BUREAU OF RECLAMATION

Final Environmental Assessment
Clear Creek Dam Fish Passage

Yakima River Basin Water Enhancement Project
Yakima County, Washington
Columbia-Cascades Area Office
Columbia-Pacific Northwest Region

U.S. Department of the Interior

April 2024

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Cover photograph: view of Clear Creek Dam and Clear Lake, Washington (Reclamation photo)

Draft Environmental Assessment Clear Creek Dam Fish Passage

Proposed Action

Reclamation proposes to construct a new fish ladder and appurtenant structures that would enable upstream fish passage around Clear Creek Dam for bull trout and existing resident fish (e.g., rainbow and cutthroat trout, mountain whitefish).

Lead Agency

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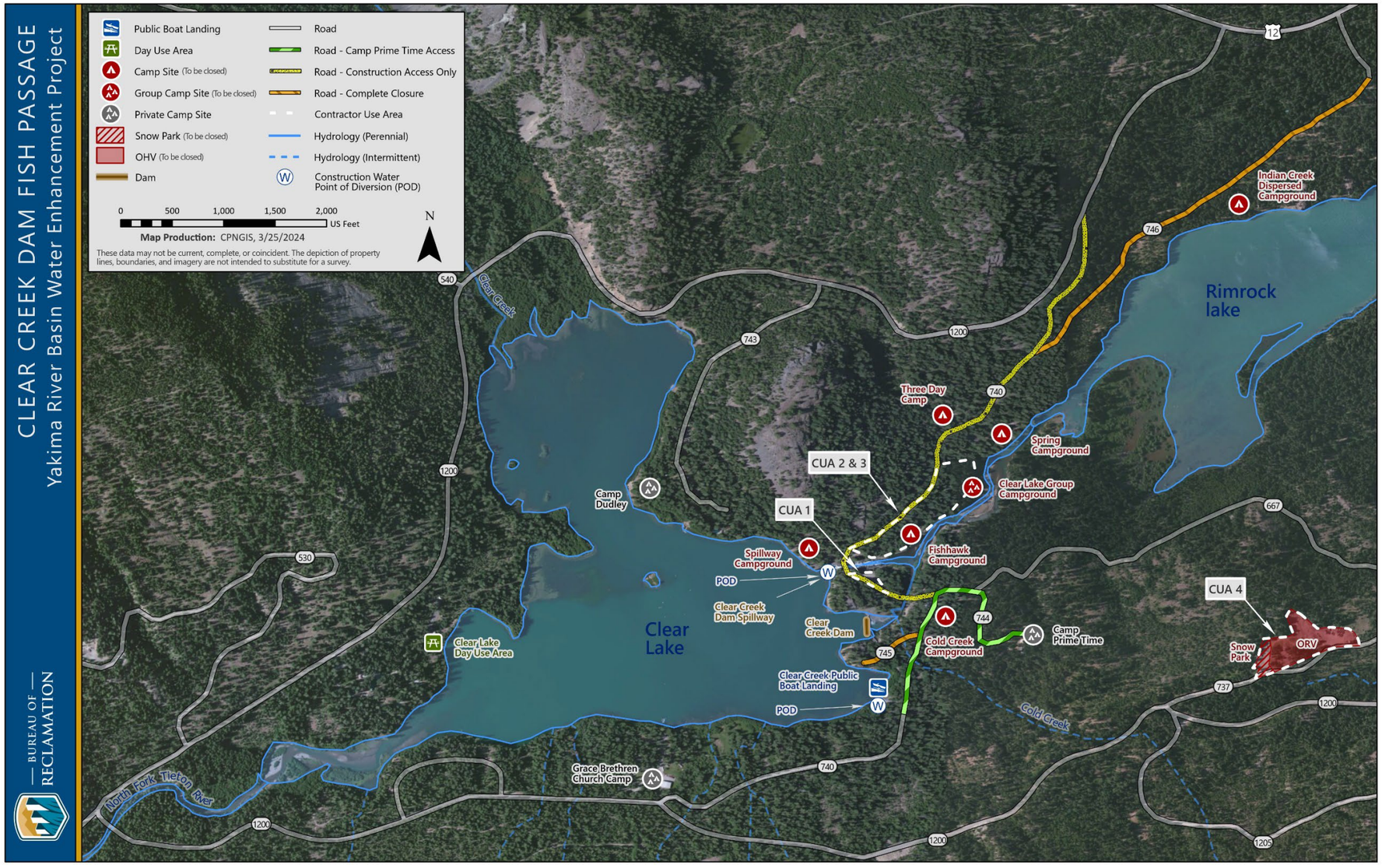
Frontispiece



Overview of Clear Creek Dam Fish Passage Project

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Acronyms and Abbreviations

Acronym or Abbreviation	Definition
APE	Area of potential effect
BA	Biological Assessment
BMPs	Best management practices
CCA	Climate Commitment Act
CCDFP	Clear Creek Dam Fish Passage
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CIP	Cast-in-place
CLRA	Clear Lake Recreational Area
Core Team	Storage Dam Fish Passage Core Team
CUA	Contractor Use Area
CY	Cubic yard
DAHP	Department of Archaeology and Historic Preservation
DBH	Diameter at breast height
DPS	Distinct Population Segment
EA	Environmental Assessment
Ecology	Department of Ecology
EDNA	Environmental designation for noise abatement
ESA	Endangered Species Act
FIN	Freshwater Information Network
FMO	Foraging, migration, and overwintering
FONSI	Finding of No Significant Impact
GHG	Greenhouse gas
IDP	Inadvertent Discovery Plan
Integrated Plan	Yakima River Basin Integrated Water Resource Management Plan
IPaC	Information for Planning and Consultation
ITA	Indian Trust Asset
LF	Linear feet
MAF	Million acre-feet
MALAA	May affect, and is likely to adversely affect

Acronym or Abbreviation	Definition
MCR	Middle Columbia River
NEPA	National Environmental Policy Act
NF	National Forest
NHPA	National Historic Preservation Act
NLAA	May affect, but is not likely to adversely affect
NMFS	National Marine Fisheries Service
NSO	Northern spotted owl
OHV	Off-road vehicle
OHWM	Ordinary high-water mark
P	Phosphate/phosphorus
PAOT	Persons at one time
PCE	Primary Constituent Element
PEIS	Programmatic Environmental Impact Statement
PIT	Passive integrated transponder
PM	Particulate matter
Project	Yakima Project
RCW	Revised Code of Washington
Reclamation	Bureau of Reclamation
Recovery Plan	Recovery Plan for the Coterminous United States Population of Bull Trout
ROD	Record of Decision
ROS	Recreational Opportunity Spectrum
RST	Restoration Services Team
RUP	Road use permit
SEPA	State Environmental Policy Act
SHPO	State Historic Preservation Office
SR	State Route
TCP	Traditional cultural place
Transport Project	North Fork Tieton Transport Project
TSC	Technical Service Center
U.S.C.	U.S. Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

Acronym or Abbreviation	Definition
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WRCC	Western Regional Climate Center
WSDOT	Washington State Department of Transportation
WSE	Water surface elevation
Yakama Nation	Confederated Tribes and Bands of the Yakama Nation
YFO	Yakima Field Office
YRBWEP	Yakima River Basin Water Enhancement Project

Chapter 1 Purpose of and Need for Action

1.1 Introduction

The U.S. Department of the Interior, Bureau of Reclamation (Reclamation) prepared this draft Environmental Assessment (EA) consistent with the purpose and goals of the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.) and pursuant to the Council on Environmental Quality's implementing NEPA regulations at 40 CFR Parts 1500-1508. Additionally, this EA was prepared consistent with the Department of the Interior NEPA regulations (43 CFR Part 46); longstanding federal judicial and regulatory interpretations; and Administration priorities and policies, including Secretary's Order No. 3399 requiring bureaus and offices to use "the same application or level of NEPA that would have been applied to a proposed action before the 2020 Rule went into effect."

Reclamation has prepared this EA for the Clear Creek Dam Fish Passage (CCDFP) Project. The frontispiece at the beginning of this document provides a general overview of the Clear Creek Dam area. In this EA, Reclamation evaluates the impacts of the CCDFP Project on the natural and human environment[1] that could result from Reclamation's implementation of the conservation action to provide upstream resident fish passage, and future anadromous[2] fish passage, at Clear Creek Dam, approximately 30 miles west of Naches, Washington. Should a determination be made that the CCDFP Project would not result in significant environmental impacts, a Finding of No Significant Impact (FONSI) would be prepared to document that determination and provide a rationale for approving the selected alternative. If not, then a decision would be made to either select the No Action alternative or issue a notice of intent to prepare an Environmental Impact Statement.

1.2 Location/Action Area

On the east side of Washington's Cascade Mountain Range, about 30 miles southwest of Naches and 48 miles west of Yakima, Clear Creek Dam creates a reservoir (Clear Lake) with an active capacity of 5,300 acre-feet with a constant pool (lake) elevation of approximately 3011.3 feet over a surface area of approximately 260 acres. The project location is on federal lands, managed by Reclamation and the U.S. Forest Service (USFS), Okanogan-Wenatchee National Forest, in Township 13N, Range 12E, Sections 11 and 12.

[1] Reclamation designed the CCDFP Project with an expected service life of 50 years. This is often exceeded but is used as a baseline for how long the designers expect the feature to be operating.

[2] Anadromous is the term used for fish born in freshwater, who spend most of their lives in saltwater (ocean) and return to freshwater to spawn (eggs and sperm released into water by aquatic animals). Anadromous fish include salmon and some species of sturgeon.

The 1963 Memorandum of Agreement for Clear Lake and the 1987 Master Interagency Agreement between Reclamation and the USFS outline applicable considerations for Reclamation projects located on or affecting lands and resources administered by USFS.

Item 15 of the 1963 Memorandum of Agreement establishes the following understanding:

> "The dam, including the spillway structure, outlet works, and channels associated therewith, and the land up on which those facilities are located or which in the opinion of the Regional Direct, Bureau of Reclamation, is necessary for their operation and maintenance, shall continue to be under the primary jurisdiction of and controlled by the Bureau; and the [Forest] Service shall not be obligated in any way for the maintenance thereof…"

The 1987 Master Agreement distinguishes between "project area" and "area of project influence." The "project area" is considered the area of an authorized project "within which Federal ownership or control is necessary" and for which "[T]he Bureau of Reclamation retains control for construction, operation, maintenance, and protection of the project…" and "may include lands where the project uses, such as transmission lines, canals, ditches, laterals, and drains, require Reclamation's jurisdiction" (Section III, Item F).

The "area of project influence" is defined as "Lands outside the project area remaining in Service jurisdiction but requiring special consideration to ensure that management actions will minimize adverse effects on or enhance the operation and maintenance of the project" (Section III, Item J).

Regarding management, the 1987 Master Agreement states "Within a project area, use authorizations from the Service are not required for project activities, including construction, operation, and maintenance" (Section IV, item B).

1.3 Proposed Action

Reclamation proposes to implement its conservation action for *Salvelinus confluentus*[3] (bull trout), included as part of the proposed action in the 2019 *Updated Proposed Action for Reclamation's Yakima Irrigation Project Operations and Maintenance Consultation, USFWS Supplement to the April 2015 Biological*

[3] In 1999, the U.S. Fish and Wildlife Service (USFWS) listed all U.S. populations of bull trout as a threatened species under the ESA (64 Federal Register 58910, November 1, 1999). The 1999 listing applied to one distinct population segment of bull trout within the U.S. by including bull trout in the Coastal-Puget Sound populations and Saint Mary-Belly River populations, with previous listings of three separate distinct population segments in the Columbia River, Klamath River, and Jarbidge River basins (63 Federal Register 31647, June 10, 1998; 64 Federal Register 17110, April 8, 1999). In recognition of available scientific information relating to their uniqueness and significance, six segments of the United States population of the bull trout are considered essential to the survival and recovery of this species and are identified as recovery units: Coastal, Klamath, Mid-Columbia, Columbia Headwaters, Saint Mary, and Upper Snake. The Project area is in the Mid-Columbia recovery unit for bull trout. Please see Section 3.2 for more information on bull trout.

Assessment for Yakima Project Operations and Maintenance[4] (Reclamation 2019), to provide upstream fish passage at Clear Creek Dam, specifically for bull trout, but other fish species could benefit as well. This proposal includes actions to construct a new fish ladder to meet National Marine Fisheries Service (NMFS) 2022 fish passage design criteria[5] and utilize colder water for fish ladder attraction flows.

1.4 Purpose of and Need for Action

The *purpose* of the CCDFP Project is to improve the long-term viability of the North Fork Tieton bull trout population by allowing bull trout to move freely between spawning and rearing habitat areas. Improvements in the long-term viability of bull trout in the CCDFP Project area would be accomplished through the following actions:

- Implementation of fish passage that complies with current regulatory criteria
- Reduction in take

An additional benefit of providing upstream resident fish passage at Clear Creek Dam includes the ability to expand habitat access for anadromous fish once fish passage is installed at Tieton Dam and anadromous fish are reintroduced into Rimrock Lake.

The *need* for the proposed action is the existing Clear Creek Dam fishway, which has been identified as impeding upstream passage of bull trout to the upper reaches of North Fork Tieton River and its tributaries. The Clear Creek Dam fishway consists of two separate fish ladders constructed to provide fish passage over a section of bedrock cascades that also serves as the dam spillway.

Difficulties associated with fish passage at the dam's spillway include:

- Sedimentation and gravel accumulation in the lower fish ladder
- High water temperatures in the spillway during key migration periods
- Cool water released from Clear Creek Dam falsely attracts migrating fish into Clear Creek Dam stilling basin[6]

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[4] The 2015 Yakima Project BA is considered the primary consultation document for the ongoing Yakima Project consultation with the Services; however, Reclamation has submitted Biological Assessment (BA) Supplements to the original 2015 Yakima Project BA that described new project information that was not previously described and to provide updated information on changes that have occurred to Yakima Project operation and maintenance (O&M) activities that were not previously included. These included new actions proposed for implementation as part of Reclamation's future operation of the Yakima Project, as well as actions that have occurred under the environmental baseline prior to April 2015, while also providing the most updated status of the species within the Yakima River basin. Supplements were submitted to USFWS in 2018 and NMFS in 2019. Additionally, the proposed action was included in the 2012 FPEIS and associated ESA consultation.

[5] Effective fish passage requires the integration of numerous scientific and engineering disciplines; it is for this reason that the NMFS issues fish passage design guidance. The *NOAA Fisheries West Coast Region Anadromous Salmonid Passage Design Manual* was issued in June 2022, and an addendum was issued February 22, 2023. The document is intended to assist with improving conditions for salmonids that must migrate past barriers to complete their life cycle.

[6] The stilling basin is directly below the dam, away from the spillway and existing fish ladders.

1.5 Background

1.5.1 Yakima Project and Yakima River Basin Water Enhancement Project

The Yakima Project's (Project) authorization and water rights, issued under Washington State water law and the 1945 Consent Decree, are statutory constraints for water resources. Reclamation must operate the Yakima Project Divisions and storage facilities in a manner that avoids injury to water users within this framework. Legislation in 1994 provided that an additional purpose of the Yakima Project shall be for fish, wildlife, and recreation, but that this additional purpose "shall not impair the operation of the Yakima Project to provide water for irrigation purposes nor impact existing contracts." Since April 1995, the Project has been operated as required by the 1994 legislation to maintain target streamflows downstream from Sunnyside Diversion Dam as measured at the Yakima River near the Parker stream gage.

Hydroelectric power is produced coincidentally to other Project purposes. Reservoir storage releases are not made to meet hydroelectric power demand; sometimes incidental power generation at Project facilities is subordinated to meet instream flow requirements. Recreational needs are considered but are incidental to other Project purposes. Maximizing flood control, irrigation water delivery, and meeting streamflow needs requires continuous water management adjustments and includes many system operation considerations.

The Project provides irrigation water for a narrow strip of fertile land that extends for 175 miles on both sides of the Yakima River in south-central Washington. Storage dams and reservoirs on the project are Bumping Lake, Clear Creek (Clear Lake), Tieton (Rimrock Lake), Cle Elum, Kachess, and Keechelus. The total storage of the five major reservoirs (Clear Lake is a minor reservoir managed for recreation) is a little over 1 million acre-feet (MAF), but the total yearly runoff passing through the storage reservoir system averages 1.71 MAF.

The majority of spring/summer runoff is from snowmelt; therefore, snowpack is often considered the "sixth reservoir." Because only 30 percent of the average annual total natural runoff can be stored in the storage system, the Project is very dependent upon the timing of spring/summer runoff (snowmelt and rainfall). The early spring/summer natural flow is used to supply most river basin demands through June in an average year. In most years, the five major reservoirs are operated so that storage peaks in June (average mid-June, period of record 1940-1999), about the same time the major natural runoff ends.

The historical lakes and tributaries upstream from these dams formerly supported runs of anadromous salmonids and resident species of fish. Varying amounts and quality of potential spawning and rearing habitat suitable for anadromous salmon and steelhead trout still exist above the dams. Two species listed under the Endangered Species Act (ESA) — bull trout and Middle Columbia River (MCR) steelhead — would likely benefit from passage at the dams.

Providing fish migration past these dams would: increase anadromous species abundance and spatial distribution; also likely benefit Chinook salmon and might allow reintroduction of extirpated sockeye and coho salmon; and provide for genetic interchange for listed bull trout and other native fish. This would also help fish cope with potential future climate change impacts by providing access

to high-quality habitat at higher elevations if lower elevation habitat is no longer suitable for supporting fish life stages at certain times of year.

Many tributary streams in the Yakima River basin were disconnected from the Yakima River and made inaccessible to migratory fishes (including salmon and steelhead) over the past century. Congress passed the Yakima River Basin Water Enhancement Project (YRBWEP) legislation in 1994 to help improve fish and wildlife habitat, including provisions to enhance Yakima River basin tributary streams affected by irrigation development.

The YRBWEP Workgroup (sponsored by Reclamation, the Washington Department of Ecology (Ecology), and the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation), and including Yakima Project irrigators, federal and state agencies, local governments, and environmental groups) collaboratively developed the Yakima River Basin Integrated Water Resource Management Plan (Integrated Plan). The Integrated Plan represents a comprehensive approach to water management and ecosystem restoration in the Yakima River basin.

The CCDFP Project is part of the Integrated Plan Reservoir Fish Passage Element evaluated in the *Integrated Plan Programmatic Environmental Impact Statement* (PEIS; Reclamation and Ecology 2012) and the preferred alternative, as outlined in the Record of Decision, July 2013. Pursuing the CCDFP Project is essential to fulfill requirements of the 2002 Mitigation Agreement that Reclamation entered with Washington Department of Fish and Wildlife (WDFW), and to meet stipulations in the 2006 Settlement Agreement with the Yakama Nation to resolve litigation; both agreements stem from issues that arose with the Keechelus Dam Safety of Dams Modification project in 2002. More information can be found in the PEIS located on the Yakima Basin Integrated Plan webpage (https://www.usbr.gov/pn/programs/yrbwep/2011integratedplan/index.html).

