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 97232-1274

Refer to NMFS No: WCRO-2022-00968

https://doi.org/10.25923/29mb-t242

August 23, 2022

Lt. Col. ShaiLin KingSlack
U.S. Army Corps of Engineers
Walla Walla District
201 North Third Avenue
Walla Walla, Washington 98362-1876

Re: Endangered Species Act Section 7(a)(2) Biological Opinion for the Lindsay Creek and Area 380 Drainage Structure Cleanout, Clearwater River, HUC 17060306, Nez Perce County, Idaho

Dear Lieutenant Colonel ShaiLin:

Thank you for your letter of April 21, 2022, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the Lindsay Creek and Area 380 Drainage Structure Cleanouts.

For purposes of this consultation, we considered whether the substantive analysis and its conclusions regarding the effects of the proposed actions articulated in the biological opinion and its incidental take statement would be any different under the 50 CFR part 402 regulations as they existed prior to the 2019 Rule vacated by the order of the United States District Court for the Northern District of California on July 5, 2022. We have determined that our analysis and conclusions would not be any different.

Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act (MSA) [16 U.S.C. 1855(b)] for this action. However, after reviewing the proposed action, we concluded that there are no adverse effects on EFH. Therefore, we are hereby concluding EFH consultation.

In this biological opinion, NMFS concludes that the action, as proposed, is not likely to jeopardize the continued existence of Snake River fall-run Chinook salmon (*Oncorhynchus tshawytscha*), Snake River Basin steelhead (*O. mykiss*). Rationale for our conclusions is provided in the attached opinion.

As required by section 7 of the ESA, NMFS provides an incidental take statement with the opinion. The incidental take statement describes reasonable and prudent measures 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 must comply with in order to be exempt from the ESA take prohibition.

Please contact Todd Andersen, Snake Basin Office, at (208) 366-9586 or at todd.andersen@noaa.gov if you have any questions concerning this consultation or if you require additional information.

Sincerely,

Michael P. Tehan
Assistant Regional Administrator
Interior Columbia Basin Office

Enclosure

cc: Brad Trumbo – USACE
Karl Anderson – USACE
Michael Erickson - USACE
Mike Lopez – Nez Perce Tribe
Christina Hacker – USFWS

Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Not Likely to Adversely Affect Determination Concurrence

Lindsay Creek and Area 380 Drainage Structure Cleanouts

NMFS Consultation Number: WCRO-2022-00968

Action Agency: U.S. Army Corps of Engineers

Affected Species and NMFS' Determinations:

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

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

Issued By: ______________________

Michael P. Tehan
Assistant Regional Administrator
Interior Columbia Basin Office

Date: *August 23, 2022*

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BA	Biological Assessment
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
DPS	Distinct Population Segment
DQA	Data Quality Act
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FR	Federal Register
ICTRT	Interior Columbia Technical Recovery Team
IDEQ	Idaho Department of Environmental Quality
ITS	Incidental Take Statement
LGR	Lower Granite Reservoir
MPG	Major Population Group
MSA	Magnuson–Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
Opinion	Biological Opinion
PBF	Physical or Biological Feature
PCE	Primary Constituent Element
ROV	Remote Operated Vehicle
RPM	Reasonable and Prudent Measure
SR	Snake River
SRB	Snake River Basin
U.S.C.	U.S. Code
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 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 at https://repository.library.noaa.gov/welcome. A complete record of this consultation is on file at the Interior Columbia Basin Office, Boise, Idaho.

1.2. Consultation History

On April 5, 2022, the U.S. Army Corps of Engineers (Corps) held a virtual meeting with NMFS and U.S. Fish and Wildlife Service outlining this proposed project and discussing information on fish presence or absence in the project area. On April 21, 2022, NMFS received a letter requesting formal consultation from the Corps for the Lindsay Creek and Area 380 Culvert Cleanout Project. The Corps also submitted a Biological Assessment (BA) to support their determinations on the species and critical habitat listed under ESA. After review, NMFS determined that the BA was complete and contained the information necessary to issue an opinion; therefore, a letter initiating formal consultation was sent from NMFS to the Corps on April 20, 2022. In June of 2022, NMFS and Corps staff discussed implementation of the Best Management Practices for suspended sediment; the Corps clarified in a June 22, 2022 email that silt curtains would not be needed and that turbidity would be monitored following Idaho Department of Environmental Quality (IDEQ) protocols. On July 11, 2022, Corps requested an extension of the work window to September 15 since it was unlikely this biological opinion would be issued prior to the July 15, 2022 start of the work window. NMFS determined that the action’s effects to migrating adult fall Chinook salmon would be negligible since the bulkheads will isolate the work from the Clearwater River. Furthermore, some data suggests that juveniles may benefit by allowing a few extra weeks in July to outmigrate. Therefore, the work window was extended to September 15, 2022.

The Corps concluded that the proposed action is: (1) likely to adversely affect Snake River (SR) fall-run Chinook salmon (*Oncorhynchus tshawytscha*), (2) likely to adversely affect Snake River Basin (SRB) steelhead (*O. mykiss*), and (3) designated critical habitat for these two species would not likely be adversely affected. The Corps also determined that the proposed action was likely to adversely affect SR spring/summer Chinook salmon; however, after discussions with NMFS personnel, on May 16, 2022 the Corps withdrew the request for consultation for spring/summer Chinook salmon. Spring/summer Chinook salmon in the Clearwater basin are not

ESA-listed. Also, the outmigration of ESA-listed juveniles in the nearby Snake River will likely be complete at the time of the proposed action. It is highly unlikely that if any juvenile spring/summer Chinook salmon remained in the Snake River that they would swim up the Clearwater River to this project site and be present in the action area during this action.

On July 5, 2022, the United States District Court for the Northern District of California issued an order vacating the 2019 regulations adopting changes to 50 CFR part 402 (84 FR 44976, August 27, 2019). This consultation was initiated when the 2019 regulations were still in effect. As reflected in this document, we are now applying the section 7 regulations that governed prior to adoption of the 2019 regulations. For purposes of this consultation, we considered whether the substantive analysis and its conclusions regarding the effects of the proposed actions articulated in the biological opinion and incidental take statement would be any different under the 2019 regulations. We have determined that our analysis and conclusions would not be any different.

1.3. Proposed Federal Action

Under the ESA, "action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (50 CFR 402.02).

The Corps' BA provided some background information on the project infrastructure, for instance stating that the River and Harbor Act of 1945 (Public Law 79-14) authorized construction of Lower Granite Dam and associated levees in Lewiston, Idaho. The Corps constructed two large concrete stormwater drainage structures into the Lewiston levee system. The Area 380 and Lindsay Creek structures drain stormwater into the Clearwater River. The Area 380 drainage was originally named as an intermittent stormwater flow; however, expanded residential development (i.e. lawn irrigation) has increased drainage flows to mostly year-round. Lindsay Creek is an actual perennial creek through the City of Lewiston. The drainage structures were built to catch debris and sediment on the upstream end and pass the water beneath the railroad, road, and levee infrastructure between the residential areas and Clearwater River's edge. The proposed action is to remove sediment and debris from the Area 380 and Lindsay Creek drainage structures from the inside of the structures.

The Area 380 drainage structure is located just upstream of the Highway 12 Memorial Bridge in Lewiston, Idaho, and the Lindsay Creek structure is about half a mile upstream of 380, both on the river-left bank (Figure 1). Both structures are nearly identical to one another in design and function; Figure 2 is a picture of the Lindsay Creek structure.

Each structure has three culverts (Figure 3); each stream flows through trash racks and down a 20-foot concrete ramp, which is impassable to fish, to enter the culverts. Generally, stream flows are directed through only one or two of the three culverts. The Lindsay creek culverts have 9-foot diameters and the Area 380 culverts are 4.5 feet in diameter. The streams flow through the culverts and into concrete bays that are usually open to the Clearwater River. The three bays are separate from one another and each has a bulkhead that can isolate the individual bay from the river. The concrete bays are 40 feet in length, 34 feet wide, and have water depths of up to 11.5 feet. The Lindsay Creek drainage structure is approximately 900 feet in length from intake to the

