Appendix B: Biological Documentation

US Army Corps of Engineers ®
Walla Walla District
BUILDING STRONG®

Water Resource and Development Act of 1999, as Amended Section 595

CITY OF LEWISTON
DRINKING WATER INTAKE STRUCTURE

Nez Perce County, Idaho

Lower Granite Lock and Dam

Biological Assessment AND Consultation Initiation Request Package
for
Threatened and Endangered Species,
Critical Habitat, and Essential Fish Habitat

Under the Jurisdiction of:
National Marine Fisheries Service
and
U.S. Fish and Wildlife Service

ADMINISTRATIVE RECORD – DO NOT DESTROY

U.S. Army Corps of Engineers
Walla Walla District
Environmental Compliance Section

File Number: PPL-C-2019-0085

August 2024

This page intentionally left blank

SUMMARY

Under Section 595 of the Water Resources and Development Act of 1999, the U.S. Army Corps of Engineers, Walla Walla District (USACE), proposes to share the construction costs of water intake system improvements located near river mile 5 on the Clearwater River. The City of Lewiston (City) plans to construct a completely new pump house with a water intake system. Construction of a new surface water intake includes installation of a new secant pile shaft wet well, two new National Marine Fisheries Service (NMFS) approved intake screens, new turbine pumps housed in a new concrete masonry unit (CMU) building, and a new raw water discharge pipeline that connects to the existing concrete cylinder pipe (CCP).

Endangered Species Act-listed species in the area include Snake River Basin fall Chinook salmon, steelhead, and Columbia River Basin bull trout. USACE has determined the proposed action may affect, and is likely to adversely affect salmon and steelhead species due to potential exposure to minor levels of turbidity over the short term. The proposed action may affect, but is not likely to adversely affect bull trout due to their unlikely exposure to the action. The proposed action may affect, but is not likely to adversely affect designated critical habitat for any of these species. Finally, the proposed action would have no effect on Spalding's catchfly.

USACE requests formal consultation with the National Marine Fisheries Service and informal consultation with the U.S. Fish and Wildlife Service. If additional information regarding this document is required, please contact Sabrina Roberts, Biologist in the Environmental Compliance Section of the U.S. Army Corps of Engineers, Walla Walla District, at (509) 527-7296, or by email at sabrina.r.roberts@usace.army.mil. Other correspondence can be mailed to:

Sabrina Roberts
U.S. Army Corps of Engineers, Walla Walla District
201 North Third Ave.
Walla Walla, WA 99362

The undersigned certifies that this Consultation Initiation Package was developed by qualified professional scientists using the best available scientific and commercial data.

_____	_____
Sabrina Roberts Biologist/Preparer U.S. Army Corps of Engineers, Walla Walla District Environmental Compliance Section	Karl Anderson Biologist/Reviewer U.S. Army Corps of Engineers, Walla Walla District Environmental Compliance Section

This page intentionally left blank

CITY OF LEWISTON
DRINKING WATER INTAKE STRUCTURE

BIOLOGICAL ASSESSMENT

TABLE OF CONTENTS

SECTION 1 - FEDERAL ACTION 1

1.1 Introduction 1

1.2 Project Location 1

1.3 Proposed Action 2

1.4 Action Area 7

1.5 Project Timeline 8

1.6 Previous Consultation 8

SECTION 2 - LISTED SPECIES 10

2.1 Species Listed for the Project Area 10

2.2 Species Status 11

2.2.1 Snake River Basin Fall Chinook Salmon 11

2.2.2 Snake River Basin Steelhead 15

2.2.3 Columbia River Basin Bull Trout 20

2.2.4 Spalding's Catchfly 24

2.3 Status of Critical Habitat 26

2.3.1 Snake River Basin Fall Chinook 26

2.3.2 Snake River Basin Steelhead 27

2.3.3 Columbia River Basin Bull Trout 30

SECTION 3 - ENVIRONMENTAL BASELINE 32

3.1 Historic Conditions 32

3.2 Current Conditions 33

3.3 Matrix of Pathways and Indicators 33

3.4 Baseline Condition Justification 35

3.4.1 Water Quality 35

3.4.2 Habitat Access 36

3.4.3 Habitat Elements 36
3.4.4 Channel Condition and Dynamics 37
3.4.5 Flow/Hydrology 37
3.4.6 Watershed Conditions 37
SECTION 4 - EFFECTS OF THE ACTION 39
4.1 Effects to Listed Species 39
4.1.1 Effects 39
4.2 Effects on Critical Habitat 42
4.3 Cumulative Effects 46
4.4 Impact Minimization Measures 46
4.5 Effects Determinations and Summary 47
SECTION 5 - MAGNUSON-STEVENS ACT – ESSENTIAL FISH HABITAT 49
SECTION 6 - REFERENCES 50

FIGURES

Figure 1-1. Location of the Proposed Construction Site (McMillen Jacobs and Associates 2024). 2
Figure 1-2. Intake Section 4
Figure 1-3. T-Screen Configuration 6
Figure 2-1. Snake River Fall Chinook ESU Distribution 12
Figure 2-2. Snake River Basin Steelhead DPS Distribution 18
Figure 2-3. Bull trout distribution in the Columbia River Basin 22
Figure 2-4. Rangewide distribution of Spalding's catchfly (Silene spaldingii) (Gray and Lichthardt 2004). 26
Figure 2-5. Snake River Fall Chinook Salmon Critical Habitat 27
Figure 2-6. Snake River Basin DPS Steelhead Critical Habitat 29
Figure 2-7. Columbia River Basin Bull Trout Critical Habitat 30

TABLES

Table 2-1. Federal Register (FR) Notices for Final Rules That List Threatened and Endangered Species or Designate Critical Habitats 10

Table 2-2. The Steelhead Life History Timing and Thermal Requirements 19

Table 2-3. Lower Granite Dam Adult Fishway Bull Trout Counts 2006-2021 24

Table 2-4. Physical and Biological Features of Bull Trout Critical Habitat. 31

Table 3-1. Matrix of Pathways and Indicators Checklist for Documenting Environmental Baseline and Effects of Proposed Action on Anadromous Salmonid Habitat Indicators. 34

Table 4-1. Effects of the Proposed Action to PBFs of Critical Habitat for Snake River Salmon, and Steelhead and Their Corresponding Species Life History Events 43

Table 4-2. Effects Determinations for the Proposed Action to the PBFs for Bull Trout. 44

Table 4-3. Effect Determination for Threatened and Endangered Species That May Occur in the Project Area 47

ACRONYMNS AND ABBREVIATIONS

BLM	U.S. Bureau of Land Management
CCP	concrete cylinder pipe
City	City of Lewiston
cm	centimeters
cm	centimeters
CMU	concrete masonry unit
CRB	Columbia River Basin
DART	Digital Audio Recording Technology
dB	decibels
dBA	weighted decibels
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	evolutionarily significant unit
FID	flight initiation distance
FR	Federal Register
ft	feet
ft/s	feet per second
ICBTRT	Interior Columbia Basin Technical Recovery Team
IDEQ	Idaho Department of Environmental Quality
IDPA	Idaho Administrative Procedure Act
m	meters
m/sec	meters per second
mgd	million gallons per day
mm	millimeters
MPI	Matrix of Pathways and Indicators
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MTBM	micro-tunnel boring machine
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
OD	outer diameter
PBF	Physical and Biological Features
PFMC	Pacific Fishery Management Council
PIT	passive integrated transponder
PWS	public drinking water system
RM	river mile
RMS	root mean square
SEL	sound exposure level
TL	transmission loss
UCR	Upper Columbia River
USACE	U.S. Army Corps of Engineers, Walla Walla District

USFWS	U.S. Fish and Wildlife Service
WSDOT	Washington Department of Transportation
WTP	water treatment plant

SECTION 1 - FEDERAL ACTION

1.1 INTRODUCTION

Water system customers within the City of Lewiston, Idaho (City) are served by two separate public drinking water systems (PWS): the Lewiston Orchards Irrigation District and the City's public drinking water system (PWS No. ID2350014). The City's PWS serves approximately 6,000 residential and commercial metered customers using a conventional surface water treatment plant (WTP) constructed in 1924. The City's water infrastructure continues to exhibit signs of aging as documented by increasing equipment failure, water main leakage, and annual maintenance expenses associated with system repairs. Additionally, the WTP has a long history of design and operational issues relating to the surface supply intakes which have either successfully or unsuccessfully furnished raw water from the Clearwater River to the City's WTP site.

The original intake was removed in 1973 as part of the agreement for the construction of Lower Granite Dam by the U.S. Army Corps of Engineers, Walla Walla District (USACE). The City and the USACE negotiated a new permanent intake facility upstream of the Clearwater Paper Corporation aeration ponds. A temporary water intake was constructed on the north shore that same year. The temporary intake has been in nearly constant use by the City as the primary intake and water supply facility since its construction even though it was originally built as a temporary intake until a permanent intake facility was complete.

The permanent intake facility was constructed between 1976 and 1978 doubling the nominal capacity of the raw water intake to 15 million gallons per day (mgd), but the permanent facility failed after approximately one year. Additional corrective actions have since failed, leaving the temporary facility operating solely since the original intake facilities were removed around 1973.

The temporary intake has been constantly maintained and upgraded over the years despite inherent design and location deficiencies, an updated and more efficient facility is necessary to serve the City's residents. Under Section 595 of the Water Resources Development Act of 1999, USACE would cost-share in-water work. Construction of a new surface water intake includes installation of a new secant pile shaft wet well, two new National Marine Fisheries Service (NMFS) approved intake screens, new turbine pumps housed in a new concrete masonry unit (CMU) building, and a new raw water discharge pipeline that connects to the existing concrete cylinder pipe (CCP).

1.2 PROJECT LOCATION

The City's permanent raw water intake location in Figure 1-1 is where the new water intake and upgraded facility would be located – right bank of Clearwater River approximately river mile

(RM) 5.74, Lewiston, Idaho. Nez Perce County, Idaho, Section 27, Township 36 North, Range 5 West, Lewiston Orchards North, Idaho Quadrangle.

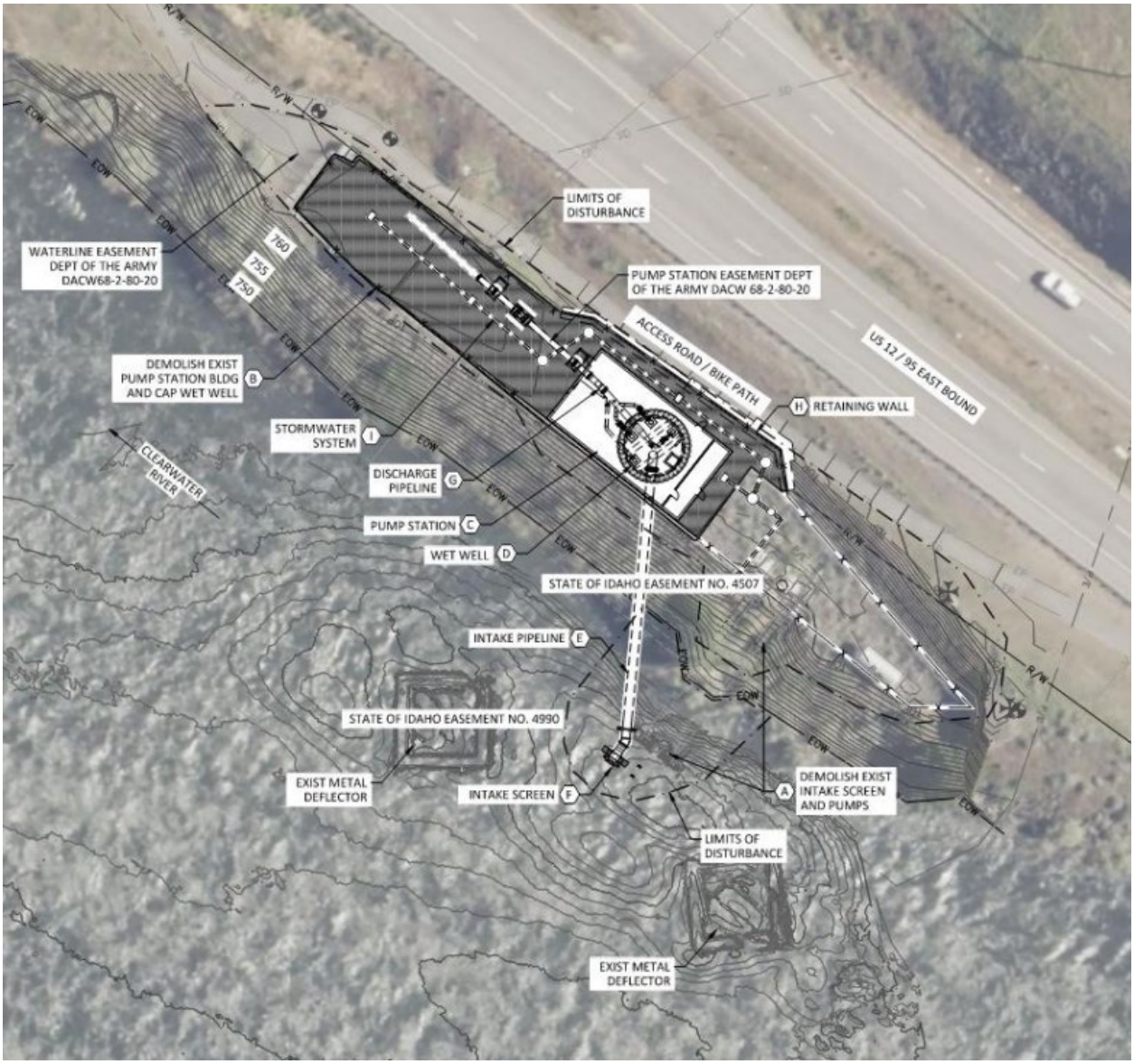


Figure 1-1. Location of the Proposed Construction Site (McMillen Jacobs and Associates 2024).

1.3 PROPOSED ACTION

USACE proposes to cost share the removal and upgrade the existing infiltration wet well, building, and 1996 intake screens in the Clearwater River. The proposed intake upgrades the design and function of the new pumping station and intake. The design includes the following:

- A new secant pile shaft wet well with a finished inner diameter of 23 feet 8-inches.
- A new 42-inch outer diameter intake pipeline that extends into the Clearwater River. The intake pipe will be installed using a micro-tunnel drive.

- Two new NMFS approved, actively cleaned cylindrical intake fish screens in a tee configuration.
- A new CMU pump station building that will house three new vertical turbine pumps, valves, fittings, mechanical equipment, electrical equipment, instrumentation, and appurtenances. A new electrical service and backup power generator will be installed.
- A new 30-inch diameter steel discharge pipeline that will connect to the existing 30-inch diameter CCP force main.

The proposed action is needed to upgrade the permanent intake facility to ensure its reliability to supply raw water to the existing WTP. To date, only the temporary surface water supply intake is functioning and providing raw water to the City's WTP. However, the temporary intake requires a number of repairs and upgrades to improve its performance capabilities. Additionally, it cannot be modified for use as a permanent intake since the Idaho Department of Environmental Quality (IDEQ) requires that the permanent intake be located upstream of the Clearwater Pulp & Paper's industrial wastewater park. Due to this, the City has decided to construct a new surface water intake at the site of the existing, abandoned permanent intake (constructed 1976-1978).

The proposed action requires the construction of a new pump station that will be installed with a secant pile shaft wet well on level ground. The shaft will have a finished inside diameter of 23-feet 8- inches. The new pump station will be about 80 feet to the east of the existing pump station. The new shaft will be drilled with concrete secant piles down to a depth of approximately 49 feet below ground surface. The lower tremie floor slab elevation will be at El. 724.0 fee with a finished floor at El. 724.5.

To install the intake pipe, the centerline of the micro-tunnel boring machine (MTBM) drive head will be at approximately El. 727.0. The river water surface elevation is at El. 742.0 at low pool and El. 745.0 at average pool. Therefore, the machine will be approximately 15 feet to 18 feet below the water level. The proposed circular tunnel will be approximately 110 feet long and 42-inches in diameter. The tunnel is expected to encounter very dense silty sand with highly weathered basalt fragments for the first approximate 60 feet of the drive. The rest of the tunnel is expected to encounter basalt with various degrees of weathering. The welded steel pipe intake pipe will be approximately 130 linear feet with a 42-inch outer diameter (OD) and will connect to the Clearwater River. The intake section is shown in Figure 1-2.

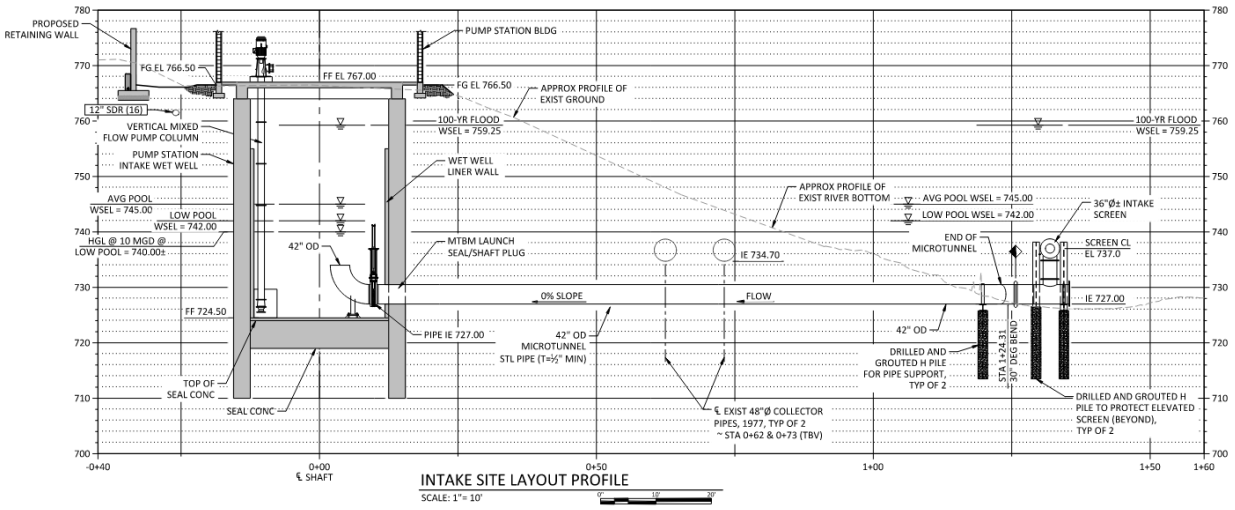


Figure 1-2. Intake Section

The proposed micro-tunnel will be a one-pass-type system; whereby, the permanent product pipe (i.e., “carrier” pipe sized to resist earth, water, and live loads over the design life of the intake system) is directly jacked into the ground without a casing. A minimum carrier pipe OD of 42 inches is anticipated; mainly due to the need for a larger MTBM with higher torque to advance through the anticipated mixed conditions (i.e., soil and rock) expected to be encountered along the micro-tunnel alignment.