1.5.2 Clear Creek Dam Fish Passage History

Clear Creek Dam was built in 1914 without fish passage. When Clear Creek Dam was rebuilt in 1992, two fish ladders were added to the bedrock spillway of Clear Creek Dam. These ladders are in the upper and lower section of the spillway. The lower ladder is a series of four Denil ladders interspaced with resting pools located on the right bank of the spillway. The upper ladder is a pool-and-weir design constructed on the left side of the spillway channel. The Denil ladder is considered too steep for successful passage and easily becomes clogged with sediment and gravels. As a result of studies conducted in 2012 through 2014, it was determined that there is no evidence that fish successfully migrated upstream through the fish ladder, and the fish ladder was all but abandoned (i.e., the fish ladder is still there but maintenance has ceased).

The North Fork Tieton River flows into Clear Lake and continues below the dam; it is designated critical habitat for bull trout. A population of bull trout spawns in the North Fork Tieton River above the dam, but studies have found this population of bull trout is disconnected by the dam. Many North Fork Tieton fish migrate downstream from the dam, where they find favorable rearing, foraging, and overwintering habitat in Rimrock Lake. During the summer, adult bull trout return to the North Fork Tieton to spawn, congregating in the stilling basin below Clear Creek Dam, where they are attracted to the cold water flowing through the outlet works. These fish are unable to migrate upstream because there is no upstream passage at the fishway that is in the spillway channel.

In addition, the strong homing instinct of these fish prevents them from seeking spawning habitat elsewhere. As a result, these adult North Fork Tieton River fish remain in the Clear Creek Dam stilling basin and do not contribute to the North Fork Tieton spawning population.

New fish passage at Clear Creek Dam has been under consideration since 2005 when a pre-design memorandum was written exploring alternative methods of fish passage at the site. Due to funding limitations and uncertainties about the ability of adult bull trout to pass through the spillway at that time, the fish passage project at Clear Creek Dam was put on hold.

A study was initiated to determine if passage through the spillway was effective. Results of the study found that bull trout were not successful at passing upstream via the ladder. The study also found that some bull trout attempted to go upstream using the spillway and fish ladder, but none were successful (USFWS and Reclamation 2013, 2014, and 2015; Thomas and Monk 2016). A combination of factors affects the ability of bull trout to migrate successfully up the spillway channel. High water temperatures in the spillway during key migration periods deter spillway use; also, cool water released from Clear Creek Dam, through the outlet, falsely attracts migrating fish into Clear Creek Dam stilling basin away from the spillway and existing fish ladders.

The number of North Fork Tieton River bull trout currently isolated below Clear Creek Dam is significant, perhaps equaling or exceeding the number that currently spawn above it (Thomas and Monk 2016). The study confirmed that ineffective passage over the spillway for bull trout that migrate downstream from Clear Lake causes a significant threat to the North Fork Tieton River population.

Due to information from the Clear Creek Dam Fish Passage Assessment study that was conducted by the U.S Fish and Wildlife Service (USFWS) and Reclamation in 2015 (USFWS and Reclamation 2015) and the trap and haul study that was conducted by the USFWS between 2016 and 2018 at Clear Creek Dam (USFWS 2017 and 2018), it has become clear that adult bull trout are not using the existing fish passage structures at the dam spillway. Because the North Fork Tieton River bull trout population is an important local spawning population, Reclamation reinitiated the Clear Creek Dam fish passage design work and is committed to finding a solution to the fish passage barrier problem at the dam.

In the meantime, since there is no volitional fish passage at Clear Creek Dam, the USFWS captures bull trout from below Clear Creek Dam and transports genetically identified North Fork Tieton River fish around the dam so they can reach spawning habitat in the North Fork Tieton River (this process in general is known as trap and haul). Fish capture and transport has been conducted annually by USFWS since 2016. As of July 2023, 152 adult bull trout have been transported above the dam by the USFWS's North Fork Tieton Transport Project (Transport Project). An additional 88 bull trout identified as South Fork Tieton or Indian Creek fish that also migrated to the base of the dam were released downstream of the stilling basin. Reclamation funds, and will continue to fund, the Transport Project until fish passage is constructed at Clear Lake Dam.

Reclamation completed an appraisal level design for fish passage in September 2018. The design consists of a traditional pool-and-weir-style fishway with a steel bulkhead at the upstream end that would draw cool water from deeper in the reservoir. Situated along the left abutment of the dam,

fish would enter the fishway in the stilling basin and exit in the reservoir pool. The bulkhead would be deep enough to maintain suitable water temperature in the fishway for bull trout.

Bull trout population recovery is a nationwide focus and is extremely important to the Yakima basin. The *Yakima Bull Trout Action Plan* was written in 2012 by Yakima basin fish biologists and included information on bull trout population status, trend and distribution, and habitat, along with a detailed analysis of threats by life stage for each population and specific monitoring and restoration actions that address those threats (Reiss et al. 2012). Installation of fish passage at Clear Creek Dam is considered among the highest priority actions for bull trout recovery in the Yakima River basin. The USFWS issued the *Recovery Plan for the Coterminous United States Population of Bull Trout* (Recovery Plan) in 2015 (USFWS 2015). Recovery plans delineate reasonable actions that are believed to be required to recover and protect listed species. In the Recovery Plan, recovery actions for bull trout included "minimize demographic threats to bull trout by restoring connectivity or populations where appropriate to promote diverse life history strategies and conserve genetic diversity" (USFWS 2015) and the proposed upstream fish passage would restore the connectivity of the North Fork Tieton bull trout population.

In accordance with the Yakama Nation Settlement Agreement, Reclamation is continuing to coordinate with the Storage Dam Fish Passage Core Team[7] (Core Team) and others to implement fish passage at Clear Creek Dam. The Core Team and its partners met with basin biologists to define the range of species targeted for passage and provide input for designers regarding ladder geometry.

1.6 Legal Authority

The YRBWEP was authorized in 1979 in response to a severe drought and a surface water right adjudication that began in 1977. The various project components have evolved since then under the following authorities:

- P. L. 96-162 Feasibility Study, December 28, 1979
- P. L. 98-381 Section 109 of Hoover Power Plant Act of 1984
- P. L. 103-434 Title XII Yakima River Basin Water Enhancement Project, October 31, 1994, as amended by PL 105-62, October 13, 1997, and PL 106-372, October 27, 2000
- P. L. 116-9, The John Dingell Jr. Conservation, Management, and Recreation Act, March 12, 2019

[7] The Core Team is composed of biologists, engineers, and other specialists from the Yakama Nation, National Marine Fisheries Service, USFWS, WDFW, Bonneville Power Administration (BPA), City of Yakima, North Yakima Conservation District, Tri-County Water Resources Agency, USFS, Washington Department of Agriculture, Ecology, Wenatchee National Forest, Yakima Basin Joint Board, Yakima River Basin Commodity Coalition, and Yakima-Tieton Irrigation District.

1.7 Decisions to be Made

This EA complies with the NEPA by supporting federal decisions related to the CCDFP Project. It provides necessary information for approving, modifying, or denying a proposal. Based on the analysis in this EA, Reclamation would decide whether to construct a new fish ladder and appurtenant structures and facilities at Clear Creek Dam.

The USFS would consider under a separate decision, a joint USFS and Yakama Nation project that would improve instream habitat using trees removed from the CCDFP Project area.

Ecology has been a full partner with Reclamation on the Integrated Plan, and this project was included in the FPEIS Preferred Alternative selected in the FPEIS Record of Decision (ROD). Ecology has provided funding for Reclamation to study and design the CCDFP Project and to USFS to assist with the preparation of this EA. Ecology would utilize this EA to conduct its environmental review process under the State Environmental Policy Act (SEPA; Revised Code of Washington (RCW) 43.21C, Washington Administrative Code (WAC) 197-11).

Ecology would continue in their role as a partner, assisting with the implementation of the CCDFP Project, should the project be approved by Reclamation and Ecology.

Additional federal decisions would be made as part of permitting and consultation processes, including those required under Section 7 of the ESA and under the Clean Water Act. Other state jurisdiction decisions would be made as part of permitting processes as discussed in Section 4.2.5.

1.8 Lead, Cooperating, and Participating Agencies

Reclamation is the lead agency in charge of preparing this EA. The USFS, Yakama Nation, and Ecology are cooperating agencies for this EA, and Ecology is a full partner with Reclamation under the Integrated Plan.

As described elsewhere in this document, the USFS, Ecology, and the Yakama Nation will help Reclamation implement the CCDFP Project as part of the continued implementation of the Yakima Basin Integrated Plan.

1.9 Public Involvement

The draft EA was made available for public review on Reclamation's website (https://www.usbr.gov/pn/programs/clearcreek/index.html) for 15 days, from January 2 through January 17, 2024. Reclamation used the NEPA public review process to meet its public participation requirements under Section 106 of the National Historic Preservation Act, as provided in 36 CFR 800.8. All comments received were in the form of emails or emails with attachments. Reclamation received 32 emails during the 15-day public comment period; 29 emails were from the public and 3 emails were from agencies.

Reclamation received comments that could be divided into two categories: substantive and non-substantive. The following definitions were used to categorize emailed comments.

Substantive comments on NEPA do one or more of the following:

- Question, with reasonable basis, the accuracy of information in the EA/EIS
- Question, with reasonable basis, the adequacy of, methodology for, or assumptions used for the environmental analysis
- Present new information relevant to the analysis
- Present reasonable alternatives other than those analyzed
- Provide information which would cause changes or revisions of the alternative(s)

Non-substantive comments on NEPA are comments:

- In favor of or against the proposed action or alternatives without reasoning that meets the above criteria
- That only agree or disagree with policy or resource decisions without justification or supporting data that meets the above criteria
- That don't pertain to the project area or the project
- That take the form of vague and/or open-ended questions
- Directed at the Administration or President of the United States

The comments received from the public were non-substantive and primarily focused on the closure of the Cold Creek Sno-Park, with most emails requesting that the OHV Play Area be used instead. The Cold Creek Sno-Park and the OHV Play Area operate under USFS special use permits. Reclamation has determined the combined area of the Cold Creek Sno-Park and the OHV Play Area, proposed as Contractor Use Area (CUA) 4, is necessary due to the volume of material that will be handled and processed, and the proximity to the construction site. Since the release of the draft EA to the public, USFS and Reclamation have continued to coordinate on the use of these areas. Independent of the emails received, and as part of the continued coordination, it has been determined that a portion of the excess soils and gravels (collectively, spoils) from excavation of the fish ladder would be used to raise the elevation of the Cold Creek Sno-Park parking lot to improve drainage over the area. A 6-inch topcoat of gravel would improve the driving surface of the parking lot. Between now and the start of construction, Reclamation will continue working with USFS to notify the public of the temporary closure of the Cold Creek Sno-Park and OHV Play Area.

The Washington State Department of Transportation – Aviation Department (WSDOT), Ecology, and WDFW provided comments on the draft EA during the public comment period. Comments from WSDOT and Ecology were to remind Reclamation of coordination and permitting requirements. The WDFW's comments were seeking clarification of the design and operations of the fish ladder and providing specific species-related edit requests or clarifications. All agency comments were non-substantive. Even though edits were made within the analysis sections because

of the comments, these were considered non-substantive edits as they did not meet the criteria of a substantive comment.

Chapter 2 Proposed Action and Alternatives

2.1 Introduction

The No Action alternative and one action alternative are described in detail in this chapter (see Section 2.2). A summary of the alternatives considered but eliminated from detailed study is provided in Section 2.3.

2.2 Description of the Alternatives

Two alternatives are analyzed in this EA: Alternative A – No Action, and Alternative B – Proposed Action. The No Action alternative for an existing and ongoing federal project considers what would happen if the federal agency continued to operate and maintain the authorized project with no changes to current operations and maintenance. Therefore, the No Action alternative represents a continuation of the existing conditions and provides a comparative baseline for evaluating changes and impacts of the Proposed Action alternative.

2.2.1 Alternative A – No Action

Operations and Maintenance

Reclamation would continue to operate and maintain Clear Creek Dam consistent with current practices, and dam safety inspections would continue as scheduled. Reclamation manages the water discharge to maintain a nearly constant water surface elevation (WSE) of Clear Lake at 3011.3 feet, despite the dam crest being at elevation 3016. This pool elevation is held constant both for recreation and to maintain 0.3 feet of water above the spillway crest (elevation 3011.0) so there is continual flow into the spillway to provide downstream passage for bull trout. Water exceeding the target elevation would continue to be released via the outlet works and over the spillway.

Flood flows, most often caused by snow melt or rain-on-snow events, would continue to flow into the spillway and over the top of the dam. Clear Creek Dam itself was designed to operate as an uncontrolled spillway. The WSE is monitored closely by Reclamation's Yakima Field Office (YFO). At elevation 3013, water overtops the spillway abutments. A WSE over elevation 3015 requires closing the gates on the dam and allowing water to overtop the dam. It is critical to shut the gates at elevation 3015 because access becomes limited and unsafe, and protection of the facility is paramount. Once the air intakes are inundated, the outlet conduit does not take in oxygen to keep the dam from cavitating, which could result in catastrophic dam failure.

While Reclamation holds Clear Lake at elevation 3011.3, it is important to note that Clear Lake is still a reservoir. Reclamation has set a minimum pool elevation in Clear Lake at elevation 2995. This minimum pool elevation is maintained for the resident trout fishery and to use as an emergency holding area for kokanee during drought years. The minimum pool elevation also allows up to 3,000 acre-feet of water to be released after September 15 to meet late season irrigation demands, when needed. If necessary, when the water surface elevation is below the spillway crest, flows could be released from the 48-inch outlet.

Reclamation's YFO maintenance staff conduct routine site visits to check the dam and appurtenant facilities. These visits occur a minimum of once a week but may be daily, or involve 24-hour monitoring, if flood conditions are present. Maintenance activities are limited to areas currently disturbed by periodic access or maintenance needs. Vegetation clearing to maintain these areas is expected to primarily target smaller diameter trees (less than 14 inches in diameter at breast height (DBH), shrubs, and herbaceous vegetation. Occasionally, larger hazard trees may be removed.

Reclamation personnel remove debris and large wood that accumulates on the upstream face of the dams as well as on the crest of the spillway channels. While the amount of debris loading varies between years, clearing activities are generally required at each site on an annual basis. Wood may be moved from the dam face or riprapped areas by the dam by boom truck, small boat, or backhoe. When possible, spillway releases are used to move woody debris downstream. Material that is not relocated downstream would be collected and disposed of through burning, as conditions allow.

Formal facility review dam inspections are conducted under Reclamation's Review of Operation and Maintenance Program. Annually, field office personnel conduct local inspections to evaluate structural integrity and assess the need for repairs. Electrical, hydraulic, and mechanical systems are inspected during these reviews. External inspections, either by Reclamation's Regional Operations and Maintenance (O&M) Program or Reclamation's Technical Service Center (TSC), occur at least every 4 years.

When conducting facility inspections, Reclamation sets and maintains established instream flows downstream of the dams and manages reservoir releases to ensure no substantial flow fluctuations occur. Reclamation's YFO maintenance staff coordinates with staff hydrologists and biologist to confirm appropriate elevations and flows to ensure proper test timing. Reclamation typically solicits input from the Systems Operation Advisory Committee regarding inspection timing, flow conditions, and project duration. During spillway tests, Reclamation coordinates reservoir outflow by decreasing outlet releases at commensurate levels as spillway releases increase to dampen flow fluctuations below each reservoir when water is being released down the spillway. Due to the small size of Clear Lake, the reservoir reacts within 30 minutes of a gate adjustment and the change is visible on the staff gage.

Reclamation has identified that a full gate inspection is needed and the TSC is working on the timing and logistics. The gates, conduit, stems, and guide carriers have not been inspected since they were installed in 1992 during the dam rehabilitation project. Divers have inspected the gates, but a full inspection is not possible without a reservoir drawdown to elevation 2958, which would lower the reservoir 53.3 feet from its current level. It is anticipated that the elevation of 2958 would need to be

held for 2 weeks to conduct the full gate inspection. During this time, Reclamation would conduct other inspections and mapping of the facility for record-keeping and tracking purposes.

Bull Trout Passage at Clear Creek Dam

In 2007, Reclamation changed Clear Creek Dam operations so that the dam outlet works were used to regulate discharge, instead of using the spillway. Regulating the discharge with the outlet works maintains a more stable WSE in Clear Lake and spillway discharge. These conditions were believed to be more conducive for bull trout passage up the spillway channel than if there were more varied discharge. Reclamation currently targets a reservoir elevation of 3011.3 to 3011.4 to optimize passage conditions on the spillway. Maintaining the WSE at those levels keeps 0.3 to 0.4 feet of water in the spillway to provide downstream passage; however, downstream fish passage is greater over the spillway during high flow events.

Upstream fish passage via the existing pool and weir fish ladder, which was constructed in 1992, is not functional due to a suite of factors. YFO staff continue to inspect the fish ladder and remove large woody material, as needed. When the upper weirs are plugged, they can be dewatered to facilitate maintenance actions to remove large woody material. The lower section of the fish ladder is maintained in an ad hoc manner, but this maintenance has been mostly abandoned since upstream fish passage through the ladders was determined to be not viable in studies conducted in 2012 through 2014.

Since there is no volitional fish passage at Clear Creek Dam, Reclamation would continue to fund the Transport Project under the No Action alternative. Under the Transport Project, USFWS would continue to implement the following activities:

- Capture adult bull trout in the stilling basin directly below Clear Creek Dam, primarily by hook-and-line and tangle netting
- Surgically implant a passive integrated transponder (PIT) tag in captured bull trout and obtain tissue samples for genetic analysis
- Transport tagged North Fork Tieton River fish above the dam and release them into Clear Lake
- Release South Fork Tieton or Indian Creek fish downstream of the stilling basin
- Monitor the movement of tagged fish from established PIT tag interrogation sites established on the North Fork Tieton River, South Fork Tieton River, and Indian Creek
- Assess the spawning success of transported fish
- Euthanize genetically-identified brook trout/bull trout hybrids

2.2.2 Alternative B – Proposed Action

Reclamation proposes to construct a pool and weir fish ladder to provide upstream fish passage at Clear Creek Dam. The ladder entrance would be located immediately downstream of a rock outcrop along the left dam abutment to take advantage of an eddy created from dam releases, providing attraction flow to the entrance. The ladder alignment would climb the left dam abutment and rise over 50 feet to reach the reservoir. Design parameters for the fish ladder focused on adult bull trout but also considered other fish species, including sockeye, coho, and Chinook salmon as well as

steelhead. The design also provides safe human access points for O&M of the facility, which will be important in the project's long-term success.