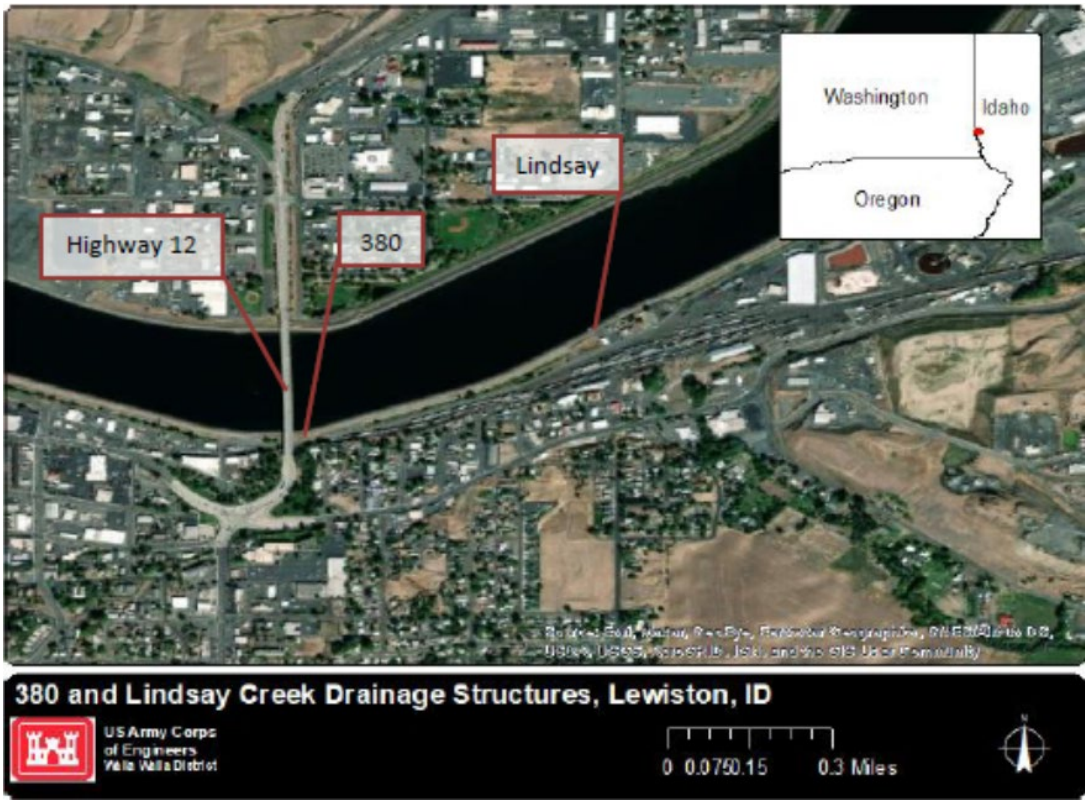

Figure 1. Locations of the Lindsay Creek and Area 380 structures along the levee of the Clearwater River in Lewiston, Idaho.

Figure 2. Looking upstream at the Lindsay Creek structure. The bulkheads can be seen at the front (river) side of the structure. The Area 380 structure is nearly identical.

outlet to the river. Area 380 drainage structure is approximately 300 feet in length from intake to outlet. Both structures combined have a wetted area of 0.6 acres.

Presently, sediment and debris have built up within the drainage structures and must be cleared to maintain proper water conveyance to avoid flooding in the residential areas. Each structure was inspected by a dive team in 2008; the Area 380 culverts could not be entered due to accumulations of sediment, and two of the three Lindsay Creek culverts were greater than 90% plugged, while the other was 50-60% obstructed. The Corps proposes to clean out the two structures by: (1) closing bulkheads at the structure terminus in the Clearwater River; (2) jetting water into the systems to loosen material; (3) pumping the resulting slurry out for dewatering; and (4) sediment removal to an upland disposal site. Because closing the structure bulkheads will isolate the system from the river, no dredge spoils or wastewater discharge would enter the river, but fish may become trapped inside the structure when the bulkheads are lowered.

The structures can be reached, and all work completed, from existing roads and levees. Spill prevention and control kits, cleaning, and fueling best management practices would be maintained with heavy equipment. The proposed action would require approximately 4 weeks to complete and would occur during a summer in-water work window from July 15 – September 15, 2022. The proposed action includes the following activities and construction sequence:

- Isolating the drain structures at their terminus in the Clearwater River by lowering bulkheads to seal on the structure floor.
- Dewatering the structures via pump and hose.
- Pumping water from the Clearwater River or upstream of the structures and jetting water into the structures to loosen material.
- Pumping the sediment slurry out of the structures for mechanical sludge dewatering.
- Sediment removal to an upland disposal site.
- Rewatering of the bay with river water or creek/runoff water.

Structure Isolation

Each of the two structures has three separate but side-by-side drainpipes and three outlet bays separated by concrete walls (Figures 3 and 4). This means each bay and pipe can be isolated from the others and the river. One of the three bays at both structures is currently plugged with sediment and thus is already functionally isolated from the Clearwater River.

Heavy equipment is required to lower the bulkheads into place, which would be the first action. Moving the bulkheads may cause some fish (if present) to flee out of the structure and reduce the number of fish that become entrained in the structure.

One or two intake bays would be isolated at a time, but not all three. This is intended to allow stormwater flow to pass the structure in a storm event, as well as allow fish to escape the open bays while working in adjacent isolated bays.

Structure Dewatering

A pump with a 6- to 8-inch diameter hose would be lowered into the isolated bays through grating from the top of the structures. This pump intake will be housed in a mesh basket with 1-inch openings to prevent larger items (e.g. wood, plastic bags, and large rocks) from clogging the hose. The bays would be pumped dry, and water drained into an upland settling area. If deemed to be safe, prior to being completely dewatered (when only a few inches remain), the bay would be inspected and netted for fish. Any live fish found during dewatering would be immediately returned to the river.

Sediment Removal

A different pump with an approximately 3-inch diameter hose would then draw water from the Clearwater River for jetting the material from inside the structures. The pump intake hose in the Clearwater River would be fitted with a screen per the NMFS criteria (NMFS 2011). All dewatering actions would be spatially separated from the river.

The Lindsay Creek drainage structure is approximately 900 feet in length from intake to outlet and would be cleaned out via remote operated vehicle (ROV) with a hose mounted on top. Each of the three culverts and associated bays would be isolated during cleaning: the stream would be directed through an adjacent culvert and lowering the bulkhead will isolate the bay. In total, the Lindsay Creek structure cleanout will include three 766-foot, nine-foot diameter culverts, and three bays totaling 1,360 square feet.

The Area 380 drainage structure is approximately 300 feet in length from intake to outlet and may be cleaned out from either side using a jet-vac type truck with onboard water. River water may be used to fill the truck tank. If water is pumped from the river, the pump intake would be screened per NMFS criteria (NMFS 2011). If necessary, the ROV may be used for the Area 380 cleanout. The cleanout will include three 166-foot 4.5-foot diameter culverts, and three bays totaling 1,360 square feet.

In both structures, a sediment slurry would flow into the bulkhead area as accumulated sediment is jetted through the culvert with water. The slurry would be pumped out of the structures for dewatering behind the levee. At Lindsay Creek, the slurry would first be treated with a mechanical dewatering device that separates water from sludge. The resulting sediment would be placed away from the levee and drainage, while the water that was mechanically separated from the sediment would flow to the secondary dewatering location. The discharge would then be run through sediment bags at the secondary dewatering location (Figure 5). Secondary dewatering would filter down to approximately 4 to 10 microns, which would result in clean water that could be discharged into the levee drainage.

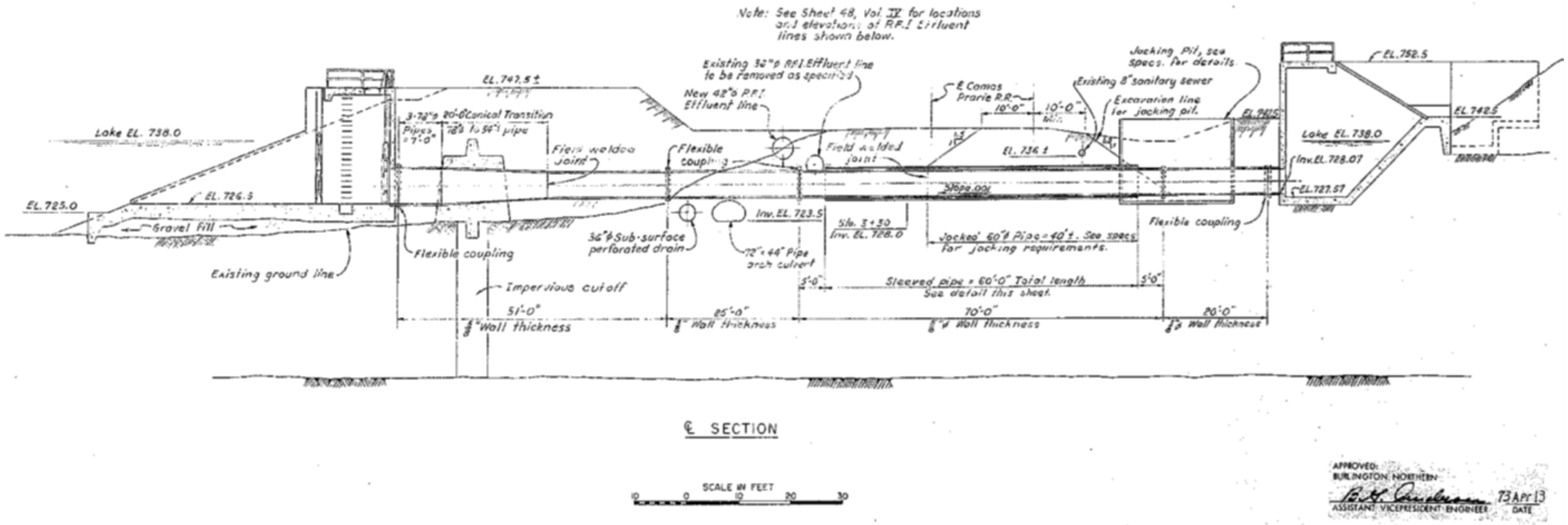

Figure 3. Elevation View Drawing of the Area 380 Drainage Structure.

