

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

Final Environmental Assessment for the proposed Wapato Headwork Rehabilitation Project, Yakima County, Washington

AGENCY: Bureau of Indian Affairs

ACTION: Notice of Availability

SUMMARY: This notice is to advise interested parties that the Bureau of Indian Affairs (BIA) as lead federal agency, with the Confederated Tribes and Bands of the Yakama Nation has prepared a draft Environmental Assessment (EA) for the proposed action located in Township 12 North, Range 19 East, Sections 17 & 20, Willamette Meridian, Yakima County, Washington. This notice also announces the start of a 30-day comment period on the draft EA from the date of signature below. The National Historic Preservation Act (NHPA) Section 106 & Endangered Species Act (ESA) Section 7 consultation will be available to accompany the final EA. Electronic copies of the draft EA are available at wapatodiversion.com, and hard copies are available at the address(s) below.

ADDRESSES: You may request a hard copy of the draft EA by writing the BIA Northwest Region Office, Division of Environmental & Cultural Resource Management (DECRM), 911 NE 11th Avenue, Portland, Oregon 97232-4169 and/or Lizzie Zemke, Environmental Specialist, DOWL Engineering, 8420 154th Ave NE, Redmond WA 98052.

FOR FURTHER INFORMATION CONTACT: Bryan Mercier, BIA Regional Director, at (503) 231-6702, or Wyeth (Chad) Wallace, BIA Yakama Agency Superintendent, at (509) 865-5121 x4164; or Lizzie Zemke, Environmental Specialist, DOWL Engineering at (425) 947-8523

SUPPLEMENTAL INFORMATION: The BIA proposes to conduct a thorough inspection of, and make minor repairs and safety improvements to, the Wapato diversion facilities. The project would address ongoing operational, structural, and environmental issues.

AUTHORITY: This notice is published pursuant to 43 CFR 46.305 of the Department of Interior Regulations (43 CFR 46 et seq.), the procedural requirements of the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4371 et seq.), and in accordance with the exercise of authority delegated to the Assistant Secretary – Indian Affairs by 209 DM 8.



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Northwest Regional Director
Bureau of Indian Affairs

Date

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**ENVIRONMENTAL ASSESSMENT
Wapato Headworks Rehabilitation
for BIA Tract No. 7000**

Prepared by:

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May 26, 2023



May 2023

BIA FILE NO: EA-23-019

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Introduction

The following Environmental Assessment (EA) analyzes the impacts of the Wapato Headwork Rehabilitation project, located in Sections 17 and 20, Township 12 North, Range 19 East, Yakima County, Washington State.

This EA contains the minimum requirements found in 43 CFR 46.310 (a) including brief discussions of the following:

- (1) The proposal;
- (2) The purpose and need for the proposal;
- (3) The environmental impacts of the proposed action;
- (4) The environmental impacts of the alternatives considered; and
- (5) A list of agencies and persons consulted.

Section 1. Purpose and Need

1.1 Purpose

The purpose of the project is to rehabilitate and repair the Wapato diversion structures, inspect the existing diversion dams, and allow the Bureau of Indian Affairs (BIA) and Yakama Nation (YN) to design long-term rehabilitation or replacement options for the headworks and diversion facilities. Construction of these long-term changes to the facilities is planned to occur several years after the initial repairs to the headworks. The full Proposed Action is described in Section 2 below.

1.2 Need

The need for this project is the ongoing operational, structural, safety, and environmental issues of the facilities that impact the short-term delivery of irrigation water and the long-term operation of the facilities, and need to be addressed. The current, short-term rehabilitation of the Wapato Main Canal Headworks will provide a temporary repair, allowing time for development and design of a permanent, long-term solution to these issues. The current project primarily addresses the following issues:

- **Operational Deficiencies** – The current irrigation headgates, river sluice gates, and associated hoist equipment for both are dated, damaged, and deficient. Several of the gate stems are bent, the gates do not seal properly, one of the sluice gates is damaged beyond function, not all of the irrigation headgates have powered gate actuators and neither of the sluice gates have powered actuation equipment. The BIA and Yakama Nation have previously purchased replacement gate pedestals, gate actuators, and gate stems; however,

they have been unable to install this equipment due to an inability to dewater the headgate forebay downstream of the trash rack.

- **Headwall Deterioration** – The existing headwalls and pier noses adjacent the irrigation headgates and river sluice gates are severely damaged. Temporary repairs are needed to extend the service life of these structural elements while a more permanent solution is developed.
- **Electrical Controls** – The existing electrical system has exceeded its service life and does not meet current safety requirements. Several of the electrical components have failed and are not operational.
- **Inspections** - The diversion dams have not been dewatered since 1985 when the fish ladders were installed, and the existing condition of the diversion structures is unknown. Inspections (e.g., subsurface geotechnical investigations and visual inspections) are needed to provide requisite information for the development and design of long-term rehabilitation or replacement of facility components.

