer, via email, January 4, 2017). Because the screen doesn't meet the 1996 criteria, it is reasonable to conclude it also does not meet the most recent fish passage criteria (NMFS 2022c). Sweeping velocity is likely too low to carry juvenile fish and debris away from the screen face; the screen does not have an active cleaning system; the screen mesh size is slightly larger than the requirements; and it is highly likely, given the length of time in service, that the mesh is not well sealed, and therefore would allow juvenile fish to be entrained through unsealed openings. The screen has not been updated since consultation in 2017 because the City plans to build a new intake at a different location in 2025 (B. Tice, USACE biologist, personal communication via email, September 20, 2024). In this opinion, we therefore analyze the effects to fish of operating the existing fish screen for the next 5 years, 2024 through 2028, because the action agency requested consultation for cleaning the intake channel in 2028, NMFS assumes that water intake will be operating for the 5 years 2024 through 2028.

Over the next 5 years, the Lewiston water intake will entrain and impinge juvenile SRB steelhead and SRF Chinook salmon. Any adult fish that enter the inlet channel will be able to escape volitionally and will be unharmed by the screen. Some researchers have estimated the proportion of migrating juvenile salmonids entrained in unscreened diversions to be roughly equal to the proportion of flow diverted (Simpson and Ostrand 2012, Walters et al. 2012); whereas, others have estimated the proportion of juveniles entrained to be more than ten times lower than the proportion of flow diverted (Hanson 2001). Well-designed screens can reduce

mortality of juveniles encountering a water diversion to three percent (Simpson and Ostrand 2012; Walters *et al.* 2012). Because the existing screen does not meet NMFS (2022c) criteria for pump intakes, the mortality rate for juvenile fish encountering the screen is likely greater than 3%.

For our water diversion analysis, NMFS assumes: (1) the proportion of migrating juvenile salmonids that encounter the screen will be equal to the proportion of flow diverted by the intake; and (2) all of the fish encountering the screen will be entrained or impinged and ultimately die. NMFS assumes juvenile salmonids entering the intake channel will follow the intake average annual flow of 4.49 cfs (i.e., maximum monthly average diversion rate of 10.1 cfs; maximum water right diversion rate is 18.60 cfs) to the intake screen and be unable to reverse direction and swim away from the screen due to water velocity near and through the screen. The inability of juveniles to escape is assumed to cause 100 percent mortality from impingement on the screen or entrainment into the intake. Juvenile steelhead are most likely to migrate past the intake structure in the spring and juvenile fall Chinook salmon during spring and summer, but juveniles of either species could be present in the action area throughout the year. Therefore, we use the annual average intake flow and Clearwater River flow to estimate the percent of river flow that enters in the intake structure. Between 2011 and 2015 the average intake flow was 4.49 cfs and the average Clearwater River flow was 14,687 cfs, such that the intake diverted 0.031 percent of the Clearwater River (4.49/14,687=0.00031 or 0.031 percent) (USACE 2016). Although this analysis is almost ten years old, the relationship between the average diversion rate and stream flow changes only slightly every year. As such, this estimated relationship remains valid. Thus, the intake could entrain 0.031 percent of downstream migrating anadromous salmonids. We assume that this percentage applies equally to all SRB steelhead populations in the Clearwater River MPG, all of which must migrate past the action area as smolts; and this percentage of entrained juveniles applies to the Lower Clearwater River major spawning area of the single extant population of fall Chinook salmon. The loss of 0.031 percent of out-migrating juveniles annually for 5 years for individual SRB steelhead populations in the Clearwater MPG and a portion of the fall Chinook salmon population would only have a very small impact on population abundance.

We estimate that the loss of 0.031 percent of out-migrating fall Chinook salmon juveniles translates to the loss of the equivalent of 0.7 adult fall Chinook salmon each year for 5 years (i.e., multiplying 2,168 SRF Chinook by the 0.031 annual entrainment percent yields a loss of 0.7 adult equivalents per year from the single extant Lower Mainstem Snake River fall Chinook salmon population). This estimate is based on the information that the fall Chinook Clearwater River major spawning area has produced 24% of identified SRF Chinook salmon redds since 1991 (NMFS 2017b), and that the recent 10-year (2010 through 2019) mean abundance of natural-origin SRF Chinook salmon is 9,034 spawners per year (NMFS 2022a). These two numbers suggest an average of 2,168 fall Chinook salmon spawners in the Clearwater per year.