The MTBM is anticipated to operate between 4 to 6 hours each day depending on the contractor’s construction methods and work sequence. Drilling under the Clearwater River is expected to be completed in less than 9 days. Tunnel construction and installation of the intake is anticipated to take approximately 15 days.

Noise from the MTBM is expected to be negligible. The noise created by MTBM during the operation will be reflected from the tunnel face and travels back to the tunnel toward the shaft. The noise/pressure waves propagated through the ground into water is not anticipated to be significantly greater than the river background noise.

Additionally, the acoustic intensity of the noise (source) is expected to decrease with distance from the drilling operation as sound waves propagate outward from the source. Considering relatively shallow water at the site and proximity of the drilling locations to the shore, the following procedures outlined by the Washington State Department of Transportation (WSDOT) (2023) have been used to calculate attenuation (transmission loss [TL]) over distance.

$$TL=15Log(R1/R2)$$

R1 is the distance at which TL is estimated, and R2 is the distance of the known or measured sound level. The above equation assumes an energy loss of 4.5 decibels (dB) per doubling

distance. (WSDOT, 2023, Biological Assessment Preparation Manual, Chapter 7 Construction Noise Impact Assessment).

Thalheimer et al. (2014) indicate root mean squares (RMSs) of 142 dB and 141 dB at a distance of 33 feet for a Caisson drill with a digger bucket and an auger bucket, respectively. Estimated noise level in the order of 140 to 145 RMS dB is anticipated to be heard by fish in the Clearwater River during the construction of the driller piers at a distance of 30 feet.

The sediment plume expected during construction at the intake location is anticipated to be minimal because the basalt at the tunnel break-out is material that settles quickly. In addition, the slurry that will be used for micro-tunneling is heavier than water, which also settles quickly. Contractors are expected to reduce slurry circulation at the breakout to minimize sediment plumes. Moreover, a turbidity curtain will be installed to minimize any sediment plumes to move beyond the construction area.

After the new intake pipe is installed from the pump station wet well to the river using the MTBM, two NMFS-approved, actively cleaned cylindrical intake screens will be installed in a tee configuration, shown in Figure 1-3. The screens will be lowered into the Clearwater River and a diver will connect the flange mounted Tee screen to the end of the intake pipe that has been installed using a MTBM. The new intake screens are designed as actively cleaned intake screens according to best design practices and to the NFMS intake screen criteria for active screens:

- Screens will be designed as actively cleaned fish screens sized for safe juvenile salmonid fish passage. Approach velocity to screens shall be less than 0.4 feet per second (ft/s).
- Screen slot open width shall be 0.069 inches (1.75 mm) according to NMFS criteria for juvenile salmonids.
- The screen length to diameter ratio shall be less than 1.55 for best design practices.
- Screens will be sized conservatively to provide for the following with all screens in-service:
    - An approach velocity of 0.36 ft/s at a maximum intake flow condition of 15 mgd, assumed to be of short duration (one day or less).
    - The above implies that if for a single Tee cylindrical screen system, that one of the screens could be taken off-line (and the T-end covered with a temporary blind flange) and serviced.
    - The other half of the Tee screen could remain in-service and provide a maximum flow of 7.5 mgd at 0.36 ft/s approach velocity or 8.3 mgd at the maximum allowable 0.40 ft/s approach velocity.

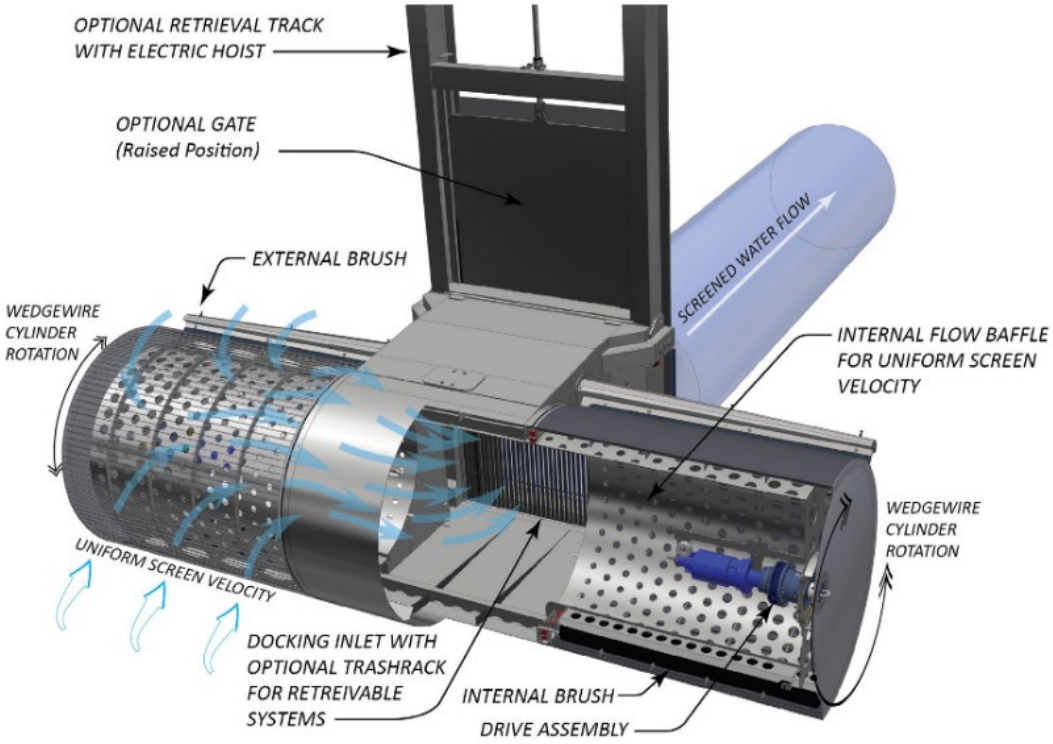


Figure 1-3. T-Screen Configuration

Wet retrieval of the MTBM will eliminate the need for construction of a coffer dam. A small steel box (20-ft x 15-ft) will be utilized over the retrieval zone to retrieve the MTBM from out in the river. The steel box will act as both a velocity curtain and a turbidity curtain to remove the current from the cutter head retrieval process. Retrieval may include use of a long-reach backhoe (mounted off of a barge) to dig a small pit below the river to accept and provide for retrieval of the MTBM. No fish salvage/handling will be required.

Maintenance of the fish screens in the water will be very minimal and will occur approximately every 5 years. The maintenance will include sending a diver down to inspect the screens and replace the brushes.

The newly-built CMU pump station building will house three new vertical turbine pumps, valves, fittings, mechanical equipment, electrical equipment, instrumentation, and appurtenances. A new electrical service and backup power generator will also be installed. Power distribution will use the existing electrical service and will be repurposed to feed the new pump station. The existing pump station, powered by an Idaho Power 500 kVA, 480VAC service, is adequate to power the three new 60 hp pumps and auxiliary equipment. Therefore, the existing electrical service will be reused for the electrical power design by extending the secondary 480VAC transformer to the new service entrance equipment.

The new pump station electrical system will be designed with a 150-kW, 480-VAC standby diesel generator and automatic transfer switch and will provide automatic backup power in the event of a utility outage. The generator will be sized to power two pumps continuously with a skid base fuel storage for a minimum of 12 hours. The standby generator will be located outdoors in a weatherized and noise reducing factory supplied enclosure. The diesel generator will be specified to meet the current U.S. Environmental Protection Agency Tier 3 emission requirements.

Information regarding potential noise and vibrations associated with drilling and the construction sequence of micro-tunneling an intake pipe into the Clearwater River, as described above, was provided in a technical memorandum by McMillen, Inc. and Delve Underground to USACE (reiterated in this BA but available upon request).

1.4 ACTION AREA

The proposed action area is located between the Clearwater River and U.S. Route 12/95 eastbound lanes approximately 5 miles east of the Idaho-Washington border, as shown in Figure 1-4. The action area is accessed through a gravel parking lot 0.5 miles downriver at the existing temporary intake structure.

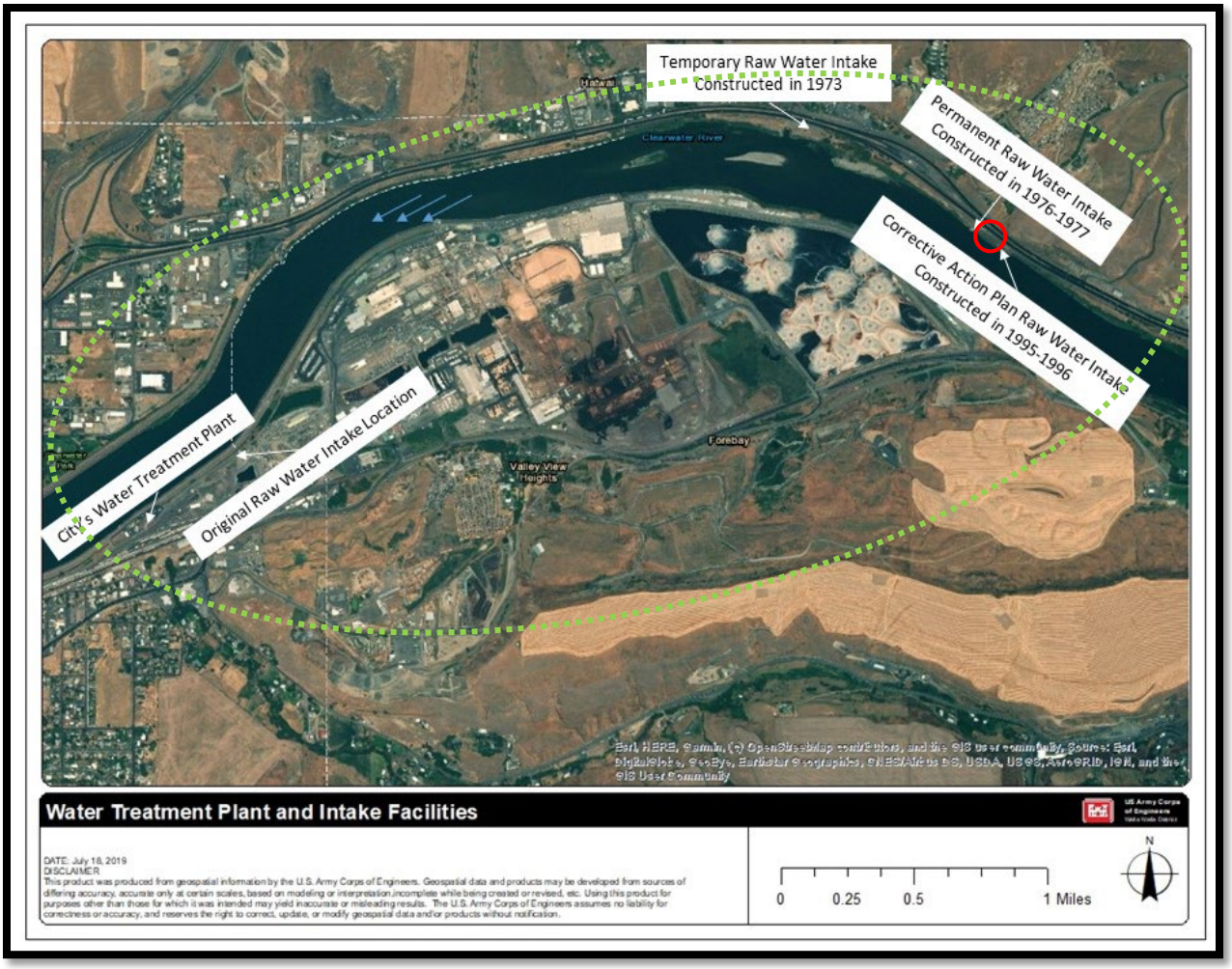


Figure 1-4. Location of Wastewater Treatment Plant and Water Intake Structure (red solid circle) within the Action Area (green dotted oval) along the Clearwater River.

1.5 PROJECT TIMELINE

Construction will be performed by a contractor and is anticipated to begin in March 2025. In-water work will occur during the summer in-water work window from 15 July to 31 August 2025.

1.6 PREVIOUS CONSULTATION

Previous Endangered Species Act (ESA) consultation with the U.S. Fish and Wildlife Service (USFWS) and NMFS has been completed for activities associated with the City's drinking water system within the action area. The proposed action detailed in a biological assessment submitted to the services on April 6, 2022; entails two 4-inch diameter substrate borings in the lower Clearwater River to inform the City's drinking water intake pipe designs. Work was scheduled for completion during the summer in-water work window of 15 July – 15 August

2022. However, the test borings were never completed as no contractor could be found to do the work.

The USFWS issued a letter of concurrence for the previously proposed action 2 February 2022 (USFWS Reference Number: FWS/IR9/ES/IFWO/2022-0001597-S7). The agency action concurred that the proposed action, may affect, but was not likely to adversely affect bull trout or its designated critical habitat.

The NMFS issued a letter of concurrence for the previously proposed action 6 July 2022 (NMFS Tracking Number: WCRO-2022-01580). The agency concurred that the proposed action was not likely to adversely affect Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon, Snake River Basin steelhead, and the associated critical habitats for these species.

Other previous consultations with the USFWS and NMFS have been conducted for similar actions including the installation of the City of Pasco's drinking water intake structure, completed by, Murray Smith & Associates, using similar construction methods.

The latest consultation with the USFWS was completed on November 20, 2015 (USFWS Reference Number: 01EWFW00-2014-F-0651). The USFWS concluded that the proposed action was not likely to jeopardize the continued existence of the bull trout.

The latest consultation with the NMFS was completed on July 2, 2015 (NMFS Tracking Number: WCR-2014-1372). NMFS concluded that the proposed action was not likely to jeopardize the continued existence of ESA-listed Upper Columbia River (UCR) spring-run Chinook salmon, UCR steelhead, or destroy or adversely modify any of their designated critical habitat. NMFS also concluded that the proposed action was not likely to adversely affect Mid-Columbia River steelhead or their designated critical habitat.

Maintenance actions at the current intake ESA consultations were conducted in 2016-2017. USFWS provided a concurrence letter; USFWS Reference: 01EIFW00-2017-I-0207; CONS-100(a). NMFS provided a biological opinion; NMFS No: WCR-2016-5998.

An emergency consultation was conducted on January 12, 2024 due to the extremely high potential for the city of Lewiston to lose their ability to supply water due to the lost capacity of the water intake and freezing conditions that iced over the Clearwater River. Approximately 100 cubic yards of sediment was dredged from the intake channel and water to the city was restored.

After action consultation was submitted in 2024. USFWS provided a concurrence letter; USFWS reference USFWS ID: 2024-0026199-S7. NMFS has submitted a 30-day letter on the formal consultation which an Opinion will be drafted in fall of 2024; Refer to NMFS No.: WCRO-2024-01906.

SECTION 2 - LISTED SPECIES

2.1 SPECIES LISTED FOR THE PROJECT AREA

USACE reviewed the list of threatened and endangered species that pertain to the area under the jurisdiction of NMFS and USFWS on 19 August 2024 (Table 2-1).

Table 2-1. Federal Register (FR) Notices for Final Rules That List Threatened and Endangered Species or Designate Critical Habitats

Species	Listing Status and Reference	Critical Habitat
NMFS		
Chinook Salmon (*O. tshawytscha*)		
Snake River ESU Fall Chinook	T: 04/14/2014; 79 FR 20802	Yes: 12/28/1993; 58 FR 68543
Steelhead (*O. mykiss*)		
Snake River Basin DPS	T: 03/25/1999; 65 FR 14517	Yes: 09/2/2005; 70 FR 52630
USFWS		
Bull Trout (*Salvelinus confluentus*)		
Conterminous U.S.	T: 06/10/98; 63 FR 31647	Yes: 09/02/05; 70 FR 56211
Spalding's Catchfly (*Silene spaldingii*)		
Western U.S. DPS	T: 10/10/01; 66 FR 51597	No

Idaho State Consultation Code 2022-0027035
*T= Threatened; E = Endangered

2.2 SPECIES STATUS

2.2.1 Snake River Basin Fall Chinook Salmon

Listing History

NMFS listed Snake River fall Chinook salmon as threatened on April 22, 1992 (57 CFR 14653) and their threatened status was reaffirmed on June 28, 2005 (70 CFR 37160).

Distribution

The Snake River fall Chinook salmon evolutionarily significant unit (ESU) includes all natural-origin fall-run Chinook salmon from the mainstem Snake River below Hells Canyon Dam, and fall-run salmon from the Tucannon, Imnaha, Grande Ronde, Salmon, and Clearwater Rivers (Figure 2-1) (NMFS 2016a).

Life History and Biological Requirements

Fall Chinook salmon in this ESU are ocean-type. Adults return to the Snake River at ages 2 through 5, with age 4 most common at spawning (Waples et al. 1991). Migration up the river occurs from late August through November with spawning, occurring October through November, in the mainstem and in the lower parts of major tributaries. Juveniles emerge from the gravels in March and April of the following year, moving downstream from natal spawning and early rearing areas from June through early fall. Juvenile fall Chinook salmon move seaward slowly as subyearlings, typically within several weeks of emergence (Waples et al. 1991).