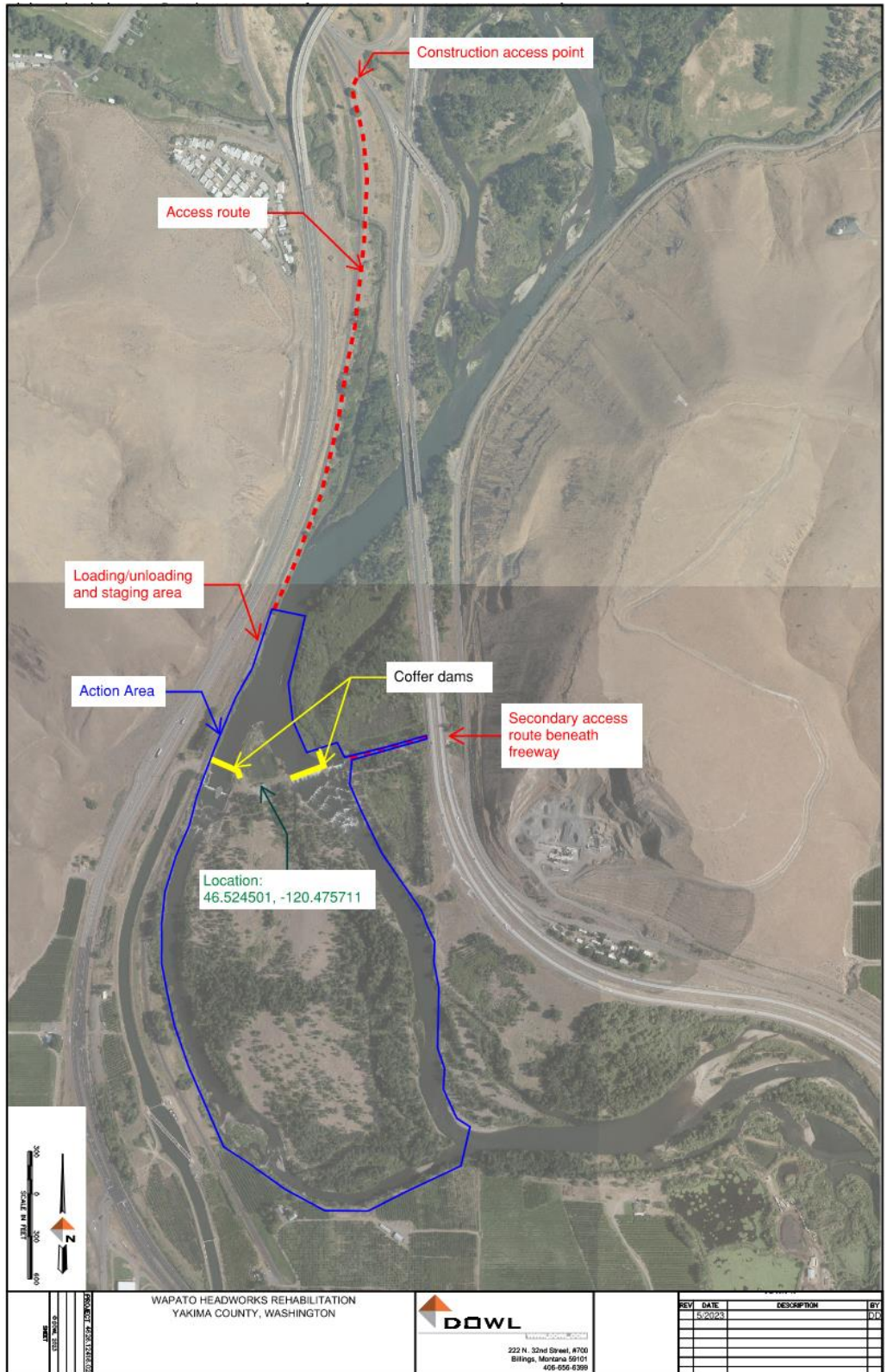
Existing issues that may be addressed by future repairs or replacement include:

- **Sediment Transport** – The current structure does not have any designed means to pass transported river sediments on through to the downstream channel. This causes sediment accumulation and the need for repetitive dredging which is becoming increasingly hard to permit.
- **Inability to Divert the Full Water Right** – At times during low flow conditions water flows above the diversion dam crest do not attain levels needed to route adequate flow to the west channel, and head pressure at the canal headgates is not adequate to allow diversion of the full water right.
- **Potential Diversion Undermining** – In 1996 a severe flood event caused undermining below the diversion. This was repaired in 2004. However, there is concern that additional undermining may have occurred subsequent to the repairs.
- **Railroad Overtopping** – Prior flood events came very near to overtopping the adjacent railroad.
- **Inability to Perform Maintenance** – Maintenance crews cannot safely dewater the main canal headworks forebay to perform work on canal gates or the intake structure due to the condition of the stop log structure; the ability to lower the water level is desired along with the ability to isolate the headworks from river flows.
- **Access for Debris Removal** – Large trees and debris are transported down the Yakima River and often become lodged against the upstream side of the diversion dam. The current structure does not provide for access to the upstream side of the diversion for removing debris.

- **Lamprey Passage** – Upstream fish passage is desired for lamprey, a species which cannot use the existing fish ladders.

This EA is prepared to meet the BIA's NEPA responsibilities. The federal action (ref: 40 CFR 1508) is federal funding from the BIA, and the approval of a Section 404 permit and Section 401 water quality certification for work below the ordinary high water line of the Yakima River, and within jurisdictional wetlands within BIA Tract No. 7000, which triggers BIA's National Environmental Protection Act (NEPA) compliance review of the project 42 USC § 4321- 4347) and associated regulations found in 40 CFR 1500-1508 (as amended) and 43 CFR 46.

Figure 1. Map showing proposed Federal Action Parcel(s) relative to area analyzed.



Section 2. Proposed Action and Alternatives

2.1 Proposed Action

The Action is to conduct maintenance and investigation activities on and around the east and west diversion dam structures. It will consist of east diversion dam maintenance and site investigation activities followed by west diversion headgate maintenance and site investigation activities. The channels will be dewatered with a cofferdam one at a time, in series, to allow river flow to pass over one diversion structure while the opposite channel is dewatered.

Project actions will occur from barges and in dewatered areas of the Yakima River, following the installation of cofferdams. The specific project components include:

- 1) Site Construction
 - a) Phased cofferdam construction upstream of the east and west diversion channels using an AquaDam® to divert water flows around the work zones.
 - b) Dewatering and fish recovery by Yakama Nation biologists in areas upstream and downstream of the diversion structures.
 - c) Geotechnical borings and test pits in various locations throughout the work area.
- 2) Concrete
 - a) Core sampling of existing concrete structures.
 - b) Concrete repairs of the irrigation headworks intake structure.
- 3) Gates and Actuators
 - a) Remove existing gate stems, stem guides, pedestals, and actuators.
 - b) Install eight new gate stems, stem guides, pedestals, and actuators.
- 4) Electrical and Controls
 - a) Remove existing gate control panel and motor starters.
 - b) Furnish, install, and commission new electrical gate control system.

The east channel cofferdam will be located along the upstream face of the diversion and center fish ladder. The west channel cofferdam will be located in the first 400 feet upstream of the diversion dam. The cofferdams will be constructed using AquaDam® brand water bladders. Small numbers of bulkbags (i.e., large aggregate-filled bags, which typically hold approximately one cubic yard of material) and sandbags will be used as needed to back up the AquaDams® or divert water elsewhere during dewatering. Bulkbag and sandbag material will be obtained from offsite commercial sources and will consist of clean, washed, gravel.