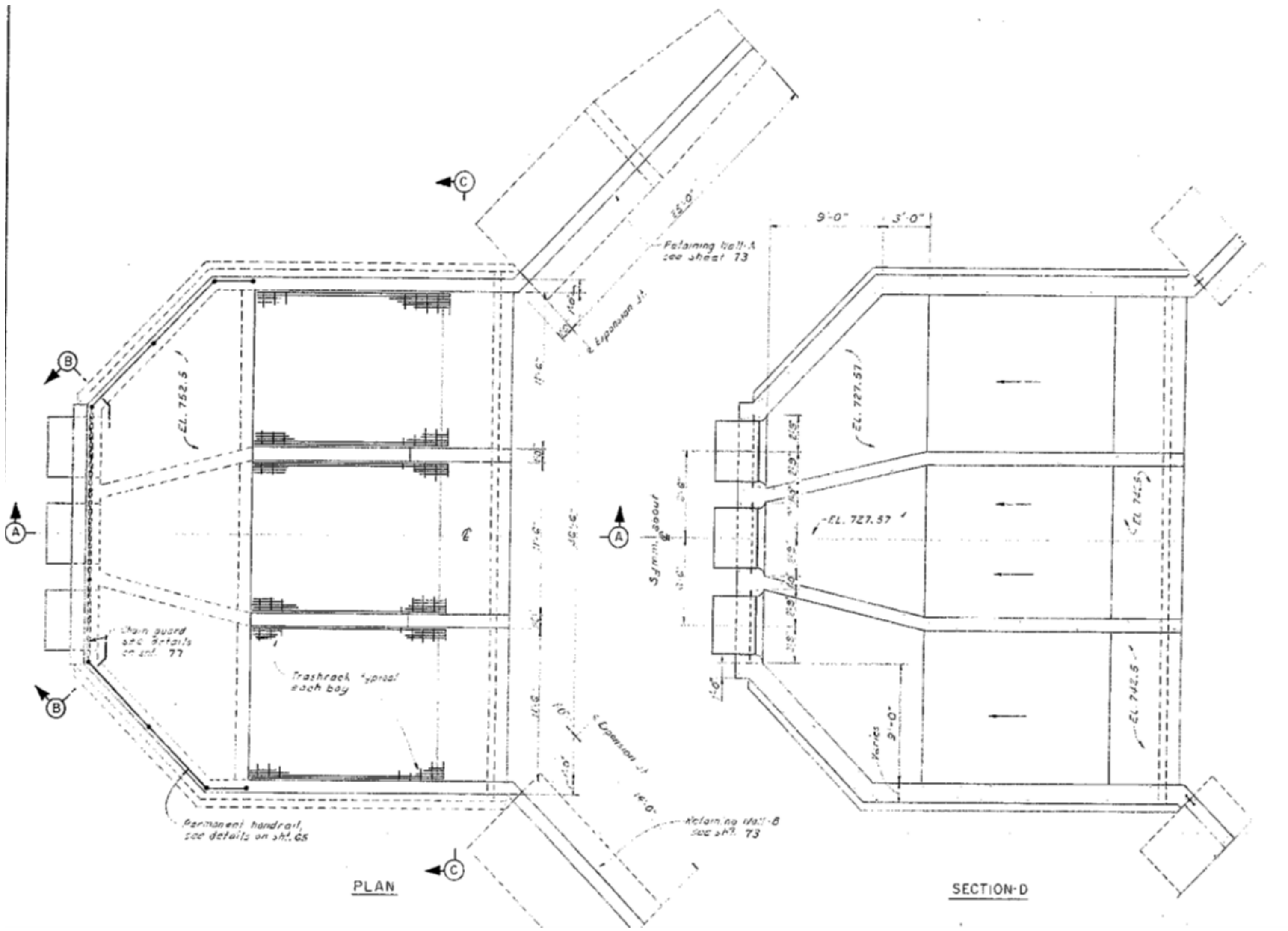

Figure 4. Plan View of the Area 380 Structure Outlet Showing Three Separated Bays.

At Area 380, the slurry would be pumped into a dewatering ditch behind the levee (Figure 6). This area is currently used by Corps Operations for dewatering and has no direct connection to the levee drainage or Clearwater River.

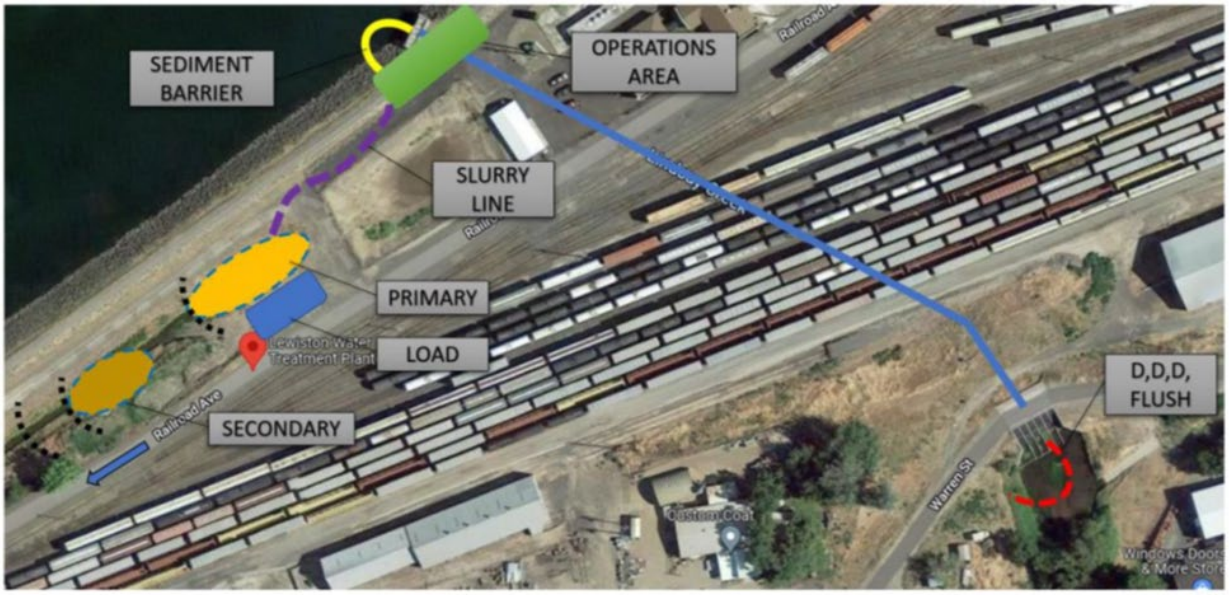

Figure 5. Concept of the Lindsay Creek Drainage Cleanout. The green box by the structure is the location of a mechanical dewatering machine. Dewatered sediment would be stockpiled in the area of the blue box labeled “load”.

Figure 6. Slurry dewatering area behind the levee at Area 380 drainage.

Sediment Removal

Once dewatered, sediment would be removed from the dewatering and stockpiling areas with heavy equipment, loaded onto trucks, and transported approximately 6 miles over existing roads to Hells Gate State Park for upland disposal. The disposal location is approximately 750 feet from the edge of the Snake River.

Structure Rewatering

Once each bay is cleaned, the bay will need to be refilled to a level that is the same elevation as the Clearwater River. The bulkhead cannot be lifted until pressure on both sides is equal. The bay will be rewatered either by directing water into the bay from its associated stream (Lindsay Creek or Area 380 stormwater runoff) or by pumping in water from the Clearwater River. Once the bay is at the level of the Clearwater River, the bulkhead will be lifted.

“Interrelated actions” are those that are part of a larger action and depend on the larger action for their justification. “Interdependent actions” are those that have no independent utility apart from the action under consideration (50 CFR 402.02). The action is a maintenance activity and is not expected to result in additional development or activities.

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 incidental take statement (ITS) that specifies the impact of any incidental taking and includes reasonable and prudent measures (RPM) and terms and conditions to minimize such impacts.

The Corps determined the proposed action is not likely to adversely affect designated critical habitat for both SR fall Chinook salmon and SRB steelhead. Our concurrence is documented in the "Not Likely to Adversely Affect" Determinations section (Section 2.12).

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 biological opinion relies on the definition of "destruction or adverse modification," which means "a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features" (81 FR 7214, February 11, 2016).

The designations of critical habitat for SR fall Chinook salmon and SRB steelhead use 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 (PBF). 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.

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 to the proposed action.

2.2. Rangewide Status of the Species

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. Listing status, status of critical habitat designations and protective regulations, and relevant Federal Register decision notices for Endangered Species Act listed species considered in this opinion.