Implementation of the CCDFP Project would include construction of the cast-in-place (CIP) concrete fish ladder, miscellaneous metalwork, and fencing. Mechanical features to be installed include pump, false weir, valving, slide gates and piping; electrical features to be installed include lighting, security cameras and receptacles, and other ancillary items; and site development to be completed includes a generator building and resurfacing access roads.

Construction of the fish ladder would involve the following activities: creating staging areas; clearing and grubbing of vegetation; construction of a new access road; excavation and backfill of material; forming and placement of CIP concrete; installation of fencing; a seasonal 12-foot reservoir drawdown; and cofferdam placement and removal in the North Fork Tieton River and, possibly, in the reservoir.

The primary construction area is shown in Figure 1. All fish ladder and road construction, including modifications to the existing Dam Access Road, would occur within this area. Secondary construction areas include the CUAs.

Figure 1. Close-up of the project area, where a new access road and the new fish ladder would be constructed on the north side of Clear Creek Dam

Alternative B would result in approximately 8.5 acres of total surface disturbance. Of this, approximately 7 acres of CUAs would be disturbed temporarily and would later be restored to pre-construction conditions. At the construction site, approximately 1.75 acres would be disturbed (see Figure 2); this includes areas of tree removal (1.25 acres), along with areas where excavation would occur to construct features (in the river and for access roads). Within the construction site, 0.28 acres would be temporarily disturbed and returned to pre-project conditions (e.g., existing gravel surfacing left as a gravel road, structures left as-is; and dirt/earth without vegetation left without vegetation due to terrain). Of the 1.25 acres where trees would be removed, 0.8 acres would be revegetated post-construction (0.51 acres seeded and 0.29 acres initially seeded and then planted). Approximately 0.46 acres would be permanently disturbed. This includes: those areas where structures and gravel would be placed where none existed pre-project; those areas where successful revegetation is not probable (e.g., exposed bedrock, steep slopes, etc.); and areas within the footprint of permanent CCDFP Project components that would not be restored to pre-construction conditions.

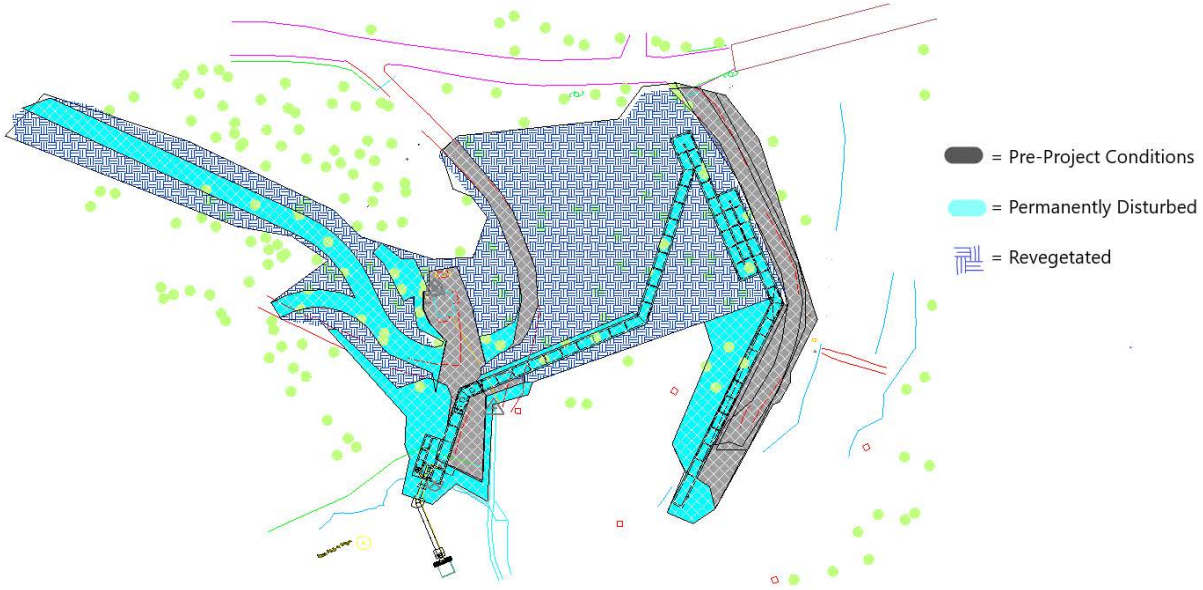

Figure 2. Surface disturbance at construction site of new access roads and fish ladder

Key Elements of the Project

The following sections provide more specific information about the components of the CCDFP Project.

Fish Ladder

The proposed fish ladder would be on the left abutment of the dam and would be approximately 750 feet long, 6 feet wide, and 10.5 feet deep. The ladder consists of a river structure located at the river elevation, a reservoir structure located at the lake elevation, and a series of pools/weirs between the two ends (See Figure 3 and Figure 4)

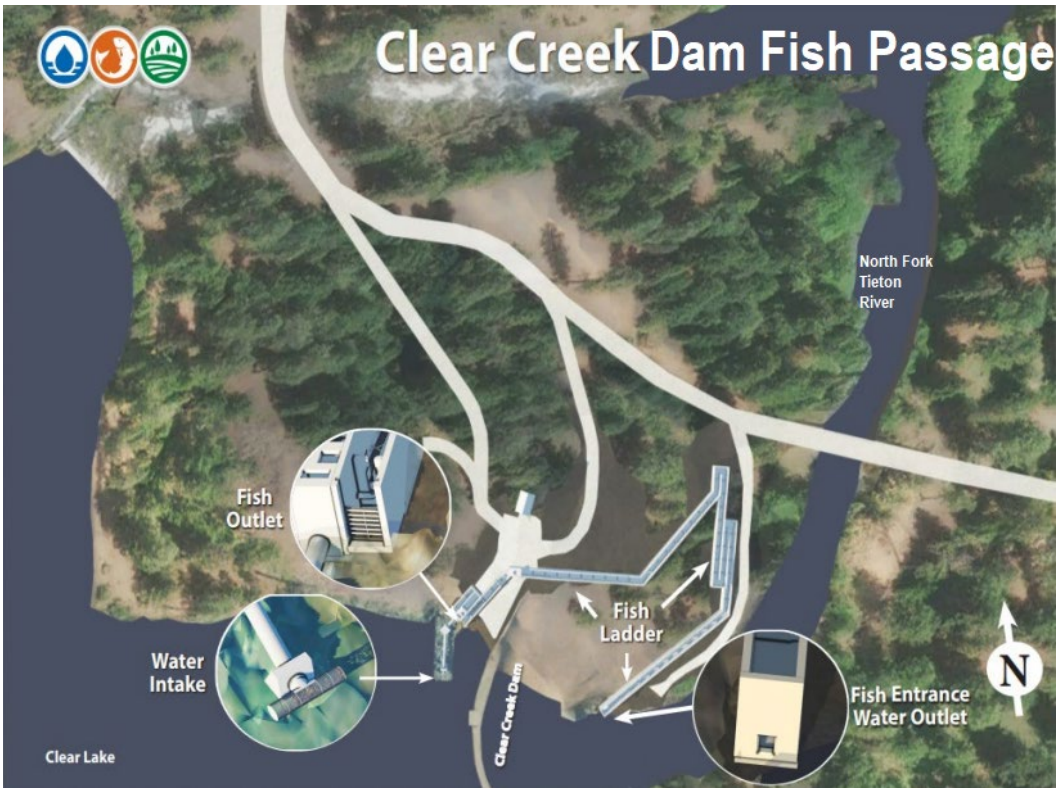

Figure 3. Proposed Clear Creek fish ladder and road configuration

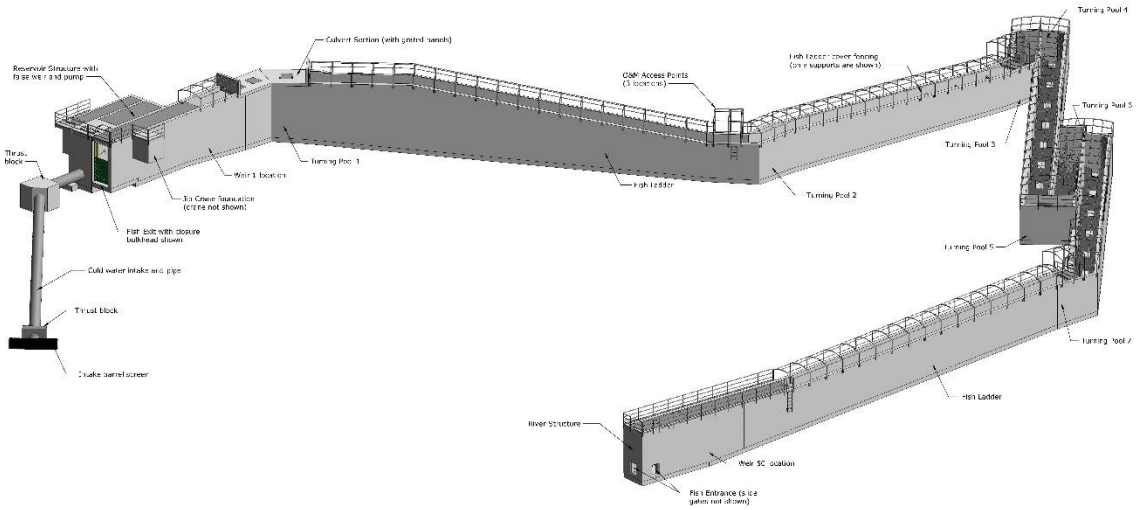

Figure 4. Isometric view of the fish ladder

River Structure

The river structure serves as the fish ladder entrance and water outlet. The fish ladder entrance is located at a rock outcrop downstream of the dam, in a protected area where an eddy forms and velocities are relatively low. The fish would likely be able to locate the fish ladder, even with the lower attraction flows, because of the cool water being pulled through the fish ladder from a reservoir depth of approximately 30 feet.

The structure is CIP concrete with two fish ladder entrances, on adjacent walls. The entrances are "covered" with two cast iron slide gates that are operated via actuators. A steel grated walkway would sit atop the concrete structure.

Reservoir Structure

The reservoir structure serves as the fish outlet and regulates the water from the intake structure. Since the fish outlet and water intake are on the reservoir side of the dam, they are discussed in this section.

The fish outlet is a CIP concrete structure that consists of three main chambers. The center chamber is where the water intake pipe penetrates and feeds water into the entire system. Total flow into the structure would vary between 19 and 29 cubic feet per second (cfs) and is dependent on the reservoir surface water elevation. Inflows exceeding this amount would be passed over the spillway or through the outlet works. Approximately 4 cfs of this water would be pulled through a fish screen via a screw pump which is located at the western chamber. This water is conveyed through a stainless steel pipe to a false weir. Of the 4 cfs, 3 cfs would flow down a steeppass (a type of prefabricated Denil fish ladder) while the remaining 1 cfs would flow back into the reservoir. The eastern chamber contains a steeppass with the false weir mounted at the top. The portion of water that is not diverted through the screw pump (approximately 15 to 25 cfs) would flow via gravity through a barrack at the lower end of the steeppass. The flows would converge at this lower end, making the total flows going down the fish ladder approximately 19 to 29 cfs.

Adjacent to this structure is a jib crane that would be used to install and remove the bulkhead. The bulkhead would be installed during non-operational times and removed during operations.

The water intake pipe consists of a 36-inch steel pipe with length of approximately 70 feet. The inlet end of the pipe is submerged into the reservoir and has a cylindrical stainless steel fish screen bolted at a flange connection. The top portion of the pipe is cast into the reservoir structure. A knife gate valve would be located at the reservoir structure to close off flow to the fish ladder. Water is conveyed through the fish screen, through the pipe, and into the reservoir structure using gravity. Gravity flow is possible because water surface inside the fish ladder is lower than the water surface of the reservoir with all losses included. The reservoir water surface elevation is steady, remaining between elevation 3011.00 and 3012.00, and the bottom slab of the fish exit structure is at approximately elevation 3004.80, which creates a differential of about 6.5 feet.

The intake pipe is supported in four locations, two on the lower end and two on the upper end. The two lower supports would consist of a concrete thrust block and a support. These lower placements would be made under water at a depth of approximately 30 feet from operating WSE, and would consist of approximately 4 cubic yards (CY) of concrete each (3.75 CY for thrust block and 0.25 CY for support). The upper concrete supports consist of a thrust block and saddle support and would require approximately 8 CY of concrete each (7 CY for thrust block and 1 CY for support). These upper placements would be made in the dry, but below the ordinary high-water mark (OHWM), during the reservoir drawdown of approximately 12 feet; they would be submerged once reservoir is returned to the normal level (approximate elevation 3011.3).

Construction of the water intake would require underwater work with divers that includes placing formwork, drilling and grouting anchor bars, and placing concrete via a tremie pipe to construct the lower thrust block and supports. Reclamation anticipates that the contractor may launch a barge from the Clear Lake public boat landing to support the underwater construction efforts for the water intake. The barge would provide a platform for the dive team and a staging area for small equipment and concrete form materials.

Pools/Weirs

The ladder consists of 54 pools: 47 "straight" pools with a weir on each end and 7 "turning" pools. The turning pools allow the ladder to change flow direction and provide slower moving water for fish to rest. Each pool would have arch supports attached to the exterior of the fish ladder wall (see Figure 4) to support the cover fencing over the pool.

Generator Building

A new electric generator building would be placed adjacent to the existing control building. The area would be leveled, and the new building would be constructed to hold the new engine generator set (GENSET). The new GENSET would be installed on an 8-inch concrete slab, sized per GENSET manufacturer recommendations, and would require excavation to extend 3 feet below the slab, or until bedrock is encountered, and then backfilled per specification. A 4-foot-deep trench would be dug to place conduit for wiring which would connect fish ladder equipment, the control building, and the generator building. The existing control building would not be removed and would have no exterior modifications; only interior electrical work would occur.

Propane Tank

The existing 500-gallon propane tank would be evacuated, removed, and replaced with a new 500-gallon propane tank that would be located to the north of the new generator building.

Fencing

Approximately 70 linear feet (LF) of existing chain link fence and a gate would be removed at the proposed reservoir structure. Approximately 40 LF of the chain link fence would be replaced in the existing location, post-construction, and approximately 550 LF of new fence would be installed to enclose the facility from public access.

Debris Boom

The existing debris boom would be reused without adding to its length, but the northern anchor point would be relocated. The anchor point relocation is needed so that the debris boom does not interfere with fish exiting the fish ladder into the reservoir.

The inner boom hardware would be replaced to increase the longevity of the debris boom. It is possible for the inner hardware to be replaced while the debris boom is deployed in the reservoir; however, the contractor may opt to remove the boom from the reservoir and replace the inner hardware while the debris boom is outstretched on land. If the contractor chooses to replace the inner hardware on land, the contractor would need to utilize space within one of the authorized CUAs.

Access and Staging

Access – Forest Service Roads

Clear Creek Dam is accessible to the public from National Forest (NF) Road 740 (NF-740), which is located about 0.5 miles down NF-1200 (also known as Tieton Reservoir Road) from U.S. Route 12 (US 12). NF-740 is the main access to USFS owned and managed campgrounds on the west side of Clear Lake; it continues past the dam and follows the south side of Clear Lake until it reconnects with NF-1200 on the southeast side of the lake (see frontispiece). It is anticipated that the contractor would opt to create a loop that has traffic driving in one direction on NF-740, as the road into the dam is winding and narrow. At the southeast intersection of NF-740 and NF-1200, construction vehicles could turn right to return to US 12 or could turn left to continue to CUA 4, which would be the temporary rock crushing and material storage site off NF-737.

To increase public safety and facilitate CCDFP Project construction, several NF roads would be closed in the project vicinity from April 2025 to September 2027. Temporary gates/barriers would be installed to close public access at the following locations (see frontispiece):

- The northwest intersection of NF-1200 and NF-740. This closes NF-740 heading toward the dam from US 12.
- The intersection of NF-740 and NF-746. NF-746 has alternative access directly off US 12.
- NF-740, on the southwest side of Clear Lake, between the dam and the Clear Lake Public Boat Landing. NF-745 would be closed to the public because it is between the boat landing and the dam. Camp Prime Time would be accessible from the southwest portion of NF-740, as "local traffic only" or accessed via NF-667, off NF-1200, to NF-744.

Generally, NF roads are owned and maintained by USFS and would be subject to terms and conditions of the USFS's road use permit (RUP); an exception to this is NF-1200, which is operated and maintained by Yakima County. The contractor would be responsible for applying for, obtaining, and complying with the RUP. The contractor would be responsible for removing snow on access roads, except for NF-1200, during the winter to keep the roads open and safe for construction traffic. Generally, at no point can any access roads be graded, widened, or drainage channels constructed. However, during coordination with the USFS during the RUP process, the contractor may request grading to effectively maintain surface and place gravels on NF-737, but no other modifications would be permitted. All stormwater management must be with noninvasive techniques, such as straw waddles. At the end of construction, all NF roads used for CCDFP Project access would be returned to pre-project conditions or better, and in compliance with the RUP or Yakima County requirements, as appropriate.

Access – Reclamation Roads

The fish ladder would be accessible from two locations along NF-740: the Lower Access Road and the Dam Access Road. Both roads are Reclamation-owned and maintained for Yakima Project O&M of Clear Creek Dam and appurtenant facilities. The fish ladder entrance (river side), near the outlet works, would be accessible via the Lower Access Road. The Dam Access Road provides access to the top of the dam and would provide access to the fish ladder exit (reservoir side).

The Lower Access Road would have its current security gate removed, and the road would be partially demolished during construction to facilitate excavation activities for fish ladder construction. Once construction is complete, the roadway would be reconstructed to pre-project grade and surfaced with gravel, and a new security gate would be installed to prevent unauthorized vehicular access.

The Dam Access Road would require some realignment and regrading to access the top of the dam and the culvert portion of the fish ladder. Constructing the road would likely be the first task the contractor would do after mobilizing in the spring of 2025. The existing security gates would be removed near the spillway and the dam; these would be replaced with new gates at the end of construction to prevent unauthorized vehicular access. As part of the project, Reclamation would construct a new road between the current O&M access at the spillway and the dam, entirely within Reclamation's management area. Road construction would involve a combination of cut and fill, and then gravel surface would be applied. The new road would start after the spillway bridge and have a maximum grade of 11 percent as it approaches the dam. As the road begins to arc around the existing control house and new generator building location, it would briefly tie into an existing, light use road that provides access to the "shed," located near the spillway, from the dam. The arc continues and ties into the existing Dam Access Road, which is relatively steep at approximately a 12 percent grade. The new road was designed to prevent surface erosion and to accommodate a WB-40-sized truck, which is a medium-sized semi-truck with a 40-foot wheelbase, used for delivering equipment or materials to the construction site. The current Dam Access Road would be graded to reduce the existing steep grade to allow the large trucks and trailers to safely exit back onto NF-740. It is envisioned that the use of this road would be "one-way" during construction, but this would be at contractor's discretion.