The Project will begin in mid- to late September or early October of 2023 and in-channel work will be complete by the end of December 2023. The Project will be conducted in two Phases, one on each channel of the Yakima River. In-water work within the east channel will be completed over a period of approximately three weeks. The west channel activities will then be completed over the

remainder of the 90-day construction period. The time that the channels are dewatered will be less, as these periods include all in-water work activities (e.g., cofferdam assembly and removal).

Expected project sequencing includes:

Phase I:

1. Barge sections and materials will be trucked down the west side of the Yakima River from a gated access road off the I-82 ramp, located approximately one mile (straight line distance) north of the west cofferdam location, to a staging area approximately 0.2 mile north of the west cofferdam.
 - a. There is an H-pile and timber retaining wall in this location that will facilitate loading and unloading. The barge can be anchored directly adjacent to retaining wall.
2. Assemble barges from modular Flexifloat barge pontoons in the river at the retaining wall (barges will be held in place with spuds). There will be one barge assembly for cofferdam construction and one for geotechnical drilling. Work/material barges will also be mobilized to the river from the retaining wall location via crane.
3. Place an excavator onto the cofferdam barge with a shore-based crane, and launch a tugboat from the boat ramp located on the east side of the river, just upstream of the I-82 bridge, approximately 0.4 mile upstream of the staging area.
4. Maneuver the barge into position with the tugboat and remove debris that has wracked against and atop the diversion structures. The debris would impede construction and inspection activities were it not removed. The debris will be placed on a work barge and unloaded with the crane at the retaining wall and disposed of offsite.
5. Construct the AquaDam® cofferdam.
6. At the same time as #4 above, the drilling barge will be maneuvered into position to complete upstream geotechnical borings.
7. Dewater the construction zone. Once the east cofferdam is complete, an excavator will be mobilized from an existing access point off I-82 on the east side of the river. This excavator (and later a tracked drill rig) will need to cross the mostly dewatered channel to finish dewatering and boring activities. Crossings will be kept to the minimum number possible while still successfully completing work. Once equipment is in place, a pump will be installed downstream of the cofferdam to keep the area dewatered. The pump will be located in a perforated pipe sunk vertically into the stream bed, wrapped with landscape fabric and surrounded by washed gravel. This will preclude fish from being entrained or impinged.
8. Move boulders at the downstream rock weirs as needed to achieve adequate dewatering.
9. Concurrently with #6, coordinate with YN staff to conduct fish salvage.
10. Move drill rig in from the east access or maneuver it off its barge and complete downstream geotechnical borings in the dewatered section of the east channel and on the island.
11. Complete and repair concrete cores.
12. Remove sump pump, repair rock weirs, and remove the east cofferdam to rewater the channel.

Phase II:

1. Move the cofferdam barge to the west channel. Construct the west cofferdam and conduct fish salvage in the same manner as the east cofferdam. The west cofferdam will consist of the main 14-foot cofferdam, with a smaller, 8-foot cofferdam behind to provide additional support to the dam, since in this location there will not be an existing structure behind the cofferdam system.
2. Once the channel is dewatered and de-fished, construct three temporary construction ramps in the dewatered area. The ramps will be aggregate over geotextile fabric to facilitate later removal. The ramps will be used by equipment (drill rig and excavator) to move across the channel and onto the island, maneuver downstream of the diversion and headworks, and back into the channel to complete required geotechnical borings and concrete work.
3. Complete concrete cores at the head works and concrete work at the upstream pier noses of the intake and sluice gate headwork structure as well as the installation of new gate stems, pedestals, and actuators. Once the new gate equipment is installed, electrical work will be completed to provide full control and operation of the gates.
4. Allow concrete repairs to cure for a minimum of seven days. Metal forms will permanently remain in place, shielding the concrete from flowing water and reducing the likelihood of water quality effects (increased pH) from green concrete.
5. Remove the cofferdam with the barge-mounted excavator to rewater the channel and demobilize from the site in the reverse order of mobilization.

The cofferdams will be constructed via a barge anchored upstream of the point of cofferdam installation. Cofferdams will be constructed of AquaDam® brand water bladders in the following sequence:

1. Site preparation: The installation site will be cleared of debris, rocks, or sharp objects that could damage the AquaDam® using the barge-mounted excavator. The area where the AquaDam® will be installed will be minimally graded and cleared of obstacles that could hinder installation.
2. Unrolling the AquaDam®: The AquaDam® is shipped rolled and must be unrolled at the installation site. The shore-based excavator will be fitted with a spreader bar system while the barge excavator and tugboat are utilized to unroll the AquaDam®.
3. Securing the AquaDam®: Once the AquaDam® has been unrolled, the ends will be secured using the provided anchoring system. The anchors will be hammered into the ground, and the AquaDam® should be tightly secured to prevent water from seeping underneath.
4. Filling the AquaDam®: The AquaDam® will be filled with river water using pumps that are fitted with fish screens. The water will be pumped into the AquaDam® until it is fully inflated and reaches the desired height. The AquaDam® will be filled evenly to avoid any bulges or weak spots.
5. Testing the AquaDam®: Once the AquaDam® is filled with water, it will be tested to ensure it is properly installed and does not leak.
6. Removal: When the AquaDam® is no longer needed, it will be drained, discharging the water back to the river downstream of the cofferdam and rolled up for storage or disposal.

7. Water discharged from the AquaDam® will be monitored for compliance with the water quality standards set for the project

2.2 No Action Alternative

The *No Action Alternative* provides the baseline of environmental conditions that are used to quantify the effects of the proposed action during the analysis. The *No Action Alternative* is to not conduct maintenance and investigation activities on and around the east and west diversion dam structures. The existing operational deficiencies of the gates, actuation, and electrical control equipment would be perpetuated. The current safety deficiencies associated with the electrical equipment would be perpetuated. Rehabilitation of the headwalls and pier noses would not be completed, increasing the risk of failure in the interim before a permanent solution can be implemented. The design of future long-term rehabilitation or replacement options would need to be completed in the absence of subsurface geotechnical information and visual inspections, leading to increased risk and likely higher costs for long-term rehabilitation or replacement. Without the proposed investigation activities, certain elements of design would be more complicated, and unknown conditions could lead to higher construction costs and project delays in the future.