Species	Listing Status	Protective Regulations
Chinook salmon (Oncorhynchus tshawytcha)		
Snake River fall-run	T 4/22/92; 57 FR 14653	6/28/05; 70 FR 37160
Steelhead (Oncorhynchus mykiss)		
Snake River Basin	T 8/18/97; 62 FR 43937	6/28/05; 70 FR 37160

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

2.2.1 Status of the Species

This section describes the present condition of the SR fall 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 the McElhany et al. (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 (MPG) 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; to enhance its capacity to adapt to various environmental conditions; and to allow it to become self-sustaining in the natural environment (ICTRT 2007). These viability attributes are influenced by survival, behavior, and experiences throughout the entire salmonid life cycle, characteristics that are influenced in turn by habitat and other environmental and anthropogenic conditions. The present risk faced by the ESU/DPS informs NMFS' determination of whether additional risk will appreciably reduce the likelihood that the ESU/DPS will survive or recover in the wild.

The following sections summarize the status and available information on the species and designated critical habitats considered in this opinion based on the detailed information provided by the ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon & Snake River Basin Steelhead (NMFS 2017a), the 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 Basin Steelhead (NMFS 2022a); and the 2022 5-Year Review: Summary & Evaluation of Snake River Fall Chinook Salmon (NMFS 2022b). These five documents are incorporated by reference here.

2.2.1.1 Snake River Fall-run Chinook Salmon

The SR fall Chinook salmon ESU occupies the Snake River basin, which drains portions of southeastern Washington, northeastern Oregon, and north/central Idaho. Snake River fall Chinook salmon have substantially declined in abundance from historic levels, primarily due to the loss of primary spawning and rearing areas upstream of the Hells Canyon Dam complex (57 FR 14653). Additional concerns for the species have been the high percentage of hatchery fish returning to natural spawning grounds and the relatively high aggregate harvest impacts by ocean and in-river fisheries (Good et al. 2005). On May 26, 2016, in the agency's 5-year status review for Pacific salmon and steelhead, NMFS concluded that the species should remain listed as threatened (81 FR 33468). NMFS will publish new 5-year reviews for these two species in 2022.

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

Most SR fall Chinook salmon exhibit an "ocean-type" life history (Dauble and Geist 2000; Good et al. 2005; Healey 1991; NMFS 1992) wherein they migrate to the Pacific Ocean during their first year of life, normally within 3 months of emergence from the spawning substrate as age-0 smolts, to spend their first winter in the ocean. Ocean-type Chinook salmon juveniles tend to display a "rear as they go" strategy, in which they continually move downstream through shallow shoreline habitats during their first summer and fall, continually growing until reach the ocean by winter (Connor and Burge 2003; Coutant and Whitney 2006). Tiffan and Connor (2012) showed that subyearling fish favor water less than 6 feet deep and Tiffan et al. (2014) found that riverine reaches were likely better rearing habitat than reservoir reaches.

A series of studies in the early 2000s demonstrated that a significant number of SR fall Chinook salmon juveniles exhibit a stream-type life history. These fish arrest their seaward migration and overwinter in reservoirs on the Snake and Columbia Rivers, then resume migration and enter the ocean in early spring as age-1 smolts (Connor and Burge 2003; Connor et al. 2002; Connor et al. 2005; Hegg et al. 2013). Connor et al. (2005) termed this life history strategy "reservoir-type." Scale samples from natural-origin adult fall Chinook salmon taken at Lower Granite Dam have indicated that approximately half of the returns had overwintered in freshwater as juveniles (Ford 2011).

Spatial Structure and Diversity. The SR fall Chinook salmon ESU includes one extant population of fish spawning in the mainstem of the Snake River and the lower reaches of several of the associated major tributaries including the Tucannon, Grande Ronde, Clearwater, Salmon, and Imnaha Rivers. The ESU also includes four artificial propagation programs: the Lyons Ferry Hatchery, Fall Chinook Acclimation Ponds, Nez Perce Tribal Hatchery, and Idaho Power programs (85 FR 81822). Historically, this ESU included one large additional population spawning in the mainstem of the Snake River upstream of the Hells Canyon Dam complex (Ford 2022). The extant population currently spawns in all five of its historic major spawning areas. The spatial structure risk for this population is therefore low and is not precluding recovery of the species (Ford 2022).

There are several diversity concerns for SR fall Chinook salmon, leading to a moderate diversity risk rating for the extant Lower Snake population. One concern is the relatively high proportion of hatchery spawners (70 percent) in all major spawning areas within the population (Ford 2022; NMFS 2017b). The fraction of natural-origin fish on the spawning grounds has remained relatively stable, with five-year means of 31 percent (2010–2014) and 33 percent (2015–2019) (Ford 2022). The diversity risk will need to be reduced to low in order for this population to be considered highly viable. Because there is only one extant population, it must achieve highly viable status in order for the ESU to recover.

Abundance and Productivity. Historical abundance of SR fall Chinook salmon is estimated to have been 416,000 to 650,000 adults (NMFS 2006), but numbers declined drastically over the 20th century, with only 78 natural-origin fish (WDFW & ODFW 2021) and 306 hatchery-origin fish (FPC 2019) passing Lower Granite Dam in 1990. After 1990, abundance increased dramatically, and exceeded 10,000 natural-origin returns each year from 2012–2015. However, the 5-year geometric means of natural origin-spawners has declined by 36 percent between the 2010–2014 (11,254) and 2015–2019 (7,252) time periods. Although there have been recent declines in natural origin returns, the 10-year geometric mean for the years 2010–2019 (9,034 natural-origin adults) exceeds the recovery plan abundance metric (i.e., greater than 4,200 natural-origin spawners) (Ford 2022; NMFS 2017b; NMFS 2022b). While the recovery plan abundance metric is currently exceeded, the associated 20-year geometric mean of population productivity is only 0.63, which is far below the recovery plan metric of 1.7.

Summary. 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 2022b). This ESU also continues to face threats from loss, degradation, or modification of habitat in mainstem rivers and lower reaches of tributaries; disease; predation; harvest; hatcheries; and climate change (NMFS 2022b).

2.2.1.2 Snake River Basin Steelhead

The SRB steelhead was listed as a threatened ESU on August 18, 1997 (62 FR 43937). This DPS occupies the Snake River basin, which drains portions of southeastern Washington, northeastern Oregon, and north/central Idaho. Reasons for the decline of this species include substantial modification of the seaward migration corridor by hydroelectric power development on the mainstem Snake and Columbia Rivers, loss of habitat above the Hells Canyon Dam complex on the mainstem Snake River, and widespread habitat degradation and reduced streamflows throughout the Snake River basin (Good et al. 2005). Another major concern for the species is the threat to genetic integrity from past and present hatchery practices, and the high proportion of hatchery fish in the aggregate run of SRB steelhead over Lower Granite Dam (Ford 2011; Good et al. 2005). On May 26, 2016, in the agency's 5-year status review for Pacific salmon and steelhead, NMFS concluded that the species should remain listed as threatened (81 FR 33468). NMFS will publish a new 5-year review in 2022.

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

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

The Interior Columbia Technical Recovery Team (ICTRT) identified 24 extant populations within this DPS, organized into five MPGs (ICTRT 2003). The ICTRT also identified a number of potential historical populations associated with watersheds above the Hells Canyon Dam complex on the mainstem Snake River, a barrier to anadromous migration. The five MPGs with extant populations are the Clearwater River, Salmon River, Grande Ronde River, Imnaha River, and Lower Snake River. In the Clearwater River, the historic North Fork population was blocked from accessing spawning and rearing habitat by Dworshak Dam. Current steelhead distribution extends throughout the DPS, such that spatial structure risk is generally low. For each population in the DPS, Table 2 shows the current risk ratings for the parameters of a VSP (spatial structure, diversity, abundance, and productivity).

Snake River Basin steelhead exhibit a diversity of life-history strategies, including variations in fresh water and ocean residence times. Traditionally, fisheries managers have classified these steelhead into two groups, A-run and B-run, based on ocean age at return, adult size at return, and migration timing. A-run steelhead predominantly spend 1 year in the ocean; B-run steelhead are larger with most individuals returning after 2 years in the ocean. Most Snake River populations support a mixture of the two run types, with the highest percentage of B-run fish in the upper Clearwater River and the South Fork Salmon River; moderate percentages of B-run fish in the Middle Fork Salmon River; and very low percentages of B-run fish in the Upper Salmon River, Grande Ronde River, and Lower Snake River (NWFSC 2015). Maintaining life history diversity is important for the recovery of the species.

The spatial structure risk is considered to be low or very low for the vast majority of populations in this DPS. This is because juvenile steelhead (age-1 parr) were detected in 97 of the 112 spawning areas (major and minor) that are accessible by spawning adults. Diversity risk for populations in the DPS is either moderate or low. Large numbers of hatchery steelhead are released in the Snake River, and while new information about the relative abundance of natural-origin spawners is available, the relative proportion of hatchery adults in natural spawning areas near major hatchery release sites remains uncertain (Ford 2022). Reductions in hatchery-related diversity risks would increase the likelihood of these populations reaching viable status.

Table 2. Summary of viable salmonid population parameter risks and overall current status and proposed recovery goals for each population in the Snake River Basin steelhead distinct population segment.