We estimate that the loss of 0.031 percent of out-migrating SRB steelhead juveniles in the Clearwater Basin translates to an average of the equivalent of 0.6 adult SRB steelhead per year from each of the five populations in the MPG, assuming even distribution of loss of juveniles across the MPG (i.e., multiplying 9,602 SRB steelhead by the 0.031 annual entrainment percent, and dividing by five populations, yields a loss of 0.6 adult equivalents per year from each

population in the Clearwater River MPG). This estimate is based on the 5-year geomean (2015-2019) of 9,602 natural SRB steelhead spawners returning to the Clearwater MPG (Ford 2022).

The loss of the equivalent of 0.6 adult SRB steelhead per year for 5 years for individual SRB steelhead populations in the Clearwater River MPG and the equivalent of 0.7 adult fall Chinook salmon would have a very small impact on population abundance

2.5.1.5 Impacts from reduced flow

The Lewiston water intake diverts an annual average of 4.5 cfs, and diverts between 0.012 percent (April) and 0.10 percent (September), of the Clearwater River. Reduced streamflow from diversions is a limiting factor for both the Lower Clearwater steelhead population (NMFS 2017a) and the fall Chinook salmon Lower Clearwater River major spawning area (NMFS 2017b) in the summer during base flow conditions. Reduced streamflow during other times of the year has not been identified as a limiting factor for either species. Diversions for irrigation and other purposes lead to lower base flows in summer, particularly in tributary streams. This reduces habitat quantity and leads to higher stream temperatures. However, at the location of the Lewiston water intake, summer river flows and river temperatures are primarily influenced by cold water releases from Dworshak Dam, upstream from the project. Recent operations to cool temperatures and augment flows include releases of up to 14,000 cfs between late June and mid-September, which leads to cooler summer water temperatures and a larger volume of flow than a natural flow regime (NMFS 2017b; USGS 2024). Based on the location of the Lewiston water intake, on the lower mainstem river and downstream from Dworshak Dam, we do not expect the small reduction in flow caused by the water intake diversion to negatively impact any life stage of SRF salmon and SRB steelhead in the action area or downstream in the Snake River.

2.5.2 Effects of the Action on Critical Habitat

Implementation of the proposed project is likely to affect freshwater rearing and migration habitat for both listed species. The two species have similar critical habitat PBFs, listed in Table 2. The PBFs that could be adversely affected by the proposed action are substrate, water quality, water quantity, and safe passage:

- **Substrate**. Turbidity plumes from dredging will deposit a small amount of sediment in the Clearwater River downstream from the inlet channel. The use of the turbidity curtain will minimize the amount of turbidity in the Clearwater River, which will minimize the amount of sediment that could be deposited in the mainstem river; and reports from the last two inlet dredging actions reported no visible turbidity in the Clearwater River. The amount of fine sediment redistributed from the inlet channel to the mainstem Clearwater River and Lower Granite Reservoir will be extremely small, if any, in the context of total sediment yield of the mainstem river. (The average annual sediment yield in the Snake River at the upstream end of the Lower Granite reservoir is estimated to be 2.3 million cubic yards [Clark *et al.* 2013]). Small deposits of fine sediment to Clearwater River substrate from one-time dredging will not reduce the conservation value of the substrate PBF for either species.

- **Water quality**. The proposed action could negatively affect water quality through chemical contamination, short-term increases in turbidity, or contaminants in the dredged material. As described above in Section 2.5.1.3, we expect the proposed conservation measures will prevent leaks or spills from machinery from entering the Clearwater River. We also assume, based on analysis of water quality at the intake and sediment composition, that the proposed action will not expose fish to harmful levels of chemical contaminants that may be released from the dredged material. As described above in Section 2.5.2, we expect periodic increases in turbidity to last several hours during the estimated 5 days of in-water work and extend no more than 500 feet downstream. Because this negative impact to water quality will be localized, small, and short-term, it will not reduce the long-term value of this PBF in the action area for either species.