Figure 2. Vicinity Map



Section 3. Authority

This EA is prepared to meet the BIA’s NEPA responsibilities. The proposed federal action (40 Code of Federal Regulations [CFR] 1508.) is for BIA approval for funding of the Wapato Headworks Rehabilitation, which triggers BIA compliance with NEPA (42 United States Code [USC] § 4321-4375) and associated regulations (40 CFR 1500-1508, 43 CFR 46). This EA is written in accordance with 43 CFR 46.310 (b) and NEPA Section 102(2)(E) which state:

When the Responsible Official determines that there are no unresolved conflicts about the proposed action with respect to alternative uses of available resources, the environmental assessment need only consider the proposed action and does not need to consider additional alternatives, including the no action alternative.

Section 4. Environmental Impacts

The affected environment includes the mainstem of the Yakima River, which splits into two channels around a large island; an island that includes shrubby open areas, forested areas, riverine wetlands, and a small stream; and the Yakima River streambanks. The east and west channels both contain diversion dams and downstream rock weirs, affecting river flows volume and speed. Headgates of the Main Canal of the Wapato Irrigation Project are located just upstream of the west diversion structure. BNSF railway tracks are present just above the west riverbank.

The impacts from the proposed project to the affected environment are as follows:

- Alteration of the stream channel to prepare for cofferdam placement
- Vegetation impacts from placement of the cofferdams and access ramps
- Potential disturbance, displacement, injury, or mortality from fish salvage.
- Hydrologic effects from dewatering
- Effects of equipment movement in the isolated areas
- Temporary, localized increased turbidity upon rewatering the channel.
- Food chain effects
- Effects on climate change

Short-term adverse impacts identified for the project are the effects to Middle Columbia River steelhead, Yakima River Bull trout, and Yakima River Bull trout critical habitat. As discussed in the project's Biological Assessment, the project is likely to adversely affect these species and critical habitat. Effects will be temporary and will be minimized by use of BMPs and avoidance and minimization measures.

The Wapato Headworks Rehabilitation project would not have indirect and cumulative effects resulting from repairs and investigation activities. The future dam rehabilitation or rebuild will have a federal nexus, and was not considered in the cumulative effects analysis.

Section 5. The Human Environment

5.1 Wildlife

Section 7 of the Endangered Species Act (ESA) (16 USC 1531 et seq.) of 1973 as amended and its implementing regulations found at 50 CFR 402, require federal agencies to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat. Upon review of the location of the proposed action, consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the National Oceanic and Atmospheric Administration. was completed.

The U.S. Fish and Wildlife’s (USFWS) Information for Planning and Consultation (IPaC) tool lists the following federally endangered, threatened, or candidate species as potentially located in the project area:

- Gray wolf (*Canus lupus*)
- North American wolverine (*Gulo luscus*)
- Yellow-billed cuckoo (*Coccyzus americanus*)
- Bull trout (*Salvelinus confluentus*)
- Monarch butterfly (*Danaus plexippus*)

Additionally, the National Marine Fisheries Service (NMFS)-listed Middle Columbia River steelhead (*Oncorhynchus mykiss*) is present in the project area.

A Biological Assessment (BA) was completed in early 2022 and submitted to both the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) (collectively referred to as the “Agencies”). NMFS completed consultation and issued a Biological Opinion (BiOp) on July 18, 2022 (WCRO-2022-00466). The USFWS reviewed and commented on a draft of the Biological Assessment, but the Project was then put on hold and USFWS did not issue a BiOp. Since submittal of the previous BA, some components of the Project have been modified. An updated BA that details the Project as it will be conducted in Fall 2023, and incorporates changes as requested by the initial USFWS review was submitted to the USFWS on April 20, 2023. NMFS was provided with an updated project description on April 13, 2023.

The dewatering effort will be carefully coordinated with the Yakama Nation fish salvage crew so that the crew is on site and ready to rescue and remove fish during cofferdam construction and as the channel is being dewatered. Fish will be removed from the area to be dewatered during the dewatering process. Fish salvage will be supervised on-site by Yakama Nation fisheries biologists following procedures similar to those outlined in WSDOT Fish Exclusion Protocols and Standards.

The dewatering process will be gradual and under the guidance of the supervising biologists, to provide the greatest opportunity for fish to escape or be herded with seines from dewatering areas above and below the diversion structures. Fish that remain isolated in pools will be collected and moved to the free-flowing reach south of the island. While the cofferdams are in place, the BIA, the Bureau of Reclamation (BOR), and Yakama Nation will perform maintenance and inspections on the diversion structures, fish ladders, and channels.

Other wildlife likely to access the project area at times include Rocky mountain mule deer, white-tailed deer, other common rodent and medium-sized mammal species, bald eagles and other raptor species, songbirds, and unlisted fish species.

Table 1: USFWS / NMFS / NOAA Wildlife Species consultation(s) and effect determinations

Species	Listed Federal Status	Effect Determination
Yakima River Bull trout	Threatened in 1999	LTAA
Yakima River Bull trout CH		LTAA
MCR Steelhead	Threatened in 1999	LTAA
MCR Steelhead CH		NLTAA

Table Notes: CH = Critical Habitat, LTAA = Likely to adversely affect, NLTAA = Not likely to Adversely Affect, NE = no effect.

5.2 Cultural Resources

This section will be completed following concurrence from the Yakama Nation Tribal Historic Preservation Officer.

Discussion:

Method(s):

Affected Property(ies):

.

5.3 Conditions: Environmental Justice

In compliance with Presidential Executive Order 12898, an Environmental Justice Analysis was conducted using the EPA EJSCREEN ACS Summary Report and a one (1)-mile buffer zone. Table 2 below lists the population by race, and Table 3 lists households by income in the study area.

Table 2: Population by Race

Reported Race	2016 – 2020 ACS Estimates	Percent
White Alone, Not Hispanic	72	49
Race Other than White Alone and/or Hispanic	75	51
Total Population	147	

Table 3: Households by Household Income

Income Range	2016 – 2020 ACS Estimates	Percent
<\$15,000	4	8
\$15,000 - \$25,000	4	7
\$25,000 - \$50,000	8	16
\$50,000 – 75,000	9	18
\$75,000 +	24	50

Note: Data source: ACS; <https://www.census.gov/data.html>

In accordance with Executive Order 12898¹, impacts to minority and low-income populations and communities have been considered. The proposed federal action would not displace any individuals or businesses, and there would be no negative impacts to Indian Trust Resources. The proposed action would not have a disproportionate adverse effect on minority or low-income populations.