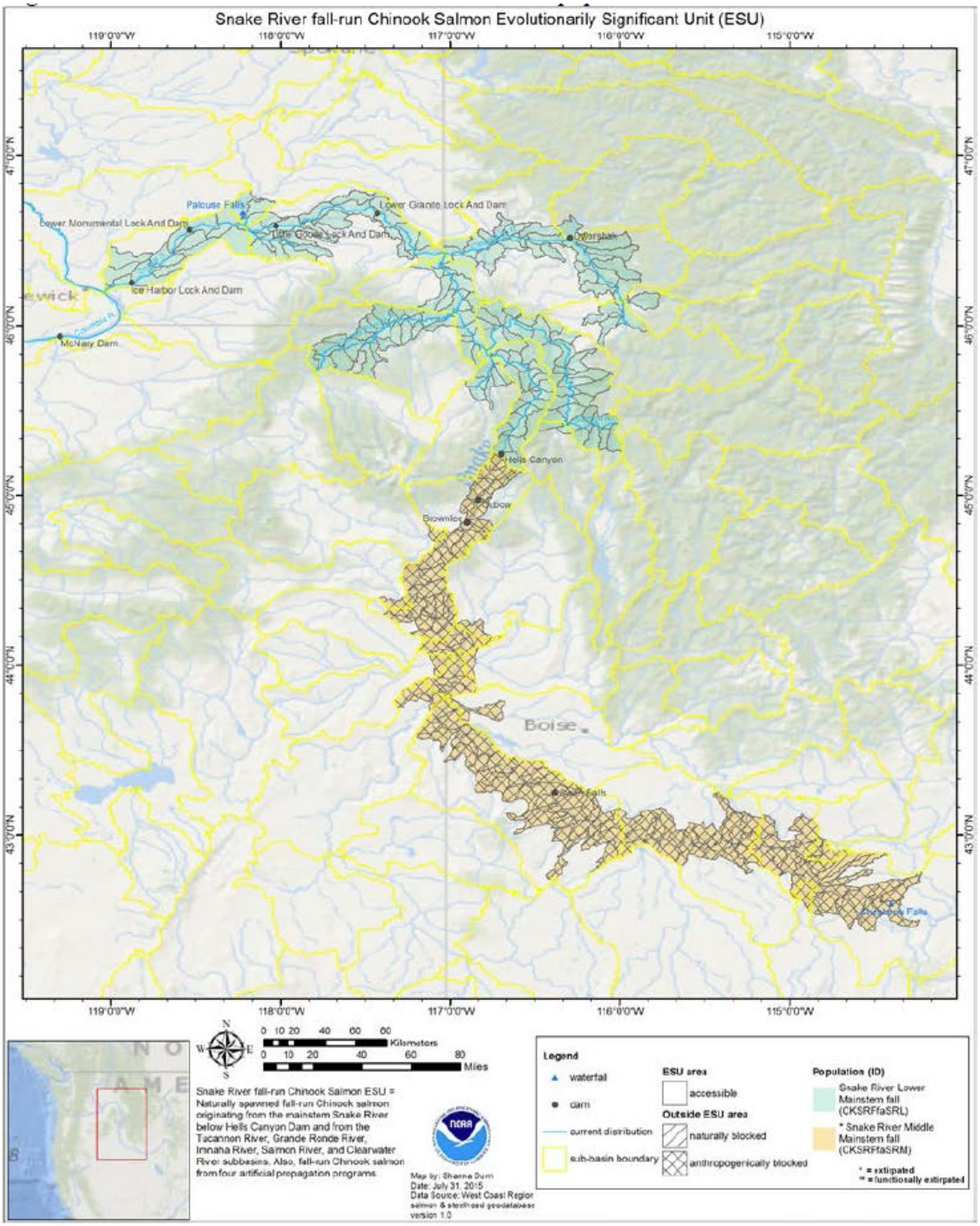


Figure 2-1. Snake River Fall Chinook ESU Distribution

Snake River fall Chinook salmon spawning and rearing occurs only in larger, mainstem rivers such as the Salmon, Snake, and Clearwater Rivers. Historically, the primary fall Chinook salmon spawning areas were located on the upper mainstem Snake River (Connor et al. 2005. The vast majority of spawning today occurs upstream from the Lower Granite Dam, with the largest concentration of spawning sites in the Clearwater River, downstream from Lolo Creek.

Currently, natural spawning is limited to the Snake River from the upper end of Lower Granite Reservoir to Hells Canyon Dam, the lower reaches of the Imnaha, Grande Ronde, Clearwater, Salmon, and Tucannon Rivers, and small areas in the tailraces of the lower Snake River hydroelectric dams (Good et al. 2005).

As a consequence of losing access to historic spawning and rearing sites in the upper Snake River, fall Chinook salmon now reside in waters that are generally cooler than the majority of historic spawning areas. In addition, alteration of the lower Snake River by hydroelectric dams has created a series of low-velocity pools in the Snake River that did not exist historically. Both of these habitat alterations have created obstacles to fall Chinook survival. Prior to alteration of the Snake River basin by dams, fall Chinook salmon exhibited a largely ocean-type life history, where they migrated downstream and reared in the mainstem Snake River during their first year. Today, fall Chinook salmon in the Snake River basin exhibit one of two life histories that Connor et al. (2005) have called ocean-type and reservoir-type. The reservoir-type life history is one where juveniles overwinter in the pools created by the dams, prior to migrating out of the Snake River. The reservoir-type life history is likely a response to early development in cooler temperatures, which prevents juveniles from reaching a suitable size to migrate out of the Snake River.

Factors for Decline

Current pressures on Snake River fall Chinook salmon include loss of quality habitat, predation, poor ocean conditions, and limited fishing pressure. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery.

Local Population Information

The latest 10-year average adult passage at Lower Granite Dam (2012-2021) is approximately 36,804 (DART 2022). Wild juvenile fall Chinook salmon typically pass through the lower Snake River from mid-June through September, with double peaks in mid-July and some lingering portion of the annual migration lasting until December. Many of the juvenile fall Chinook salmon out-migrating from the Clearwater and Snake Rivers spend time in shoreline areas (less than 3 meters [9.8 feet] in depth) in the Lower Granite reservoir and less time in downriver reservoirs, where they prefer sand-substrate areas (Bennett et al. 1997). Tiffan and Connor (2012) similarly reported low gradient shoreline areas less than 2 meters deep were highly used by naturally produced juvenile fall Chinook salmon. When water temperatures reach about 21.1° C (70° F), these fish appear to have achieved adequate growth and fitness due to the warming conditions of these shallow-water habitat areas. They leave the shoreline areas to either continue rearing or begin their migration in the cooler pelagic zone of the reservoirs (Bennett et al. 1997).

Though most juvenile Chinook salmon migrate to the ocean as sub-yearlings, passive integrated transponder (PIT) tag detections from 1993 to 1995 brood year juvenile fall Chinook salmon from the Clearwater River were recorded in the spring of 1994 to 1996 at some lower Snake River dams. More PIT-tagged fall Chinook salmon outmigrants were detected in the spring of 1994 and 1995 than in the previous year, while the trend was reversed with the 1995 brood year. It is apparent from these detections that some Clearwater River fall Chinook salmon migrate to the ocean as yearlings, rather than as subyearlings. The Snake River upper reach, Snake River lower reach, Grande Ronde River, and Clearwater River are recognized as the four major spawning aggregates of Snake River Basin natural fall Chinook salmon upstream of Lower Granite reservoir (ICBTRT 2003). Though treated as one population, temperature during incubation and early rearing fosters life history diversity among the juveniles of the spawning aggregates (Connor et al. 2002, 2003a). Natural fall Chinook salmon in the Snake River upper reach typically emerge and enter Lower Granite reservoir as subyearlings earliest followed in overlapping order by natural fall Chinook salmon subyearlings (hereafter, natural subyearlings) from the Snake River lower reach, Grande Ronde River, and finally the Clearwater River subbasin. Passage of natural subyearlings from the four spawning aggregates through the lower Snake River reservoirs is a protracted event (Connor et al. 2002) based on data collected on fish implanted with PIT tags (Prentice et al. 1990). Thus, there is large potential for natural subyearlings to use shallow water habitat complexes throughout the spring and summer.

Natural subyearlings most likely enter Lower Granite reservoir as both newly emergent fry and as parr after they have reared upstream in natal riverine habitat. Those fish that enter the reservoir as fry probably locate nearshore areas and reside there as they grow into parr. Fry abundance likely decreases over time due to mortality, recruitment to parr, and as fish move downstream. Natural subyearlings that remain in natal riverine rearing areas upstream of Lower Granite reservoir are believed to progress through four migration phases including: discontinuous downstream dispersal along the shorelines of the free-flowing river; abrupt and mostly continuous downstream dispersal offshore in the free-flowing river; passive, discontinuous downstream dispersal offshore in Lower Granite reservoir; and active and mostly continuous seaward migration (Connor et al. 2003b). Thus, the potential for use of shallow water habitat by natural fall Chinook salmon subyearlings is regulated by the dispersal of fry and parr as well as the survival and behavior of fish passing through these two life stages.

Some of the natural and hatchery subyearlings discontinue active migration before or after entering the reservoirs in mid-summer (Arnsberg and Statler 1995). These “reservoir-type” juveniles are primarily natural fall Chinook salmon (Connor et al. 2005) and they feed and grow as they move downstream offshore in reservoirs during fall and winter and into spring when they become yearlings (Tiffan et al. 2012).

Winter is a critical season that can greatly influence the survival and behavior of juvenile anadromous salmonids. Fish in small streams limit their winter movement and energy

expenditure by seeking nearshore cover and holding (review by Brown et al. 2011). Shallow water habitat in the lower Snake River reservoirs would also be important to overwinter survival of reservoir-type juveniles if they exhibited the behavior of their counterparts that inhabit small streams. However, Tiffan et al. (2012) hypothesized that the need for cover, protection from predators, and energy conservation are met in reservoirs in ways that allow fish more unrestricted movement at lower energetic costs than observed in small streams. Further, the same authors deduced from angling catch data that reservoir-type juveniles are largely pelagic. Furthermore, sampling data, including radio-telemetry efforts, suggests that use of shallow water habitat during the fall and winter by juvenile fall Chinook is limited and that while juveniles passed shallow water habitat sites, relatively few entered them. Radio-tagged fish located during mobile tracking in the winter of 2010 were pelagically oriented, and generally not found over shallow water or close to shore (Tiffan and Connor 2012).

Redd surveys have been performed in the lower Snake River since at least 1993 (Mueller 2009). For example, seven redds were found downstream of Lower Monumental Dam in 2008 by the Pacific Northwest National Laboratory (Mueller 2009). The redds were located approximately 30 meters (m) (100 ft) downstream of the fish bypass pipe and adjacent to the fish loading dock on the north side of the river in water depths of 4 to 5.5 m (13 to 18 ft) with near bottom water velocities of 0.37 to 0.46 m/sec (1.2 to 1.5 feet per second (ft/s)). This was the first time that redds were found at this location (Arnsberg et al. 2009). At Ice Harbor Dam, redd surveys have been performed in multiple years, with only 1 redd found downriver of the powerhouse near the outfall pipe in 1996 and 2 redds found in 2007 390 feet downstream of the bypass pipe in 22-23 feet of water (Mueller and Coleman 2008; Mueller 2009). The low velocity and relatively fine substrate along a high percentage of the reservoir shorelines of the lower Snake River reservoirs preclude spawning in these areas. The limited spawning that does occur is in the tailrace areas below all of the lower Snake River dams, where water velocity is high and substrate size is relatively large (Mueller and Coleman 2007, 2008). No redds have been located in other regions of the reservoirs, including shoreline areas that could be potentially affected by site development.

Ongoing Monitoring

Passage of adult and juvenile Chinook salmon is monitored by USACE at the Columbia and Snake River dams. There are also several other monitoring programs by other federal, state and tribal organizations throughout the watershed.

2.2.2 Snake River Basin Steelhead

Listing History

Snake River steelhead were listed as a threatened on August 18, 1997 (62 FR 43937) and protective regulations were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422).

Their threatened status was reaffirmed on January 5, 2006 (71 FR 834) and again on April 14, 2014 (79 FR 20802).

Distribution

The DPS includes all naturally spawned 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 six artificial propagation programs: the Tucannon River, Dworshak National Fish Hatchery, Lolo Creek, North Fork Clearwater River, East Fork Salmon River, and the Little Sheep Creek/Imnaha River Hatchery steelhead hatchery programs (NMFS 2016b). The Snake River steelhead DPS is distributed throughout the Snake River drainage system, including tributaries in southwest Washington, eastern Oregon and north/central Idaho (Good et al. 2005). Snake River steelhead do not occur above Dworshak Dam (Figure 2-2).

The Interior Columbia Basin Technical Recovery Team (ICBTRT 2003) identified six major population groups in the DPS: (1) The Grande Ronde River system, (2) the Imnaha River drainage, (3) the Clearwater River drainage, (4) the Salmon River, (5) Hells Canyon, and (6) the lower Snake. The Snake River historically supported more than 55 percent of total natural-origin production of steelhead in the Columbia River Basin (CRB). It now has approximately 63 percent of the basin's natural production potential.

Life History and Biological Requirements

Snake River steelhead migrate a substantial distance from the ocean (up to 940 miles) and use high elevation tributaries (up to 6,562 feet above sea level) for spawning and juvenile rearing. Snake River steelhead occupy habitat that is considerably warmer and drier (on an annual basis) than other steelhead distinct population segments. Managers classify up-river summer steelhead runs into two groups based primarily on ocean age and adult size upon return to the Columbia River. A-run steelhead are predominately age-1-ocean fish while B-run steelhead are larger, predominated by age-2-ocean fish. Snake River steelhead are generally classified as summer run, based on their adult run timing pattern. Snake River steelhead enter fresh water from June to October, and, after holding over the winter, spawn during the following spring from March to May. Snake River Basin steelhead usually smolt as 2- or 3-year-olds. Outmigration occurs during the spring and early summer periods, coinciding with snowmelt in the upper drainages.

Median and 90 percent passage dates at Lower Granite Dam for PIT-tagged groups from the Imnaha River were wild steelhead trout - May 2 and May 9; and hatchery steelhead trout - May 31 and June 16. Hatchery steelhead trout displayed small peaks in arrival timing at Lower Granite and Little Goose Dams in mid-May to mid-June; however, the general trend at each dam was a long, protracted emigration (Blenden et al. 1996).

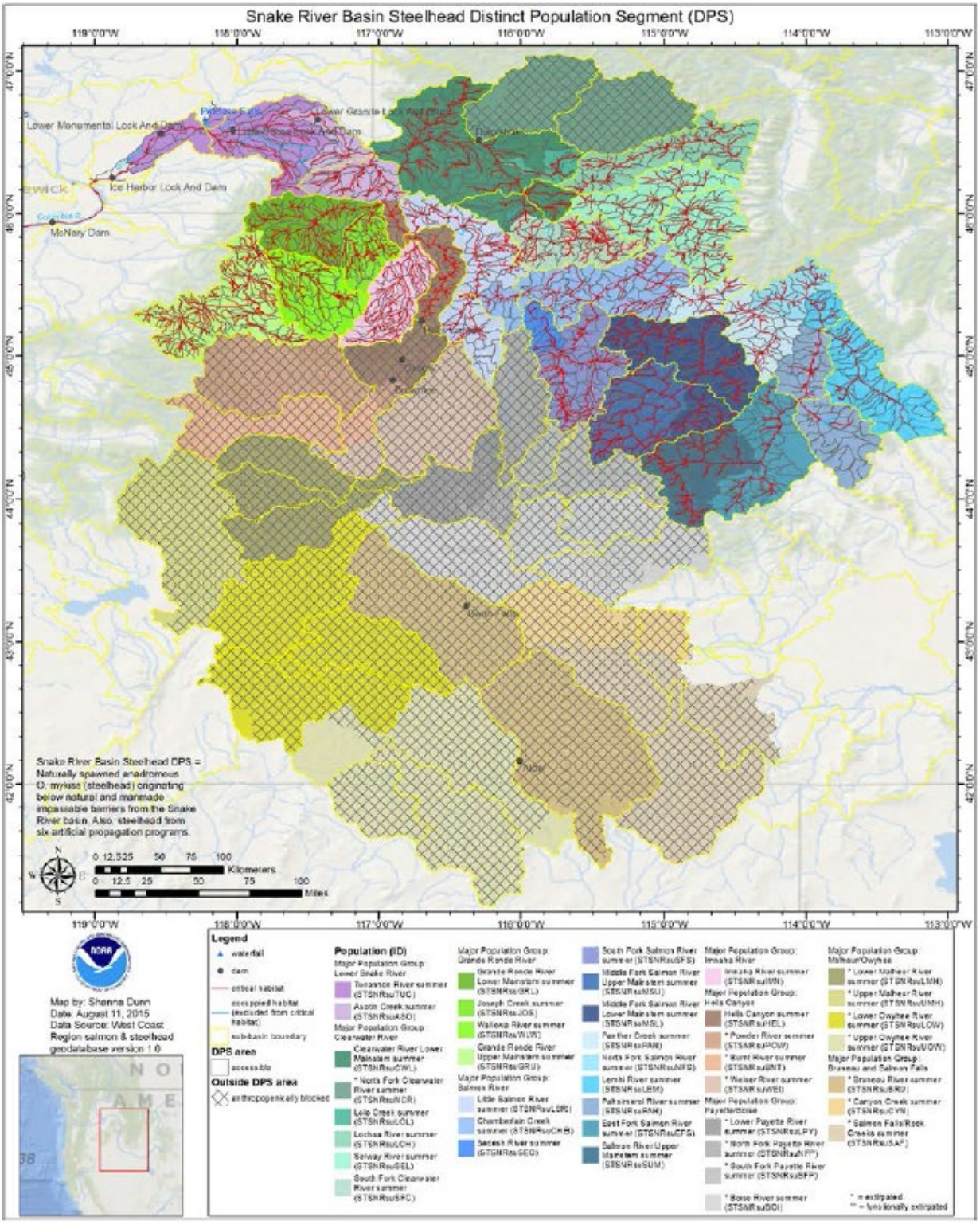


Figure 2-2. Snake River Basin Steelhead DPS Distribution

A-run populations are found in the tributaries to the lower Clearwater River, the upper Salmon River and its tributaries, the lower Salmon River and its tributaries, the Grand Ronde River, Imnaha River, and possibly the Snake River's mainstem tributaries below Hells Canyon Dam. B-

run steelhead occupy four major subbasins, including two on the Clearwater River (Lochsa and Selway) and two on the Salmon River (Middle Fork and South Fork Salmon); areas that are for the most part not occupied by A-run steelhead. Some natural B-run steelhead are also produced in parts of the mainstem Clearwater and its major tributaries. There are alternative escapement objectives of 10,000 (Columbia River Fisheries Management Plan) and 31,400 (Idaho) for B-run steelhead. B-run steelhead, therefore, represent at least one-third and as much as three-fifths of the production capacity of the DPS.

Steelhead adult preferred temperatures are between approximately 4° and 9° C (39.2° and 48.2° F) for spawning and up to 20° C (68° F) for migration [Table 2-2 (Bell 1990)]. Generally, steelhead preferred temperatures fall between 10° and 13° C (50° and 55.4° F), while the upper lethal limit for steelhead is 23.9° C (75° F) (Spence et al. 1996).