Access – Bridges

There are two bridges that would be used on NF-740 that are owned and maintained by USFS. The bridge over the spillway does not have a posted load rating posted. The bridge over the North Fork Tieton River below the dam has signage with a rating of 19 tons. Reclamation's TSC analyzed the USFS bridge in July 2022 and determined that the bridge can withstand a loading of 28 tons. As part of the CCDFP Project, Reclamation would seek concurrence from the USFS to adjust the bridge rating to 28 tons during construction only.

Staging – Contractor Use Areas

There are four CUAs proposed for use during construction.

- CUA 1 is located on NF-740 and is an existing cleared location adjacent to the construction area. This area, approximately 0.25 acres, can be used for staging equipment, creating excavation piles, new material storage, etc. No tree cutting, tree pruning, or excavation shall occur in this area.
- CUAs 2 and 3 are accessed from NF-740 and are campgrounds nearest the spillway bridge. These campgrounds, Clear Lake North Campground and Clear Lake North Group Campground, can be used to stage and store equipment, store smaller fabricated features, and potentially house construction trailers. No tree pruning, tree clearing, excavation, or other surface modifications would occur in the campgrounds. All campgrounds shall be

returned to a pre-construction condition after use. Combined, CUA 2 and CUA 3 are approximately 4.5 acres.

- CUA 4 is accessed from NF-737 and is an existing off-highway vehicle (OHV) rock crawl area and active Sno-Park operated under USFS special use permits. The usable area in this location is approximately 2.25 acres total (not all contiguous) and is cleared of all vegetation. There are no security measures in place at this site (fencing, cameras, etc.) and the adjacent road is open to the public. This area can be used for material processing (rock crushing and size-sorting of crushed rock), material stockpiling, and storage of heavier equipment. During construction, excess rock material could be stored here; however, at the end of construction, all excess material would be hauled offsite for disposal at an appropriate commercial site and the CUA returned to pre-project conditions.

Campground Closures

With the closure of NF-740 from April 2025 to September 2027, USFS campgrounds with access off NF-740 would be closed to the public. It is anticipated that USFS would issue a Forest Closure Notice for the affected area.

Clearing and Grubbing

Between June 17 and July 31, 2024, Reclamation anticipates the removal of approximately 179 trees through a contract with the Yakama Nation (see Table 1). The trees are located within the construction area (about 1.75 acres) and cover an area of approximately 1.25 acres. Approximately 50 percent of the trees are between 6-inch DBH and 11-inch DBH, with the remainder 50 percent being greater than 12-inch DBH. Trees measuring between 6 inches and 30 inches DBH would be removed with rootballs intact. The Yakama Nation would utilize many of the trees with rootballs for instream habitat in the North Fork Tieton River and Clear Creek. Up to 24 trees would be relocated to CUA 4 and brought back post-construction for use as downed wood for wildlife habitat, with usage at about 20 trees per acre.

In the spring of 2025, the contractor would commence clearing and grubbing of the construction site. Clearing and grubbing is the process of removing all vegetation, including roots and stumps, and other debris from a site to prepare it for construction. Clearing and grubbing would occur, where necessary, for construction purposes within the 1.51 acres of disturbance at the construction site; at a minimum, this would include clearing and grubbing of the construction area of the fish ladder, generator building, and approximately a 25-foot swath for the new access road. Topsoil would be stripped from the construction area and hauled to CUA 4 for storage until the end of construction.

Table 1. Trees to be removed for the CCDFP Project. Data from September 2, 2023, field survey (Reclamation 2023a).

Tree Size Category	Species	Number of Trees to be Removed
Less than 6 inches	Clear and grub shrubs and small tress of all species	Numerous
6 inches	Numerous species	32
7 to 11 inches	Douglas fir and ponderosa pine	68
12 to 18 inches	Douglas fir and ponderosa pine	35
19 to 24 inches	Douglas fir and ponderosa pine	24
More than 24 inches	Douglas fir and ponderosa pine	20
Total Trees	--	179

Revegetation

Revegetation would occur in areas of the construction site that would not be permanently altered by the placement of facility structures. Approximately 0.77 acres would be seeded, and 0.29 acres of the reseeded area would receive additional plantings. The USFS Restoration Services Team (RST) has developed a Revegetation Plan for the 0.29 acres (Appendix B).

Construction

The construction contract would require all construction activities to occur between the spring of 2025 and the fall of 2027. Because of the amount of road work anticipated, along with the complexity of fish ladder construction (e.g., the length of the fish ladder, selected alignment, and unique fish ladder entrance and exit features), the overall fish ladder construction would require two full construction seasons to complete. It is anticipated that once the area is disturbed by construction activities for the CCDFP Project, in the spring of 2025, the area would be constantly disturbed by activities until the project is completed in the spring and summer of 2027.

The means and methods utilized for construction are dependent on the contractor's submitted and approved submittals. It is anticipated that the following equipment may be used during construction: light duty trucks, concrete pumper truck with boom, loaders/backhoes, skid steers, hydraulic cranes, compacters, generators, water truck, chipper, excavators, wheel loaders, hammer drills, crawler dozers, hydraulic impact breakers, jackhammer, pumps, and portable welders. Construction water for dust abatement and other applications would be pumped to a water check from either the spillway or the boat launch, with the first being the most likely scenario. The pump would be required to have a NMFS-compliant screen so as to prevent fish entrainment. Water used for dust abatement would be mitigated.

The following headings address construction constraints identified in the specification and the means and methods most likely to be utilized by the contractor during construction. Also briefly addressed are permits the project would likely need and anticipated O&M of the facility.

Reservoir Drawdown

A partial reservoir drawdown of 12 feet, to elevation 2999.00, is proposed from September 29, 2025, to March 31, 2026; however, the length of the drawdown is weather dependent, and construction may be completed sooner and allow for refill to occur before April 2026. The drawdown would allow construction of the reservoir structure "in the dry," as a portion of the structure is below elevation 3011.3. The contractor may also choose to construct the water intake structure and piping, approximately 18 feet below the drawdown WSE, during this time; however, the contractor may also choose to construct these features at full pool, which would mean the work would be done approximately 30 feet underwater. The drawdown would only occur during a single winter season to minimize impacts to fish and recreation on Clear Lake.

To accomplish the 12-foot drawdown, Reclamation would release water from the outlet. This would be done according to standard operating procedures and established ramping protocols. There are no known structural or geological conditions which would limit the rate of drawdown; however, the rate of drawdown is impacted by rate of inflow. Based on the specifications, Reclamation would start the reservoir drawdown on September 29, 2025, with an anticipated drawdown of 1 foot per day until the reservoir reaches an elevation of 2999.0 on October 11, 2025. The WSE at the 12-foot drawdown is represented by the dashed line in Figure 5. A fisheries biologist would monitor Clear Lake to ensure there is no stranding of fish during drawdown activities.

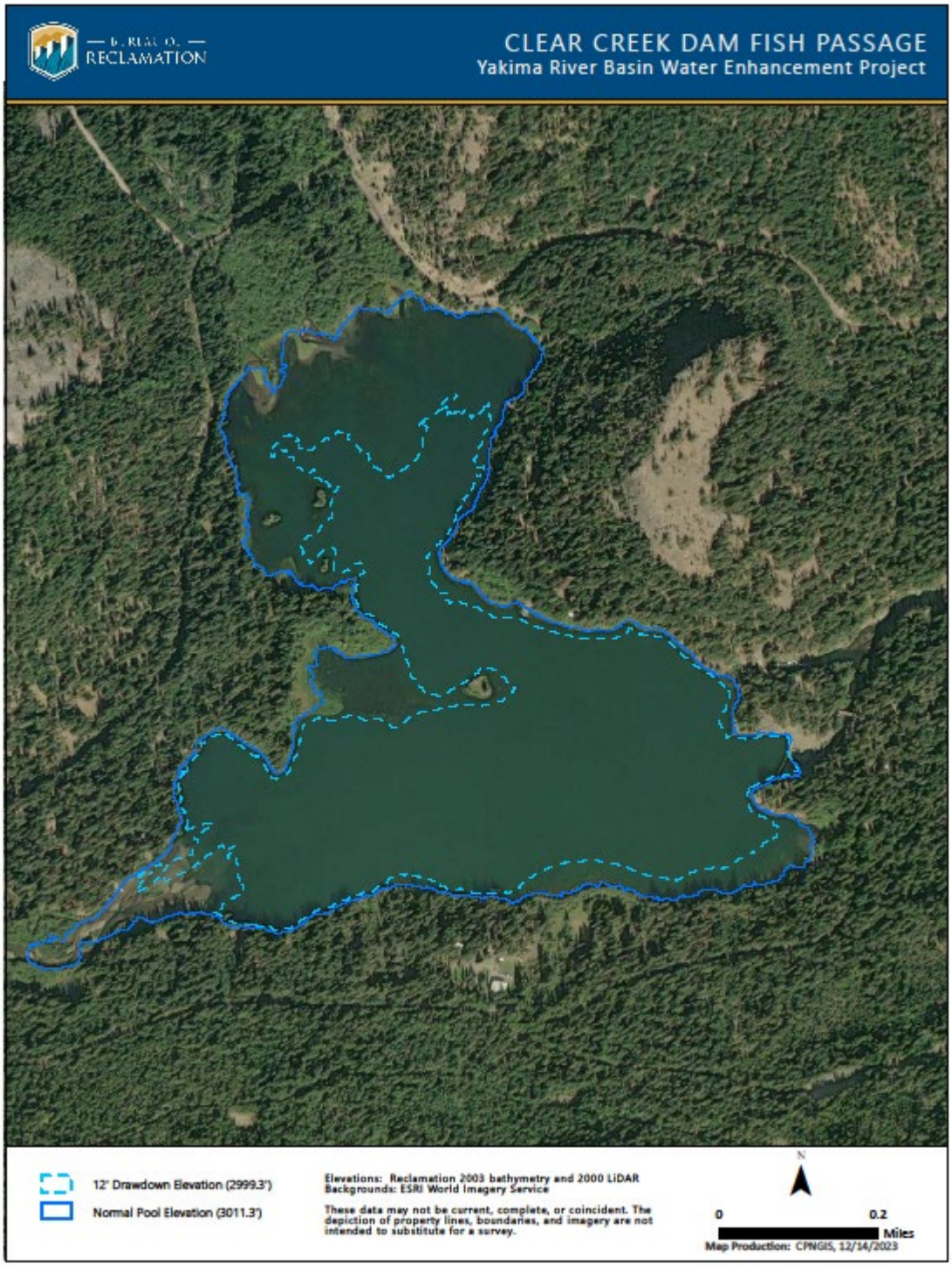

Figure 5. Reservoir drawdown of 12 feet, depicted by dashed line, from normal WSE of 3011.3

Refill of the reservoir is subject to inflows from the upper watershed. Refill of the reservoir is expected to start March 31, 2026, but may occur earlier depending on contractor's schedule. Assuming refill of the reservoir starts on March 31, 2026, it may reach elevation 3011.3 by April 7, but this would depend on prevailing conditions. Depending on precipitation events and snow melt, the WSE may not reach 3011.3 until late May or early June.

While the contract is requiring the contractor to perform the drawdown during the first year of construction, October 2025 to April 2026, Reclamation's analysis for this EA assumes a drawdown in the first and second construction seasons as a worst-case scenario. This means that the drawdown and refilling of the reservoir could occur between October 2025 and April 2026, and again between October 2026 and April 2027. Reclamation does not anticipate needing a second drawdown, but determined it was in the agency's best interest to account for an early or hard winter that may preclude safely performing construction activities.

Temporary Cofferdam

Two cofferdams may be constructed and removed by the contractor. It would be necessary to construct a cofferdam to isolate in-water work on the North Fork Tieton River. The contractor may opt to construct a cofferdam for the reservoir-side work to extend the construction window outside of the drawdown window or to protect the construction site in the event of a harsh winter.

A temporary cofferdam would be installed prior to in-water work to isolate construction of the river structure portion of the fish ladder from North Fork Tieton River flows and would be placed adjacent to the rock outcrop at the fish entrance. The project specification states that construction of the cofferdam can take place between October 15 and April 15. Removal of the cofferdam cannot take place between April 15 and August 20, nor between September 10 and October 15, and is not anticipated to be installed longer than 8 months. Reclamation anticipates that the contractor would install the cofferdam October 15, 2026, and remove it in early December 2026.

During river cofferdam installation and removal, no wet crossings or temporary placement of heavy equipment would occur in North Fork Tieton River "live water." For the purposes of this EA, Reclamation anticipates that a land-based, long-reach excavator or crane would be used for constructing and removing the cofferdams from outside of the OHWM. While the tracks of the excavator would be outside of the OHWM, the bucket would be used to level a foundation for the cofferdam in "live water." The temporary cofferdam would likely consist of geo-bags filled with stream mix (clean, round river rock with less than 10 percent fines), stacked side-by-side and one atop another to achieve necessary dimensions. Once placed, cofferdams would be wrapped with low-density polyethylene plastic sheeting, or a similar material, eliminating interstitial spaces between the geo-bags to prevent impingement or entrapment of fish and reduce or prevent leakage. Cofferdam design is estimated to be approximately 9 feet wide at the base with a tapered width as it rises to approximately 9 feet tall, creating a pyramid shape.

Since the cofferdam placement and removal timeframes are restricted, the interior of the cofferdam may not be dewatered for the duration of up to 8 months. For dewatering, a pump fitted with a NMFS-compliant fish screen would be utilized to remove water on the inside of the cofferdam to facilitate construction of the river structure. The pumped water would be returned to the river due to lack of an appropriate area to land apply the water (area is a rock outcropping). Once the water

level was down to a wadable level, fish would be removed from the interior of the cofferdam by fisheries biologists. Once the interior is de-fished, dewatering efforts would continue. Sump pumps may be necessary to handle seepage during construction. If water was turbid, the contractor may need to utilize baker tanks to let the sediment settle out before returning clean water to the river to meet water quality standards.

After construction of the river structure, and in the appropriate window, the cofferdam would be removed with land-based equipment; while the bucket would enter the water, the tracks of the excavator would be land-based. To the extent practicable, rocks that had been removed to facilitate cofferdam placement would be replaced in the graded foundation area.

The optional reservoir-side cofferdam would be installed in the reservoir during the drawdown period of September 29, 2025, to March 31, 2026. The cofferdam could be constructed early during the drawdown and stay in place throughout the winter and be removed the following year when work at the reservoir structure is completed without an additional drawdown. If the contractor opts to install an in-reservoir cofferdam, it is anticipated that the cofferdam would be constructed on an existing earthen/rock "shelf" where the reservoir structure is sited. The actual cofferdam size and means and methods of cofferdam construction would be determined by the contractor. For analysis purposes, it is anticipated that the cofferdam would be 12 feet tall, 24 feet wide, and 60 feet long, and constructed with geo-bags filled with stream mix. The geo-bags would be covered with a geomembrane to create a smooth surface facing the reservoir. The geo-bags would be placed and removed with land-based equipment.

Earthwork and Rock Excavation

In addition to the Dam Access Road construction, earthwork and rock excavation would be required for fish ladder construction. Once site clearing and grubbing is complete, excavation to remove bedrock and soils would commence. Rock is expected to be very hard and severely weathered, and its removal could involve expansive materials, shape blasting, or mechanical excavation or a combination of means and methods. Soils would be removed by simple means such as excavators. All material removed would be hauled to CUA 4 for processing. Processing consists of crushing large rock, screening the material, and creating suitable backfill gradation. Once excavation is complete, concrete features would be formed and cast. Backfill would be trucked in from the processing area for final placement.

At the end of construction, surplus excavated materials would be used to enhance the Sno-Park parking lot. Approximately 18-24 inches of material would be placed within the existing parking lot area, with a minimal grade/slope of 2 percent, to improve drainage over existing conditions. These activities are being coordinated with USFS and would be consistent with their maintenance practices for graveled parking areas.

Environmental Commitments

Environmental commitments represent mitigation measures and best management practices (BMPs) to avoid, minimize, rectify, reduce, eliminate or compensate for impacts caused by implementation of a project. BMPs can be a 'thing' installed on-the-ground (e.g., silt fence, ground cover vegetation) or a 'process' used to plan and conduct an activity (e.g., marking stream buffers).

Most of the CCDFP Project's impacts are short-term and would generally occur during the construction period. Project design and implementation of site-specific or selectively recommended BMPs would minimize the effect of the project where the potential for long-term adverse impacts could occur without them. The project specifications outline the requirements the contractor must follow to reduce environmental impacts. These requirements become environmental commitments. Appendix A includes project specification requirements and BMPs that form Reclamation's environmental commitments, which are incorporated into the Proposed Action. Chapter 3 presents the impact analysis for resources after applying impact minimization measures, such as BMPs, since these would be required during construction; therefore, they are considered part of the Proposed Action.

Operations and Maintenance

Operation of the Clear Creek Dam would remain the same as the No Action alternative. The elevation of Clear Lake would remain constant, and the flows would be managed over the spillway at a minimum of 0.3 feet to maintain downstream fish passage for bull trout. Dam inspections would continue as scheduled.

It is anticipated that the ladder would open March 1 and close November 30 of any year.[8] Opening and closing of the fish ladder would be coordinated with the YFO fish biologist. An O&M Standing Operating Procedures document would be prepared by the YFO.

It is anticipated that opening of the ladder would involve the inspection of the facility and equipment to look for damage and debris. Testing of equipment would also occur for watering up the fish ladder; the entrance gate and bulkhead would be opened prior to opening the knife gate valve and starting the screw pump. Flow through the ladder would be monitored and adjusted as needed.

When the reservoir begins to freeze over in the winter, the pump is shut down and a bulkhead is put in place at the reservoir structure. A knife gate valve in the pipe is partially closed, allowing a small amount of water to be fed to the fish ladder for fish rescue operations. Once fish are removed and water drains back toward the river, via a 6-inch-high by 12-inch-wide opening at each concrete weir, the knife gate valve would be fully closed; this would shut water off to the ladder. The slide gates would be closed at the river structure to prevent any more fish from entering. In the spring, when the area is free of ice, the gates and valves would be opened, the bulkhead removed, and the pump started.

During operations, the ladder would be inspected weekly. These inspections would include the following checks:

- Check water flow through the ladder and adjust flow as needed
- Check all pools for debris and remove debris if found
- Check false weir for proper operation and adjust as needed

[8] Open and close dates are dependent on temperatures and presence of ice and snow. Deep snow limits site access. Ice and extended cold temperatures impact ladder operation and can cause damage.