Major Population Group	Population[2]	VSP Risk Rating[1]		Viability Rating	
		Abundance/ Productivity	Spatial Structure/ Diversity	2022 Assessment	Proposed Recovery Goal[3]
Lower Snake River[4]	Tucannon River	High	Moderate	High Risk	Highly Viable or Viable
	Asotin Creek	Low	Moderate	Viable	Highly Viable or Viable
Grande Ronde River	Lower Grande Ronde	High	Moderate	High Risk	Viable or Maintained
	Joseph Creek	Low	Low	Viable	Highly Viable, Viable, or Maintained
	Wallowa River	High	Low	High Risk	Viable or Maintained
	Upper Grande Ronde	Very Low	Moderate	Viable	Highly Viable or Viable
Imnaha River	Imnaha River	Very Low	Moderate	Viable	Highly Viable
Clearwater River (Idaho)	Lower Mainstem Clearwater River	Very Low	Low	Highly Viable	Viable
	South Fork Clearwater River	Very Low	Moderate	Viable	Maintained
	Lolo Creek	High	Moderate	High Risk	Maintained
	Selway River	Moderate	Low	Maintained	Viable
	Lochsa River	Moderate	Low	Maintained	Highly Viable
	North Fork Clearwater River			*Extirpated*	*N/A*
Salmon River (Idaho)	Little Salmon River	Very Low	Moderate	Viable	Maintained
	South Fork Salmon River	Moderate	Low	Maintained	Viable

Major Population Group	Population[2]	VSP Risk Rating[1]		Viability Rating	
		Abundance/ Productivity	Spatial Structure/ Diversity	2022 Assessment	Proposed Recovery Goal[3]
	Secesh River	Moderate	Low	Maintained	Maintained
	Chamberlain Creek	Moderate	Low	Maintained	Viable
	Lower Middle Fork Salmon River	Moderate	Low	Maintained	Highly Viable
Salmon River (Idaho)	Upper Middle Fork Salmon River	Moderate	Low	Maintained	Viable
	Panther Creek	Moderate	High	High Risk	Viable
	North Fork Salmon River	Moderate	Moderate	Maintained	Maintained
	Lemhi River	Moderate	Moderate	Maintained	Viable
	Pahsimeroi River	Moderate	Moderate	Maintained	Maintained
	East Fork Salmon River	Moderate	Moderate	Maintained	Maintained
	Upper Mainstem Salmon River	Moderate	Moderate	Maintained	Maintained
Hells Canyon	Hells Canyon Tributaries			*Extirpated*	

[1]Risk ratings are defined based on the risk of extinction within 100 years: High = greater than or equal to 25 percent; Moderate = less than 25 percent; Low = less than 5 percent; and Very Low = less than 1 percent.
[2]Populations shaded in gray are those that occupy the action area.
[3]There are several scenarios that could meet the requirements for Evolutionarily Significant Unit recovery (as reflected in the proposed goals for populations in Oregon and Washington). What is reflected here for populations in Idaho are the proposed status goals selected by NMFS and the State of Idaho.
[4]At least one of the populations must achieve a very low viability risk rating.

Juvenile steelhead from all populations of the Clearwater River major population group could be affected by the proposed action.

Abundance and Productivity. Historical estimates of steelhead production for the entire Snake River basin are not available, but the basin is believed to have supported more than half the total steelhead production from the Columbia River basin (Mallet 1974, as cited in Good et al. 2005). The Clearwater River drainage alone may have historically produced 40,000 to 60,000 adults (Ecovista et al. 2003), and historical harvest data suggests that steelhead production in the Salmon River was likely higher than in the Clearwater (Hauck 1953). In contrast, at the time of listing in 1997, the 5-year geometric mean abundance for natural-origin steelhead passing Lower Granite Dam, which includes all but one population in the DPS, was 11,462 adults (Ford 2011). Abundance began to increase in the early 2000s, with the single year count and the 5-year geometric mean both peaking in 2015 at 45,789 and 34,179, respectively (ODFW & WDFW 2022). Since 2015, the 5-year geometric means have declined steadily with only 11,557 natural-origin adult returns for the most recent 5-year geometric mean (ODFW & WDFW 2022).

Summary. Based on information available for the 2022 viability assessment, 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 2022a).

2.2.2. Climate Change Implications for ESA-listed Species

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 & Dahlman 2020). The year 2020 was another hot year in national and global temperatures; it was the second hottest year in the 141-year record of global land and sea measurements and capped off the warmest decade on record (https://www.ncdc.noaa.gov/sotc/global202013).

Events such as the 2013–2016 marine heatwave (Jacox et al. 2018) have been attributed directly to 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 reports average warming in the Pacific Northwest of about 1.3ºF from 1895 to 2011, and projects an increase in average annual temperature of 3.3ºF to 9.7ºF by 2070 to 2099 (compared to the period 1970 to 1999), depending largely on total global emissions of heat-trapping gases (predictions based on a variety of emission scenarios including B1, RCP4.5, A1B, A2, A1FI, and RCP8.5 scenarios). The increases are projected to be largest in summer (Melillo et al. 2014; USGCRP 2018).

Climate change is expected to alter freshwater, estuarine, and marine habitats. Salmon and steelhead rely on these habitats, making these species particularly vulnerable to climate change. In the marine environment, climate change will impact the physiochemical characteristics, including but not limited to increased sea surface temperatures, increased salinity, acidification, and decreased dissolved oxygen. Not only will these changes have physiological consequence on fish themselves, but they will also alter food webs, reducing ocean productivity for salmonids (Crozier et al. 2020; Siegel & Crozier 2019). Climate change is likely to lead to a preponderance of low productivity years (Crozier et al. 2020). Climate change will have similar impacts on estuarine environments, including sea level rise, increased water temperature, and increased salinity (Kennedy 1990; Limburg et al. 2016; Wainwright & Weitkamp 2013). Like the marine environment, these physiochemical changes will influence biological communities and salmonid productivity.

Several studies have revealed that climate change has the potential to affect ecosystems in nearly all tributaries throughout the Snake River (Battin et al. 2007; ISAB 2007). While the intensity of effects will vary by region (ISAB 2007), climate change is generally expected to alter aquatic habitat as follows:

- Warmer air temperatures will result in diminished snowpack and a shift to more winter/spring rain and runoff, rather than snow that is stored until the spring/summer melt season.

- With a smaller snowpack, watersheds will see their runoff diminished earlier in the season, resulting in lower stream flows in June through September. Peak river flows, and river flows in general, are likely to increase during the winter due to more precipitation falling as rain rather than snow.

- Water temperatures are expected to rise, especially during the summer months when lower stream flows co-occur with warmer air temperatures. Islam et al. (2019) found that air temperature accounted for about 80 percent of the variation in stream temperatures in the Fraser River, thus tightening the link between increased air and water temperatures.

Higher water temperatures, lower flows during summer and fall, and increased magnitude of winter peak flows are all likely to increase salmon mortality or reduce fitness of surviving fish (Battin et al. 2007; Beechie et al. 2013; Mantua et al. 2009; Wainwright & Weitkamp 2013; Whitney et al. 2016). For example, winter flooding may lead to scouring of redds, reducing egg survival. Altered hydrographs may alter the timing of smolt migration and lower summer flows will increase competition for limited space and resources. Elevated water temperatures could increase metabolic rates (and therefore food demand), impede migration, decrease disease resistance, increase physiological stress, and reduce reproductive success. As climate change progresses and stream temperatures warm, thermal refugia will be essential to persistence of many salmonid populations (Mantua et al. 2009).

In summary, climate change is expected to make recovery targets for salmon and steelhead populations more difficult to achieve as a result of its impacts on freshwater, estuarine, and ocean conditions. Climate change is expected to alter critical habitat within the Snake River basin by generally increasing water temperature and peak flows and decreasing base flows. Although these changes will not be spatially homogenous, effects of climate change are expected to decrease the capacity of freshwater critical habitat to support successful spawning, rearing, and migration. Climate will also impact ocean productivity, and is likely to lead to a preponderance of low productivity years (Crozier et al. 2020). Reductions in ocean productivity can reduce the abundance and productivity of salmon and steelhead. Habitat restoration actions can help ameliorate some of the adverse impacts of climate change on salmon. Examples include restoring connections to historical floodplains and freshwater and estuarine habitats to provide fish refugia and areas to store excess floodwaters, protecting and restoring riparian vegetation to ameliorate stream temperature increases, and purchasing or applying easements to lands that provide important cold water or refuge habitat (Battin et al. 2007; ISAB 2007).

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 drainage structures are spatially separated from one another and effects of the proposed action are not expected to overlap between the two drainage cleanout efforts; therefore, two action areas were delineated (drainage areas). Additionally, the sediment disposal site, located approximately six miles from the drainage structures, will be affected so an action area was delineated at that site (disposal area). The action areas are located within the city limits of Lewiston, Idaho. Both drainage areas are located along the south bank of the Clearwater River; Area 380 is located at river mile 1.8 and Lindsay Creek is located at river mile 2.2. The Area 380 Action Area, is approximately 1.3 acres and the Lindsay Creek Action Area is approximately 5 acres. The upstream end of the drainage action areas are approximately 50 feet upstream of the trash racks, through the structure (culverts and bays) and into the Clearwater River approximately 20 feet beyond the bulkhead, and then down the Clearwater River (west) for 100 feet. The additional in-water extent of the action area beyond the project footprint is based on the potential for minor downstream turbidity and sedimentation associated with culvert cleaning. Additionally, the Area 380 action area extends approximately 250 feet west of the drainage structure along the slurry dewatering area between the levee and a road (Railroad Avenue). The Lindsay Creek Action area is approximated larger due to the downstream dewatering areas shown in Figure 7 and because the culverts are nearly three times the length of Area 308 culverts.