Table 2-2. The Steelhead Life History Timing and Thermal Requirements

Snake River Basin Steelhead DPS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Temperature	Length	Lethal Limits
Upstream adult migration			P	P									0-20°C	After 1-4 years in ocean	0/25°C
Adult spawning													3.9-9.4°C		
Egg incubation													8.5-14°C	50-150 days	>17.5 C
Alevin													8.5-14°C		>17.5°C
Fry emergence													8.5-14°C		
Juvenile rearing													7.3-20°C	1-3 Avg 2 years	0/25°C
Downstream Kelts															
Downstream juvenile migration				P									<14.4°C		

P=Primary

Factors for Decline

All populations of Snake River steelhead use the mainstem Columbia River and lower Snake River to migrate to and from the ocean, and all are affected by the mainstem dams, as well as by other forms of development that alter the river environment. Snake River conditions include impaired fish passage, altered water temperature and thermal refuges, and changes in

mainstem nearshore habitat (NMFS 2009). In addition, changes in the Columbia and Snake rivers have altered the relationships between salmonids and other fish, bird, and pinniped species. Increases in competition with other fish species and predation from non-native fishes, and birds continues to limit recovery of salmonid species in the Snake River. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery.

Local Population Information

Very little information is documented on near-shore habitat use by juvenile steelhead in the main stem Snake River. Juvenile steelhead are thought to utilize the deeper, higher velocity areas away from the shoreline to migrate. They could potentially use the shoreline area during the winter and spring for rearing.

Most wild adult steelhead typically migrate through the reach between June and August for the A-run and between late August and November for the B-run. Adults from this stock may be migrating in deeper water or individuals may be holding in mid-channel areas prior to moving upriver into tributaries for spawning in early spring. Adult wild steelhead numbers passing through Lower Granite Dam have generally increased over the last 10 years. The latest 10-year average (2012-2021) is 25,212, down from 37,072 between 2008-2017 (DART 2022).

Wild juvenile Snake River Basin steelhead generally migrate downstream through the lower Snake River, mainly between late March and the end of August. Some rearing or overwintering may occur in the reservoirs.

Ongoing Monitoring

Passage of adult and juvenile steelhead is monitored at the Snake River dams. There are also several other monitoring programs by other federal, state and tribal organizations throughout the watershed.

2.2.3 Columbia River Basin Bull Trout

Listing History

The USFWS issued a final rule listing CRB bull trout as threatened on June 10, 1998 (63 FR 31647). Bull trout are currently listed throughout their range in the U.S. as a threatened species. Bull trout critical habitat was designated in 2005. The USFWS revised the designation in 2010. A final rule was published on October 18, 2010 (70 FR 63898) and took effect on November 17, 2010. A total of about 18,795 miles of stream and 488,251 acres of reservoirs and lakes are designated as bull trout critical habitat. The Clearwater River, adjacent to the project area, is designated as bull trout critical habitat.

Distribution

In the CRB bull trout historically were found in about 60 percent of the basin. They now occur in less than half of their historic range. Populations remain in portions of Oregon, Washington, Idaho, Montana, and Nevada (Figure 2-3).

Life History and Biological Requirements

Individual bull trout may exhibit resident or migratory life history strategies. Resident bull trout carry out their entire life cycle in the stream in which they spawn and rear. Migratory bull trout spawn in tributary streams, but eventually travel to larger streams (or lakes) where they mature. Habitat components that appear to influence bull trout distribution and abundance include water temperature, cover, channel form and stability, valley form, spawning and rearing substrates and migratory corridors (with resting habitat). All life history stages of bull trout are associated with complex forms of cover, including large woody debris, undercut banks, boulders and deep pools.

Bull trout normally reach maturity in four to seven years and may live as long as twelve years. Migratory bull trout may travel over one hundred miles to their spawning grounds in headwater streams. They generally spawn from August to November during periods of decreasing water temperatures. Egg incubation is normally 100 to 145 days and fry remain in the substrate for several months.

Bull trout are opportunistic feeders. Their diet requirements vary depending on their size and life history strategy. Juvenile bull trout prey on insects, zooplankton, and small fish while adults and migratory bull trout are dominantly piscivorous.

Factors for Decline

Bull trout are estimated to have occupied about 60 percent of the CRB and presently occur in only about 45 percent of their historic range. The decline of bull trout is primarily due to habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, past fisheries management practices and the introduction of non-native species. Declining salmon and steelhead populations could also negatively impact bull trout populations by reducing the number of juvenile salmon and steelhead that bull trout might prey on.

Bull trout habitat is sensitive to stream channel changes. Altered flow regimes, sedimentation rates, bank erosion, and reduced channel complexity all reduce the quality of bull trout habitat.

Barriers between isolated populations are a limiting factor for most of the bull trout subpopulations in the CRB.

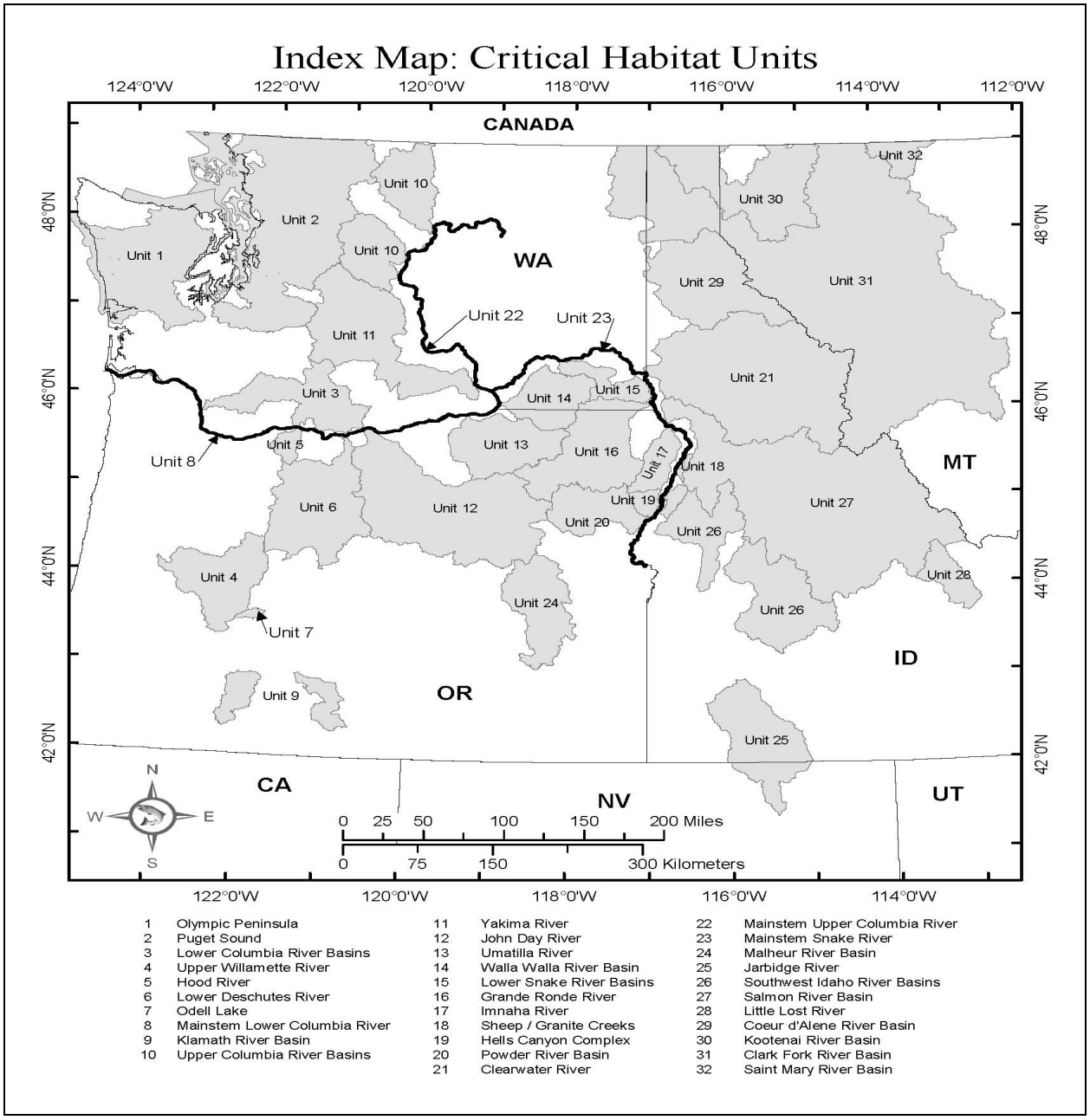


Figure 2-3. Bull trout distribution in the Columbia River Basin

Local Population Information

The few remaining bull trout strongholds in the CRB tend to be found in large areas of contiguous habitats in the Snake River basin of the central Idaho mountains, upper Clark Fork and Flathead Rivers in Montana, and several streams in the Blue Mountains in Washington and Oregon.

The Clearwater River Recovery Unit includes the entire Clearwater River basin upstream from the confluence with the Snake River. Bull trout are distributed throughout most of the large rivers and associated tributary systems within the Clearwater River Recovery Unit. They exhibit adfluvial, fluvial, and resident life history patterns (Clearwater Subbasin Summary 2001). The Clearwater River Recovery Unit consists of 7 core areas, with a total of 45 local populations and 27 potential local populations distributed among the core areas (USFWS 2002). Bull trout use the lower Clearwater River and some of its tributaries primarily as foraging, migratory, rearing, and overwintering habitat. No tributary streams within the lower Clearwater River area are known to support bull trout spawning (BLM 2000).

Bull trout abundance is at very low levels within the lower Clearwater River core area. The larger tributaries may be used incidentally for subadult/adult rearing and foraging when stream conditions are suitable. Bull trout observations in the mainstem Clearwater subbasin are sporadic. The mainstem Clearwater River provides migration and rearing habitats for adult and subadult bull trout. It also provides connectivity among the Grande Ronde, Salmon, Imnaha, Snake River, and the upper Clearwater basin local populations, although the frequency and intensity of migration between these basins is unknown (USFWS 2002).

There is no evidence of bull trout utilizing the lower Snake River from the Asotin Creek, Grande Ronde River, Clearwater River, Salmon River, or Granite Creek subbasins; however, bull trout migration from some of these subbasins has not been well studied. Four Tucannon River fish have been detected in the adult fishway at Lower Granite Dam between the months of June and August; however, there is no documented interaction of Imnaha River or Sheep Creek bull trout with the lower Snake River dams (Barrows et al. 2016).

While there is clear evidence that migratory bull trout utilize the lower Snake River and interact with lower Snake River dams, little is known about the number of bull trout in the Lower Granite Lake (including the lower Clearwater River) area at any given time, but numbers are expected to be very low based on fishway count data. There have been fewer than 40 bull trout observed passing the adult ladder at Lower Granite Dam since 2006 (Table 2-3). Furthermore, only four bull trout were documented by the Smolt Monitoring Program at the Lower Granite Project between 1998 and 2015. This indicates a very low number of bull trout moving downstream from any Snake River tributaries (e.g., Clearwater River).

Table 2-3. Lower Granite Dam Adult Fishway Bull Trout Counts 2006-2021

	April	May	June	July	Aug	Sept	Oct	Annual Total
2006			1	1				2
2007	2	2	4					8
2008								0
2009			2					2
2010		2	1	5				8
2011				1				1
2012		1	1					2
2013								0
2014	1				1			2
2015			5					5
2016	1	1						2
2017								0
2018								0
2019								0
2020			1					1
2021			2	1				3
Month Total	**4**	**6**	**17**	**8**	**1**	**0**	**0**	**Grand Total 36**

Ongoing Monitoring

Adult salmonid passage is monitored at Lower Snake River dams between March and November, and for juveniles between April and October each year. Any bull trout observations are recorded, though few, if any, are generally seen in any year. There are no known sources of bull trout presence in the water intake channel or adjacent river.

2.2.4 Spalding's Catchfly

Listing History

Spalding's catchfly was listed as a threatened species on October 10, 2001. Spalding's catchfly is native to portions of Idaho, Montana, Oregon, Washington, and British Columbia, Canada. Fifty-eight percent of Spalding's catchfly populations occur either entirely or partially on private land; the remaining populations occur on Federal lands (U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Refuges, National Park Service, and Department of Defense), and state and tribal lands. There is no designated critical habitat for Spalding's catchfly.

Life History/Biological Requirements

Spalding's catchfly is an herbaceous perennial plant in the pink family (Caryophyllacea). Spalding's catchfly produce one to several vegetative or flowering stems arising from a simple or branched persistent underground stem (caudex), which surmounts a long, narrow taproot. Plants range from 20 to 40 centimeters (cm) in height. Each stem typically bears 4 to 7 pairs of simple, opposite leaves that are 5 to 8 cm in length and 2 to 4 cm in width. Reproductive individuals produce 3 to 20 cream to pink or light green flowers borne in a branched, terminal inflorescence. All green portions of the plant (foliage, stem, and flower bracts) are covered in dense sticky hairs that frequently trap dust and arthropods, giving this species the common name 'catchfly'. Plants (both vegetative and reproductive) emerge in mid-to late May. Flowering typically occurs from mid-July through August, but may occasionally continue into October.

Rosettes are formed the first and possibly the second year, followed by the formation of vegetative stems. Above-ground vegetation dies back at the end of the growing season and plants either emerge in the spring or remain dormant below ground for one to several consecutive years. Spalding's catchfly reproduces solely by seed. Spalding's catchfly was listed as threatened in 2001 and a final recovery plan for this plant was released October 15, 2007.

Distribution

The species is endemic to the Palouse region of southeast Washington and adjacent Oregon and Idaho, and is disjunct in northwestern Montana and British Columbia, Canada (Figure 2-4). This species is found predominantly in the Pacific Northwest bunchgrass grasslands and sagebrush-steppe, and occasionally in open-canopy pine stands. Occupied habitat includes five physiographic (physical geographic) regions: 1) the Palouse Grasslands in west-central Idaho and southeastern Washington; 2) the Channeled Scablands in east-central Washington; 3) the Blue Mountain Basins in northeastern Oregon; 4) the Canyon Grasslands along major river systems in Idaho, Oregon, and Washington; and 5) the Intermontane Valleys of northwestern Montana and British Columbia, Canada.

Figure 2-4. Rangewide distribution of Spalding's catchfly (Silene spaldingii) (Gray and Lichthardt 2004).

2.3 STATUS OF CRITICAL HABITAT

2.3.1 Snake River Basin Fall Chinook

NMFS designated critical habitat for Snake River fall Chinook to include the Columbia River from a straight line connecting the west end of the Clatsop jetty (south jetty, Oregon side) and the west end of the Peacock jetty (north jetty, Washington side) and including all Columbia River estuarine areas and river reaches proceeding upstream to the confluence of the Columbia and Snake Rivers; the Snake River, all river reaches from the confluence of the Columbia River, upstream to Hells Canyon Dam; the Palouse River from its confluence with the Snake River upstream to Palouse Falls; the CR from its confluence with the Snake River upstream to its confluence with Lolo Creek; the NFCR from its confluence with the CR upstream to Dworshak Dam. Critical habitat also includes river reaches presently or historically accessible (except reaches above impassable natural falls, and Dworshak and Hells Canyon Dams) to Snake River fall Chinook salmon in the following hydrologic units; Clearwater, Hells Canyon, Imnaha, Lower

Grande Ronde, Lower North Fork Clearwater, Lower Salmon, Lower Snake, Lower Snake-Asotin, Lower Snake-Tucannon, and Palouse. Critical habitat borders on or passes through the following counties in Oregon: Baker, Clatsop, Columbia, Gillium, Hood River, Morrow, Multnomah, Sherman, Umatilla, Wallowa, Wasco; the following counties in Washington: Adams, Asotin, Benton, Clark, Columbia, Cowlitz, Franklin, Garfield, Klickitat, Lincoln, Pacific, Skamania, Spokane, Wahkiakum, Walla Walla, Whitman; and the following counties in Idaho: Adams, Benewah, Clearwater, Idaho, Latah, Lewis, Nez Perce, Shoshone, Valley (Figure 2-5).

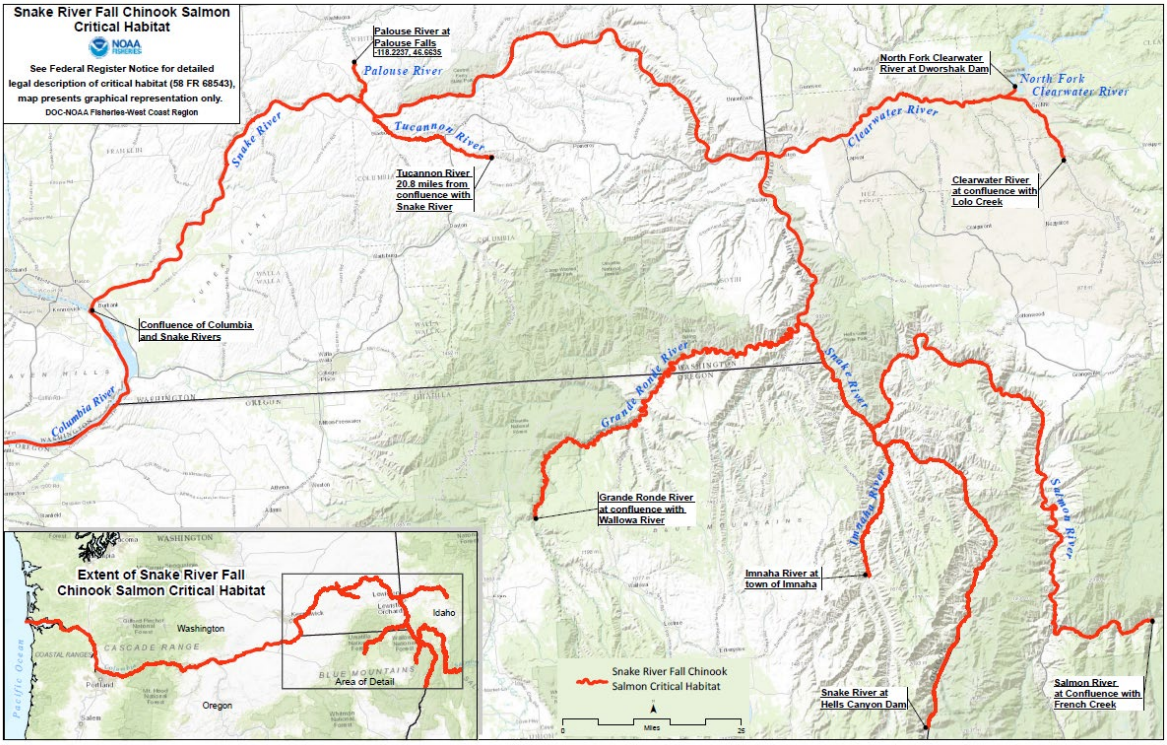


Figure 2-5. Snake River Fall Chinook Salmon Critical Habitat

2.3.2 Snake River Basin Steelhead

NMFS designated critical habitat for Snake River steelhead in the Hells Canyon, Imnaha River, Lower Snake/Asotin, Upper Grande Ronde River, Wallowa River, Lower Grande Ronde, Lower Snake/Tucannon, Upper Salmon, Pahsimeroi, Middle Salmon-Panther, Lemhi, Upper Middle Fork Salmon, Lower Middle Fork Salmon, Middle Salmon-Chamberlain, South Fork Salmon, Lower Salmon, Little Salmon, Upper Selway, Lower Selway, Lochsa, Middle Fork Clearwater River, South Fork Clearwater River, and Clearwater River subbasins, and the Lower Snake/Columbia River migration corridor (NMFS 2005) (Figure 2-6).