- **Water quantity**. As described in Section 2.5.1.5 above, the average annual diversion flow of 4.5 cfs from the Clearwater River for Lewiston's municipal water supply is a very small percentage of the river's overall flow, which would not appreciably reduce quantity or quality of habitat for SRF Chinook salmon or SRB steelhead. Therefore, the reduction in flow would not reduce the conservation value of the water quantity PBF in the action area for either species. This is particularly true because substantial cold-water releases from Dworshak Reservoir during the summer, the time of year in which reduced streamflow can be degrade the quality of habitat for either species, increase base flows in the action area.

- **Safe passage.** The existing screen on the intake pipe reduces safe passage for juvenile salmonids by allowing entrainment and impinging fish. In Section 2.5.1.4 above, we estimate that the existing screen could entrain or impinge 0.031 percent of downstream migrating anadromous salmonids for up to 5 years. Because a new intake will be installed, this negative impact to safe passage will be temporary and will not reduce the long-term conservation value of the safe passage PBF in the action area for either species.

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). 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.

The action area is adjacent to a single private property which is not likely to be further developed due to its remote location. On the other hand, riparian and watershed land uses throughout the Clearwater River Basin will continue to cumulatively influence the action area. Given that population in Idaho increased by 18% between 2010 and 2020[1], we assume that future private

[1] https://lmi.idaho.gov/census/, accessed October 2, 2024.

and state land uses and their impacts on downstream water quality over the next five years will continue to increase at a similar rate.

2.7 Integration and Synthesis

The Integration and Synthesis section is the final step assessing the risk that the proposed action poses to species and critical habitat. 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 biological 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.

SRF Chinook salmon and SRB steelhead, which are present in the action area, are threatened with extinction. For SRF Chinook salmon, the one remaining population in the ESU is currently viable, per the ICTRT's criteria, but must reach a status of "highly viable with high certainty" for the ESU as a whole to meet recovery goals (NMFS 2022a). For SRB steelhead, all populations in the Clearwater River MPG migrate past the action area on their way to the ocean; and the current status of these populations ranges from low to high risk of extinction (NMFS 2022b). Two of the largest impacts upon the action area will likely continue to be federal management of Lower Granite Reservoir and summer releases of cold water from Dworshak Reservoir.

The impacts of federal and non-federal land use activities on conditions in the action area are reflected in the environmental baseline section of this document. Current levels of these uses and their impacts on the environment are likely to continue into the future but are unlikely to be substantially more severe than they currently are given the heavily modified nature of the action area. The inlet channel is artificial, stagnant, and without rearing habitat. The Clearwater River and riparian and upland areas in the action area are heavily influenced by industry. The action area is critical habitat for both SRF Chinook salmon and SRB steelhead but is poor quality for spawning and rearing for both species. Adults of both species will migrate in deeper water away from the shallow nearshore habitat found in the action area. Juveniles for both species are expected to be in very low numbers during the winter work window but will be outmigrating using nearshore habitat during the summer work window.

We determined that the proposed action will have the following effects on SRF Chinook salmon and SRB steelhead:

- Killing or injuring the few individual juveniles of both species located in the inlet channel during dredging.

- Exposing a small number of juveniles to sub-lethal harm from sporadic turbidity plumes downstream from the inlet over approximately 5 days of dredging the isolated 8,250 ft^2 inlet channel.

- Killing or injuring up to 0.031 percent of downstream migrating juveniles passing the action area over the next 1 to 5 years from impingement on the fish screen or entrainment into the intake pipe.

- NMFS determined that the proposed action, including BMPs for staging and refueling, will not expose juvenile or adult SRF Chinook salmon or SRB steelhead to harmful levels of chemical contaminants from petroleum products, or that may be released from the dredged material during and after dredging.

- NMFS does not expect the small reduction in flow caused by the water intake diversion to negatively impact any life stage of SRF salmon and SRB steelhead in the action area or downstream in the Snake River.