- Check entrance gates for proper operation and adjust and clean as needed
- Check emergency generator fuel, oil, coolant, and hours
- Check screw pump for proper operation

In addition, the access roads would be maintained. This may include grading, snow removal, and adding additional gravel to maintain the road surface.

Transport Project

Reclamation would continue funding the Transport Project, at least through 2027, when the new fish ladder would become operational, and all fish would have the ability to volitionally migrate upstream without the intervention or need of the USFWS trap and haul actions.

2.3 Alternatives and Alternative Elements Considered but Eliminated from Detailed Study

Federal agencies are required to explore and evaluate all reasonable alternatives and to discuss the reasons for eliminating any alternatives not analyzed in detail (40 CFR, Subpart 1502.14). The following subsections discuss alternatives that were considered but eliminated from detailed study.

2.3.1 Continue Transport Project

Reclamation would continue to fund the USFWS's Transport Project indefinitely. While the Transport Project has been successful relocating genetic North Fork Tieton bull trout above Clear Creek Dam, the USFWS is unable to capture all bull trout that migrate to the base of Clear Creek Dam stilling basin. The USFWS does not know the ratio of how many fish have been relocated to those that remain uncaught in the 0.7 miles of the North Fork Tieton River, between Rimrock Lake and Clear Creek Dam. While trapping and hauling some bull trout is better than no relocation of the fish, the USFWS does not feel that the success rate is contributing to a thriving and growing population of bull trout in the North Fork Tieton River above Clear Creek Dam. For this reason, the permanent use of the USFWS Transport Project is eliminated from detailed study.

2.3.2 Different Intake Structure Options

Fixed Temperature Curtain

Reclamation considered but eliminated the option to install a fixed temperature curtain and a reinforced concrete cut-off wall along the side of the fish ladder intake structure. Reclamation eliminated the fixed temperature curtain because it is highly sensitive to temperature and water depth. If Clear Lake were to warm up and colder water was needed from a greater depth than calculated for at the time of installation, then reconstruction of the support foundations would be needed. To reconstruct the foundations at a deeper depth would be difficult in the tight footprint and carry a higher risk to the integrity of all structures.

Stationary Floating Temperature Curtain

This option of temperature curtain would have been anchored to the dam and to the dam's left bank. The floating temperature curtain had a shorter lifespan than the fixed temperature curtain and could have been easily damaged by floating debris and freezing inside of the reservoir. For this reason, the stationary floating temperature curtain was eliminated from further consideration.

Pump Intake Structure with Weir and Pool Ladder

Reclamation considered but eliminated the use of pumps to provide all the cold water to the fish ladder. The reservoir is managed and operated in a way to have a consistent pool elevation. All hydraulic analyses indicate the cold water can be delivered to the fish ladder using a passive (gravity) pipe, so the full pump use options were not carried forward because no additional energy is needed to provide the required flow in the fish ladder.

2.3.3 Different Fish Ladder Options

Pool and Weir Ladder with Tight Alignment

Reclamation considered but eliminated the construction of the same type of ladder as proposed for construction, just with an alignment that is much closer to the dam. While this option would have provided a smaller footprint, the topography near the dam would have made construction very difficult and could have led to an increase of risk in both cost and schedule. It was for these reasons that this alternative did not receive additional consideration.

Sinuous Roughened Stream

Reclamation considered a sinuous channel cut into the existing ground that contains large rocks. The rocks would provide a natural low velocity area for resting. The channel would have been designed to maintain a minimum allowable velocity with higher and lower velocity areas. Flat resting areas would have been provided at intervals along the length of the channel. Reclamation evaluated the O&M required along the entire channel, due to it being open at the top, and recognized that more debris could fall into the channel and require cleaning to prevent clogging. Reclamation also considered that predation could be high unless additional measures were taken. While it was the most natural solution for fish, it was determined that the sinuous roughened channel may not be able to fit the stream in the available footprint, and it was eliminated from further consideration.

2.3.4 Construction Options

Dry Construction

Reclamation considered the option of lowering the reservoir by a total of 25 to 30 feet. By doing this, all the construction would take place in the dry. Once the intake structure was constructed, the reservoir could be raised back up to the current elevation, and the intake structure would have functioned as a cofferdam while the rest of the fish ladder was constructed. Reclamation eliminated this from further consideration because of concerns about fishery impacts (e.g., fish stranding, stream discontinuities, and dead pool space).

Wet Construction

Reclamation considered leaving the reservoir at its existing elevation, 3011.3. By doing this, construction for the intake structure would require a cofferdam. The appraisal design incorporated a cofferdam into the final structure. This would require underwater work with divers that includes tremie concrete, drilling and grouting anchor bars, and formwork placement to construct the cofferdam. Maximum diving depth for the work was assumed to be 20-25 feet. Pumping would also be required until the intake structure was completed. Reclamation eliminated this option from further consideration due to it being the most expensive option and having a longer construction period, and because quality control would be less effective during underwater construction.

Chapter 3 Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes existing physical, biological, social, and cultural resources that could be affected by the Proposed Action alternative and identifies potential environmental consequences, beneficial or adverse, to those resources that could result from implementing either the No Action alternative or the Proposed Action alternatives. The Affected Environment section describes the existing environment upon which the alternatives could have an effect, and the Environmental Consequences section describes the potential effects of those alternatives, if implemented, on the resources evaluated. The No Action alternative describes the conditions of a specific resource if Reclamation takes no action and provides the basis to compare the proposed action. In general, the affected environment (analysis area) addressed in this EA is the construction area and CUAs.

For each topic or resource category, the impact analysis follows the same general approach. First, the existing conditions are established for the affected area, then the impacts of the No Action alternative and the Proposed Action alternative are disclosed. The effects are based on quantifiable impacts, reviews of relevant scientific literature and previously prepared environmental documents, and the best professional judgment of the EA team resource specialists.

The level and depth of the environmental analysis corresponds to the degree of effects anticipated for each resource. Effects of the action may be described as direct or indirect. "Degree" of effects of the action may be considered short- or long-term, and adverse or beneficial, as appropriate. Direct impacts are caused by an action and occur at the same time and place as the action. Indirect impacts are caused by an action and occur later or are farther removed from the area but reasonably foreseeable.

Potential impacts are described in terms of duration, intensity, and context as outlined below.

For the purposes of this analysis, impact duration is defined as follows:

- Temporary: impacts that would only occur during construction
- Short-term: impacts that would be less than 3 years in duration
- Long-term: impacts that would be 3 years or greater in duration

For the purposes of this analysis, impact intensity is defined as follows:

- Negligible: changes would not be detectable or measurable. The resource topic would be essentially unchanged or unaltered.
- Minor: changes would be detectable, localized, and/or measurable and would have a slight change or alteration to the resource.
- Moderate or major: changes would be measurably to clearly or readily detectable, and/or have an appreciable to severe effect on the resource or resource use. The resource or resource use would be notably to substantially changed or altered. Project activities could change the indicator over a small to large area and/or from a moderate to large degree.

For the purposes of this analysis, impact type is defined as follows:

- Adverse: impacts that would have a detrimental effect to a resource
- Beneficial: impacts that would have a positive effect to a resource

Context is the setting within which an impact is analyzed:

- Local: within and immediately adjacent to the project area
- Regional: the area outside of the project area but within Yakima County

Resources evaluated in this document were selected based on: Reclamation requirements; compliance with laws, statutes, and executive orders; public and internal scoping; and the potential for resources to be affected by the alternatives. Resources analyzed in detail are arranged from resources that are most impacted to those that are less impacted. This organizational approach for Chapter 3 is not intended to diminish the importance of any resource in any way, but is intended to assist the reader in understanding how impacts from one resource may affect subsequent resources.

Several resources were eliminated from further analysis. Please see Table 2 for resources that are not analyzed in Chapter 3.

Table 2. Resources eliminated from analysis

Resource	Rationale for Elimination from Further Analysis
Noise	Reclamation has eliminated further noise analysis because the project is exempt from complying with noise standards under Yakima County Code 6.28.040 (12) (Yakima County 1987). Further, at the state level, WAC 173-60-040 establishes the maximum permissible environmental noise levels and WAC 173-60-050 identifies exemptions to WAC 173-60-040. The construction of the project would be exempt from complying with WAC 173-60-040 under WAC 173-60-050 3(a), except insofar as such provisions relate to the reception of noise within Class A environmental designation for noise abatement (EDNA) between the hours of 10:00 p.m. and 7:00 a.m. Project construction hours would be 7:00 a.m. to 7:00 p.m., unless approved in advance by the Contracting Officer's Representative. Therefore, no analysis is required because construction hours fall within the County Code allowance.
Indian Trust Assets (ITAs)	Reclamation used its Tessel mapping database to determine the presence of ITAs in the Project Area. No ITAs were identified within a 1-mile radius of the project area; therefore, there would be no impacts on ITAs.
Indian Sacred Sites	The Yakama Nation has not identified any religious or ceremonial sites within 1 mile of the project area; therefore, there would be no impacts to Indian Sacred Sites.
Environmental Justice and Socioeconomic Resources	An environmental justice screening was completed and based on U.S. Census Bureau American Community Survey. The minority percent of population (all ages, 13.6 percent for Yakima County) did not meet the minority threshold of 50 percent or more of the study area population, nor was it meaningfully greater than the minority population percentage of a much broader area (23.2 percent for Washington State); and the percent of population (all ages) in poverty (14.7 percent) did not meet the low-income threshold (using the criteria of 50 percent or more of the study area population or below 200 percent of the federal poverty level of the reference area (10 percent for Washington State) to be identified as having potential environmental justice populations. The project area does not occur on Indian reservation lands or within disproportionately adversely affected minority or low-income populations. The Proposed Action would not involve population relocation, health hazards, hazardous waste, property takings, or substantial economic impacts. Therefore, neither the No Action alternative nor the Proposed Action would have an environmental justice effect.

The 2020 amendment for updating the Council on Environmental Quality's Procedural Provisions of NEPA (40 CFR parts 1502.15) states that "The environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration, including the reasonably foreseeable environmental trends and planned actions in the area(s)." In consultation with USFS, Reclamation has determined that there are no past, present, or reasonably foreseeable future actions to consider in a cumulative impact analysis.

3.2 Threatened and Endangered Species

The ESA requires all federal agencies to ensure their actions do not jeopardize the continued existence of ESA-listed species, or destroy or adversely modify their critical habitat. As part of the ESA's Section 7 process, an agency must request a list of species from USFWS and NMFS that identifies threatened and endangered species within or near the action area. The agency then must evaluate impacts on those species. If the action may impact any ESA-listed species, the agency must consult with the USFWS or NMFS, or both.

3.2.1 Affected Environment

There are four federally listed threatened species and two critical habitat designations in the Action Area vicinity as identified by USFWS's Information for Planning and Consultation (IPaC; database accessed December 7, 2022): bull trout (*Salvelinus confluentus*, threatened) and its habitat; northern spotted owl (*Strix occidentalis caurina* (NSO), threatened) and its habitat; Canada lynx (*Lynx canadensis*, threatened); and yellow-billed cuckoo (*Coccyzus americanus*, threatened).

The Action Area is defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 Code of Federal Regulations [CFR] 402.02). In delineating the Action Area, Reclamation evaluated the farthest-reaching physical, chemical, and biotic effects of the action on the environment. The Action Area for bull trout is depicted in Figure 6, and the Action Area for NSO analyzed in this document is depicted in Figure 7.

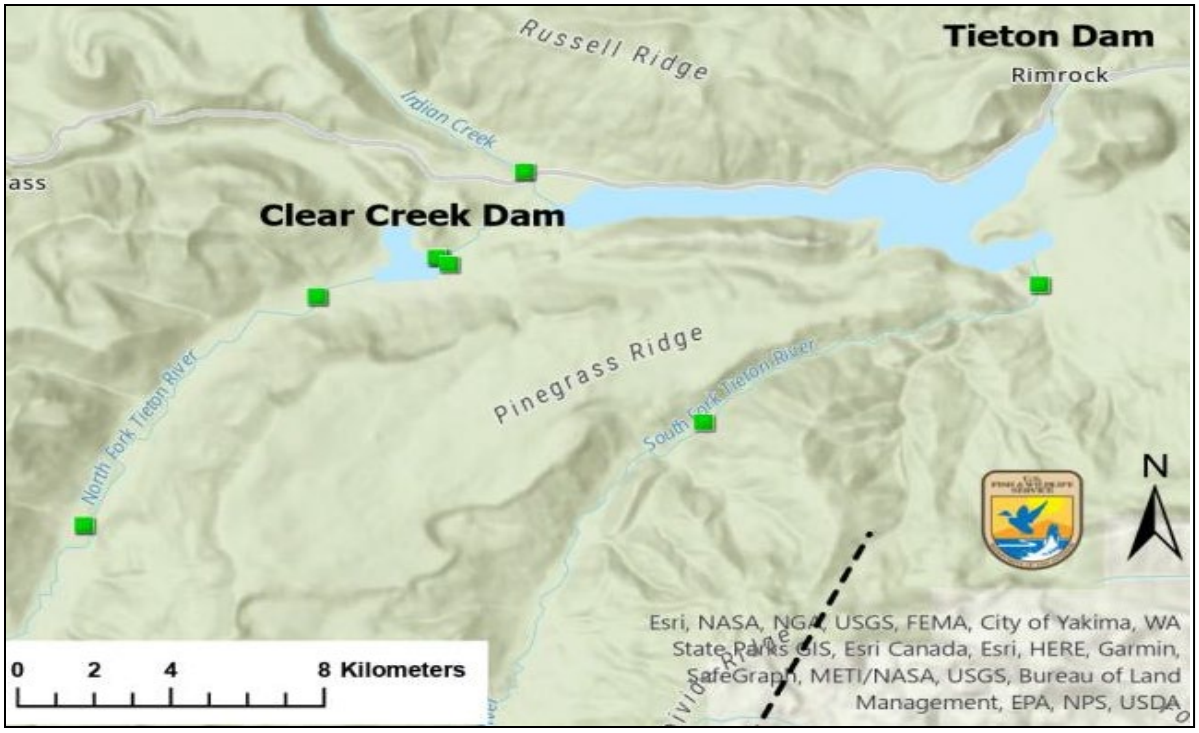

Figure 6. Federal Action Area for bull trout (*Salvelinus confluentus*), including Clear Creek and the North Fork Tieton River upstream of Clear Creek Dam and Rimrock Reservoir (to Tieton Dam), inclusive of the South Fork Tieton River and Indian Creeks downstream of Clear Creek Dam

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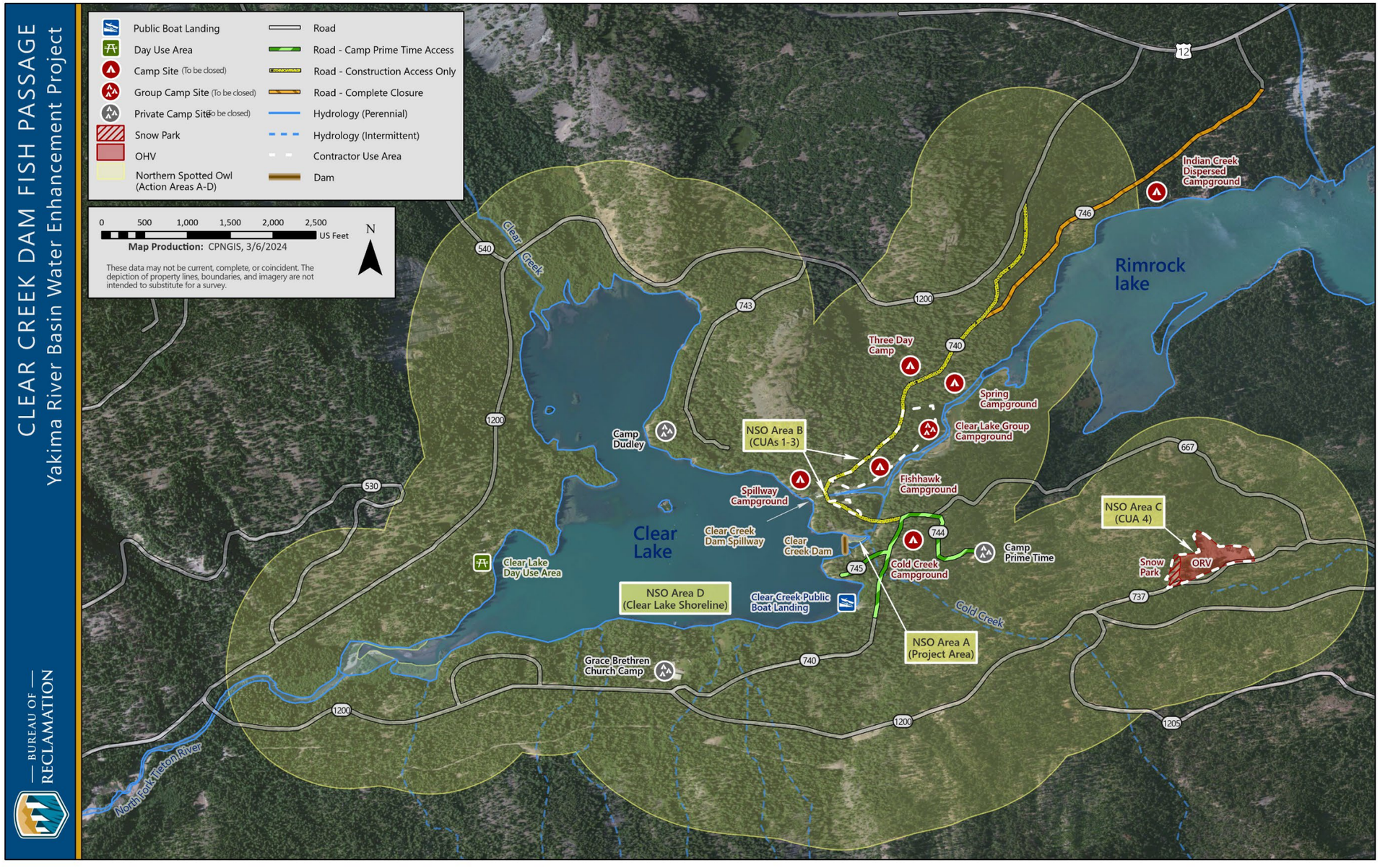

Figure 7. Action Areas A-D for the northern spotted owl

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Because the Proposed Action for this project includes the construction of structures within the stilling basin and reservoir of Clear Creek Dam, as well as the long-term operation of facilities for passing fish both upstream and downstream of the dam, the Action Area is larger than just the immediate area near the dam where construction activities would occur. The Action Area for this Proposed Action therefore includes the immediate construction area for the proposed project and would extend downstream of the dam for a distance of approximately 7.6 miles to the crest of Tieton Dam, and the area within and upstream of Clear Creek Reservoir and the 13.4 miles of stream habitat that would be made accessible to migratory or adfluvial fish upstream of the dam. Figure 6 shows the approximate federal Action Area for bull trout within the North Fork Tieton River and Upper Tieton River watersheds for this proposed action.