Unlike earlier critical habitat designations, which relied on USGS maps of subbasins and included “all accessible river reaches within the current range of the listed species,” the 2005 designations used a much finer, more specific scale in designating critical habitat for salmon and steelhead. The 2005 designations identify stream and near-shore habitat areas where

listed salmon and steelhead have actually been observed, or where biologists with local area expertise presume, they occur. These habitat areas are found within more than 800 watersheds in the Pacific Northwest and California.

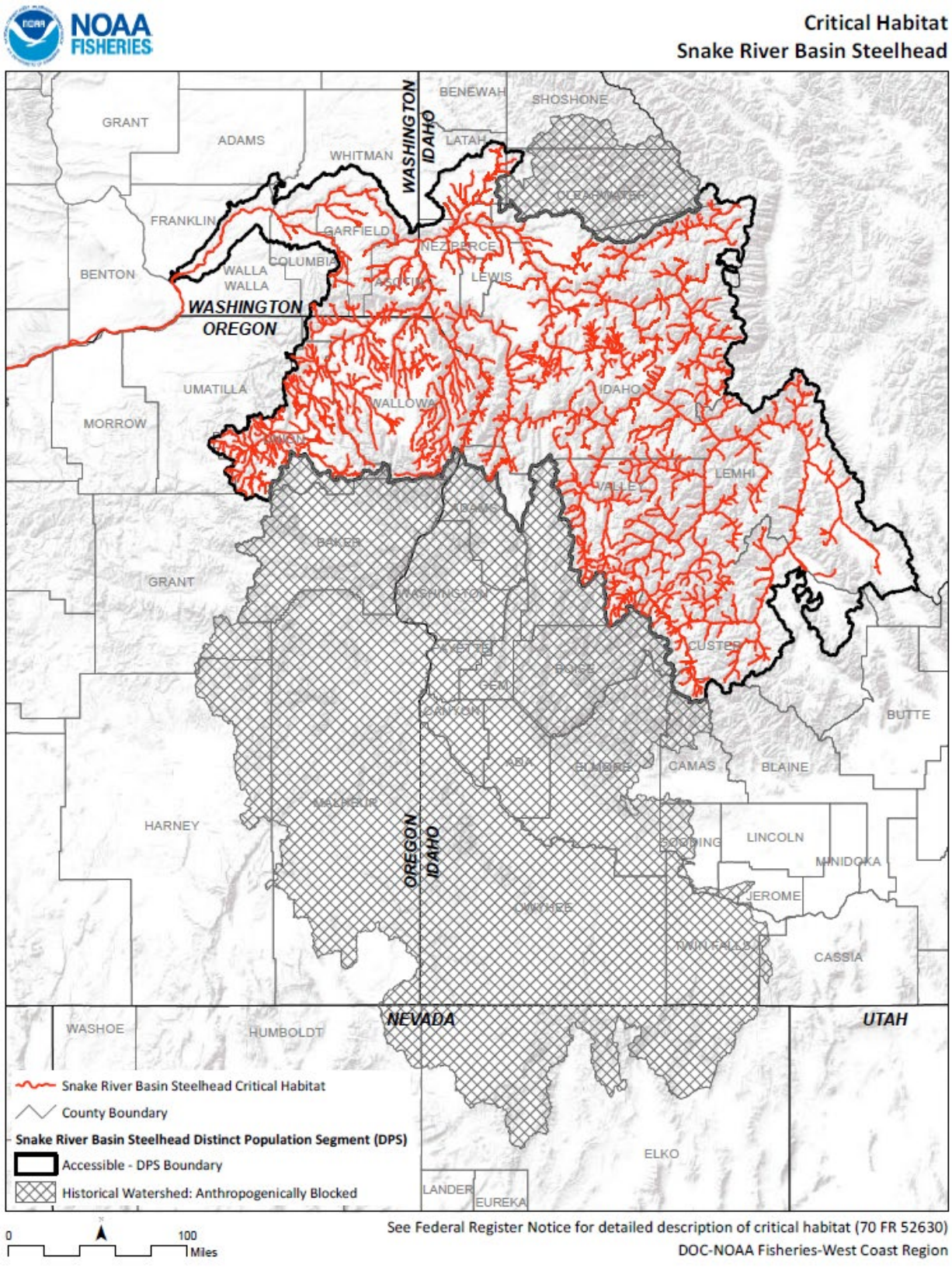


Figure 2-6. Snake River Basin DPS Steelhead Critical Habitat

2.3.3 Columbia River Basin Bull Trout

Bull trout critical habitat was designated in 2005. The USFWS revised the designation in 2010. A final rule was published on October 18, 2010, and took effect on November 17, 2010. A total of 19,729 miles of stream and 488,251 acres of reservoirs and lakes are designated as bull trout critical habitat. The Snake, Columbia, Yakima, and Walla Walla Rivers, which encompass the project area, are designated as bull trout critical habitat (Figure 2-7). Physical and Biological Features (PBF) for bull trout critical habitat are listed in Table 2-4.

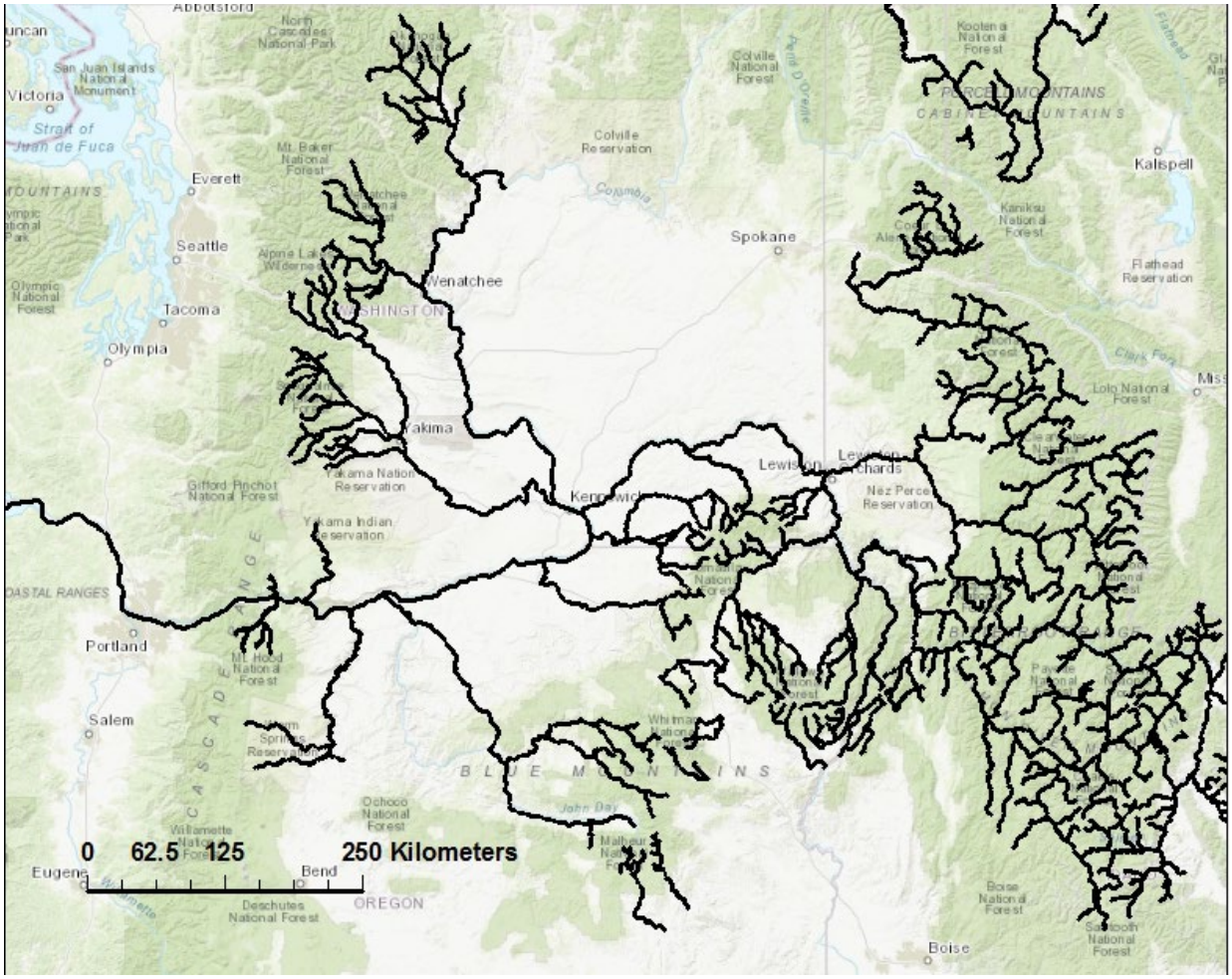


Figure 2-7. Columbia River Basin Bull Trout Critical Habitat

Table 2-4. Physical and Biological Features of Bull Trout Critical Habitat.

PBFs		
1	Water Quality	Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.
2	Migration Habitat	Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.
3	Food Availability	An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.
4	Instream Habitat	Complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these environments, with features such as large wood, side channels, pools, undercut banks and clean substrates, to provide a variety of depths, gradients, velocities, and structure.
5	Water Temperature	Water temperatures ranging from 2 to 15 °C (36 to 59 °F), with adequate thermal refugia available for temperatures that exceed the upper end of this range. Specific temperatures within this range will depend on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shading, such as that provided by riparian habitat; streamflow; and local groundwater influence.
6	Substrate Characteristics	In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount (e.g., less than 12 percent) of fine substrate less than 0.85 mm (0.03 in.) in diameter and minimal embeddedness of these fines in larger substrates are characteristic of these conditions.
7	Stream Flow	A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.
8	Water Quantity	Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.
9	Nonnative Species	Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from bull trout.

SECTION 3 - ENVIRONMENTAL BASELINE

This section is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, habitat (including designated critical habitat), and ecosystem within the action area. The environmental baseline is a "snapshot" of a species' health at a specified point in time. It does not include the effects of the action under review in the consultation.

The baseline includes State, tribal, local, and private actions already affecting the species or that will occur contemporaneously with the consultation in progress. Unrelated Federal actions affecting the same species or critical habitat that have completed formal or informal consultation are also part of the environmental baseline, as are Federal and other actions within the action area that may benefit listed species or critical habitat.

Human activities that have degraded aquatic habitats or affected native fish populations in the Snake River Basin include stream channelization, elimination of wetlands, construction of flood control dams and levees, construction of roads, water withdrawals, unscreened water diversions, agriculture, livestock grazing, urbanization, outdoor recreation, artificial fish propagation, fish harvest, and the introduction of non-native species (Henjum et al. 1994; Rhodes et al. 1994; Spence et al. 1996).

In many watersheds, land management and development activities 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, degrading spawning and rearing habitat; (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; Wissmar et al. 1994; Spence et al. 1996).

3.1 HISTORIC CONDITIONS

The action area was historically primarily grass-shrub upland with a narrow riparian strip along the river. The site changed considerably with the construction and subsequent raising of the water level caused by Lower Granite Lock and Dam.

Construction on the Lower Granite Lock and Dam began in the 1960s and was completed in 1975. Waters began filling the reservoir behind Lower Granite Lock and Dam in February 1975. The City's water intake channel was also constructed in the mid-1970s. Prior to excavating the

channel, the area was upland shoreline. The channel has been dredged periodically since it was constructed.

Prior to its removal in 1972, the Washington Water Power Dam on the Clearwater River likely created a partial passage barrier for anadromous salmonids. The dam was located a short distance upstream from where the water intake was constructed.

From 1928 to 1971 the Clearwater River was used to transport timber downstream to the City in large rafts. Log "drives" were typically conducted in May depended on the weather and spring runoff. This process undoubtedly affected the riverbed and scoured some suitable spawning and rearing habitat.

3.2 CURRENT CONDITIONS

The temporary intake facility is located at RM 5.14 which is at the extreme upper end of the Lower Granite Reservoir. The permanent water intake facility is located on a terrace approximately 0.6 RMs upriver for the currently operating temporary intake facility. The proposed water intake facility is located outside of the Lower Granite Reservoir. Upland vegetation is primarily gray rabbitbrush and riparian vegetation consists mostly of young willows along the rip-rap.

There are serval 60-inch diameter steel pipes located in the river between 130- to 230- feet upstream from the action area. Much like having a large boulder outcrop in the river, these steel flow deflectors are essentially causing the hydraulic streamlines in the river to accelerate over the top of the structures creating somewhat predictable "scour-holes." The new intake screen(s) would be located directly over the middle of one of these scour holes a to maintain the minimum coverage of 5-feet of water depth over the screens during low water events. This would reduce or eliminate the amount of maintenance dredging required to keep the water intake running. This would result in a minor positive benefit to the sediment in the river system.

3.3 MATRIX OF PATHWAYS AND INDICATORS

NMFS uses the Matrix of Pathways and Indicators (MPI) to summarize important environmental parameters and levels of condition for each. USFWS adopted a similar strategy in 1997 based on NMFS' matrix. The NMFS matrix is divided into six overall pathways (major rows in the matrix):

- Water Quality
- Channel Condition and Dynamics
- Habitat Access
- Flow/Hydrology
- Habitat Elements

- Watershed Conditions

Each represents a significant pathway by which actions can have potential effects on anadromous salmonids and their habitats and could be used for analyzing bull trout habitat as well.

There has not been a specific on-site evaluation of current habitat indicators using the MPI within the action area for this project. However, the proposed action will maintain most of the existing baseline conditions within the action area (Table 3-1). For the purposes of the MPI checklist, "maintain" means that the function of an indicator does not change (i.e., it applies to all indicators regardless of functional level). "Degrade" means there will be negative impacts to the function level of a pathway. Each indicator will be discussed in the following section.

Table 3-1. Matrix of Pathways and Indicators Checklist for Documenting Environmental Baseline and Effects of Proposed Action on Anadromous Salmonid Habitat Indicators.

PATHWAYS	ENVIRONMENTAL BASELINE			EFFECTS OF THE ACTION		
Indicators	**Properly Functioning**	**At Risk**	**Not Properly Functioning**	**Restore**	**Maintain**	**Degrade**
Water Quality						
Temperature	X				X	
Sediment	X				X	
Chem. Contam./Nut.	X				X	
Habitat Access						
Physical Barriers	X				X	
Habitat Elements						
Substrate	X				X	
Large Woody Debris			X		X	
Pool Frequency			X		X	
Pool Quality		X			X	
Off-Channel Habitat			X		X	
Refugia			X		X	
Channel Cond. & Dyn.						
Width/Depth Ratio			X		X	
Streambank Cond.			X			X
Floodplain Connectivity			X		X	
Flow/Hydrology						
Peak/Base Flow			X		X	
Drainage Network Increase			X		X	
Watershed Condition						
Road Dens. & Loc.		X			X	
Disturbance History			X		X	
Riparian Reserves		X				X

3.4 BASELINE CONDITION JUSTIFICATION

The lower Clearwater River in the action area has been highly altered from its pre-dam (Lower Granite) condition. As a result, many of the parameters below are "not properly functioning." The specific work area is an artificially created channel constructed in the mid-1970s.

3.4.1 Water Quality

Water Quality: Temperature – properly functioning and fully supporting of the beneficial use for cold water aquatic life. Cold water releases from Dworshak Dam provide a beneficial affect for salmon and steelhead in the Clearwater during summer. Water temperature during the summer in-water work window (15 July – 15 August) will be suitable for salmonids.

The proposed action would not affect water temperature.

Water Quality: Sediment – properly functioning in the action area. Except for during high flows, the Clearwater River generally has a low amount of suspended sediment. The sediment is not expected to contain significant quantities of contaminants based on water quality testing by the City. The intake is a primary source of the City's drinking water, so the City routinely tests for organic and inorganic contaminants in the water from the intake. No significant levels of contaminants have been detected in the drinking water tests.

The proposed action would have insignificant effects on suspended sediment.

Water Quality: Chemicals of Concern/Nutrients – properly functioning. Water quality in the Clearwater River in the vicinity of the intake is generally good. Data collected by USACE in 2008-2010 confirms that water quality in the lower Clearwater River portion of Lower Granite reservoir meets Idaho state water quality standards (USACE 2014). In the Idaho Water Quality Standards (Idaho Administrative Procedure Act [IDPA 58.01.02]), the Clearwater River in Lower Granite reservoir is described as protected for the designated beneficial uses of cold-water aquatic life, primary contact recreation, and domestic water supply.

The City's water supply rated in the low category for the inorganic chemicals, volatile organic chemicals, synthetic organic chemicals, and microbial contamination based on the clean source of water from the Clearwater River. Raw water quality is generally good with turbidity below 10 Nephelometric Turbidity Units. The water does not have any significant aesthetic issues associated with taste, odor, or color. The City's surface water intake has not encountered water quality problems and the most recent testing at the City's surface water intake indicates that the source is very clean

The proposed action would not increase Chemicals of Concern/Nutrients.

3.4.2 Habitat Access

Habitat Access: Physical Barriers – properly functioning. There are no physical fish passage barriers in the Clearwater River near the action area.

The proposed action would not add any physical barriers to the Clearwater River.

3.4.3 Habitat Elements

Habitat Elements: Substrate – properly functioning in the action area. The floodplains below the terrace contain hydric soils called the Riverwash-Aquents complex. The top 2-inches of the soil are very cobbly very fine sandy loam while the rest of the soil profile down to 60-inches is extremely cobbly sand (NRCS 2021). The river bottom is primarily cobbles with some large boulder/bedrock outcrops just upstream of the action area.

The proposed action would not change the substrate condition.

Habitat Elements: Large Woody Debris – not properly functioning. There is very little, large woody debris in the action area. There are serval 60-inch diameter steel pipes located in the river between 130- to 230- feet upstream from the action area. Much like having a large boulder outcrop in the river, these steel flow deflectors are essentially causing the hydraulic streamlines in the river to accelerate over the top of the structures creating somewhat predictable scour-holes.

The proposed action would not affect large woody debris in the river.

Habitat Elements: Pool Frequency – not properly functioning. Where the Clearwater River historically flowed in a complex of riffle, run, and pool habitats, the construction of Lower Granite Dam inundated the original channel and complex habitats creating a larger, deeper thalweg and overall river channel contained within levees.