For SRF Chinook salmon, we do not expect the small amount of juvenile mortality due to the proposed action to decrease the overall abundance-productivity status of the one remaining population, which is currently rated as viable. For SRB steelhead, two of the Clearwater MPG populations are at high risk of extinction. However, the percent of juveniles harmed or killed by the proposed action for each Clearwater River population is very small, and the impact is short-term (i.e., one-time for the impacts from dredging and ending within 5 years for the impacts from the screen). Therefore, we do not expect a reduction in overall abundance and productivity values for any of the individual populations. The proposed action is, therefore, not likely to reduce the viability of the SRF Chinook salmon ESU or the SRB steelhead DPS.

We determined that the proposed action will have the following effects on the PBFs of SRF Chinook salmon and SRB steelhead designated critical habitat:

- Substrate. The amount of fine sediment redistributed from the inlet channel to the mainstem Clearwater River and Lower Granite Reservoir will be extremely small in the context of total sediment yield of the mainstem river. Small deposits of fine sediment to Clearwater River substrate from one-time dredging will not reduce the conservation value of the substrate PBF for either species.

- Water quality. NMFS expects the proposed conservation measures will prevent leaks or spills from machinery from entering the Clearwater River. We also assume, based on analysis of water quality at the intake and sediment composition, that the proposed action will not expose fish to harmful levels of chemical contaminants that may be released from the dredged material. We expect periodic increases in turbidity to last several hours during the estimated 5 days of in-water work and extend no more than 500 feet downstream. Because this negative impact to water quality will be localized, small, and short-term, it will not reduce the long-term value of the water quality PBF in the action area for either species.

- Water quantity. The average annual diversion flow of 4.5 cfs from the Clearwater River for Lewiston's municipal water supply is a very small percentage of the river's overall flow which would not appreciably reduce quantity or quality of habitat for SRF Chinook

salmon or SRB steelhead. Therefore, the reduction in flow would not reduce the conservation value of the water quantity PBF in the action area for either species.

- Safe passage. The existing screen on the intake pipe reduces safe passage for juvenile salmonids by allowing entrainment and impinging fish. We estimate that the existing screen could entrain or impinge 0.031 percent of downstream migrating anadromous salmonids for up to 5 years. Because this negative impact to safe passage is short-term and will be eliminated with the construction of the new intake, it will not reduce the long-term conservation value of the safe passage PBF in the action area for either species.

For critical habitat for both species, the proposed action will result in a reduction in safe passage for juveniles of both species for up to 5 years. Because this impact to overall safe passage is short-term and very small, affecting 0.031 percent of migrating juveniles from the Clearwater River basin, the proposed action will not reduce the value of designated critical habitat for the conservation of either species. In addition, the proposed action will result in very small impacts to substrate, water quality, and water quantity, which will not reduce the conservation value of critical habitat for the conservation of either species.

2.8 Conclusion

After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and the cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of SRF Chinook salmon and SRB steelhead or destroy or adversely modify their designated critical habitat.

2.9 Incidental Take Statement

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

2.9.1 Amount or Extent of Take

In the opinion, NMFS determined that incidental take is reasonably certain to occur as follows: (1) injury or death to juvenile SRF Chinook salmon and SRB steelhead present in the inlet channel during dredging; (2) harm to juvenile SRF Chinook salmon and SRB steelhead from exposure to suspended sediment in the river below the intake channel; and (3) entrainment or impingement of juvenile SRF Chinook salmon and SRB steelhead by the existing fish screen and intake pipe.