The Action Area for NSO includes the project area plus a 0.25-mile buffer around the project area to evaluate noise and other potential disturbance effects on listed terrestrial wildlife species (Figure 7). The total size of this Action Area including the surface area of Clear Lake and the 0.25-mile shoreline area around the lake is 268.5 acres.

3.2.2 Environmental Consequences

Alternative A – No Action

If Reclamation does not implement the project, the population of North Fork Tieton Bull Trout could experience regional, long-term, adverse impacts, while NSO would experience no local or regional impacts. Existing facilities impact bull trout passage and aquatic habitat connectivity. Without functional fish passage, Reclamation would continue to fund the Transport Project. In addition, Reclamation would be out of compliance with the *Updated Proposed Action for Reclamation's Yakima Irrigation Project Operations and Maintenance Consultation, USFWS Supplement to the April 2015 Biological Assessment for Yakima Project Operations and Maintenance* (Reclamation 2018).

Alternative B – Proposed Action

The Proposed Action would have no effect on Canada lynx and yellow-billed cuckoo; they are either not present in or near the Action Area, or suitable habitat is not present there. The Proposed Action would have a long-term beneficial effect on the migration habitat for both Clear Lake and the North Fork Tieton River by constructing a fish ladder that can permanently reconnect habitat between Rimrock Reservoir and Clear Lake and the North Fork Tieton River. Reclamation has determined that implementing the Proposed Action of installing fish passage facilities at Clear Creek Dam, along with additional actions related to this activity, "may affect, and is likely to adversely affect (MALAA)" bull trout and bull trout designated critical habitat for the Columbia River Bull Trout Distinct Population Segment (DPS), and has also determined that this action "MALAA" NSO and NSO designated critical habitat due to habitat modification within the Action Area during project-related activities. Although the Proposed Action would have temporary adverse effects to these species during project implementation, the overall project would have a long-term "beneficial effect" to bull trout and designated critical habitat due to expected abundance gains for the North Fork Tieton River local population over time. Reclamation initiated formal consultation on the CCDFP Project with USFWS on December 4, 2024, with the submittal of the CCDFP Biological Assessment (BA; Reclamation 2023b).

Prior to initiating any tree removal activities, USFS would survey the project area for NSO presence or site occupancy. These surveys would begin in March 2024 and continue through June 2024. If no evidence of NSO presence is found from these surveys, the tree removal work would occur as planned starting on June 17, 2024. If NSO presence is detected, the tree removal work would be delayed until after August 1st, 2024, to avoid any disturbance to individual NSO that may be present near the work area. However, USFS has evaluated the habitat and determined that there would be a low likelihood of NSO detection due to the condition of existing habitat. The Yakama Nation would use BMPs for tree removal and erosion control during logging activities. These BMPs would include a requirement to cut, haul, and yard all removed trees away from nearby water sources, and to ensure that disturbed tree removal areas are treated for erosion control upon removal.

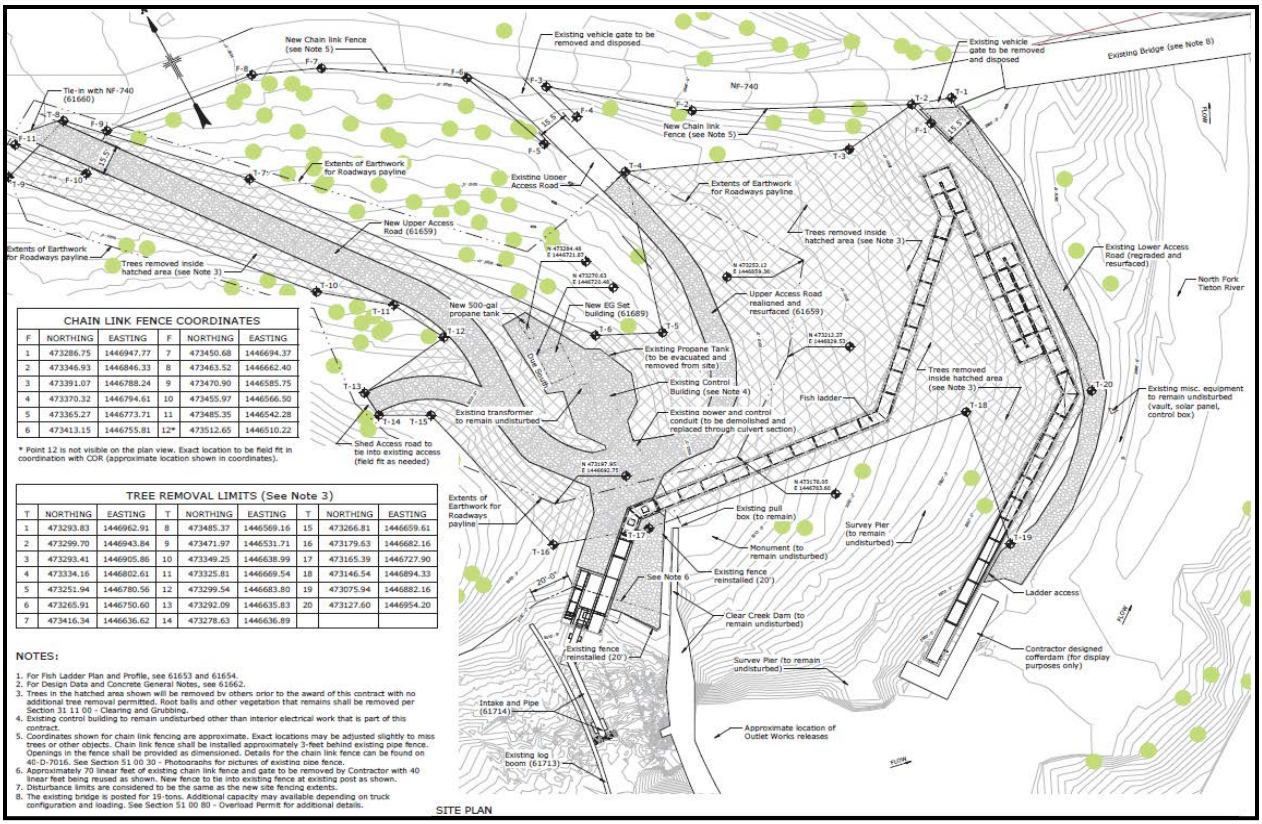

Figure 8. Plan view of the project area with illustration and location of the new access road, disturbed areas, and constructed fish ladder. Tree removal would occur in the highlighted area to facilitate road and fish ladder construction and to provide areas for contractor staging of equipment. Green circles are trees that would remain on-site and would be undisturbed throughout project implementation.

All of the fish ladder components would be located within 200 feet of either Clear Lake or the stilling basin of the dam. The access road and fish ladder construction contract would require the use of similar BMPs in the design and construction of the new fish ladder. These BMPs would ensure that adequate fish ladder excavation, concrete forms and subsequent concrete pours, and water drainage features are installed along the new fish ladder alignment to intercept and treat water runoff during all phases of fish ladder construction during precipitation events throughout the duration of the fish ladder construction period.

Despite the removal of what is presumed to be the majority of adult bull trout from the Clear Creek Dam stilling basin by the USFWS trap and haul program in the summers of 2024 and 2025, Reclamation anticipates that there would still be more adult and sub-adult fish in the stilling basin, dam outlet channel, and in Clear Lake that could be affected by construction. Likely effects would be potential behavioral changes of adult or sub-adults that could cause them to move in and out of or within the occupied stilling basin, dam outlet channel, or Clear Lake habitat areas due to noise and vibration impacts and direct impacts from in-water installation of the downstream cofferdam within the Clear Creek Dam stilling basin. This action, along with related actions of dewatering and fish recovery, could result in physical disturbance and injury to any adult or subadult bull trout entrained within the cofferdam footprint. Finally, there could be some water quality impacts that also cause adult and sub-adult fish to move away from the work areas from any project-related disturbance. This behavioral movement is expected to occur at low levels due to the current level of ambient noise and disturbance that already exists in this area and because there are several suitable habitat areas to escape to (e.g., large stilling basin and Clear Lake refuge areas to move to) if fish are disturbed by these proposed action related activities. However, due to the majority of these fish ladder construction actions occurring within 200 feet of these waterbodies, the consistent and prolonged period with the presence of noise and vibration generating actions over an extended 2-year-long construction period and the likely occurrence of fish handling and water quality disturbances during placement of the downstream cofferdam, effects to individual adult and sub-adults are thought to be possible, if not likely, to occur. As a result, Reclamation concludes that implementing the construction components of the fish ladder (including the ladder entrance downstream of the dam, main fish ladder section, and fish ladder exit gallery upstream of the dam) included in the Proposed Action could result in harassment or harm to individuals of the species such that the action "MALAA" bull trout adults or sub-adults.

Due to the proposed 12-foot drawdown between late September and March, there would be a constricted volume of water in the lake during the entire drawdown period (Figure 5). This would likely result in less available habitat areas of the lake for bull trout to utilize as foraging, migration, and overwintering (FMO) habitat during the winter drawdown period. Many shoreline areas would be drawn away from the ordinarily available and complex shoreline areas as a result of the drawdown. However, Clear Lake would still maintain over two thirds of its total volume and would still provide many deep and cold habitat zones for bull trout to occupy and rear during the winter. Because most of the bull trout that would be residing in the lake during the drawdown period are more typically located in these deeper and slower flowing habitat areas as their activity levels decrease and metabolism rates slow due to cold weather conditions, these fish are not likely to be adversely affected by the loss of the top one-third area and volume of the drawn down lake. However, these life-history stages are not likely to be inhabiting shoreline habitat areas that are subject to slow and consistent dewatering rates and would have access to suitable deep and slow flowing FMO habitat areas that remain in the lake after lake drawdown. As such, bull trout are not likely to be impacted by the lake drawdown. In addition, the drawdown would occur over a one-time, 6-month duration period and lake levels would return to the normal full pool operating condition in March of 2026; this elevation would remain in effect for the remainder of the project.

Sub-adults could also be occupying habitat in the North Fork Tieton River as transient individuals that are migrating downstream through or near the work area in low densities as they attempt to find rearing habitat or are forced downstream by intraspecific competition for limited rearing space in upstream areas. High densities of sub-adult individuals are not anticipated to be present the lower North Fork Tieton River or Clear Lake during the winter months or exhibiting migratory behaviors that would place them in the work area. Any sub-adults present in or near the North Fork Tieton River or within Clear Lake would be confined to these waterbodies.

Temporary loss of lake rearing habitat is not expected to reduce the abundance of prey base (mainly stocked rainbow trout) but would rather consist of congregating these species within the available habitat of the lake. Because there would still be a significant volume of water and greater depths within the constricted area of the lake for these species to occupy, it is not anticipated that the drawdown would significantly alter the overall prey base. In addition, the proposed drawdown is not anticipated to reduce the number of rainbow trout stocked annually in the lake by WDFW. As a result, the Proposed Action would not result in a reduction in rainbow trout forage that would be available for bull trout each year. The Proposed Action is not likely to result in reductions in current levels of the aquatic food base in Clear Lake, nor in aquatic macroinvertebrates, terrestrial organisms of riparian origin, or general forage fish levels in the North Fork Tieton River habitat areas.

Lowering of Clear Lake at a ramping rate of 1 foot per day would result in the shoreline area of the lake constricting and decreasing by a small amount each day. In some areas where there is gently sloping topography of the lakebed, large expanses of lakebed can be exposed from even small changes in elevation (Figure 5). These areas could result in stranding of adult or sub-adult fish. However, the drawdown would occur slowly over a 12-day period, and the 1 foot per day (0.5 inches per hour) rate is well below down-ramping rates typically used in other stream reaches or lakes for fisheries protection (1.0-2.0 inches per hour are typically used for fish protection). Adult and sub-adult bull trout residing in the lake during the drawdown are typically located in deeper and slower flowing habitat as their activity levels decrease and metabolism rates slow in cold weather conditions. These life-history stages are not likely to be inhabiting shoreline habitat areas that are subject to slow dewatering rates and are therefore not likely to be impacted by the lake drawdown. For these reasons, it is not likely that lake level elevation reductions during Clear Lake lowering would have adverse effects on adult or sub-adult bull trout due to stranding effects.

Reclamation would monitor the lake shoreline during the drawdown process. Conducting shoreline spot checks and residual pool monitoring during the full 12-day period of lake draw down, and recovering any fish that are observed to be in isolated pools, would help to ensure that fish species are protected during the process of Clear Lake lowering.

When Clear Lake is drawn down for these actions between September 29, 2025, and March 31, 2026, the low water surface elevation in the lake (2999 feet) would be too low to allow for water flow down the spillway channel or existing fish ladders below the dam. This would result in temporary adverse effects to: migration habitat due to the dewatering of the existing fish passage ladder system; and migration habitat in the North Fork Tieton River during the period when Clear Lake is drawn down from October to March. During this time, no fish can use the existing ladder or dam spillway to migrate into or out of Clear Lake. Although Reclamation anticipates that only a small number of fish that are assumed to use the spillway channel for outmigration would be

impacted by this flow disconnection, Reclamation believes that this would constitute an adverse effect to the species as these fish would not be able to carry out their normal outmigration behavior due to the Proposed Action. These adverse effects are anticipated to be short-term in nature, as migratory features in the spillway channel would be returned to baseline conditions after Clear Lake is raised to its normal full pool operating condition after March 31, 2026, and for the remaining duration of the project.

The reservoir drawdown would result in the lower 0.25 miles of the North Fork Tieton River having to reestablish a new flow path over the exposed lakebed and readjust channel shapes and elevations as the channel aggrades downward into the lakebed of the 12-foot lowering of Clear Lake (Figure 5). Although no flow volumes would change within the North Fork Tieton River, the impact of channel readjustment via aggradation over the exposed lakebed could cause the channel to flow over an uncertain path near the confluence with Clear Lake. The new channel that forms could present a partial barrier to any adult bull trout that are attempting to move downstream into Clear Lake during their post-spawn migration, if the migration coincides or overlaps with the formation of the new aggraded channel that seeks equilibrium with the new elevation of Clear Lake and of the North Fork Tieton River. Reclamation and USFWS fisheries biologists would monitor the channel changes and adaptively manage any obstructions to bull trout passage.

Significant flow changes are not anticipated to occur in reaches of the North Fork Tieton River downstream of Clear Creek Dam as a result of the process of maintaining or raising (refilling) Clear Lake by 12feet after March 31, 2026. Flow alterations are expected to be short-term in nature and would have insignificant effects to bull trout or to the available prey base within Rimrock Reservoir, the South Fork Tieton River, or in Indian Creek. Furthermore, flow alterations related to water management actions that are anticipated to occur downstream of Clear Creek Dam from maintaining or refilling the lake to pre-project water surface elevations are not likely to result in damage to important kokanee spawning areas downstream or reductions in aquatic food base in Rimrock Reservoir.

The Proposed Action would have a long-term positive effect on the migration habitat that can permanently reconnect habitat between Rimrock Reservoir and Clear Lake and the North Fork Tieton River. Eliminating the current passage barrier would allow for volitional upstream and downstream fish passage for bull trout and other species. This long-term impact would provide for year-round migratory passage for bull trout (and eventually other species) into and out of Clear Lake and the North Fork Tieton River and would further improve survival conditions for adult and sub-adult bull trout.

Bull trout typically enter the North Fork Tieton River early, between June and August prior to spawning. The majority of adult migrants into the river would have little difficulty accessing the lake and North Fork Tieton River with the new fish passage facilities being completed on the outlet channel and stilling basin where adult fish tend to congregate at the base of the dam. Prior to the new fish passage channel construction, any adult upstream migrants would encounter a partial barrier and then subsequently a nearly full barrier to passage due to the presence of the inadequate fish ladder system and the series of bedrock cascades located in the spillway channel. As such, the newly constructed fish passage channel would provide fish access into Clear Lake and the North

Fork Tieton River at all expected future operational lake elevations which would extend full volitional passage capability for all migrating fish.

The new fish passage facility at Clear Creek Dam was also designed to operate under the 95 percent to 5 percent flow exceedance range (30 cfs to 389 cfs), so any fluctuations in the Clear Lake level or discharge fluctuations in the North Fork Tieton River within this range would be passable by adult and sub-adult bull trout through the new fish ladder passage route (Reclamation 2018, Appendix B). Furthermore, the new fish ladder would be designed and constructed to have an overall slope of 8.5 percent to accommodate upstream passage access for bull trout and would be constructed with individual step-pool and weir sections that have only minimal step height between cells to meet the most recent fish passage criteria (NMFS 2022). The fish ladder would also have cells with adequate size and volumes to dissipate energy and to decrease water velocities so they can be used as resting and cover areas for upstream migrating fish.

The fish ladder would be designed and operated with the mid-water level intake that would draw cold water from Clear Lake into the fish ladder at all times. This would eliminate the extreme temperature fluctuations that existed with the old system of fish ladders in the dam spillway. Providing constant and cold water via the new fish ladder at Clear Creek Dam would make volitional upstream passage much more feasible and consistent for bull trout at this location. Finally, keeping the spillway channel fish passage facilities in operation during construction of the new fish ladder passage facility and continuing to operate Clear Lake at or within its past operating range after the completion of the project would ensure that the dam spillway channel would remain as an alternate passage route (upstream and, more importantly, downstream) for those bull trout that volitionally migrate out of Clear Lake and into the Rimrock Reservoir environment each year in search of FMO habitat. This would be particularly true for allowing any bull trout from other local populations (e.g., South Fork Tieton River and Indian Creek) that have migrated upstream of Clear Creek Dam to subsequently move back downstream to find their natal tributaries. As a result, the ability of fish to migrate into and out of Clear Lake would be maintained in the spillway channel, and enhanced through the dam outlet channel, by continuing to operate the Clear Lake spillway channel and spillway fish ladders in concert with the new dam outlet channel fish ladder.

The new fish ladder would allow for all fish that migrate up to the dam to pass upstream, not just the fish caught and transported upstream by the USFWS each year. Any increase in the number of adult North Fork Tieton River origin fish that can successfully pass from the downstream side of Clear Lake into Clear Lake and the North Fork Tieton River would constitute a beneficial effect to the local population of North Fork Tieton River bull trout. As a result, Reclamation concludes that the operation of the new fish passage facilities and the elimination of the need for fish to use the old fish passage spillway channel route action would have a beneficial effect to individuals of the species and, as such, "may affect, but is not likely to adversely affect (NLAA)" adult and sub-adult bull trout.