The proposed action would not affect pool frequency.

Habitat Elements: Pool Quality – at risk. There are two pools approximately 15-feet deep in the project area. These pools are a result of the in-water steel pipe structures creating scour holes. There is also boulder/bedrock outcrop just upstream of the action area with a scour hole.

The proposed action will not affect pool quality.

Habitat Elements: Off-Channel Habitat – not properly functioning. The fish habitat value in the action area is currently poor.

The proposed action would not affect off-channel habitat.

Habitat Elements: Refugia – not properly functioning. There is minimal refugia in the work area. This parameter determination is based off the conditions of no large woody debris, silt covered substrate, and minimal overhead cover available in and around the pool.

The proposed action will not affect refugia.

3.4.4 Channel Condition and Dynamics

Channel Condition and Dynamics: Width/Depth Ratio – not properly functioning. The construction of Lower Granite Dam created a deep river channel and the construction of the levees with rip-rap has confined the width of the channel.

The proposed action would not affect Width/Depth Ratio.

Channel Condition and Dynamics: Streambank Condition – not properly functioning. The shoreline around the inlet channel is covered with rip-rap, though there are some small willows along the shoreline.

Removal of the vegetation would degrade this indicator in the immediate project area.

Channel Condition and Dynamics: Floodplain Connectivity – not properly functioning. Prior to construction of Lower Granite Dam and the associated levees, the river had a slightly wider floodplain confined by the naturally steep topography surrounding the project area. With the presence of the levees and the controlled reservoir elevation, the floodplain is reduced in width.

The proposed action would not affect floodplain connectivity.

3.4.5 Flow/Hydrology

Flow/Hydrology: Peak/Base Flows – not properly functioning. The Clearwater River's peak flow has declined since construction of Dworshak Dam. Likewise, base flow has been increased as stored water is released during warm and dry months of the year.

The proposed action would not affect flow/hydrology.

Flow/Hydrology: Drainage Network Increase – not properly functioning. Urban development increases the amount of impervious surface which causes water to run off the land quicker than normal. Plowed agricultural fields do not retain as much water after storms than naturally vegetated land. Snow on clear-cut forests may melt sooner causing higher peak flows and lower base flows.

The proposed project would not affect the drainage network.

3.4.6 Watershed Conditions

Watershed Conditions: Road Density and Location – at risk. The presence of roads in the watershed can cause large amounts of fine sediment and non-point source pollutants to enter the streams and rivers of the watershed.

The proposed project would not affect the road density.

Watershed Conditions: Disturbance History – not properly functioning. Many factors have caused disturbance to the Clearwater River watershed. Agriculture, forestry, road building, and stream channel straightening/altering have had great impacts on the watershed.

The proposed action would not affect the disturbance history of the watershed.

Watershed Conditions: Riparian Reserves – at risk. In the past riparian vegetation was removed along some sections of the Clearwater River and its tributaries.

The proposed action would degrade the watershed riparian reserves in the immediate project area.

SECTION 4 - EFFECTS OF THE ACTION

This section includes an analysis of general project-related effects of the proposed action, as well as specific effects on the species and PBF of critical habitat. Effects from other interrelated and interdependent activities are also discussed.

4.1 EFFECTS TO LISTED SPECIES

The proposed action includes removal of the existing infiltration wet well, building, and 1996 intake screens in the Clearwater River. The proposed intake upgrades include installation of a secant pile wet well, new pumps, two intake screens, a CMU building, and a new raw water discharge pipe that connects into the existing raw water pipeline. Construction needed to carry out the removal and upgrades that will produce noise and turbidity, and the presence of divers needed to connect the Tee screen to the newly installed intake pipe may result in effects to ESA-listed Snake River Basin salmon, steelhead, and bull trout.

Potential effects are described in detail in the following sections. Because the proposed action would affect all fishes similarly, the effects are analyzed for all species collectively.

4.1.1 Effects

Effects from specific project activities include:

- Turbidity
- Noise
- Disturbance from diver presence

Impact minimization measures listed in Section 4.3 would eliminate or minimize these potential effects.

Turbidity

Potential effects of the proposed action would be associated with installation of the new intake pipe from the pump station wet wall to the Clearwater River using a MTBM, which may cause a minor turbidity plume that would be localized and is expected to dissipate quickly as suspended sediment moves downstream. Minor is defined as, causing small, but detectable or measurable change that is not notably destructive.

State water quality standards set by the IDEQ cite an instantaneous reading of 50 NTU above background as the trigger for environmental effects. There is no standard downstream extent for compliance monitoring cited in the IDEQ regulations. However, careful in-water fill placement for other USACE projects did not violate the Washington Department of Ecology water quality standard of 5 NTU above background at a compliance point 300 feet downstream. Therefore, turbidity is expected to be insignificant.

As described in Section 2.2, Snake River Basin fall Chinook salmon migration occurs from late August through November with spawning, occurring October through November, and juveniles typically emerging in March and April. Snake River steelhead DPS distribution in the Snake River basin, is noted to overlap the action area. Similarly, bull trout distribution in the CRB overlaps the action area, with resident bull trout carrying out their life cycle in the stream and migratory bull trout spawning in the stream from August to November before traveling out to larger streams/lakes.

Based on records of Snake River fall Chinook, Snake River steelhead, and bull trout presence and typical movement patterns for feeding, breeding, or sheltering in and around the action area, the pertinent data would support a reasonable expectation that species may be present during the summer in-water work window, but their numbers are expected to be lowest at that time.

Noise

Noise generated from the operation of the equipment can affect fish in several ways including behavioral modifications, physical injuries, and mortality. These effects are dependent on the intensity of the sound, the distance to the fish, and the physical characteristics and mass of the individual fish (Hastings and Popper 2005).

Noise is a pressure wave that decreases in intensity over distance from the source. Noise attenuation is generally described as a reduction in decibel level per doubling of distance from the source. Depending on the nature of the noise source, noise propagates at different rates. When reporting the noise level from a source, one should always specify the reference distance from the source for the sound measurement or estimated source. A standard reference distance for source noise levels is 50 feet.

The main sensory organ in fish is the lateral-line system that detects low-frequency (less than 100 Hertz (HZ) or 20 dB) particle motion in water. The lateral-line organ is likely involved in acoustic repulsion when the source is within a few body lengths of the fish. The inner ear located within the skull of the fish is sensitive to vibration rather than noise pressure. In fish species that are hearing specialists, the gas-filled swim bladder acts as a transducer that converts noise pressure waves to vibrations, allowing the fish to detect noise and vibration (Popper and Fay 1973).

Risk of injury or mortality for fish associated with noise, in general, is related to the effects of rapid pressure changes, especially on gas filled spaces in the body. Fish species with no swim bladder, or a small one, tend to have a relatively low auditory sensitivity. Fish having a fully functional swim bladder tend to be more sensitive. Fish with a close coupling between the swim bladder and the inner ear are most sensitive.

Physostomus fishes, such as salmonids, regulate the air in their swim bladders through a direct connection to the esophagus. Salmonids acclimate their swim bladders by gulping air at the

surface, and as they swim deeper the swim bladder becomes compressed. When exposed to a sudden positive pressure, or overpressure, the swim bladder compresses further. When exposed to a sudden negative (low) pressure, the swim bladder may expand beyond its original volume at depth and can lead to mortality depending upon how low and quick the pressure drops (Trumbo et al. 2014).

Fiest et al. (1992) suggests that juvenile fish may not detect in-water construction noises at the same distance as adults, because they have less developed hearing abilities, meaning they would need to be much closer to the noise source for injury or mortality to occur. Mueller et al. (1998) and Knudsen et al. (1992 and 1997) found that juvenile salmonids (40 to 60 millimeters length) exhibit a startle response followed by a habituation to low frequency (infrasound) in the 7 to 14 Hz range (8 to 11 dB). Mueller et al. (1998) and Knudsen et al. (1992, 1997) also indicate that noise intensity level must be 70 to 80 dB above the hearing threshold at 150 Hz (21 dB) to obtain a behavior response.

A critical threshold for injury to fish in terms of both instantaneous peak and cumulative sound exposure level (SEL) were determined by recommendations from the Federal Highway Administration, Washington State Department of Transportation, Oregon Department of Transportation, California Department of Transportation, USFWS Regions 1 and 8, and the NMFS Northwest and Southwest Regions. SEL is calculated by summing the cumulative pressure squared, integrating over time, and normalizing to 1 second. The threshold values are 206 dB PEAK, 183 dB SEL for fish less than 2 grams, and 187 dB SEL for fish 2 grams in mass or greater (WSDOT 2015).

Noise behaves in much the same way in air as it does in water. Noise levels measured in air are typically used to assess impacts on humans and thus decibels are weighted (dBA) to correspond to the same frequency range that humans hear; however, noise levels underwater are not weighted and thus measure the entire frequency range of interest, which may extend below and above the audible range of many organisms. In everyday uses, dB and dbA are used interchangeably because the difference between the units of sound measurement is negligible (Kerby 1974).

According to data from the Federal Highway Administration, an excavator generates an actual measured Lmax at 50 feet of 81 dBA, dump trucks generate 76 dBA, a horizontal boring hydraulic jack produces 82 dBA, and a rock drill generates 81 dBA. These noise levels are at the higher end of the threshold of the ambient noise levels, 59 dBA to 80 dBA in busy urban areas. The most likely impact would be that fish would move away from the noise source, adult fish could notice the noise from further away while juvenile fish would likely need to be closer to the noise source to be impacted. This may cause more adult fish to be disturbed than juvenile fish.

NMFS has used 150 dB as an injury threshold for pile driving. All equipment considered, when utilized, would not exceed the 150 dB harm threshold for salmon, and the noise is expected to be insignificant.

Disturbance from diver presence

Divers will be needed as part of the construction sequence (connect the intake screens to the pipe flange) and maintenance of the screens every 5 years. Understanding how fish avoid predators is key to evaluating how fish will respond to the human presence in the Clearwater River, required by the action.

Flight initiation distance (FID), the distance at which prey begin to escape, is a routinely utilized, straightforward measure of understanding how animals respond to predators. In fish, body size strongly correlates with FID, with larger individuals fleeing at greater distances than smaller ones. Plausible explanations include increased reproductive fitness in larger fish, as well as differences in behavior between juveniles and adults, due to an assumed learning mechanism from experience with various threats. Studies show that as fishes' reproductive value increases with age, their level of risk-taking decreases, suggesting juvenile fish will be less affected by the action than larger, older fish (Samia et al. 2019).

Shoaling behavior also serves as a significant predictor of the body size-FID relationship, with group-living species showing a stronger effect. However, the absence of a direct effect of group size on FID from the meta-analysis suggests an optimal balance between individual and group dynamics (Samia et al. 2019).

Based on pertinent data of fish behavioral reaction to underwater human presence and the reasonable assumption that species, particularly juveniles, may be present during the summer in-water work window, the impact of divers is reasonably expected to be insignificant.

4.2 EFFECTS ON CRITICAL HABITAT

Given the expected extremely limited sediment disturbance, effects to critical habitat are expected to be insignificant. Minor, temporary, insignificant effects from turbidity as described above would be expected. Effects determinations for each PBF for Snake River salmon and steelhead is provided in Table 4-1, and PBFs for bull trout is provided in Table 4-2.

Table 4-1. Effects of the Proposed Action to PBFs of Critical Habitat for Snake River Salmon, and Steelhead and Their Corresponding Species Life History Events

Physical and Biological Features		
PBF	**Attribute**	**Effect Determination**
Freshwater spawning	Substrate Water quality Water quantity	NLAA – Spawning is not known to occur in the Action Area and substrate would be disturbed is a small area.
Freshwater rearing	Floodplain connectivity Forage Natural cover Water quality Water quantity	NLAA – Turbidity generated would be short term and minor effects on water quality
Freshwater migration	Free of artificial obstructions Natural cover Water quality Water quantity	NLAA – Migration habitat would not be disrupted, and the new intake structure can be easily avoided
Estuarine areas	Forage Free of obstruction Natural cover Salinity Water quality Water quantity	No Effect – Spatially separated from the proposed action.
Nearshore marine areas	Forage Free of obstruction Natural cover Water quantity Water quality	No Effect – Spatially separated from the proposed action.
Offshore marine areas	Forage Water quality	No Effect – Spatially separated from the proposed action.

Table 4-2. Effects Determinations for the Proposed Action to the PBFs for Bull Trout.

Physical and Biological Features		
PBFs	**Attributes**	**Effect Determination**
Water Quality	Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.	NLAA – Turbidity generated would be short term and minor effects on water quality
Migration Habitat	Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats including, but not limited to permanent, partial, intermittent, or seasonal barriers.	NLAA – Migration habitat would not be disrupted, and the new intake structure can be easily avoided
Food Availability	An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.	No effect
Instream Habitat	Complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.	No Effect
Water Temperature	Water temperatures ranging from 2°C to 15°C (36°F to 59°F), with adequate thermal refugia available for temperatures that exceed the upper end of this range. Specific temperatures within this range depend on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shading (provided by riparian habitat); streamflow; and local groundwater influence.	No Effect
Substrate Characteristics	In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile	No Effect

	survival. A minimal amount of fine sediment, generally ranging in size from silt to coarse sand, embedded in larger substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable to bull trout will likely vary from system to system.	
Stream Flow	A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.	No Effect
Water Quantity	Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.	No Effect
Nonnative Species	Sufficiently low levels of occurrence of non-native predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from bull trout.	No effect

4.3 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. 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. Cumulative effects, when combined with baseline effects and effects of the action, could increase the likelihood that the proposed action might result in jeopardy to a listed species, or in destruction or adverse modification of designated critical habitat.

In a large river, habitat conditions are influenced by countless activities that have the potential to affect stream flows or water quality in the action area, but occur upstream, outside the action area. Effects of future urban growth, forestry activities, agricultural practices, and water withdrawals are among the most significant activities that are likely to affect fish and critical habitat in the action area. These activities will continue to affect listed fish and critical habitat in the action area.

Salmon recovery organizations in the Snake and Clearwater river basins have assisted with numerous projects to improve habitat for listed species. Ongoing habitat enhancement projects conducted by the Nez Perce Tribe, the Idaho Department of Fish and Game, the U.S. Forest Service, non-profit organizations, and others to implement watershed plans and recovery plans are expected to continue.

Sediment-producing actions such as on-going agriculture and forestry activities are likely to continue. Actions to reduce erosion from roads and agricultural lands are likely to occur at the same time actions that increase erosion are undertaken. No distinct trend in future sediment-producing activities can be predicted.

Considering the available information, cumulative effects within the Clearwater River Basin are reasonably certain to continue into the future. Unless planning includes measures to avoid, minimize, and effectively mitigate the potential effects to listed species, the effect of continued impacts will likely be negative.

4.4 IMPACT MINIMIZATION MEASURES

USACE is planning several actions to avoid or minimize impacts on ESA species and the environment. These impact minimization measures follow.

1. In-water construction would be completed during the summer in-water work window of 15 July through 15 August to minimize exposing fishes to turbidity and noise.
2. Maintenance every 5 years will also take place during the summer in-water work window.
3. Turbidity monitoring will be done to ensure IDEQ water quality standards are not exceeded during construction.
4. NMFS approved, actively cleaned cylindrical intake fish screens would be used on the water intake pipe to ensure only water is drawn into the drinking facility.
5. To minimize the potential for introducing hazardous material to the aquatic system, a spill prevention and control countermeasures plan will be prepared by the construction contractor.

4.5 EFFECTS DETERMINATIONS AND SUMMARY

Based on the potential for temporary, minor effects of turbidity due to sedimentation from the site, the proposed action "may affect, and is likely to adversely affect" ESA-listed Snake River salmon and steelhead. Due to temporal separation driven by their life history and unlikely exposure to the effects, the proposed action "may affect, and but is not likely to adversely affect" ESA-listed bull trout. Due to spatial separation of the species from the effects, the proposed action would have "no effect" on Spalding's catchfly. Similarly, due to spatial separation, the proposed action "may affect, but is not likely to adversely affect" designated critical habitat for any of these species (Table 4-3).

Table 4-3. Effect Determination for Threatened and Endangered Species That May Occur in the Project Area

Species	Species Determination	Critical Habitat Determination
NMFS		
Chinook Salmon (*O. tshawytscha*)		
Snake River ESU Fall Chinook	LAA	NLAA
Steelhead (*O. mykiss*)		
Snake River Basin DPS	LAA	NLAA
USFWS		
Bull Trout (*Salvelinus confluentus*)		

Conterminous U.S.	NLAA	NLAA
Spalding's Catchfly (*Silene spaldingii*)		
Western U.S. DPS	No Effect	N/A

SECTION 5 - MAGNUSON-STEVENS ACT – ESSENTIAL FISH HABITAT

The consultation requirement of section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) directs Federal agencies to consult with NMFS on all actions, or proposed actions that may adversely affect Essential Fish Habitat (EFH). Adverse effects include the direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside EFH, and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

The Pacific Fishery Management Council (PFMC) is one of eight regional fishery management councils established by this Act. The PFMC has designated EFH for ground fish; coastal pelagic species; and Chinook salmon, Coho salmon, and Puget Sound pink salmon. Steelhead are not protected by this Act.

The action area includes areas designated as EFH under the MSA for various life-history stages of Chinook and/or coho salmon (PFMC 1999).

1. 17060103 – Lower Snake – Asotin Creek is identified as currently accessible, but unutilized historic EFH for Chinook and coho.

2. 17060107 – Lower Snake – Tucannon River is identified as current EFH for Chinook and currently accessible, but unutilized historic EFH for coho.

3. 17060110 – Lower Snake River is identified as current EFH for Chinook and currently accessible, but unutilized historic EFH for coho.

4. 17060306 – Clearwater River is identified as current EFH for Chinook and currently accessible, but unutilized historic EFH for coho.

The ESA critical habitat effects analysis in Section 4.2 is sufficient to support a determination of no adverse effects to EFH from the proposed action.

SECTION 6 - REFERENCES

Arnsberg, B.D., and D.P. Statler. 1995. Assessing summer and fall Chinook salmon restoration in the upper Clearwater River and principal tributaries. Nez Perce Tribe Department of Fisheries Resources Management, 1994 Annual Report to the U.S. Department of Energy, Bonneville Power Administration. Report DOE/BP/12873-1.

Arnsberg, B., A. Garcia, P. Groven, D. Milks, and R. Meuller. 2009. 2008 Snake River fall Chinook salmon redd summary. Bonneville Power Administration.

Arnsberg, B., P. Groves, F. Mullins, and D. Milks. 2016. 2015 Snake River Fall Chinook Salmon Spawning Summary. Nez Perce Tribe, Idaho Power Company, U.S. Fish and Wildlife Service, and Washington Department of Fish and Wildlife.