5.4 Indian Trust Assets

The subject property, BIA Tract No. 7000 is held in trust by the BIA.

The proposed action *would not* have a significant negative impact upon Tribal Trust Assets. The irrigation structures are trust assets held by the BIA and operated for the benefit of the Tribe. Improvements to the headworks facilities would have a positive impact on trust assets

¹ Presidential Executive Order 12898, *Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*; February 1994.

5.5 Land Resources

(a) Topography (landforms, drainage, gradients)

The project area is located in the Yakima River valley. Just north of the project area, the Yakima River runs through a narrow gap between two ridges that run perpendicular to the river. The areas just northwest and northeast of the project area slope steeply up to these ridges. In the project area, the river splits into two channels, which flow around a fairly flat island. The landscape south of the study area is flat river valley.

(b) Soils (types, characteristics)

Within the project area, National Resources Conservation Service (NRCS) mapped soils include two hydric soil units Weirman sandy loam (Wm), and Weirman sandy loam, channeled (181), and two non-hydric soil units, Weirman fine sandy loam (WoB), Weirman silt loam (Wr). In wetlands identified on the site, soils met the Redox Dark Surface (F6) hydric soil indicator.

(c) Geology, Mineral, and Paleontological Resources

Geology, mineral, and paleontological resources are not anticipated to be affected by the project.

5.6 Water Resources (surface and ground; quality, quantity, use, rights)

A wetland delineation conducted by DOWL in May 2021 identified 18 wetlands and one non-wetland water (Yakima River). The main channel of the Yakima River entered the study area from the north, split into an east and west channel that flowed around a large island, and formed a single channel at the south end of the island. There were several small side channels of the river within the study area. Additionally, the Main Canal of the Wapato Irrigation Project, located on the Yakama Reservation and operated by the BIA, is located just upstream of the west diversion dam.

Within the immediate project area, there is the Yakima River, the irrigation canal, and five wetlands, three of which are located entirely below the ordinary high water mark (OHWM) of the river.

One wetland (Wetland D) will be impacted above the OHWM. Impacts to Wetland D will primarily result from placement of the cofferdam. The east end of the cofferdam in the west channel will cross Wetland D, which will likely require some shrub (*Salix sp.*) removals. Additionally, a small area of the wetland will be impacted by a ramp placed for equipment to access the island. These impacts consist of approximately 379 CY of temporary fill from the AquaDam® cofferdam, consisting of the plastic cofferdam material and water pumped in to the cofferdam from the river, and 12 CY of fill from the ramp. These materials will be removed immediately following project construction, and no permanent fill or other wetland impacts are proposed.

Impacts to the Yakima River will result from cofferdam placement, sandbag diversion placement, access ramps, and equipment access in the channel. Construction of both cofferdams will likely require clearing a small area of shrubs (*Salix sp.*). Four access ramps, three in the west channel and one in the east channel, will be placed on the river bank to allow access into the channel. These impacts consist of approximately 4,300 CY of temporary fill in the east channel and 3,060 CY of temporary fill in the west channel from the AquaDam® cofferdam, consisting of the plastic cofferdam material and water pumped in to the cofferdam from the river. The sandbag diversions will result in up to 84 CY of fill total in the east and west channels. Small numbers of bulk bags (i.e., large aggregate-filled bags, which typically hold approximately one cubic yard of material) or sandbags will be used as needed to back up the AquaDams® or divert water elsewhere during dewatering. Bulkbag or sandbag material will be obtained from offsite commercial sources and will consist of clean, washed, gravel. The access ramps will result in up to 271 CY of fill total, consisting of aggregate over geotextile fabric. These materials will be removed immediately following project construction, and no permanent fill is proposed in the river.

In addition to fill impacts, the river will be impacted by dewatering activities and equipment access. Construction equipment will drive across the channel to access the island, and to access the work areas in the channel. This will be limited to as few trips as possible, and will predominately be limited to dewatered areas. Work in the wet to facilitate dewatering and geotechnical boring will be kept to the minimum necessary to accomplish the work. In-water work in the east channel will take approximately three weeks, and work in the west channel will be completed over the remainder of the 90-day construction period; the total time each channel will be dewatered will be less, since these time periods include cofferdam assembly and removal.

Irrigation water diverted from the Yakima River by the headworks supplies the Wapato Irrigation Project (WIP). WIP holds the right to divert water and deliver it to water users within its jurisdiction. Work will be performed in the east channel first, to allow cofferdam operations to start during the last few weeks of the irrigation season. No additional water (above typical irrigation withdrawals) will be routed through the Main Canal during project construction, and the project will not limit withdrawals.

5.7 Air (quality/achievement, visibility)

As of April 30, 2023, the project is not located in a designated non-attainment or maintenance area, according to the EPA's site accessed 5/15/2023. Part of Yakima County is located in a PM10 maintenance area. https://www3.epa.gov/airquality/greenbook/anayo_wa.html. The southern extent of this area is located in Union Gap, just outside of the project area to the north.

The project may result in minor, temporary increases in air emissions during construction, resulting from increased exhaust emissions from construction vehicles and equipment, and potentially from fugitive dust. Any increases in emissions will be negligible and will not impact air quality or violate air quality standards.

5.8 Living Resources

(a) Vegetation (terrestrial, aquatic, riparian, threatened/endangered)

The project area is predominantly below the ordinary high water line of the Yakima River and unvegetated. Wetlands in the project area are mostly vegetated with willows (*Salix sp.*) and reed canarygrass (*Phalaris arundinacea*). The island is vegetated with a mix of mostly low-growing native and non-native plants typical of Washington's arid eastern plains. Impacts to vegetation were minimized to the extent practicable. Impacted areas will be restored to preconstruction contours and elevations, and will be revegetated with native, non-invasive woody plantings following construction.

Equipment will be cleaned prior to entering the work area to avoid introducing invasive plant species from offsite.