Harm to juveniles in the inlet channel during dredging. We assume that all juvenile SRF Chinook salmon and SRB steelhead present in the 8,250 ft^2 inlet channel during dredging may be killed or injured from contact with dredging equipment, exposure to turbidity, or lack of food. Because it is not possible to observe the number of individual fish that may be harmed from dredging activities, NMFS will use the timing of the in-water work and total area dredged as a surrogate for the amount of take. We will consider the extent of take exceeded if the in-water work occurs outside of the in-water work window between December 15 and February 28, and July 15 to August 30—because a greater density of juvenile salmonids are likely to be present (and thus harmed) outside of this work window. In addition, because take is also based on the amount of area dredged in the intake channel, the extent of take will be exceeded if the total area dredged is greater than 8,250 ft^2. Although these surrogates are coextensive with the proposed action, they function as effective reinitiation triggers because more juveniles will be harmed than estimated in this opinion if the dredging occurs outside of either in-water work window or the area dredged exceeds 8,250 ft^2.

Exposure to suspended sediment. A small number of juvenile and adult fish could experience sublethal impacts from exposure to elevated turbidity levels caused by sporadic turbidity plumes downstream from the inlet channel during the estimated 5 days of dredging. Because it is not possible to observe the number of fish exposed to the turbidity plumes, NMFS will use the extent and duration of the turbidity plumes as a surrogate for take. We will consider the extent of take exceeded if turbidity concentrations during dredging exceed Idaho state standards of 50 NTU above background or extend more than 500 feet downstream from the inlet channel. This take surrogate is proportionate to the amount of harm and can be monitored.

Entrainment and Impingement by the Intake Pipe. We estimate that 0.031 percent of downstream migrating juvenile SRB steelhead and SRF Chinook salmon passing the action area over the next 5 years will be killed or injured by impingement or entrainment on the fish screen and intake pipe. Because it is not possible to observe the number of fish killed or injured by these pathways, we will use maintenance of the fish screen and intake flow as surrogates for take. If the City fails to properly maintain their existing screen while the intake is in use, then NMFS will consider the extent of take exceeded. Although this take surrogate is coextensive with the proposed action, it functions as an effective reinitiation trigger because more juveniles will be harmed than estimated in this opinion if the existing fish screen remains in place, and in use, without proper maintenance. NMFS will consider the extent of take exceeded if the City diverts more than 18.60 cfs into the intake at any time. This take surrogate functions as an effective reinitiation trigger because diverting more than 18.60 cfs would exceed the maximum allowable instantaneous diversion rate analyzed in this opinion and more juveniles will be harmed than estimated in this opinion.

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 measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

The USACE shall:

1. Minimize incidental take from the proposed one-time dredging action and the ongoing operation of the water intake diversion.

2. Monitor the proposed action to ensure that the proposed action was carried out in the manner described in the BA and that the extent of take is not exceeded.

2.9.4 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the federal action agency must comply (or must ensure that any applicant complies) with the following terms and conditions. The USACE or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. To implement RPM 1 the USACE shall ensure that:

    a. The silt curtain will be left in place after dredging until turbidity levels in the inlet channel have returned to background levels in the Clearwater River.

    b. Annual inspections of the intake screen are conducted and, at that time, perform any maintenance and cleaning necessary to ensure proper function of the screen.

    c. If use of the intake stops, structures or measures should be implemented immediately to avoid any contact of SRF Chinook salmon and SRB steelhead with the intake or intake screen.

    d. The maximum instantaneous diversion rate does not exceed 18.60 cfs.

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

    a. Within 2 months of dredge completion, submit a completion of project report to the NMFS Boise office by email (nmfswcr.srbo@noaa.gov with NMFS' consultation number "WCRO-2024-01906" in the subject line). The completion report shall include, at a minimum, the following:
        i. Starting and ending dates, with in water work period specified.
        ii. Results of the turbidity monitoring, including the magnitude of instream turbidity (NTUs) and downstream extent (feet) of the turbidity plumes.
        iii. Total amount (cubic yards) of dredged material removed.
        iv. Number and species of fish observed, injured, or killed in the isolated dredging area during the project.
    b. Submit an annual report on inspection and operation and maintenance of the existing intake screen. The report shall include, at a minimum, the following:
        i. The date and brief description of the maintenance and or repair of the intake or screen.
        ii. The date of decommissioning or stopping use of the intake, and the plan for maintenance while not in use. Any date and reason for restarting the intake of water if it was shut down after the new intake has come on line.
        iii. City water diversion rate information at the intake. Include all of the measurements, monitoring, and calculated time period averages and maximums the City produces (e.g., annual, monthly, daily, etc.)
    c. If the amount or extent of take is exceeded, the USACE shall stop project activities and notify NMFS immediately using the contact information at the end of this consultation.