Barrows, M.G., P.M. Sankovich, D.R. Anglin, J.M. Hudson, R.C. Koch, J.J. Skalicky, D.A. Willis, and B.P. Silver. 2015. Use of the mainstem Columbia and Snake Rivers by migratory bull trout. Draft Report, US Fish and Wildlife Service, Vancouver, WA.

Bell, M.O. 1990. Fisheries Handbook of engineering requirements and biological criteria. USACE, Portland, OR.

Bennett, D.H., M.H. Karr, and M.A. Madsen. 1997. Thermal and velocity characteristics in the lower Snake River reservoirs, Washington, as a result of releases of regulated upstream water. Completion Report to U.S. Army Corps of Engineers, Walla Walla, WA.

Bjornn, T.C., M.L. Keefer, C.A. Peery, K.R. Tolotti, and R.R. Ringe. 2000. Adult spring and summer Chinook salmon passage through fishways and transition pools at Bonneville, McNary, Ice Harbor, and Lower Granite dams in 1996. Technical Report 2000-3 of the Idaho Cooperative Fish and Wildlife Research Unit to the US Army Corps of Engineers and Bonneville Power Administration, Portland, OR.

Blenden, M.L., R.S. Osborne, and P.A. Kucera. 1996. Spring outmigration of wild and hatchery Chinook salmon and steelhead trout smolts from the Imnaha River, Oregon, February 6 - June 20, 1995. Annual project report to the Bonneville Power Administration. Nez Perce Tribe Department of Fisheries Resources Management, Lapwai, Idaho. 74p.

BLM (U.S. Bureau of Land Management). 2000. Biological assessment of ongoing and proposed Bureau of Land Management activities on fall chinook, steelhead trout, bull trout and BLM sensitive species for the Clearwater River, North Fork Clearwater River and Middle Fork Clearwater River subbasins. Cottonwood, ID.

Brown, R.S., W.A. Hubert, and S.F. Daly. 2011. A primer on winter, ice, and fish: What Fisheries Biologists Should Know About Winter Ice Processes and Stream Dwelling Fish. Fisheries 36 (1): 8-26.

Chapman, D.A., A. Giorgi, M. Hill, A. Maule, S. McCutcheon, D. Park, W. Platts, K. Pratt, J. Seeb, L. Seeb, and F. Utter. 1991. Status of Snake River Chinook salmon. Final Report submitted to ESA Administrative Record for Snake River Chinook salmon. Pacific Northwest Utilities Conference Committee. Portland, Oregon. 531p.

Clearwater Subbasin Summary. 2001. Draft Clearwater subbasin summary. Prepared for the Northwest Power Planning Council by interagency team, led by D. Statler, Nez Perce Tribe. May 25, 2001.

Connor, W.P., H.L Burge, R. Waite, and T.C Bjornn. 2002. Juvenile life history of wild fall Chinook salmon in the Snake and Clearwater Rivers. North American Journal of Fisheries Management 19:520-529.

Connor, W.P., C.E. Piston, and A.P. Garcia. 2003a. Temperature during incubation as one factor affecting the distribution of Snake River fall Chinook salmon spawning areas. Transactions of the American Fisheries Society 132:1236-1243.

Connor, W.P., R.K. Steinhorst, and H.L. Burge. 2003b. Migrational behavior and seaward movement of wild subyearling fall Chinook salmon in the Snake River. North American Journal of Fisheries Management 23:414-430.

Connor, W.P., J.G. Sneva, K.F. Tiffan, R.K. Steinhorst, and D. Ross. 2005. Two alternative juvenile life history types for fall Chinook salmon in the Snake River Basin. American Fisheries Society 134: 291-304.

USACE (U.S. Army Corps of Engineers). 2014. Lower Snake River Programmatic Sediment Management Plan, Final Environmental Impact Statement Appendix I - Water Quality and Sediment Quality Reports. U.S. Army Corps of Engineers Walla Walla District. Walla Walla, WA.

DART (Columbia River DART). (2022). Adult Passage Graphics & Text. Available at: http://www.cbr.washington.edu/dart/query/adult_graph_tex. 4 April 2022. Columbia Basin Research, University of Washington, Seattle WA.

Feist, B.E., J.J. Anderson, and R. Miyamoto. 1992. Potential impacts of pile driving on juvenile pink (Oncorhynchus gorbuscha) and chum (O. Keta) salmon behavior and distribution. Puget Sound Final Report.

Good, T.P., R.S. Waples, and P. Adams (eds.). 2005. Updated status of Federally listed ESUs of West Coast salmon and steelhead. National Marine Fisheries Service Technical Memorandum, NMFS-NWFSC-66.

Gottfried, P.K., D.P. Gillette, and N.R.E. Nichols. 2011. Synthesis reports on use of shallow water dredge spoil on habitat availability and use by salmonids and other aquatic organisms in Lower Granite Reservoir, WA. 1983-2010. Report of Natural Systems Analysts to the US Army Corps of Engineers, Walla Walla, WA, under Contract W912EF-11-P-5008.

Hastings, M.C., and A.N. Popper. 2005. Effects of Sound on Fish. California Department of Transportation.

Healey, M.C. 1986. Optimum size and age at maturity in Pacific salmon and effects of size-selective fisheries. Can. Spec. Publ. Fish. Aquat. Sci. 89:39-52.

Healey MC. 1991. Life history of Chinook salmon (Oncorhynchus tshawytscha). In: Groot C, Margolis L (eds) Pacific salmon life histories. University of British Columbia Press, Vancouver, pp 313–393.

Henjum, M.G., J. R. Karl D.L. Bottom, D.A. Perry, J.C. Bednarz, S.G. Wright, S.A. Beckwitt, and E. Beckwitt. 1994. Interim protection for late-successional forests, fisheries, and watersheds, national forests east of the Cascade Crest, Oregon and Washington. Eastside Forests Scientific Society Panel. The Wildlife Society Technical Review 94-2, Bethesda, MD.

High, B., K. Meyer, D. Schill, and E. Mamer. 2008. Distribution, Abundance, and Population Trends of Bull Trout in Idaho. North American Journal of Fisheries Management 28:1687-1701.

Kerby, E.G., 1974. Effectiveness of trees and vegetation in reducing highway noise: a literature review.

Knudsen F.R., P.S. Enger, and O. Sand. 1992. Awareness reactions and avoidance responses to sound in juvenile Atlantic salmon, Salmo salar L. Journal of Fish Biology 40:523-534.

Knudsen F.R., C. Schreck, S. Knapp, P.S. Enger, and O. Sand. 1997. Infrasound produces flight and avoidance responses in Pacific juvenile salmonids. Fish Biology 51:824-829.

McMillen Jacobs Associates. 2024. City of Lewiston Site C Intake Reconstruction Project Design Documentation Report. 60% Rev. No. 2. Job Number 20-058. 196pp.

Mountain Waterworks. 2018. Water facility plan and preliminary engineering report. Technical Draft. City of Lewiston.

Mueller, R.P., D.A. Neitzel, W.V. Mavros, and T.J. Carlson. 1998. Evaluation of low and high frequency sound for enhancing fish screening facilities to protect outmigrating salmonids. U.S. Dept. of Energy, Portland, Oregon. Project number 86-118.

Mueller, R.P., and Coleman. 2007. Survey of Fall Chinook Salmon Spawning Areas Downstream of Lower Snake River Hydroelectric Projects, 2006. Report to the U.S. Army Corps of Engineers, Walla Walla District, Walla Walla, WA.

Mueller, R.P., and Coleman. 2008. Survey of Fall Chinook Salmon Spawning Downstream of Lower Snake River Hydroelectric Projects, 2007. Report to the U.S. Army Corps of Engineers, Walla Walla District, Walla Walla, WA, by Battelle Pacific Northwest Division, PNWD-3922.

Mueller, R.P. 2009. Survey of fall Chinook salmon spawning areas downstream of lower Snake River hydroelectric projects, 2008. U.S. Army Corps of Engineers. Walla Walla, WA.

NMFS (National Marine Fisheries Service). 2005. Endangered and Threatened Species: Final Listing Determinations for 16 ESUs of West Coast salmon, and Final 4(d) Protective Regulations for Threatened Salmonid ESUs. Final Rule. Federal Register 70 (123): 37160-37204.

NMFS. 2009. Middle Columbia River steelhead distinct population segment ESA recovery plan. Northwest Regional Office, Seattle, Washington.

NMFS. 2011. Anadromous salmonid passage facility design. NMFS, Northwest Region, Portland, Oregon.

NMFS. 2016b. 2016 5-Year Review: Summary & Evaluation of Middle Columbia River Steelhead. National Marine Fisheries Service, West Coast Region, Portland, Oregon. 63p.

NMFS. 2020. Endangered Species Act Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Continued Operation and Maintenance of the Columbia River System. National Marine Fisheries Service, West Coast Region, Portland, Oregon.

NRCS (Natural Resources Conservation Service). 2021. Web soils Survey. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. August 2, 2021.

Popper, A.N. and R.R. Fay. 1973. Sound detection and processing by teleost fishes: a critical review. The Journal of the Acoustical Society of America 53: 1515-1529.

Prentice, E.F., T.A Flagg, and C.S. McCutcheon. 1990. PIT-tag monitoring systems for hydroelectric dams and fish hatcheries. American Fisheries Society Symposium 7:232-334.

Quinn, T.P. 2005. The Behavior and Ecology of Pacific Salmon and Trout. American Fisheries Society. Bethesda, Maryland. 378p.

Rhodes, J.J., D.A. McCullough, and F.A. Espinosa Jr. 1994. A coarse screening process for potential application in ESA consultations. Columbia River Inter-Tribal Fish Commission, Technical Report 94-4, Portland, OR. 126 pp.

Ricker, W.E. 1972. Hereditary and environmental factors affecting certain salmonid populations. In R. C. Simon and P. A. Larkin (eds.), The Stock Concept in Pacific Salmon. MacMillan Lectures in Fisheries, p. 27-160. Univ. B.C., Vancouver, B.C.

Samia DSM, Bessa E, Blumstein DT, et al. 2019. A meta-analysis of fish behavioural reaction to underwater human presence. Fish Fish 20: 817–829.

Spence, B.C., G.A. Lomnicky, R.M. Hughes, and R.P. Novitzki. 1996. An Ecosystem Approach to Salmonid Conservation. TR-4501-96-6057. ManTech Environmental Research Services

Corporation, Corvallis, OR. Available at: http://www.westcoast.fisheries.noaa.gov/publications/reference_documents/the_mantech_report.html.

Taylor, E.B. 1991. A review of local adaptation in Salmonidae, with particular reference to Pacific and Atlantic Salmon. Aquaculture 98:185-207.

Tiffan, K.F. and Connor, W.P. 2012. Seasonal use of shallow water habitat in the lower Snake River reservoirs by juvenile fall Chinook salmon; 2010-2011 Final Report of Research. U.S. Geological Survey, Cook, WA and U.S. Fish and Wildlife Service, Ahsahka, ID.

Tiffan, K.F., and Hatten, J.R. 2012. Estimates of subyearling fall Chinook salmon rearing habitat in Lower Granite reservoir. Draft Report of Research. U.S. Geological Survey, Cook, WA.

Trumbo, B.A., M.L. Ahmann, J.F. Renholds, R.S. Brown, A.H. Colotelo, and Z.D. Deng. 2014. Improving hydroturbine pressures to enhance salmon passage survival and recovery. Reviews in Fish Biology and Fisheries 24:955-965 DOI: 10.1007/s11160-013-9340-8.

USFWS (U.S. Fish and Wildlife Service). 2002. Chapter 16, Clearwater River Recovery Unit, Idaho. 196 p. In: U.S. Fish and Wildlife Service. Bull Trout (Salvelinus confluentus) Draft Recovery Plan. Portland, OR.

Waples, R.S., J. Robert, P. Jones, B.R. Beckman, and G.A. Swan. 1991. Status review for Snake River fall chinook salmon. NOAA Tech. Memo. NMFS F/NWC-201, 73 p. (Natl. Mar. Fish. Serv., Northwest Fisheries Science Center, Coastal Zone and Estuarine Studies Division, 2725 Montlake Blvd. E., Seattle, WA 98112-2097).

WSDOT (Washington Department of Transportation). 2015. Biological Assessment Preparation for Transportation Projects - Advanced Training Manual.

Wissmar, R.C., J.E. Smith, B.A. McIntosh, H.W. Li, G.H. Reeves, and J.R. Sedell. 1994. A history of resource use and disturbance in riverine basins of eastern Washington and Oregon. Northwest Science 69:1-35.

Wydoski, R.S., and R.R. Whitney. 2003. Inland Fishes of Washington. 2nd ed. American Fisheries Society and University of Washington Press, Seattle, Washington. 322p.

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, WALLA WALLA DISTRICT
201 NORTH 3RD AVENUE
WALLA WALLA, WA 99362-1876

August 19, 2024

Ms. Johnna Sandow
Branch Chief – Interior Columbia River Basin Office
Northern Snake Branch
800 E. Park Blvd, Plaza IV, Suite 220
Boise, Idaho 83712

Dear Ms. Sandow:

Pursuant to Section 7 of the Endangered Species Act (ESA), the U.S. Army Corps of Engineers, Walla Walla District (USACE), requests your review of the enclosed biological assessment (BA) and the initiation of formal consultation on the proposed action. The proposed action details construction of a completely new pump house with a water intake system in the Clearwater River in Lewiston, Idaho. Upgrades to the permanent intake facility would include removal of the existing infiltration wet well, building, and intake screens and installation of the new pumping station and intake. Construction may cause a temporary minor turbidity plume due to sedimentation from the site.

USACE determined the proposed project "may affect and is likely to adversely affect" ESA-listed fall Chinook salmon and steelhead trout due to potential exposure to minor levels of turbidity over the short term. USACE further determined the proposed action "may affect" designated critical habitat for these species and would have no adverse effect on Essential Fish Habitat.

USACE requests to initiate formal consultation on the proposed action. This BA also includes information on species under the jurisdiction of the U.S. Fish and Wildlife Service. If you have any questions or would like additional information about the proposed action, please contact Ms. Sabrina Roberts at 509-527-7296, or by email at Sabrina.R.Roberts@usace.army.mil.

Sincerely,

Michael S. Erickson
Chief, Environmental Compliance Section

Enclosure

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Idaho Fish and Wildlife Office
1387 S. Vinnell Way, Suite 378
Boise, Idaho 83709
https://www.fws.gov/office/idaho-fish-and-wildlife

In Reply Refer To:
FWS/R1/ES/IFWO/2025-0029970

Michael S. Erickson, Chief
Environmental Compliance Section
U.S. Army Corps of Engineers
Walla Walla District
201 North 3rd Avenue
Walla Walla, Washington, 99362

Subject: City of Lewiston Drinking Water Intake Structure – Nez Perce County, Idaho – Concurrence

Dear Michael S. Erickson:

This letter responds to the U.S. Army Corps of Engineers' (USACE) request for the U.S. Fish and Wildlife Service's (Service) concurrence on effects of the subject action to species and habitats listed under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.; [Act]). The USACE' request dated November 22, 2024, and received by the Service on the same day, included a biological assessment entitled *City of Lewiston Drinking Water Intake Structure* (Assessment) dated November 22, 2024. Information contained in the Assessment is incorporated here by reference.

Through the Assessment, the USACE determined that the proposed action may affect but is not likely to adversely affect bull trout (*Salvelinus confluentus*) and bull trout designated critical habitat. The Service concurs with the USACE determination for bull trout and bull trout critical habitat and presents our rationale below.

The USACE also determined that the proposed action will have no effect on the Spalding's catchfly (*Silene spaldingii*). The regulations implementing section 7 of the Act do not authorize the Service to review or concur with no effect determinations. However, the Service does appreciate being informed of your determination for this species.

Proposed Action

The proposed action will remove and upgrade the existing permanent drinking water intake structure for the City of Lewiston in the Clearwater River. The new water intake pipe and upgraded facility will be located at the existing permanent water intake site, on the north bank of the Clearwater River, approximately six miles upstream from the confluence with the Snake River. The action area encompasses approximately 250 acres including the project site for the proposed water intake structure, intake pipe, and downstream to the city wastewater treatment

plant (Assessment, p. 7). The work will occur in two phases. Phase one will consist of in-water work, including the removal of existing intake screens, installation of the new intake pipe using a micro-tunnel boring machine (MTBM), and dive-assisted installation of the new intake screen system. The new intake will be designed for protection of salmonid fry by having a screen system with an open slot width of 0.069 inches and approach velocity of 0.4 feet per second. Drilled and grouted H-piles will be installed to support the screen system and intake pipe where it enters the Clearwater River. Tunnel construction and installation of the intake is anticipated to take approximately 15 days during the summer in-water work window from July 15 to August 31, 2025. Subsequent maintenance of fish screens will occur during the work window as well, approximately every 5 years. Phase two will consist of aboveground work, including construction of the new secant pile shaft wet well, pump house with three turbine pumps, and a raw water discharge pipeline that will connect to the existing concrete cylinder pipe. A total of 0.17 acres (7,516 square feet [sq ft]) of vegetation will be cleared or grubbed within the action area during construction. Only 0.02 acres (760 sq ft) of this vegetation disturbance will be riparian. Erosion control measures will be implemented during construction and native plants revegetated post-action (Assessment, p. 36). The proposed action is fully described in the Assessment (pp. 1-9).

Proposed minimization measures are intended to minimize effects to bull trout and bull trout critical habitat. The following measures include but are not limited to:

1. In-water construction will be completed during the summer in-water work window of July 15 through August 15 to minimize exposing bull trout to turbidity and noise.

2. Maintenance every 5 years will also take place during the summer in-water work window.

3. Turbidity monitoring will be done to ensure IDEQ water quality standards are not exceeded during construction.

4. National Marine Fisheries Service (NMFS) approved, actively cleaned cylindrical intake fish screens will be used on the water intake pipe to ensure only water is drawn into the drinking facility.

5. To minimize the potential for introducing hazardous material to the aquatic system, a spill prevention and control countermeasures plan will be prepared.

Bull trout

Species and Habitat Presence in the Action Area

The proposed action is in the lower Clearwater River core area, which is part of the Mid-Columbia Recovery Unit. Sub-adult and adult bull trout may use the Clearwater River near the action area seasonally for foraging, migration, and overwintering. The Lower Granite Dam, over 40 miles downstream from the action area, is monitored annually for salmonid passage. Since 2020, the average number of bull trout observed passing the adult ladder at Lower Granite Dam is four per year. Furthermore, only four bull trout were documented by the Smolt Monitoring

Program at the Lower Granite Project between 1998 and 2015. This indicates a very low number of bull trout moving downstream from any Snake River tributaries (e.g., Clearwater River; Assessment, p. 22). These records indicate that while bull trout presence is rare, it is reasonable to expect that bull trout may be present in the action area.