Effects to Bull Trout Critical Habitat

The final critical habitat designation in 2010 (75 FR 2270) lists a total of nine primary constituent elements (PCEs) that are designed to incorporate what is essential for bull trout conservation in the Klamath River and Columbia River basins. PCEs include but are not limited to: space for individual

and population growth, and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing (or development) of offspring; and habitats that are protected from disturbance (69 FR 59995). The nine PCEs listed in the final rule include water temperature, channel complexity, substrate quality, hydrology, springs/seeps/groundwater, migratory corridors, food base, competition, and permanent water sources. All nine PCEs must be evaluated for their baseline condition within the Action Area and for any effects to their condition as a result of implementation of the proposed action under consultation.

Because of the lack of, or the extremely low level of, physical habitat disturbance to many of the tributary or reservoir environments from the Proposed Action, there would be no effect to many of the designated bull trout PCEs. Where those elements of the Proposed Action have no effect to physical habitat conditions, Reclamation has made "no effect" determinations. However, Reclamation would describe potential effects as "NLAA" or "MALAA" for elements where physical PCE conditions may be affected by: in-channel work (temporary flow alterations, cofferdam placement, or water quality impacts); where food web or predator-prey dynamics within reservoirs or tributaries can be affected by providing fish passage; or where alterations of channel flow or reservoir/lake hydrology could affect fish passage for all species within the reservoir such that these food web dynamics or processes can be impacted,.

3.3 Recreation

3.3.1 Affected Environment

Clear Lake Recreation Area (CLRA) is situated on approximately 60 acres and contains a variety of recreation sites that provide multiple recreational activities. The Recreational Opportunity Spectrum (ROS) classification for the area is Roaded Natural. The existing visual condition is classified as Natural Appearing, with some Retention in the foreground and Partial Retention in the middle ground. Its proximity to Yakima, Washington makes it a popular destination. Use occurs all year, with activities varying across seasons. Use levels are affected by weather, seasonal access, holiday timeframes, and the availability of campsites and/or picnic sites. The peak use season, approximately 110 user days, occurs between Memorial Day and Labor Day, with camping being the largest draw. After Labor Day, use decreases as a result of fall weather and school being back in session.

Recreation Facilities

Campgrounds and Day Use Areas

Several sites are grouped into the Clear Lake South and Clear Lake North Campgrounds. Indian Creek Dispersed Campground is east of Clear Lake and is outside the project area but within the vicinity. The Clear Lake Boat Launch and Day Use Area are also adjacent to the project area.

Table 3 shows information for campgrounds and day use areas in the CLRA.

Table 3. Clear Lake Recreation Area facilities

Site Name	Number of Sites	Capacity (PAOT)[a]	Acres	Number of Toilets	Season Dates	Seasonal Capacity[b]
Clear Lake Boat Launch	2 (picnic)	70	.75	1	May-Oct.	7,700
Clear Lake Day Use Area	8 (picnic)	55	2	1	May-Sept.	6,050
Clear Lake North Campgrounds[c]	--	--	3.6	--	--	--
Spring Campground	11	66	--	1	May-Oct.	7,260
Clear Lake Group Campground	Group	40	.5	1	May-Sept.	4,400
Three Day Campground	15	90	--	1	May-Oct.	9,900
Clear Lake South Campgrounds[d]	--	--	2.35	--	--	--
Cold Creek Campground	26	156	--	1	May-Oct.	17,160
Fishhawk Campground	10	60	--	1	May-Oct.	6,600
Spillway Campground	3	18	--	2	May-Oct.	1,980
Indian Creek Dispersed Campground	Open	150	1.5	2	May-Sept.	16,500

[a] PAOT= persons at one time; this is a measure of how many individuals can be at a site in a given moment. A maximum of 6 individuals per camp site is used to calculate PAOT capacity.

[b] Seasonal capacity equals PAOT multiplied by the number of days in the peak season and is a measure of the site's capacity over time.

[c] Acreage provided for Clear Lake North Campground includes Spring and Three Day Campgrounds. Acreage for Clear Lake Group Campground is provided separately.

[d] Acreage provided for Clear Lake North Campground includes Cold Creek, Fishhawk, and Spillway Campgrounds.

Actual use numbers vary each year, but these numbers can be much lower than seasonal capacity. Actual visitor days for CLRA sites in 2023 are shown in Table 4.

Table 4. Visitor days for CLRA sites

Site Name	2023 Year to Date[a] Visitor Numbers
Clear Lake North Campgrounds	--
Spring Campground	356
Clear Lake Group Campground	945[b]
Three Day Campground	650
Clear Lake South Campgrounds	--
Cold Creek Campground	577
Fishhawk Campground	535
Spillway Campground	136
Total	2,254

[a] Visitor numbers are through August 8, 2023, and represent 72 of the 110 days (65%) considered to be peak season (Memorial Day through Labor Day).

[b] Actual visitor numbers were not collected in 2023 for the group campground, but are instead based on the number of individual visitors accommodated for the reservations made during the season. The site was reserved for 117 of the possible 133 days available in the 2023 season.

The Clear Lake Group Campground and the Indian Creek Dispersed Campground are managed by USFS. Clear Lake Group Campground is typically reserved 120 days out of 133 available days (90 percent) each year. Trends for group campgrounds show that the same groups tend to reserve these campgrounds annually for events such as family reunions, weddings, and birthdays. They provide opportunities for people to camp together with the assurance of proximity to each other.

The remaining sites have been managed by a concessionaire, White Pass Ski Co., since 2019. White Pass Ski Co. has seen a rise in visitor numbers, particularly in 2023. Amenities offered include picnic tables, campfire rings, parking, trash service, host services, and vault-style toilets. Potable water in CLRA is limited to Clear Lake South Campgrounds. Visitor fees are collected at each site. Table 5 displays revenues collected. Actual values are reported for USFS-administered sites. Revenue for the concessionaire is not displayed to maintain financial confidentiality.

Table 5. Visitor fees collected at CLRA sites

Managing Entity	Facilities	Year	Revenues
USFS	Clear Lake Group Campground	2018	$3,060
		2019	$5,922
		2020	$480
		2021	$4,860
		2022	$4,820
	Indian Creek Dispersed Campground	2018	$418
		2019	$325
		2020	$304
		2021	$1,294
		2022	$88
White Pass Ski Co.	Clear Lake North and South Campgrounds, boat launch, and day use sites	2023	Highest revenue generating year, with an average 46% increase over all other years

OHV Play Area/Cold Creek Sno-Park

Located on NF-737 near the intersection of NF-1200, the OHV Play Area is popular with 4-wheel drive enthusiasts. It includes a constructed rock-crawling feature for drivers to test their skills. During the winter, the area transitions to the Cold Creek Sno-Park, providing parking for 85 vehicles. Dispersed camping occurs here all year long, but is especially popular with hunters in the fall and snowmobilers in the winter. Additional information about recreational activities provided at this location is presented in the following subsections. The OHV Play Area/Cold Creek Sno-Park is proposed as a contractor use area (CUA 4) during project implementation.

Recreation Activities

Many types of recreational activities are available to CLRA visitors. Recreational activities within the CLRA are described below.

Developed and Dispersed Camping

Camping is the most popular activity within the CLRA. Both single and group campsites are available. Single campsites are first-come, first-served, adding a certain amount of desirability. Clear Lake Group Campground is available by reservation only. Heavy use occurs on weekends, with peak visitation generally occurring mid-July through August. Dispersed camping, defined as camping outside of a developed site, takes place at Indian Creek Dispersed Campground and where access is available from USFS Road NF-1200-755 or along the south shore of the lake. Many campers also engage in water-based activities described below.

Fishing

WDFW describes Clear Lake as having a "year-round open season." Anglers fish from watercraft and from the shoreline spring through fall, and ice fish in the winter. The Clear Lake Day Use area offers an accessible fishing pier. WDFW stocks the lake with rainbow and jumbo rainbow trout. It also contains brook trout, cutthroat trout, mountain whitefish, and Westslope cutthroat trout. Bull trout are also present, but fishing is closed to this species.

Paddle Sports

Recreationists use kayaks, canoes, stand-up paddle boards, and other inflatable flotation devices. The organization camps along Clear Lake have participants that regularly partake in this activity. Paddle sports rank second among the top ten water-based activities for participation in the State of Washington participate (WA RCO- SCORP 2023; https://wa-rco-scorp-2023-wa-rco.hub.arcgis.com/). USFS recreation staff observe high levels of this activity on Clear Lake.

Boating

Clear Lake is restricted to trolling motors only. Most boaters are fishing, but as described above, kayaks and canoes are popular paddle sports. Camp Prime Time, an organization camp which caters to physically- and mentally-challenged campers, provides pontoon-style boat rides for those that would not otherwise be capable of navigating a watercraft on their own.

Trail Use

Within the project vicinity, trail use is mostly limited to the Clear Lake Barrier Free Trail, which can be accessed from the Clear Lake Day Use Area. This half-mile round trip trail has minimal elevation gain and is paved and fully accessible, including for wheelchair users.

Nature Viewing

Either from shore or on the water, bird watching at Clear Lake is a popular activity due to its being part of the Sun and Sage Loop of the Washington State Birding Trail. Along the Clear Lake Barrier Free Trail, multiple bird stands are provided from which to observe birds and wildlife. Visitors can also view wildflowers and other botanical species in the area.

Swimming

When temperatures are at their highest, recreationists come to the CLRA to cool off, swimming in Clear Lake and along Clear Creek. Popular swimming sites along the lake include Clear Lake Boat Launch and the Clear Lake Day Use Area. Swimming is a common activity for organization camp participants. Campers at Spillway, Cold Creek, and Fishhawk Campgrounds take advantage of the cooler waters of the adjacent Clear Creek.

OHV Use

This occurs within the designated OHV Play Area described above. Cross-country/off-road use is not allowed within the CLRA.

Hunting

Hunting does not take place within the CLRA, but hunters use the area for developed and dispersed camping. Cold Creek Campground, typically closed before hunting season, has no physical barriers to prevent entry and is heavily utilized by fall hunters. Hunters also disperse camp along NF-1200-737 and at the OHV Play Area.

Nordic Skiing/Snowshoeing

Nordic (cross-country) skiing and snowshoeing are nonmotorized winter activities that occur in the CLRA. The North Fork Tieton Sno-Park provides access to 10 miles of groomed trails. This Sno-Park is accessed via NF-1200 from both directions and provides space for 15 vehicles. Season dates for the Sno-Park are from December 15 to March 30. The Sno-Park and associated groomed trails are not within the project area and should not be affected by the project.

Snowmobiling (Motorized Winter Sports)

The Cold Creek Sno-Park, proposed for use as CUA 4, is located near the intersection of NF-1200 and NF-1200-737. This Sno-Park provides space for 85 vehicles. Several other Sno-Parks outside the project area also access the same trail system as Cold Creek Sno-Park. The Pinegrass Sno-Park, located just off NF-1200 on NF-1205, to the west of the NF-1200-737 junction, provides parking for five vehicles. The Bear Creek Sno-Park is located near the intersection of NF-1200 and NF-1204 and provides parking for 10 vehicles. Collectively, these Sno-Parks provide access to 58 miles of groomed trails for snowmobiles. Access to Pinegrass Ridge, which provides excellent high elevation views, is a popular route. The season dates for these Sno-Parks are from December 15 to March 30. Sno-Park grooming and plowing is accomplished with funding from Washington State Parks and is performed by contractors and USFS personnel.

Incidental Activities

Scenic driving, nature photography, and berry picking also take place in the area.

Special Uses

USFS has authorized occupancy and uses of National Forest System lands within the CLRA as described below.

Concessionaire

White Pass Ski Co. operates all developed sites in the CLRA, except for the Clear Lake Group Campground. White Pass Ski Co. manages all aspects of operations and maintenance for the facilities. Three camp hosts, one at Clear Lake Day Use Area and two at Clear Lake Boat Launch, reside in the area through the summer season and assist with management and provide on-site customer service. Potential impacts to the concessionaire are discussed under Environmental Consequences in the Developed Camping section below.

Organization Camps

These are camps that provide day or overnight programs and facilities for the purpose of providing an outdoor group experience that sometimes may have a social, spiritual, educational, or recreational

objective. Camp Dudley is the only camp within the project area, while the remaining are in the vicinity of proposed activities. The organization camps are described below.

- Camp Prime Time – Camp Prime Time is 5 acres in size and is located on the southeast side of the lake. It is the organizational camp in closest proximity to the project area, and uses NF-744 as its entrance. This camp serves families with seriously/terminally ill or developmentally disabled children. Operated by volunteers, it serves approximately 1,000 guests a year. Activities provided include pontoon boat rides and fishing, horseback riding, an accessible treehouse, movie nights, organized sports, and wagon rides.
- Camp Zarahemla – Camp Zarahemla is 12.2 acres in size. It is located on NF-1200, southwest of the Clear Lake Day Use Area, and is outside the project area. The camp serves approximately 4,000 participants a year. This camp has several small primitive cabins and a lodge, with additional space for tent cabins. Outdoor activities offered include swimming, kayaking and canoeing, fishing, and hiking.
- Clear Lake Grace Brethren Camp – Clear Lake Grace Brethren Camp is located on the south shore of Clear Lake and sits on 6.8 acres. It is not within the project area but is in the vicinity. The camp serves approximately 2,000 guests annually. This camp offers rental facilities for conferences, retreats, and day camps and has a resident camp. In operation all year long, activities offered include archery, organized sports, sledding/tubing, swimming, fishing, and beach activities along with row and paddle boats.
- YMCA/Camp Dudley – Camp Dudley is 13 acres in size and is located on NF-1200 to the northwest of the project area. It operates year-round and serves approximately 1,000 participants a year. Operated by YMCA of Yakima, Camp Dudley offers camps for underserved and disadvantaged youth, family camps, retreats, and special events. Some of the activities offered include swimming, arts and crafts, environmental education, rock climbing, a ropes challenge course, hiking, canoeing and other paddle sports.

Outfitters and Guides

Outfitters and guides provide specialized knowledge, skills, experience, and equipment that general recreationists might not otherwise possess. A special use permit is used to authorize outfitter and guides to undertake activities at permitted locations. The following special use permit holders either operate within the project area or vicinity, or perform services for organization camps in the project vicinity:

- Edgeworks Climbing, Inc. – This company offers guided rock climbing and winter programs focused on winter skills and avalanche education, utilizing Goose Egg Rock and the North Fork Tieton Sno-Park. Some rock climbing trips consist of multi-day guided trips and utilize the Clear Lake campgrounds. For winter programs, Edgeworks Climbing utilizes the North Fork Tieton Sno-Park. All activities, except for camping, take place outside the project area.
- White Pass Outfitters – This outfitter provides corral rides upon request at the various organization camps described above. The base operation is located outside of the project area, on the north side of US 12. The outfitter operates a guided hunting service and provides guided horseback rides.

Recreation Events

Recreation events are temporary, short duration events, such as races, runs, rides, or tournaments for which an entrance fee may be required. A special use permit is issued to authorize these events and associated activities.

- Clear Lake Memorial Run and Half Marathon – Organized by the Hard-Core Runners' Club, this event takes place annually in June. The Memorial Run consists of a 5-mile run "Around the Lake" using existing Forest Service System roads (NF-1200, NF-740, and NF-745) and 1.5 miles of gravel roads. The half marathon route begins at Clear Lake, continues up NF-1200-530 to Round Mountain and back to Clear Lake.

Recreation Residences

Recreation residences are privately-owned residences authorized through special use permit to be located on National Forest System lands.

- Indian Creek Tract – These recreation residences (Lots # 1-20) are located along NF-746 and are near the Indian Creek Dispersed Campground. Lots vary in size. Use occurs year-round and is sporadic. The tract itself is outside the construction area but is accessed by USFS roads which may be used for construction activities.

3.3.2 Environmental Consequences

Alternative A – No Action

There would be no impact on recreation with the implementation of Alternative A.

Alternative B – Proposed Action

White Pass Ski Co., the concessionaire which operates all developed sites in the Clear Lake Recreation Area, would experience a loss in revenue while the developed campgrounds are closed. Their operations at Clear Lake Boat Launch and Day Use area would not be impacted because these sites would remain open.

For all remaining recreation resources and special uses, the impacts are considered temporary, minor, and local in nature, only occurring within and immediately adjacent to the project area and limited to the duration of construction activities.

Recreation Facilities

Campgrounds and Day Use Areas

The proposed project would close the Clear Lake North and Clear Lake South Campgrounds during the construction period. Campgrounds would be used as CUAs for equipment and material staging and crew housing. The Clear Lake Boat Launch and Day Use Area would remain open during project construction.

The project would avoid impacts to picnic tables, fire rings, and other amenities in campground areas by implementing project design criteria, environmental commitments, and BMPs.

OHV Play Area/Cold Creek Sno-Park

Closing the OHV Play Area/Cold Creek Sno-Park area for use as a CUA would temporarily displace users but would not change long-term access or opportunities. Project design criteria would maintain or, if necessary as a result of use, restore the rock-crawling feature after project construction is complete. OHV users accustomed to using this area have access to other OHV experiences on the Naches Ranger District during the construction-related closure.

Winter recreationists would be able to access the same system of groomed snowmobile trails via other parking areas (Bear Creek, South Fork Tieton, Fish Creek, Tieton Airstrip, or Bethel Ridge/Soup Creek) during the construction-related closure.

Recreation Activities

Developed Camping

The proposed project would close the Clear Lake North and Clear Lake South Campgrounds during construction, affecting the visiting public and the ability to collect associated campsite fees.

Based on the sites' maximum seasonal capacity, closures could reduce access up to 47,300 days per year. However, considering actual use data collected for the 2023 season and extrapolating to a full 110 day peak use season, actual use could be reduced each year by 3,468 days at Spring, Three Day, Cold Creek, Fishhawk, and Spillway Campgrounds. Although actual use data is not available for Indian Creek Dispersed Campground, a similar impact would be expected.

Based on use data for Clear Lake Group Campground, actual use would be reduced by an estimated 960 days each year. As a result of the closures, recreationists may choose to visit other open developed sites, camp at dispersed sites outside the project area, or cancel planned trips. Group site users may find it more difficult to find alternative sites which provide the same opportunities available at Clear Lake Group Campground. Other group campgrounds in the vicinity already see similar reservation rates, with little capacity to absorb groups displaced from Clear Lake.

Clear Lake Boat Launch and Day Use Area would provide the only access to the lake during project construction. These two day use sites may see increased use as visitors who would normally use facilities at Clear Lake South and Clear Lake North Campgrounds shift where they access the lake.