Highway 12 runs nearly over top of the Area 380 drainage. The Lindsay Creek drainage is located adjacent to a railroad switchyard that supports the Potlatch pulp plant, which is upriver about one mile. There is some riparian vegetation upstream of the drainage structures, but the Action Areas to include the river are completely developed.

The action area also includes the site where dewatered sediment will be transported. Once dewatered, sediment would be removed from the dewatering and stockpiling areas with heavy equipment, loaded onto trucks, and transported approximately 6 miles over existing roads to Hells Gate State Park for upland disposal. The location is a relatively flat 0.4-acre disposal site that is approximately 750 feet from the edge of the Snake River.

The lower Clearwater River is used by rearing and migrating juveniles and migrating and staging adults of SR fall Chinook salmon and SRB steelhead. Within the action area the Clearwater River is designated critical habitat for SR fall Chinook salmon and SRB steelhead.

Figure 7. Action areas for the Area 380 and Lindsay Creek culvert cleanouts.

2.4. **Environmental Baseline**

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 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process (50 CFR 402.02).

The action area includes the lower 900 feet of Lindsay Creek and lower 300 feet of the unnamed creek draining into the 380 structure, and includes small areas of the Clearwater River directly below the mouths of those creeks (see Action Area, section 2.3 above). The action area is used by juvenile freshwater life history stages of SR fall Chinook salmon and SRB steelhead. The condition of the listed species in the action area are described further below.

The small portions of the action area that are in the Clearwater River are highly altered by the urban activities at the site, most notably the Lewiston levees, and also by other activities upstream. Various activities upstream of the action area, including agriculture, Dworshak dam/reservoir, mining, roads, forestry, grazing, and land development along the river and streams, have combined to reduce the natural function and condition of water quality and river substrate in the action area. Human activities upstream in many areas have: (1) reduced connectivity (i.e., the flow of energy, organisms, and materials) between streams, riparian areas, floodplains, and uplands; (2) elevated fine sediment yields; (3) reduced large woody material that traps sediment, stabilizes streambanks, and helps form pools; (4) reduced the vegetative canopy that minimizes the solar heating of streams; (5) caused streams to become straighter, wider, and either shallower or deeper than their historic or normative condition, thereby reducing rearing habitat and altering water temperature; (6) altered peak flow volume and timing, leading to channel changes and potentially altering fish migration behavior; and (7) altered floodplain function, water tables, and base flows (Henjum et al. 1994; Rhodes et al. 1994; Spence et al. 1996; Wissmar et al. 1994).

The Lewiston area changed considerably with the construction and subsequent raising of the water level caused by Lower Granite Dam. Construction of the Lower Granite Dam began in the 1960s, was completed in 1975, and water began filling the Lower Granite reservoir (LGR) in February 1975. The Lewiston levee system was constructed to provide flood risk management and LGR elevation management to support navigation.

The impoundment of the Snake River converted it into a continuous reservoir system, increasing depths to 100 feet or more, altering and slowing river flows, increasing water temperature and sedimentation of contaminants (Coutant & Whitney 2006). The lower Clearwater River is considered a transition zone where water velocities, turbulence, temperature, and channel morphology transition from a riverine to a reservoir environment. Tiffan et al. (2018) suggested that the conditions encountered in the transition zone contribute to delayed migration of subyearling fall Chinook salmon.

Industry, urbanization, agriculture, levees, and widespread bank armoring have adversely impacted habitat in the action area. These altered habitats reduce survival and growth of listed salmonids in the action area by contributing to elevated water temperature, increased chemical contamination, and the proliferation of invasive plants, invertebrates, and warm water fish predators and competitors (Erhardt et al. 2018; Garland et al. 2002; Li et al. 1984; NMFS 2019; Tiffan et al. 2014; Tiffan et al. 2016; Tiffan et al. 2020).

The Lewiston levees that extend 7.6 miles mostly along the lower Clearwater River are practically devoid of vegetation or trees (Figure 2) (USEPA 2020). This lack of vegetation along with the hardscape shoreline and channel modification reduces the function and value of salmonid habitat, resulting in a reduction in prey in the action area, and increased floodplain water temperatures of 7–10°C over that of the Clearwater River (USEPA 2020; Henning et al. 2006; Jorgensen et al. 2013; Nitoiu & Beltrami 2005; USACE 2005).

Stormwater from the eastern portion of the urbanized area around Lewiston discharges into Lindsay Creek along much of its length. The stream is dammed to form a settling pond, which is then discharged through the structure into the Clearwater River. The state of Idaho includes Lindsay Creek as an impaired water (IDEQ 2020) for exceeding *Escherichia coli*, nutrient, and sedimentation standards. The lower Clearwater River is listed by IDEQ (2020) as having no impairment pollutants and as fully supporting all beneficial uses.

The Clearwater River fall Chinook salmon subpopulation and the Clearwater River SRB steelhead MPG depend upon the Clearwater River in the action area, and downstream reaches of the lower Snake River and Columbia River, for juvenile rearing and migration and adult migration routes between the Pacific Ocean and spawning areas in Idaho. The action area does not support spawning habitat for either of the species. Anadromous fish are not present in Lindsay Creek because the structure blocks access to fish. In the Clearwater River reach that contains the action area, some sub-yearling fall Chinook salmon arrive in later in the summer and fall, overwinter, and migrate the following spring (Connor et al. 2005; Hegg et al. 2013). Some yearling steelhead migrate downstream during spring and rear several weeks in LGR, while other juvenile steelhead may rear one or two years in this area. Overall, several life history types of fall Chinook salmon and steelhead variably use the lower Clearwater River for days to months or years (Tiffan & Hatten 2012; Tiffan et al. 2018). Most adult salmon migrate through in a few days with some fish staging for longer periods until water temperatures cool during late summer and fall. Adult steelhead typically migrate upstream into LGR during summer and fall and may overwinter there for 6-10 months prior to spring spawning (Keefer et al. 2008).

Movement rates of migrating juvenile salmon are slower in lower velocity and colder water. Yearling smolts may migrate through LGR in a few days or weeks, feeding each day. Natural-reared salmonids are typically smaller than hatchery fish and smaller fish tend to rear in shallow water shoreline habitats of the action area for longer periods (Tiffan & Connor 2012; Tiffan et al. 2018). The growth of juvenile salmonids is largely determined by the availability, consumption rate, and energy content of prey in freshwater systems (Grunblatt et al. 2019; Sergeant & Beauchamp 2006; Tiffan et al. 2014). These fish must feed to build energy reserves required for migration where they are vulnerable to depleted lipids and starvation or exhaustion, and to predation in lower rivers, estuary, and ocean (Davis et al. 2018; Erhardt et al. 2018; Macneale et al. 2010; Muir & Coley 1996).

The major food source of rearing and migrating salmonids within the action area is benthic invertebrates (Bennett et al. 1983; Bennett et al. 1995; Muir and Coley 1996; Tiffan et al. 2014). Dipterans, Coleoptera, amphipods, and prawns adapted to sand and silt substrates are often of smaller size, burrow into sediments and exhibit extensive vertical migrations to deep sediments each day to reduce predation. These invertebrates may also feed more frequently in biofilms and detritus along reservoir substrates where several types of pollutants settle and may accumulate contaminants at greater concentrations than larger-bodied invertebrates (Farag et al. 1998; Farag et al. 1999). Smaller benthic invertebrates comprise large proportions of salmonid diets in LGR (Bennett et al. 1983; Tiffan et al. 2014). Smaller-bodied sub-yearling Chinook salmon and one-year old steelhead typically eat smaller invertebrates (Farag et al. 1998) and rear for longer periods in the LGR than older and larger juveniles do. Zooplankton and terrestrial insects are also substantial components of salmonid diets (Muir and Coley 1996; Tiffan et al. 2014).

2.5. **Effects of the Action**

Under the ESA, "effects of the action" means the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR 402.02). Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur.

2.5.1. Effects to Species

The proposed action includes the isolation of the Lindsay Creek and Area 380 drainage structures on the Clearwater River shoreline by closing bulkheads at the mouth of the structures. The structures would be dewatered, then jetted clean by pumping water from the Clearwater River and liquefying built-up sediment and debris to be suctioned out of the structures, mechanically dewatered with a sludge dewatering machine upland of the structures, and disposed offsite. Although it's anticipated that the structures will be thoroughly cleaned of sediment, rewatering of the structures, with the bulkheads open, may introduce small amounts of turbidity to the Clearwater River. The action area also includes the upland disposal site near Hell's Gate Park on the Snake River; the site is flat and located in the uplands approximately 750 feet from the river so no effects to salmon and steelhead are anticipated.