Potential Impacts and Effects from the Proposed Action

A full analysis of effects to bull trout from the proposed action is in the Assessment (pp. 38-42). The proposed action has the potential to affect bull trout through noise, turbidity, disturbance from divers, and contamination resulting from construction.

Turbidity

Increased turbidity may result from the proposed action during installation of the new intake pipe where the MTBM breaks through into the Clearwater river, wet retrieval of the MTBM, installation of drilled piles, and from construction associated runoff. Mobilizing sediment and increasing turbidity may cause gill trauma, temporary bull trout displacement, or decreased growth and survival of juvenile fish. To reduce risk, minimization measures will be implemented during all in-water work. These include completing work within the summer in-water work window, use of a turbidity curtain around the construction area, and monitoring turbidity levels to ensure they do not exceed 50 Nephelometric Turbidity Units, aligning with state standards. The MTBM will increase turbidity due to a localized sediment plume at the breakout point. To further reduce the risk of turbidity from a sediment plume, slurry circulation will be limited at the breakout point. Additional turbidity may result from the wet retrieval of the MTBM. The steel box used in this retrieval process will function as both a velocity and turbidity curtain, minimizing sediment disturbance during the retrieval process (Assessment, p. 5). Construction activities, including the removal of riparian vegetation, may result in runoff and increased turbidity in the action area. This risk is reduced due to a small area (0.02 acre / 760 sq. ft.) of riparian vegetation disturbance, erosion control measures such as fiber wattles/silt fencing, and revegetation of slopes post-construction. Bull trout are rare in the action area; however, if they are present, they are expected to disperse away from turbid water to suitable habitat volitionally. Due to these minimization measures, short duration of in-water work (15 days), the rare occurrence of bull trout in the action area, and bull trout avoidance behavior if present, effects to bull trout from turbidity are expected to be insignificant.

Noise

Noise generated from the operation of equipment during construction activities can affect bull trout in several ways, including behavioral modifications, physical injuries, and mortality. Construction equipment associated with the action, such as transport trucks and long-reach backhoe, have average noise levels of 80 decibels (dB). The highest noise levels expected to be heard by fish in the Clearwater River action area will occur from the installation of driller piers (Assessment, p. 5). Thalheimer et al. (2014) indicated that a caisson drill with digger or auger attachment produced an average root mean square (RMS) of 141-142 dB at a distance of 33 ft (Assessment, p. 4). This same study indicated that the caisson drill produced an average cumulative Sound Exposure Level (SEL) of 158-165 dB at a distance of 33 ft (Thalheimer et al.

2014, as cited in the Assessment, p. 4). The critical threshold for injury to fish in terms of cumulative SEL is 183 dB for fish less than 2 grams, and 187 dB SEL for fish 2 grams in mass or greater. All equipment considered, when utilized, would not exceed this injury threshold (Assessment, p. 40). Furthermore, drilling is expected to be short in duration and will occur during the in-water work window, reducing the potential for bull trout presence in the action area. If bull trout are present, they are expected to be unaffected by the relatively low dB levels or move away from the noise source. Therefore, effects to bull trout from noise are expected to be insignificant.

Disturbance from Diver Presence

Divers will be needed as part of the construction sequence to conduct the removal and installation of intake screens and support structure, and maintain the screens every 5 years. Diver presence may affect bull trout by disturbing individuals present, causing them to move to adjacent habitat. Minimization measures to restrict in-water work and future screen maintenance to the July 15 to August 15 work window will reduce the likelihood of bull trout exposure to diver presence. Due to the rare occurrence of bull trout in the action area, restriction of work to in-water work window, bull trout avoidance behavior to disturbances, and the infrequent (every 5 years) maintenance of screens, the effects to bull trout from diver presence are expected to be insignificant.

Contamination

The use of machinery in the action area and the removal of riparian vegetation may introduce contaminants into the waterway and degrade water quality. Reductions in water quality from elevated contaminant concentrations may negatively impact food availability, cause individuals to avoid an impacted area, or directly affect an individual's health through injury or death across all life stages. Minimization measures that will reduce the risk of contamination include equipment inspection and cleaning, a spill prevention and control countermeasures plan, and erosion control measures on effected riparian slopes. In addition, site drainage from impervious areas will be directed to a series of catch basins and treated for suspended solids entrained in the runoff. Overall, while a spill is unlikely to occur, minimization measures and site runoff treatment are expected to reduce effects to bull trout from chemical contamination to discountable levels.

<u>Bull trout critical habitat</u>

Species and Habitat Presence in the Action Area

The Clearwater River in the action area is designated bull trout foraging, migration, and overwintering (FMO) critical habitat. The action area does not include spawning and rearing (SR) habitat. The nearest available SR habitat is found in Upper Asotin Creek approximately 30 miles southwest of the action area.

Potential Impacts and Effects from the Proposed Action

A full analysis of effects to bull trout critical habitat is described in the Assessment (pp. 44-45). The proposed action may affect bull trout critical habitat through increased turbidity, disturbance from noise and diver presence, and chemical contamination. Activities may affect bull trout Physical and Biological Features (PBFs) 2 (migration corridors), 3 (abundant food base), 4 (complex habitat), and 8 (water quality and quantity).

Turbidity

Increased suspended sediment may affect PBFs 2, 4, and 8. Suspended sediment could affect PBF 2 by creating unfavorable turbidity conditions for migratory bull trout by causing them to move away from the action area. Suspended sediment could also temporarily affect PBF's 4 and 8 by impacting the water quality of bull trout critical habitat, which could inhibit juvenile growth and survival. The proposed minimization measures such as the timing of in-water work, reseeding of disturbed slopes, sediment control measures, turbidity curtains, as well as continued turbidity monitoring during construction, are intended to minimize suspended sediment increases in critical habitat. Therefore, these short-term impacts to bull trout critical habitat resulting from sediment are expected to be insignificant.

Noise

Construction equipment may increase noise and vibrations and may potentially affect PBFs 2 and 3. The underwater noise and vibration may impact bull trout behavior and migration if present during implementation (PBF 2) and temporarily displace forage fish (PBF 3). Limiting in-water work to July 15 through August 15 will minimize the noise effects to bull trout by reducing the chance of encountering bull trout near the action area. As stated in the bull trout section, noise produced by construction equipment will be of short duration and is expected below the SEL injury threshold for fish. Bull trout are expected to be either unaffected by the noise or move away into nearby areas with similar habitat, resulting in insignificant effects to bull trout critical habitat.

Diver presence

The presence of human divers in the action area to remove, install, and manage intake screens may affect PBF 2 through disturbance of migratory bull trout. As stated previously, human presence can cause bull trout to move away from the affected area. Due to the rare occurrence of bull trout in the action area, minimization measures, and short duration of diver presence, effects to bull trout critical habitat from diver presence is expected to be insignificant.

Contamination

Chemical contamination may affect PBFs 3 and 8. Risk of petroleum leaks and spills in the action area could affect the water quality of bull trout critical habitat necessary for their growth and survival. Given the unlikely occurrence of chemical contamination and applicable minimization measures such as the spill prevention and control countermeasures plan and

construction site runoff treatment, effects from chemical contamination to bull trout critical habitat are expected to be discountable.

Concurrence

Based on the Service's review of the Assessment, we concur with the Corps' determination that the action outlined in the Assessment and this letter, may affect, but is not likely to adversely affect bull trout and bull trout critical habitat. This concurrence is based on the rare occurrence of bull trout in the action area, proposed timing, and minimization measures that reduce impacts of the proposed action to bull trout and bull trout critical habitat to insignificant and discountable levels.

This concludes informal consultation. Further consultation pursuant to section 7(a)(2) of the Act is not required. Reinitiation of consultation on this action may be necessary if: (1) new information reveals effects of the action that may affect listed species or designated critical habitat in a manner or to an extent not considered in the assessment, (2) the action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the analysis, or (3) a new species is listed or critical habitat designated that may be affected by the proposed action.

Thank you for your continued interest in the conservation of threatened and endangered species. If you have any questions regarding this consultation, please contact Courtney Gabriel of this office at (208) 510-5457 or courtney_gabriel@fws.gov.

Sincerely,

for Lisa Ellis
State Supervisor

cc:
USFWS, Boise (Wise, Hendricks)
USACE, Walla Walla (Roberts)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Idaho Fish And Wildlife Office
1387 South Vinnell Way, Suite 368
Boise, ID 83709-1657
Phone: (208) 378-5243 Fax: (208) 378-5262

In Reply Refer To: 03/27/2025 20:25:41 UTC
Project Code: 2025-0075408
Project Name: City of Lewiston Drinking Water Intake Section 595

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Idaho Fish And Wildlife Office
1387 South Vinnell Way, Suite 368
Boise, ID 83709-1657
(208) 378-5243

PROJECT SUMMARY

Project Code: 2025-0075408

Project Name: City of Lewiston Drinking Water Intake Section 595

Project Type: Water Supply Facility - Withdrawal - Surface

Project Description: The City plans to rehabilitate the existing water intake system or construct a new water intake system. The work would occur in two phases in-water work and on land work. The in-water work would consist of the rehabilitation of the existing water intake pipes or the construction of new water intake pipes. The in-water work would also include test bores to determine the geologic suitability of the sites currently in use or new potential sites. The second phase is the on-land rehabilitation or construction work. The USACE proposes to cost-share the construction in-water work portion of the project with the City.

The City established the following water supply design criteria for the selected Clearwater River surface water intake facility:

• Provide a new intake screen system and raw water conveyance pipeline that can properly supply up to 15 mgd of water flow to the Lewiston WTP, which accounts for future growth/ increases in water demand.
• Provide ability to pump up to at least 10 mgd of flow from the pump station with one pump in standby mode.
• Provide for the ability to pump at least 15 mgd momentarily (up to 1-day) to exercise the City's current water right at the intake, understood to be about 15 mgd.
• Try to provide low water demand flows as low as 2.5 to 3 mgd during low water demand periods.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.43157175,-116.94405099330106,14z

Counties: Nez Perce County, Idaho

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

FISHES

NAME	STATUS
Bull Trout *Salvelinus confluentus* Population: U.S.A., coterminous, lower 48 states There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8212 General project design guidelines: https://ipac.ecosphere.fws.gov/project/DQ7EE4OLTJHX7FW6LVCSSZRUIM/documents/generated/7151.pdf	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Suckley's Cuckoo Bumble Bee *Bombus suckleyi* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10885	Proposed Endangered

FLOWERING PLANTS

NAME	STATUS
Spalding's Catchfly *Silene spaldingii* There is **proposed** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/3681 General project design guidelines: https://ipac.ecosphere.fws.gov/project/DQ7EE4OLTJHX7FW6LVCSSZRUIM/documents/generated/7151.pdf	Threatened

CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Bull Trout *Salvelinus confluentus* https://ecos.fws.gov/ecp/species/8212#crithab	Final

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

---

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information

on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

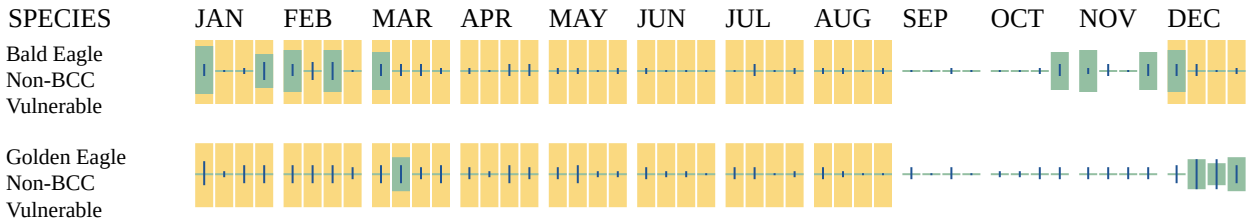
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

■ probability of presence ■ breeding season | survey effort – no data



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Avocet *Recurvirostra americana* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11927	Breeds Apr 21 to Aug 10

NAME	BREEDING SEASON
American White Pelican *pelecanus erythrorhynchos* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/6886	Breeds Apr 1 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10955	Breeds Mar 1 to Jul 31
Calliope Hummingbird *Selasphorus calliope* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9526	Breeds May 1 to Aug 15
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9465	Breeds May 15 to Aug 10
Franklin's Gull *Leucophaeus pipixcan* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10567	Breeds May 1 to Jul 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Northern Harrier *Circus hudsonius* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8350	Breeds Apr 1 to Sep 15
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere

NAME	BREEDING SEASON
Western Grebe *aechmophorus occidentalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

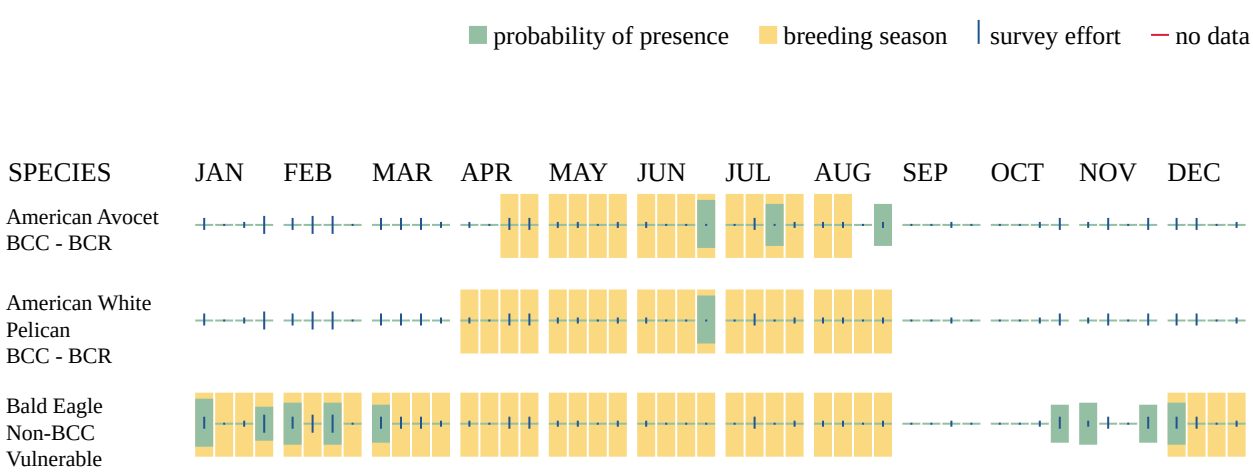
Probability of Presence (■)

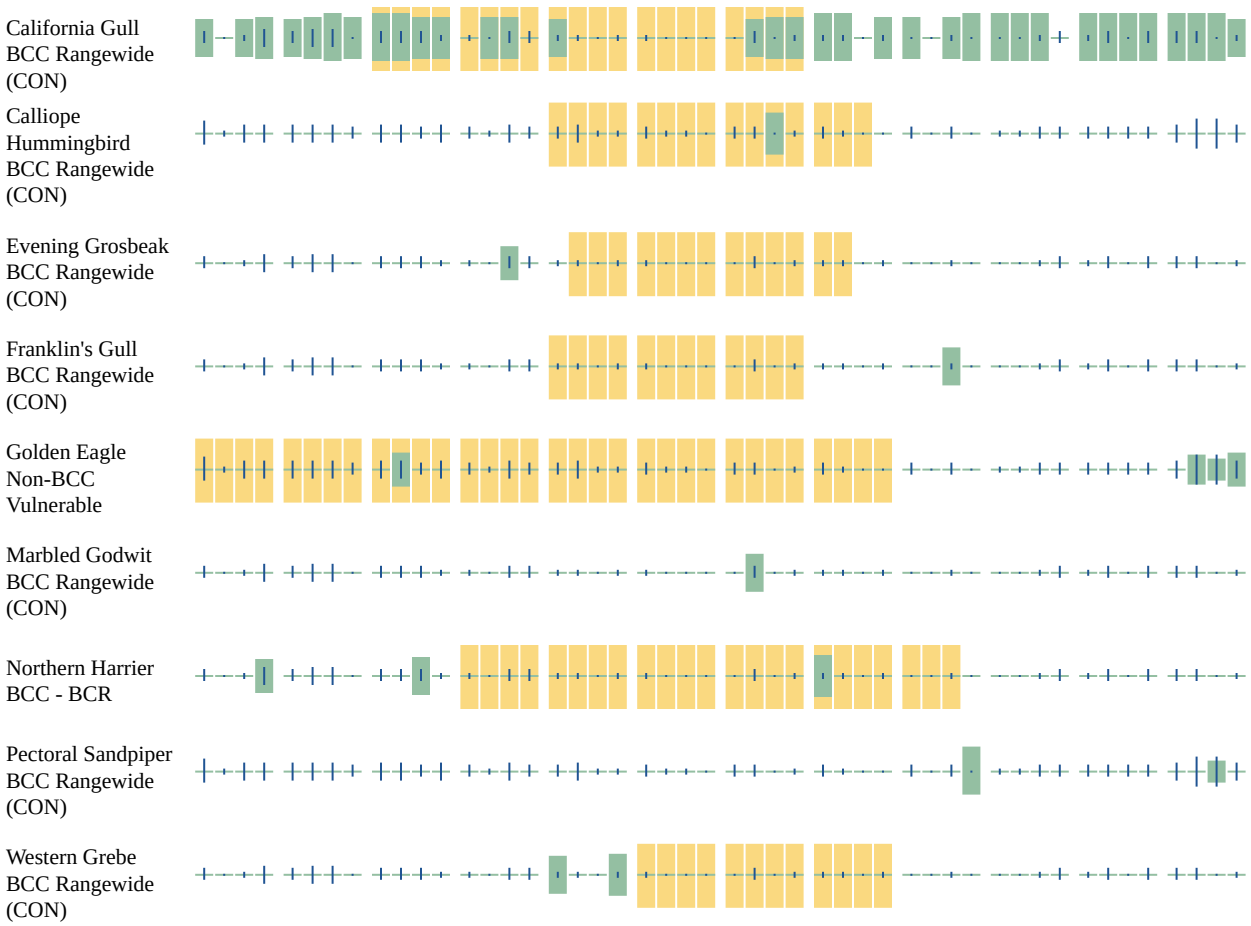
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.





Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- R3USC
- R3UBH
- R4SBC

IPAC USER CONTACT INFORMATION

Agency: Army Corps of Engineers
Name: Austen Whelan
Address: 201 N 3rd Ave
City: Walla Walla
State: WA
Zip: 99362
Email austen.p.whelan@usace.army.mil
Phone: 5095277256