2.10 Conservation Recommendations

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

The following recommendations are discretionary measures that NMFS believes are consistent with this obligation and therefore should be carried out by USACE and the City:

- For actions that the USACE authorizes or permits in the Clearwater River basin that have operation of water diversion structure(s) as a consequence of the proposed action, ensure that these water diversions have fish screens compliant with NMFS (2022c), or NMFS' most recent version, criteria for safe fish passage.

- The City designs and installs a new screen for the water intake structure, approved by a NMFS engineer, within the next 5 years. Installation of a new screen will require a new ESA Section 7 consultation with NMFS.

Please notify NMFS if the USACE, or another entity, carries out these recommendations so that we will be kept informed of actions that minimize or avoid adverse effects and those that benefit listed species or their designated critical habitats.

2.11 Reinitiation of Consultation

This concludes formal consultation for the Lewiston Water Intake Maintenance Dredging Project. Under 50 CFR 402.16(a): "Reinitiation of consultation is required and shall be requested by the federal agency or by the Service where discretionary federal agency involvement or control over the action has been retained or is authorized by law and: (1) If the amount or extent of incidental taking specified in the ITS is exceeded; (2) If new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or (4) If a new species is listed or critical habitat designated that may be affected by the identified 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 associated physical, chemical, and biological 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 may result from actions occurring within EFH or outside of it and may include direct, indirect, or site-specific or habitat-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)].

3.1 Essential Fish Habitat Affected by the Project

The proposed project occurs within EFH for Chinook and coho salmon managed within the Pacific Coast Salmon Fisheries Management Plan (FMP) (PFMC 2014).

In addition, the project occurs within, or in the vicinity of complex channel and floodplain habitat, spawning habitat, and thermal refugia which are designated as habitat areas of particular concern (HAPCs) for various federally managed fish species within the Pacific Coast Salmon FMP (PFMC 2014). HAPCs are described in the regulations as subsets of EFH which are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under the MSA; however, federal projects with potential adverse impacts on HAPCs will be more carefully scrutinized during the consultation process.

3.2 Adverse Effects on Essential Fish Habitat

NMFS determined the proposed action would adversely affect EFH as follows:

1. Reduce safe passage conditions for a small percentage of migrating juvenile salmon due to the operation of a fish screen not compliant with NMFS (2022c). (no HAPC).

2. Temporarily increase turbidity in a small area of the Clearwater River due to dredging and silt curtain removal (spawning habitat HAPC).

3. Reduced stream flow/water quantity through consumptive use of the water withdrawn from the Clearwater River.

3.3 Essential Fish Habitat Conservation Recommendations

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

1. After dredging, the City will keep the silt curtain in place until turbidity levels in the inlet channel have returned to background levels as measured in the Clearwater River.

2. The City will ensure proper operation and maintenance of the existing water intake structure, including the screen, to improve safe passage conditions for juvenile Pacific Coast salmon.

3. The City will design and install a new screen for the water intake structure, approved by a NMFS engineer, within to the next 5 years to improve safe passage of juvenile Pacific Coast salmon.

4. The City will improve delivery systems associated with the water intake, and encourage end users of this water to use water more efficiently, with the goal of using, and thus diverting, less water from the intake and Clearwater River.

3.4 Statutory Response Requirement

As required by section 305(b)(4)(B) of the MSA, the USACE 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)].

3.5 Supplemental Consultation

The USACE 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

The Data Quality Act (DQA) specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the opinion addresses these DQA components, documents compliance with the DQA, and certifies that this opinion has undergone pre-dissemination review.

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 user of this opinion is the USACE. Other interested users could include the applicant, the City of Lewiston. Individual copies of this opinion were provided to the USACE. The document will be available within 2 weeks at the NOAA Library Institutional Repository (https://repository.library.noaa.gov/welcome). The format and naming adhere 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 and 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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