Isolating the structures from the Clearwater River will greatly reduce effects from the sediment removal, nearly eliminating turbidity inputs and associated effects on the river substrate. The potential adverse effects on the salmon and steelhead are associated with the structure isolation and dewatering. Fish may be entrained in the structures, and then dewatering would cause either stranding/lethal take or the fish would be handled/salvaged, resulting in sublethal or lethal effects on some of the fish.

Clearwater River water temperature upstream of Lewiston at Spalding, Idaho, reached a maximum of approximately 18°C (64.5°F) during the proposed in-water work window over the past decade. Even this maximum temperature is not high enough to preclude salmon or steelhead from the action area, and average temperatures during the work window will be lower and suitable for salmon and steelhead. Most juvenile Chinook salmon and steelhead outmigrate in the spring; the proposed July 15 to September 15, 2022 in-water work window will occur when salmon and steelhead presence would be lowest.

Potential adverse effects to the listed species are from entrainment (stranding or handling) of fish if they do not flee the bays before the bulkheads are closed. Lesser impacts to fish could occur due to displacement of fish during bulkhead closing, some increased turbidity upon rewatering, associated deposition of sediment on the river substrate, sound/pressure from work activities, and exposure to chemical contamination. The effects should be short-term, and no long-term effects are expected. Because the proposed action would affect the juvenile salmon and steelhead similarly, the effects are analyzed collectively.

Displacement

The outlet structures are each comprised of three bays which can be individually isolated. The work sequence includes lowering the bulkheads on only a single or possibly two of the bays first. This sequence allows for fish to escape the bays that are not being cleaned and to pass stormwater through the bays that would remain open to the river. The lowering of the bulkheads would require heavy equipment and would be done slowly. The noise and movement produced by these activities will likely cause some or all fish (if present in the bays) to flee the bays and make it unlikely that fish would be pinned beneath the bulkheads or harmed from contact with the bulkheads.

If fish are present in the structures, being displaced away from the work areas would likely result in minor effects. Very few individual fish are expected to be in the structures; if they are present and flee, fish are expected to move a short distance to adjacent habitat that is similar or better than the vacated areas. Also, this movement is expected to cause little expenditure of energy, little change in holding/feeding, and little change in exposure to predators.

Entrainment/Impingement

Adult fish are not expected to be present in the action area during the work window. Once the structure is isolated, juvenile fish may not escape past the bulkheads since there is no upstream passage above either culvert structure, so escape is not possible once the bulkheads are closed.

While the drainage structures are essentially small face drainage confluences in the lower Clearwater River, they are typically warmer than the Clearwater River and should not particularly attract juvenile steelhead and fall Chinook salmon. The juvenile fish, which all would originate from redds elsewhere in the Clearwater River drainage, would tend to not move into these creeks/structures. Nevertheless, there is still potential for salmonids to enter and be in these drainage structures. While the equipment noise and slow lowering of bulkheads would encourage fish to leave the structure before fully closing the bulkheads, some fish may remain and become entrained when the bulkheads are closed.

Once the bays are isolated, dewatering would occur before sediment removal and would be done via pump through a 6- to 8-inch pipe that would be lowered to the bottom of the structures. The water would be pumped to the dewatering areas described in Section 1.3. The pump intake would be housed in a 1-inch mesh basket. Prior to dewatering the structure, it is unknown if safe access into the structure is possible. Once the bay is nearly dewatered to where only a few inches of water remain, fish salvage will occur if access is safe. Salvaged fish will be netted, placed into buckets of river water, and returned to the river immediately.

A 3-inch diameter hose would be used to pump water from the Clearwater River into the isolated structure during cleanout. The hose intake would be screened per NMFS (2011) criteria to avoid fish becoming stuck on the screen. Therefore, it is very unlikely fish will become impinged on the intake hose during cleaning operations. Water would be pumped into the structure and removed at approximately 500 to 1,000 gallons per minute. Entrained fish that were not removed upon dewatering would be caught in the sediment and debris slurry and removed with the material, likely resulting in death.

In 1989 and 1990, Arnsberg et al. (1992) completed snorkel surveys in the lower Clearwater River and found densities of 12.6 wild steelhead fry and juveniles per acre. Tiffan and Perry (2020) beach seined the Clearwater River in 2019 from river kilometer 3 to 11 to sample juvenile fall Chinook salmon. Each seine sampled approximately 0.11 acres (465 square meters); four sites were seined in July and August and 410 juvenile fall Chinook were captured resulting in an estimated density of 891 fish per acre. The total surface area of the structure bays is 0.03 acres. Using the densities provided by Arnsberg et al. (1992) and derived from Tiffan and Perry (2020), we estimated that mortality for juvenile Chinook salmon and steelhead could be 26.7 fish and 2.4 fish, respectively. However, we expect the numbers to be much lower because: (1) Tiffan and Perry (2020) sampled one site near the action area and density was much lower (52 fish per acre); (2) habitat in the bays is unsuitable, so fish that are present would likely just be straying into the bays; and (3) fish are likely to flee the bays prior to the bulkheads being closed.

Turbidity/Substrate Sediment

Minor turbidity would be generated by the initial lowering of the bulkheads in a given bay. Sediment disturbance would be created by the bulkhead lowering onto any deposited sediment on the floor of the structures, which would be an instantaneous event producing an insignificant amount of turbidity. With the bulkheads closed and outlet bays dewatered, any water leakage would be from the river into the structure.

Minor amounts of turbidity could also be produced upon raising the bulkheads after rewatering structures. However, it is anticipated that the cleaning procedure will effectively remove nearly all of the sediment and sediment that becomes suspended during the course of rewatering may deposit on the bay floor prior to the opening of the bulkheads. Therefore, the turbidity fish are exposed to would be too small and brief to cause fish to alter their behavior, and the amount of deposited sediment in the Clearwater River would not likely appreciably change the substrate condition as foraging or cover for the fish.

Sound/Pressure

In-air equipment noise may permeate the surrounding terrestrial environment at and adjacent to the structures; however, there will be very limited in-water noise generated by the project. Furthermore, the work area will be isolated from Clearwater River during the cleanout procedure, further reducing construction noise extending into the aquatic environment. Fish may move short distances temporarily in response to the noise; however, suitable habitat is abundant in nearby reaches and such responses are not expected to adversely affect the rearing of juvenile fish at this site

Although heavy equipment would be operating above water and within the drainage structures, any noise effects are expected to be minor and not result in harassment, harm or injury due to the isolation of the structure bays and ambient noise conditions of the action areas.

Chemical Contamination

Use of construction equipment and heavy machinery adjacent to streams poses the risk of a leakage or accidental spill of fuel, lubricants, hydraulic fluid, antifreeze, or similar contaminants into the riparian zone, or directly into the water. If these contaminants enter the water, the substances could adversely affect habitat, injure or kill aquatic food organisms, or directly impact ESA-listed species (Neff 1985; Staples et al. 2001). The proposed action includes multiple conservation measures aimed at minimizing the risk of fuel or oil leakage into the stream, including working from the bank, locating refueling sites away from the stream, and having appropriate spill containment and cleanup material onsite. Based on the past success of these types of conservation measures and no known local spills occurring during similar projects, negative impacts to ESA-listed fish from fuel spills or leaks are unlikely.

Summary of Species Effects

Based on the species life stages and the activities described above, the proposed project is likely to result in short-term adverse effects to ESA-listed fish species within the action area from displacement and entrainment within the isolated bays. Additionally, fish may experience small short-term effects from turbidity and noise. The risk of chemical exposure is low, so impacts to listed species are not expected.

Applying a mean smolt-to-adult return rate of 1.6 percent from 1997–2012 (Comparative Survival Study Oversight Committee & Fish Passage Center 2015) to the total known project-related mortality estimate of up to three juvenile fall Chinook salmon and 27 juvenile steelhead equates to a one-time loss of far less than one adult equivalent fall Chinook salmon or steelhead returning to spawn. The loss of fewer than one individual fall Chinook salmon and steelhead from the affected populations is a one-time impact. The proposed action should not influence the productivity, spatial structure, or genetic diversity of the Clearwater River steelhead MPG or the SR fall Chinook salmon ESU.

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.

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

The Corps BA for this action did not describe any new anticipated State or private activities in this area. NMFS assumes that during the period of this project, ongoing municipal and industry water supply withdrawals, navigation, recreational fishing and boating actions, and other activities in the action area would continue to occur at their present levels.

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.

The environmental baseline is characterized by degraded floodplain and channel structure, altered sediment routing, altered hydrology, and altered water quality. Within the action area the major sources of impacts to salmon and steelhead, are hydropower dam reservoir operations as well as the continued development and maintenance of the shoreline including roads, railroads, buildings, and riprap. Dams and reservoirs within the migratory corridor have altered the river environment and affected fish passage. Upstream land management activities and water impoundment/dam operations in the Clearwater River basin affect downstream water quality characteristics, including those in the Clearwater River portions of the action area, adjacent to the town of Lewiston. Lindsay Creek is an impaired stream, with high levels of nutrients and sediments, that receives stormwater runoff from Lewiston and surrounding areas. Although not accessible to anadromous fish (due to the concrete in-fall at the upstream end of the structure), it is unlikely Lindsay Creek has suitable habitat for salmon and steelhead. The area 380 structure is fed by stormwater runoff from the city of Lewiston.