(b) Ecosystems and Biological Communities

The project area consists of riparian and instream habitats and associated biological communities. Aquatic invertebrates will be displaced, killed, or excluded from the active work zones, but 10 cfs bypass flow will be maintained in the channels downstream of the cofferdams. Many aquatic invertebrates are likely to persist under these low flow conditions and are expected to re-colonize disturbed areas. No significant or permanent impacts to ecosystems or biological communities are anticipated.

(c) Agriculture (livestock, crops, prime and unique farmland)

No adverse impact to crops or farmland are anticipated.

(d) Employment and Income

Following project construction, the project will not impact employment or income.

(e) Demographic Trends (Include if demographic data would influence final decision,). If data would not influence final decision enter: 'Not applicable'.

Not applicable

(f) Lifestyle and Cultural Values (rural, urban)

Lifestyle and cultural values will not be impacted by the project.

(g) Community Infrastructure (public services, utilities)

The project will not impact existing utilities or roadways.

5.9 Resource Use Patterns

(a) Hunting, Fishing, Gathering

Not applicable. Fish passage will be provided throughout construction.

(b) Timber Harvesting

Not applicable

(c) Agriculture

The project purpose is to support the repair and eventual replacement or rehabilitation of the Wapato diversion structure, a key facility of the Wapato Irrigation Project (WIP), which diverts water from the Yakima River into the WIP Main Canal. This irrigation canal directly supports agriculture in the area. The project will be conducted outside of the irrigation season, will not impact the agriculture that relies on this water.

(d) Mineral Extraction

Not applicable. No mineral extraction will occur or be impacted by the project.

(e) Recreation

The Yakima River is used for recreational activities such as fishing and boating. A boat launch is located approximately 0.55 miles upstream of the west diversion structure. However, recreation is limited in the immediate project vicinity, given the proximity to the dams, the railroad, and private property restrictions. Impacts to recreation are not anticipated.

(f) Transportation Networks

Not applicable. The project will not impact transportation networks during project construction or project operation.

(g) Land Use Plans

The Yakama Nation Climate Adaptation Plan directs that a series of measures in the Wapato Irrigation District are evaluated and implemented to address current and projected issues. The project purpose is consistent with the Plan because the project's investigations will inform future repairs or replacement of the Wapato Headworks facility.

5.10 Other Values

(a) Wilderness

Not applicable. The project area does not contain wilderness areas.

(b) Noise and Light

Construction activities, including geotechnical drilling, concrete coring, and general equipment usage will generate varying levels of in-air construction noise, depending upon the types of equipment used and whether multiple pieces of equipment are operated simultaneously. Because the construction will occur in the dry it is not expected that significant noise will extend downstream to areas that ESA-listed fish continue to inhabit. It is possible that noise, especially from concrete coring, could transmit through sediments or the water column. However, given the small and localized nature of the activity it is not expected that noise will rise to the level of harassment. In-air noise is not expected to affect aquatic species, such as steelhead or Bull trout.

The project will not impact noise levels during project operation. There are no lights proposed as part of project construction or operation.

(c) Visual

The project proposes maintenance and investigation activities on and around the east and west diversion dam structures. Minor visual impacts during construction will result from placement of AquaDam® cofferdams and dewatering of a portion of the east and west Yakima River channels. No permanent aesthetic impacts are proposed.

(d) Public Health and Safety

Public health and safety will not be affected by the project.

(e) Climate Change (Greenhouse gases)

There will be minor greenhouse gas emissions associated with project construction. Climate change is not anticipated to be affected by project

(g) Hazardous material

There are no known hazardous materials in the project area. The project does not involve dredging, and fill material will be limited to AquaDam® cofferdams, temporary ramps, and a small number of bulk bags filled with aggregate, and sandbags. Bulk bag and sandbag infill material will be obtained from offsite commercial sources and will consist of clean, washed, gravel.

Hazardous materials associated with project construction include motor oil, hydraulic oil, grease, gasoline, and diesel. The project will employ standard pollution prevention BMPs to prevent the discharge of pollutants/hazardous materials into the environment. Any hazardous materials used during project construction will be managed and disposed of in accordance with Tribal, state, and federal regulations. A Temporary Erosion and Sediment Control Plan was developed for the project, which includes BMPs for storage, secondary containment, inspection, and spill response

procedures. Sediment removal from the site is not anticipated, however, any removal and disposal will be in accordance with Resource Conservation and Recovery Act (RCRA) rules and regulations.

No permanent decline in environmental quality is expected as a result of the proposed Wapato Headworks Rehabilitation project. Implementing the proposed action would result in new short-term adverse impacts to Bull trout, Middle Columbia River steelhead, and Bull trout critical habitat.

The major effects of the project to land use are summarized by the following:

The proposed project would not have permanent environmental impacts. Short-term adverse impacts to Bull trout, Middle Columbia River steelhead, and Bull trout critical habitat will occur, and consultation with NMFS and the USFWS is underway. All activities will be consistent with requirements of the project's Biological Opinions.

Section 6. Mitigation

Short-term adverse impacts have been identified for the proposed action. The project is anticipated to affect Middle Columbia River steelhead, Yakima River Bull trout, and Yakima River Bull trout critical habitat. Effects will be temporary and will be minimized by use of BMP's and avoidance and minimization measures. The reasonable and prudent measures (RPMs) required by the NMFS Biological Opinion will be employed. These include:

- Minimize incidental take resulting from dewatering and fish rescue, and from reducing flows in the east and west channels downstream of dewatered areas.
- Monitor the project to ensure that the measures are meeting the objective of minimizing take and that the amount or extent of take is not exceeded

USFWS review of the project's BA is currently underway. Any additional RPMs required by the USFWS will be followed.

Impacted wetlands will be restored to preconstruction contours and elevations and will be revegetated with native, non-invasive woody plantings following construction.

Section 7. Consultation

Consultation was initiated on date March 1, 2022, with a response from NMFS on date July 18, 2022. Since submittal of the previous Biological Assessment (BA) and NMFS issuance of a Biological Opinion (Appendix A), some components of the project have been modified. NMFS was provided with an updated project description on April 13, 2023. An updated BA that details the

project as it will be conducted in Fall 2023, and incorporates changes requested by the initial USFWS review, was submitted to the USFWS on April 20, 2023.

To supplement the consultation the following resources and individuals were consulted during the preparation of this document:

Eirik Thorsgard, BIA Regional Archaeologist, Northwest Regional Office, May 25, 2023

Tobiah Mogavero, BIA Northwest Regional NEPA Coordinator, May 3, 2023.

Bob Hetzler, BIA Yakama Agency Environmental Coordinator, May 3, 2023.

A Biological Opinion from the USFWS is pending. This section of the EA will be completed once a Biological Opinion is issued.

Section 8. List of Contributors

Kate Valdez, Yakama Nation THPO, Section 106 Documentation, May 15, 2023

APPENDIX A
BIOLOGICAL OPINION (NMFS)



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
Portland, Oregon 97232-1274

<https://doi.org/10.25923/qvwh-sj31>

Refer to NMFS No: WCRO-2022-00466

July 18, 2022

Peter L. Plant
Project Administrator
Wapato Irrigation Project
Bureau of Indian Affairs
Yakama Agency
P.O. Box 0632xd
Toppenish, WA 98948

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Wapato Headworks Rehabilitation Project, Yakima County, Washington.

Dear Mr. Plant:

This letter responds to your March 1, 2022, request for initiation of consultation with the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act (ESA) for the subject action, as amended by your updated letter and Biological Assessment (BA) received on May 12 and 13, 2022. Your request qualified for our expedited review and analysis because it met our screening criteria and contained all required information on, and analysis of, your proposed action and its potential effects to ESA-listed species and designated critical habitat.

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

We reviewed the Bureau of Indian Affairs (BIA) consultation request and related initiation package. Where relevant, we have adopted the information and analyses you have provided and/or referenced, but only after our independent, science-based evaluation confirmed they meet our regulatory and scientific standards. We adopt by reference the following sections of BIA's BA: Chapter 3.1 (Action Area), Chapter 3.2–3.4 (Proposed Action), Chapter 4.1 (Status of Species and Critical Habitat), Chapter 5 (Environmental Baseline), and Chapter 6 (Effects of the Action).



The BIA submitted a consultation initiation package, including a BA, to NMFS on March 1, 2022. NMFS requested additional information on March 15, 2022. The BIA submitted a revised BA on May 12, 2022, and a revised consultation request letter on May 13, 2022. The revised BA and consultation request included all information necessary to initiate consultation; therefore, consultation was initiated on May 13, 2022.

As described in the BA, the BIA proposes to conduct a thorough inspection of, and make minor repairs and safety improvements to, the Wapato diversion facilities in Yakima County, Washington. The project will allow BIA and the Yakama Nation to rehabilitate and repair the diversion structures, inspect the existing diversion dams, and design long-term rehabilitation or replacement options for the headworks and diversion facilities to address ongoing operational, structural, and environmental issues. Construction of any long-term changes to the facilities deemed necessary after inspection is planned to occur several years after the initial repairs to the headworks and will require subsequent consultation.

We examined the status of Middle Columbia River (MCR) steelhead, which would be adversely affected by the proposed action, to inform the description of the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. We also examined the condition of critical habitat throughout the designated area and the function of the physical and biological features essential to the conservation of the species that create the conservation value of that habitat. Chapter 4.1 of the BA describes the status of the species and critical habitat, and is adopted here. Major risk factors that limit MCR steelhead recovery include reduced quality and quantity of freshwater habitat, predation, regulatory mechanisms that fail to adequately protect habitat, ocean conditions, hatchery fish, and climate change.

"Action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). Chapter 3.1 of the BA identifies the action area as including the Yakima River from the Century Landing boat launch upstream of the diversion facility to a point approximately one mile downstream of the diversion facility. The action area includes the extent of the river that will be used by a construction barge, dewatered, or potentially affected by temporarily reduced flows or increased turbidity and noise.

The "environmental baseline" includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR 402.02). Chapter 5 of the BA describes the environmental baseline and is adopted here.

The action area supports rearing and migration of MCR steelhead from the Upper Yakima and Naches populations. Adults from the Naches population may also spawn in the action area at low density in the spring. Both populations are within the Yakima River Major Population Group (MPG), one of four MPGs of MCR steelhead. Important physical and biological features (PBF) in the action area include water quantity and quality, substrate, floodplain connectivity, forage, natural cover, freedom from obstruction, and excessive predation. The ability of critical habitat in the action area to support MCR steelhead is primarily limited by alterations of the hydrograph caused by operation of the Yakima Irrigation Project, juvenile passage problems at the Wapato

diversion facility, simplified instream habitat, loss of streamside cottonwoods, and impairment of natural channel migration processes.

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

The biological assessment provides a detailed discussion and comprehensive assessment of the effects of the proposed action in Chapter 6 of the initiation package, and is adopted here. NMFS has evaluated this section and after our independent, science-based evaluation, determined it meets our regulatory and scientific standards.

An unknown number of juvenile steelhead from the Upper Yakima and Naches populations will be affected by fish rescue and dewatering within a 128,000 square-foot area at the east and west diversion dams. Additional fish for a distance of up to 1.5 river miles downstream of the dewatered areas in the east and west channels will be affected by temporarily reduced flows. Most of the steelhead that will be present are expected to move to areas that will not be dewatered or to be captured and released safely during fish rescue. A minority of fish present in the area are expected to die by evading rescue and suffocating in the dewatered area, or to be injured or killed as a result of fish rescue efforts. The ability of critical habitat in the action area to support steelhead rearing will be temporarily impaired by decreasing rearing capacity via the water quantity PBF.

“Cumulative effects” are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation [50 CFR 402.02 and 402.17(a)]. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. Chapter 6.8 of the BA describes cumulative effects and is adopted here.

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

The proposed action is expected to kill or injure a small number of juvenile steelhead during dewatering and fish rescue. The status of MCR steelhead is generally poor, and is compromised within the action area as a result of regulation of the hydrograph by Reclamation’s Yakima Irrigation Project and habitat simplification. Cumulative effects may cause a slight degradation of habitat conditions in the action area over the coming decades. A one-time loss of a small number of juveniles caused by the proposed action will not meaningfully affect the abundance or

productivity of the Upper Yakima or Naches populations, and will not affect their diversity or spatial structure. The likelihood of persistence and recovery potential of the MPG will not be affected because none of the component populations will meaningfully be affected. Similarly, the likelihood of persistence and recovery potential of MCR steelhead as a whole will not be affected, because we expect no change in the viability status of the Yakima River MPG.