As noted above in Section 2.2, the status of Snake River fall Chinook salmon and steelhead across their range and within the action area falls short and well short, respectively, of the minimum goals in their recovery plans. In the action area, levee development has reduced the quality of nearshore salmon and steelhead habitat by eliminating native riparian vegetation, displacing shallow water habitat with fill materials and by further disconnecting the Clearwater River from historic floodplain areas. Further, riparian species that evolved under the environmental gradients of riverine ecosystems are not well suited to the present hydraulic setting of the action area (i.e., static, slackwater pools), and are thus often replaced by non-native species. The riparian system provides inadequate protection of habitats and refugia for sensitive aquatic species.
Climate change is likely to affect the abundance and distribution of the ESA-listed species considered in the opinion. The exact effects of climate change are both uncertain and unlikely to be spatially homogeneous; and the ability of listed-species to adapt is uncertain. The effects of the action are short term, and will not appreciably exacerbate the effects on species and habitat caused by climate change.

Species

Within the in-water work area, NMFS anticipates the proposed action will only affect juvenile SR fall Chinook salmon and SRB steelhead populations of the Clearwater River MPG. No adult fish are expected to be present during the work window. Juvenile fall Chinook salmon and steelhead may be present in the action areas, but since most out-migration occurs in the spring, densities are expected to be low. All five populations of the SRB steelhead Clearwater River MPG migrate through the lower Clearwater River and some juveniles may rear in the river for up to four years (Dobos et al. 2020). A small number of juvenile fish may become trapped in the bays after the bulkheads are fully lowered. We estimated a total of up to 27 juvenile fall Chinook salmon and 3 juvenile steelhead will become trapped in the bays and will be harmed or killed during subsequent stranding, handling, and entrainment. The numbers of juveniles that could be harmed by the action are much less than one adult equivalent.

Within the SRB steelhead Distinct Population Segment, the Clearwater MPG is the only MPG potentially affected by the proposed action. Viability ratings of the five populations making up the Clearwater River MPG range from Highly Viable (lower mainstem Clearwater River population) to High Risk (Lolo Creek). The other three populations are either rated as Viable (South Fork Clearwater River) or Maintained (Selway River and Lochsa River). The Lolo Creek steelhead population has an Abundance/Productivity rating of high risk and a spatial structure and diversity rating of moderate risk. The other four populations have risk ratings ranging from Very Low to Moderate. The Lolo Creek population makes up a small percentage (approximately 5 percent) of the Clearwater MPG; we estimate that three steelhead from the Clearwater River MPG will be affected by the action so the chances that a Lolo Creek steelhead is encountered is very low. The single-season loss of three juvenile steelhead will not alter the viable status of any of the Clearwater River MPG populations. Because we expect no change to the status of the MPG, we do not think the implementation of the proposed action will change the survival and recovery of the SRB steelhead DPS.

The Snake River fall Chinook salmon ESU includes one extant population, The Lower Snake River population, that spawns in the mainstem of the Snake River and the lower reaches of several of the associated major tributaries including Clearwater River. The extant population currently spawns in all five of its historic major spawning areas; therefore, spatial structure risk for this population is low and is not precluding recovery of the species (Ford 2022). There are several diversity concerns for SR fall Chinook salmon, leading to a moderate diversity risk rating for the extant lower Snake River population. Up to 27 juvenile fall Chinook may be killed as a result of the action. The loss of one adult equivalent will not likely be great enough to appreciably reduce the VSP parameters of the lower Snake River fall Chinook salmon population nor the Snake River fall Chinook salmon ESU.

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

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, any effects of interrelated and interdependent activities 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 SR fall Chinook salmon or SRB steelhead.

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" if 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:

Entrainment/Crushing

We estimated that 27 juvenile fall Chinook salmon and three juvenile steelhead could be killed during culvert cleaning activities. If fish do not flee from the bays prior to the bulkheads being closed or they are not salvaged (if salvage is possible), they will likely be killed by entrainment through the pumps, being mixed in with the sediment slurry, or getting crushed by the high-power hoses. It is not possible to determine the exact number of fish actually crushed by culvert cleaning activities as some stranded juvenile fish may be undetectable before and after the sediment slurry process. Because circumstances causing take are likely to arise, but cannot be quantitatively evaluated in the field, the extent of incidental take is described, pursuant to 50 CFR 402.14(I). In this instance, the extent of take is directly related to both the areas impacted by the culvert cleanouts. For this reason, the extent of take will be exceeded if more than 0.6 total acres of drainage structure is dewatered, jetted with water, and pumped.

Although this surrogate could be considered coextensive with the proposed action, monitoring and reporting requirements will provide opportunities to check throughout the course of the proposed action whether the surrogates are exceeded. For this reason, the surrogate functions as an effective reinitiation trigger.

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.

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 Corps shall:

- Minimize incidental take from construction activities and implement all of the proposed conservation measures.

- Ensure completion of a monitoring and reporting program to confirm that the terms and conditions in this ITS were effective in avoiding and minimizing incidental take from permitted activities and that the extent of take was not exceeded.

2.9.4. 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 Corps, 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. The following terms and conditions implement RPM 1:

    a. Ensure site dewatering of the worksite is done in a slow and controlled fashion to maximize volitional fish movement out of the area.

2. The following terms and conditions implement RPM 2:

    a. Within four weeks of project completion, the Corps shall submit a monitoring report (with information on fish salvage, and turbidity plumes) to: Snake River Basin Office email at nmfswcr.srbo@noaa.gov. The report shall include the following:

        i. The area, in total acres, of drainage structure that is dewatered, jetted with water, and pumped.

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). Following our analyses of the proposed action's effects, NMFS does not have any conservation recommendations at this time.

2.11. Reinitiation of Consultation

This concludes formal consultation for the Lindsay Creek and Area 380 Drainage Structure Cleanout.

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

2.12. **"Not Likely to Adversely Affect" Determinations**

The previous discussion focused on the action's adverse effects to SRB steelhead and SR fall Chinook salmon. The Corps determined the proposed action may affect, but will not likely adversely affect designated critical habitat for SRB steelhead (September 02, 2005: 70 FR 52630) and critical habitat for SR fall Chinook salmon (December 28, 1993; 58 FR 68543). NMFS agrees with this determination because, within the subset of the action area that is designated critical habitat (the small areas of the Clearwater River below the creek mouths/bulkheads), the physical effects of the project will be very small and these particular effects on the habitat will not result in harm to the fish (refer to the effects analysis in the biological opinion above). The proposed action is likely to affect freshwater rearing, and migration habitat for each species. Specific PBFs that could be affected by the proposed action include: (1) Water quality (i.e., chemical contamination and turbidity), and (2) free and safe passage. Effects on each PBF are described further below. Because project effects within the Clearwater River portion of the action area were previously discussed in section 2.5.1 of above opinion, that section is incorporated by reference here to avoid duplication.

Minor turbidity would be generated by the initial lowering of the bulkheads in a given bay. The sediment disturbance would be created by the bulkhead lowering onto any deposited sediment on the floor of the structures, which would be an instantaneous event producing an insignificant amount of turbidity. With the bulkheads closed and outlet bays dewatered, any water leakage would be from the river into the structure. Minor amounts of turbidity could also be produced upon raising the bulkheads after rewatering structures. However, it is anticipated that the cleaning procedure will effectively remove nearly all of the sediment and sediment that becomes suspended during the course of rewatering may deposit on the bay floor prior to the opening of the bulkheads. Therefore, the amount of deposited sediment in the Clearwater River would not likely appreciably change the substrate condition as foraging or cover for the fish.

There is potential for chemicals like petroleum products to enter water from equipment onshore, but this equipment would be separated from the river itself, and this mode of contamination is highly unlikely to occur. Additionally, spill prevention and clean-up measures would make potential effects from chemicals on the water quality PBF discountable.

Very few fish are expected to be in the structures; if they are present and flee, fish are expected to move a short distance to adjacent habitat that is similar or better than the vacated areas. This movement is expected to cause little expenditure of energy, little change in holding/feeding, and little change in exposure to predators; therefore, affects to the safe/free passage PBF are negligible.

Thus, the effects of the proposed action on critical habitat for SRB steelhead and SR fall Chinook salmon are insignificant. NMFS concurs with the Corps' determination that the effects of the proposed action are not likely to adversely affect critical habitat for SRB steelhead and SR fall Chinook salmon.

3. 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.

3.1. **Utility**

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this opinion are the Corps. Other interested users could include citizens and officials of the City of Lewiston and the Nez Perce Tribe. Individual copies of this opinion were provided to the Corps. The document will be available within 2 weeks at the NOAA Library Institutional Repository at https://repository.library.noaa.gov/welcome. The format and naming adhere to conventional standards for style.

3.2. **Integrity**

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

3.3. **Objectivity**

Information Product Category: Natural Resource Plan.

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the Magnuson-Stevens Fishery Conservation and Management Act implementing regulations regarding Essential Fish Habitat, 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 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 reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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