The proposed action will temporarily reduce the function of the water quantity PBF during the dewatering event. Several areas will be dewatered in sequence over a period of up to three months. Temporary impairment of the ability of this localized critical habitat to support juvenile rearing will not meaningfully affect its ability to support recovery of the DPS. Therefore, the action will not affect the conservation value of critical habitat at the scale of the designation.

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

INCIDENTAL TAKE STATEMENT

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

Amount or Extent of Take

In the opinion, NMFS determined that incidental take of MCR steelhead is reasonably certain to occur as follows: capture, injury, and death resulting from dewatering and fish rescue activities.

We anticipate that the proposed action is likely to result in capture, injury, and death to juvenile MCR steelhead caused by dewatering 128,000 square feet of river at the east and west diversion dams combined, and by reducing flows in areas downstream of dewatering areas extending to the end of the east and west channels, totaling 1.5 river miles. A small number of juvenile steelhead are anticipated to be injured or killed.

NMFS anticipates the proposed action will result in capture, injury, and death as a result of dewatering and fish rescue. Estimating the specific number of animals captured, injured or killed is not possible because of the range of responses that individual fish will have, because the numbers of fish present at any time is highly variable, and it is not possible to observe all fish being affected. Although captured fish can be counted, it is difficult to identify and quantify the number of fish with internal injuries. While this uncertainty makes it difficult to quantify take in terms of numbers of animals injured or killed, our best estimate is that a small number of juvenile steelhead will experience injury or death due to fish rescue and dewatering, and reduced flows downstream of dewatered areas. We anticipate locating and finding all potential injured or killed fish will be impossible and hard to track. However, the extent of dewatering and fish rescue, and reduced flows, is readily discernible and presents a reliable measure of the extent of take that can be monitored and tracked. Therefore, the estimated extent of dewatering and fish rescue activities, and reduced flows, represents the extent of take associated with injury and death. The proposed surrogate is causally linked to anticipated take because it describes conditions that will cause take due to dewatering and fish rescue. Specifically, NMFS will consider the extent of take exceeded if the proposed action results in:

- Dewatering of, or fish rescue within, more than 128,000 square feet of the river at the east and west diversion dams combined.
- Reduced flows below dewatered areas extending to the ends of the east and west channels for a distance longer than 1.5 miles combined.

The surrogates described above are measurable, and thus can be monitored and reported. For this reason, the surrogates function as effective reinitiation triggers.

Effect of the Take

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

Reasonable and Prudent Measures

“Reasonable and prudent measures” (RPM) are measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

The BIA shall:

- Minimize incidental take resulting from dewatering and fish rescue, and from reducing flows in the east and west channels downstream of dewatered areas.
- Monitor the project to ensure that the measures are meeting the objective of minimizing take and that the amount or extent of take is not exceeded.

Terms and Conditions

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

1. The following terms and conditions implement RPM 1:
 - a. Ensure that a minimum of 10 cubic feet per second of water is available in the east and west channel downstream of the dewatered areas at all times. Water spilling over part of the dam and seepage may be sufficient to provide the minimum flow; if not, pumping water around the dewatered area may be necessary.
 - b. At least 30 days before the dewatering event:
 - i. Identify a lead fish biologist for the dewatering and fish rescue effort. The lead biologist will have experience in fish rescue during dewatering activities.
 - ii. Ensure the construction schedule allows for at least two days of dewatering and fish rescue activities for each of the two diversion dam dewatering areas.
 - iii. Identify all equipment and supplies needed for dewatering activities, including electrofishers, dipnets, seines, blocknets, buckets, aerators, batteries, etc. in sufficient sizes and numbers to support the dewatering effort.
2. The following terms and conditions implement RPM 2:
 - a. Within 90 days after construction is completed, the BIA shall provide NMFS a post-project monitoring report including, at a minimum, the following information:
 - i. Project name and NMFS Tracking No: Wapato Headworks Rehabilitation, WCRO-2022-00466.
 - ii. Number of *O. mykiss* up to 225 mm fork length that were captured and released without injury. Fork length can be estimated, instead of directly measured, to reduce handling stress for captured fish.

- iii. Number of *O. mykiss* up to 225 mm fork length that were captured and observed injured or dead. Fork length can be estimated, instead of directly measured, to reduce handling stress for captured fish.
 - iv. Number of *O. mykiss* up to 225 mm fork length that were unable to be captured and observed to be killed by asphyxiation from dewatering.
 - v. Total river area (square-feet) of dewatering.
 - vi. Length (miles) of east and west channel that had reduced flows due to dewatering.
 - vii. Estimated minimum flow in east and west channel below dewatered areas.
- b. The monitoring report should be delivered to crbo.consultationrequest.wcr@noaa.gov.

Reinitiation of Consultation

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

Essential Fish Habitat

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson–Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination you made regarding the potential effects of the action. This review was conducted pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation.

Section 305 (b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. Under the MSA, this consultation is intended to promote the conservation of EFH as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity,” and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10). Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate, loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects may

result from actions occurring within EFH or outside of it and may include direct, indirect, site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) of the MSA also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset the adverse effects of the action on EFH [50 CFR 600.0-5(b)].

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

- Dewatering 128,000 square feet of river at the east and west diversion dams, combined, and by reducing flows in areas downstream of dewatering areas extending to the end of the east and west channels, totaling 1.5 river miles.

NMFS determined that measures included in the BA are sufficient to avoid, minimize, mitigate, or otherwise offsets the impact of the proposed action on EFH.

The BIA must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations [50 CFR 600. 920(1)].

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The biological opinion will be available through NOAA Institutional Repository at <https://repository.library.noaa.gov/welcome>. A complete record of this consultation is on file at NMFS' Columbia Basin Branch.

Please direct questions regarding this letter to Sean Gross, Columbia Basin Branch, at (509) 856-5442.

Sincerely,



Michael P. Tehan
Assistant Regional Administrator
Interior Columbia Basin Office

cc: Allison Konkowski – USFWS