Clear Lake Boat Launch and Day Use Area could reach capacity every weekend and could possibly see increased weekday use. Increased vault toilet pumping and trash service may be needed to maintain the facilities that remain open during project construction (Clear Lake Boat Launch and Day Use Area). The concessionaire would manage use so it does not exceed the capacity for which the sites are designed. Noise from construction activities may have a negative effect on some visitors' experience.

Dispersed Camping

The Indian Creek Dispersed Campground sees high use during the time it is open and is popular with hunters in the fall as access is unrestricted. During the time that the Indian Creek Dispersed Campground is closed for construction activities, users may camp at other sites along NF-1200 (Tieton Road), such as at the Peninsula Campgrounds, South Fork Bay Campground, and the

dispersed areas along NF-1200. Due to the closure of NF-740 where it meets NF-746, there would likely be an increase in ingress/egress traffic on NF-746 where it intersects with US 12. There are no traffic controls at this intersection and this may affect vehicles entering or traversing the highway.

Fishing

Access for fishing would still be available at the Clear Lake Day Use Area and Boat Launch. Anglers may notice construction noise from the project area. In addition, visual quality may be temporarily degraded from some views around the lake. Project design criteria, environmental commitments, and BMPs would ensure that the visual condition of the area is retained after construction is complete.

Paddle sports/Boating/Swimming

The Clear Lake Day Use Area and Boat Launch would remain accessible for launching watercraft and swimming at Clear Creek Lake during project implementation. Recreationists may notice noise during construction and visual quality may be temporarily degraded from some areas of the lake. Project design criteria, environmental commitments, and BMPs would ensure that the visual condition of the area is retained after construction is complete.

Trail Use/Nature Viewing

The Clear Lake Barrier Free Trail, while outside the project area, may be subjected to construction noise as it wraps around the shoreline. Some construction activity would also be visible from portions of the trail during project implementation. Project design criteria, environmental commitments, and BMPs would ensure that the visual condition of the area is retained after construction is complete.

Hunting

The impact to hunters would be the same as described for other campers.

Winter Sports

For nonmotorized winter sports (Nordic skiing, snowshoeing), there would be no impact to access for nonmotorized trails in the area. For motorized winter sports (snowmobiling), access to groomed snowmobile trails would be changed during project implementation. The Cold Creek Sno-Park would be closed for construction utilization. Winter recreationists that park at the Cold Creek Sno-Park would be able to access the same system of groomed snowmobile trails via other parking areas (Bear Creek, South Fork Tieton, Fish Creek, Tieton Airstrip, or Bethel Ridge/Soup Creek) during the construction-related closure.

Special Uses

Organization Camps

The impacts to Camp Prime Time, Camp Zarahemla, Clear Lake Grace Brethren Camp, and YMCA/Camp Dudley would be temporary and minor, and camp activities should be able to continue as normal with potential modifications to scheduling at the discretion of camp managers.

Visual quality for most of the camps may be temporarily degraded if construction equipment and materials can be viewed from the shores of their camp locations. Visitors may notice noise from construction. There could be increased traffic at camp entrances or conflict with permitted activities if the general public utilizes entrance roads or enters a camp's operational area when seeking new areas to disperse camp or explore. For those camps that operate in the winter, impacts should be minimal for the relatively fewer guests.

Project design criteria have been developed to maintain access for campers and minimize potential impacts. They would reduce the impact of detours or road closures to ensure guests can access the camp and include effective traffic control and notification to organization camps.

Outfitters and Guides

- Edgeworks Climbing, Inc. – Due to the campground closure, this outfitter would need to utilize other campgrounds along the Tieton Road such as Peninsula Campground, South Fork Bay Campground, and some of those further up NF-1000 and NF-1203. They would likely experience more competition for site reservations. Participants of their winter programs would not be impacted because access to the North Fork Tieton Sno-Park would still be available.
- White Pass Outfitters – No impacts to this outfitter would occur as a result of proposed project activities. Services the outfitter provides to the organization camps can still occur on an as-requested basis.

Recreation Events

The Clear Lake Memorial Run and Half Marathon would be impacted during the duration of construction activities, as the typical race routes overlap roads that would be closed during construction. Alternate routes could be developed for the duration of the proposed project.

Recreation Residences

While the Indian Creek Recreation Residence Tract is not located within the project area, ingress and egress patterns may be altered during construction due to the closure at the junction of NF-740 and NF-746. This approach to US 12 is steep with limited visibility. Traffic controls do not exist at the intersection of NF-746 and US 12. Project design criteria and environmental commitments include effective traffic control and notification at recreation sites. Residents may notice increased traffic noise from construction vehicles.

3.4 Water Resources

3.4.1 Affected Environment

Clear Lake is managed for recreation and has a constant water surface elevation of about 3011.3 feet. The North Fork Tieton River and Clear Creek are the primary tributaries to Clear Lake. Water quality data for the Clear Lake area is rather limited. Clear Lake and the North Fork Tieton River, have water temperatures ranging from 2° to 15° C with adequate thermal refugia for temperatures that exceed the upper end of this range. Washington Administrative Code (WAC) 173-201A-200

provides a framework for maintaining water quality in fresh water. Under WAC 173-201A-200, upstream of the dam is considered "char spawning and rearing" and downstream of the dam is considered "salmonid spawning, rearing, and migration."

There are no 303(d) listed streams in the project area (Ecology 2023a). However, as of 2004, Clear Creek has been rated a Category 2 stream for pH. A Category 2 rating means there is some evidence of a water quality problem, in this instance pH, but not enough to require production of a Total Maximum Daily Load standard (Ecology 2023d). Ecology's Freshwater Information Network (FIN) website database does not list a monitoring site near Clear Lake; the closest FIN location is on the Tieton River at Oak Creek (Ecology 2023b, 2023c).

3.4.2 Environmental Consequences

Alternative A – No Action

Under the No Action alternative, the WSE of Clear Lake would not experience any unnatural fluctuations, and O&M would continue as is presently conducted. Localized short-term turbidity increases may occur during O&M of the facility but, generally, water quality would remain unchanged form baseline conditions because no construction would occur. High peak flows entering Clear Lake may also result in flows over the spillway being turbid, but this is considered a natural event and not a man-made condition and would subside as flows decreased.

Alternative B – Proposed Action

Clear Lake would experience a localized, temporary, minor adverse impact with the lowering of the pool by 12 feet to facilitate construction of the reservoir structure; however, as soon as the drawdown period is over, the lake would begin refilling. Local, temporary, minor water quality issues may arise due to construction activities, such as cofferdam placement, but impacts would be reduced by implementation of BMPs and mitigation measures (Appendix A) and contractor monitoring. Instream and near-stream work has the potential to temporarily degrade water quality by increasing turbidity (i.e., placement and removal of cofferdams or runoff originating from upland work sites), and by the introduction of point source toxic substances such as fuel or hydraulic fluid from construction equipment. Withdrawing water for dust abatement and other construction purposes could have localized, temporary, negligible impact on water quantity; this type of water use would be mitigated. The Proposed Action would have negligible impact to water temperatures or to the currently existing natural thermal regime or presence of thermal refuges in tributary streams or within the reservoir; negligible changes to pH are expected as a result of underwater concrete placement.

Operations of the fish ladder would have a long-term, moderate, beneficial impact on stream temperatures between Clear Creek Dam and the confluence with Rimrock Lake, and it is not expected to degrade other water quality parameters. Due to the short length of the reach between the dam and Rimrock Lake, it is unlikely that the quality of water passing through the fish ladder would significantly change compared to ambient conditions. Water flowing through the fish ladder would be cooler than nearby surface water because: it would be shaded from solar radiation (i.e., covered by grating); the concrete fish ladder would be almost entirely below grade; the concrete

walls would have similar heat exchange characteristics as bedrock or the spillway (i.e., specific heat capacity); and water detention would not occur.

The design of the ladder intake would keep the water in the ladder cool because it is drawing water from approximately 25 feet below the WSE; drawing water from this depth should also reduce the amount of silt or other particulate matter passing through the fish ladder to the North Fork Tieton River. Once construction is complete, the potential use of equipment near the reservoir and river structures is low, so the potential for chemical or toxic substance spills would be reduced. Turbidity events should be minimal, as the ladder is designed to run year-round and would only be shut down during winter reservoir icing events, which would reduce the amount of dust accumulation.

Thermal increases to streams and the reservoir are reduced by the proposed water management actions (i.e., lake WSE lowering) occurring in the fall through spring months when temperatures in Clear Lake and all three tributary systems are already cold, or are in the process of declining in temperature over the winter and spring time periods. No other project-related elements would have the potential to adversely impact water temperature regimes.

Reclamation anticipates that flow alterations occurring below Clear Creek Dam due to the 12-foot lowering of Clear Lake would range from between 100 to 60 cfs per day over the 12-day 1-ft per day lake drawdown period. These daily flow alterations would be added to the baseline minimum flow of between 85 cfs (July-September average discharge) and 126 cfs (June-September average discharge) that is typically released on a daily basis through the dam outlet. After the 2-week drawdown, flows out of Clear Creek Dam would be regulated by the amount of water inflow into Clear Lake. All water inflow into the lake would be passed through the dam outlet because the spillway channel would be disconnected from Clear Lake and cannot be used for passing inflows.

Significant flow changes are not anticipated to occur in reaches downstream of Clear Creek Dam as a result of the process of lowering Clear Lake by 12 feet between September 29, 2025, and March 31, 2026. Flow alterations are expected to be short-term in nature and would have insignificant or discountable effects in the North Fork Tieton River below the dam.

If a high flow event happened during the time of lake lowering, the WSE of Clear Lake could rise above the 2999 drawdown elevation and then subsequently be brought back down to the 12-foot drawdown level by making outlet gate adjustments after the inflow event. This would not only result in a fluctuating lake level elevation but would also result in flow fluctuations in the dam outlet channel as the outlet gates are adjusted. Based on historical inflow estimates to Clear Lake during the October to March time period, it is rare for any large inflow events to occur during this time. However, if such an event did occur, flows are only anticipated to increase by up to 800 cfs for short periods of time before returning to the original average baseline flows of between 100 to 200 cfs at the dam outlet (Figure 9). As a result, Reclamation anticipates that any precipitation events that occur during the drawdown period would not result in significant water surface elevation fluctuations in Clear Lake or cause high discharge alterations at the dam outlet channel that would be severe enough to have adverse effects to the North Fork Tieton River below the dam.

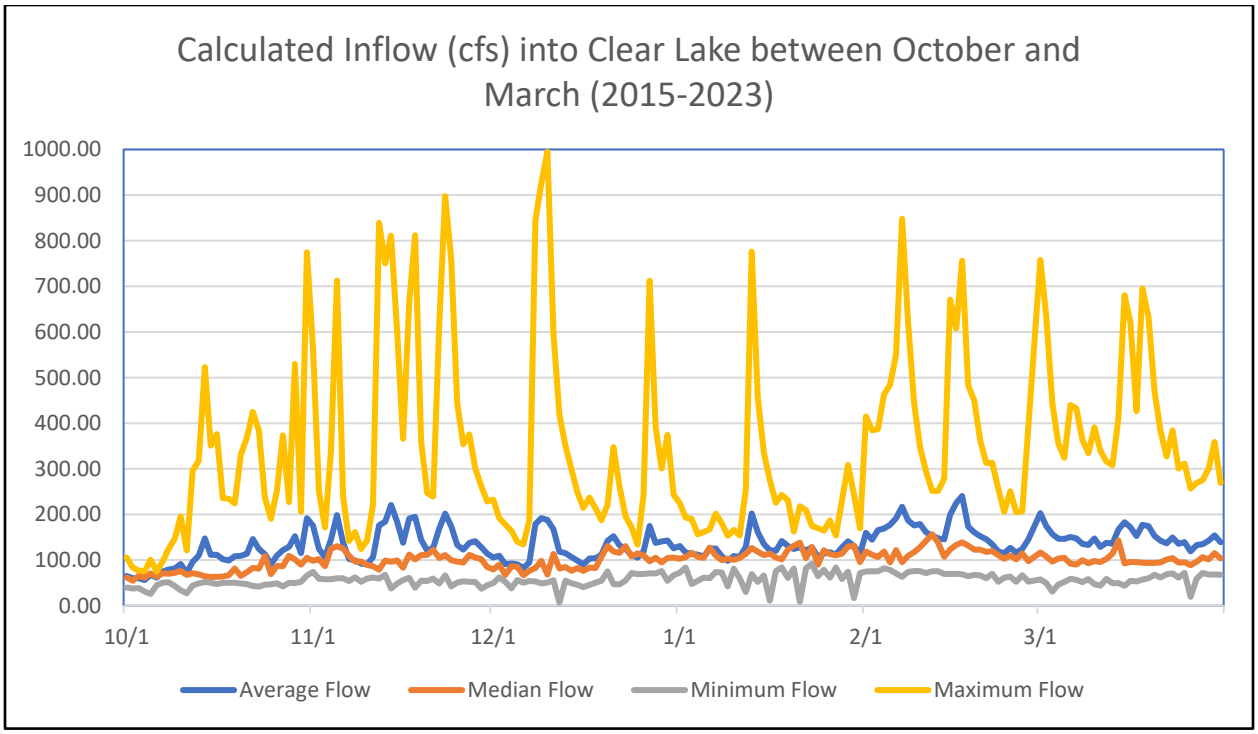

Figure 9. Calculated discharge (cfs) statistics (average, median, minimum and maximum) coming into Clear Lake for the years 2015-2023

Refill of the reservoir is subject to inflows from the upper watershed. Refill of the reservoir is expected to start March 31, 2026, but may occur earlier depending on contractor's schedule. Assuming refill of the reservoir starts on March 31, 2026, it may reach elevation 3011.3 by April 7, but this would depend on prevailing conditions. Depending on precipitation events and snow melt, the WSE may not reach 3011.3 until late May or early June.

Reclamation plans to provide stable and consistent flows downstream of Clear Creek Dam that are as similar as possible to normal baseline operations of this facility throughout the project implementation period. This consists of normal flow releases of between 85 cfs (July-September average discharge) and 126 cfs (June-September average discharge) at the dam outlet gates with any remaining lake inflows passing over the spillway channel and series of existing fish ladders in the spillway channel. Similarly, for the majority of the project duration the level of Clear Lake would be maintained at a constant and normal operating elevation of 3011. These consistent flows and lake levels would be provided at most times between the months of April 1 and September 29. However, to accommodate construction elements for the fish ladder exit structure and auxiliary fish ladder water intake on the upstream side of Clear Creek Dam, the lake level of Clear Lake would need to be lowered by 12 feet (to elevation 2999) to allow these construction elements to be isolated from water and constructed under dry conditions.

Construction of the cofferdams may result in short-term turbidity pulses when the foundation is being prepped in the river, and during geo-bag placement. With the application of BMPs, turbidity monitoring, and adaptive management there should be no exceedances of WAC-173-201A-200. With the possibility of the river cofferdam being in place for 8 months, the contractor will have to

manage for prolonged precipitation or rain-on-snow events to prevent overtopping (if the cofferdam is dewatered) or prevent dislodging of geo-bags.

Local, temporary, negligible impacts to pH may occur during the placement of concrete for the four water intake pipe supports. Special attention is required in underwater construction. Underwater concreting is most commonly achieved with the tremie method, which uses a tremie pipeline with a valve on the operating end held by the diver; the valve creates a seal to prevent concrete "escaping" into the water column. The pipeline is often "fed" concrete from a land-based pumper truck. The tremie pipeline would be sealed while the divers navigate to the underwater forms. The pipeline would be placed at the bottom of the forms, touching the bottom surface. Once the pipe is against the bottom of the form, the pipeline valve would be opened to allow concrete to move through the pipe. When the tremie reaches the top of the form, the valve would be turned off to stop the flow of tremie. After placements are made underwater, the contractor shall cover the end of the tremie tube prior to lifting it back out of the water column. The cover would prevent any concrete from entering the water column. A burlap tarp might be placed over the top surface of the tremie to prevent direct water contact.

Reclamation has engineered out, to the greatest extent practical, the risk of leaching phosphate (P) into the water column and potentially increasing pH during underwater concrete placement and curing, by requiring the use of P-free Portland Cement. It is likely that an admixture would be added to the tremie concrete mixture to improve yield value and viscosity of the mix to improve flow through the tremie pipeline, increase self-compaction, improve cohesiveness (segregation-resistance) of the mix, and improve washout resistance (dispersion of concrete material into the surrounding water). This type of admixture may contain trace amounts of P due to processing and general materials used. If an admixture is used, the volume would be on the order of ounces of admixture per CY of concrete. Some concrete, specifically magnesium phosphate cement, contains P that could leach into the water column during the curing process and raise pH levels.[9] Leaching of P into the water column is highest during the first 4 days of curing.

Water quality monitoring would be conducted by the contractor as a further means of ensuring that project-related activities do not adversely affect the aquatic environment within the Clear Lake immediate work area during all phases of the auxiliary water intake pipe construction activities that occur underwater. The contractor would monitor for turbidity, pH, and temperature on the reservoir side, and turbidity and temperature on the river side during construction. Measurements for these physical parameters would be collected during all phases of the project, especially during any concrete pouring, curing, and subsequent concrete grouting activities (if needed) for construction of the fish ladder auxiliary water intake. Reclamation does not expect significant water quality impairments as a result of underwater auxiliary water intake structure installation diving, structural placement, or concrete pouring during all phases of this structure construction from this project.

[9] When there is too much P in water, it can speed up eutrophication (a reduction in dissolved oxygen in water bodies caused by an increase of mineral and organic nutrients) of rivers and lakes.

Finally, the respective contractors conducting this work or constructing all components of the fish ladder would be following water quality and erosion control mitigation BMPs during these actions. These BMPs would be implemented to prevent or limit any turbid water with high suspended sediment load sources from flowing into any of project-affected waterbodies, including Clear Lake upstream of the dam and the dam outlet and stilling basin below the dam. Employing project erosion control and water quality management BMPs would significantly reduce the likelihood of water quality impairment in these waterbodies during project implementation related to fish ladder construction.

Reclamation has elected to conduct this lake lowering for a short-term time period during the winter months of September 29, 2025, through March 31, 2026. This lake level elevation drop and drawdown time period are anticipated to allow sufficient time for the selected contractor to construct the fish ladder exit structural components under dry conditions prior to the lake level being returned to its normal 3011 operating elevation. This time period was also selected because it did not interfere with the important recreation use of Clear Lake during the summer months, and because it would occur during a time when fish species (particularly bull trout) would be at their least active period due to the slower metabolism rates during the cold winter months.

Because Clear Lake is operated with a constant and stable water surface elevation on a year-round basis, an established and stable alluvial fan exists where the North Fork Tieton River enters Clear Lake. As a result, this area does not experience a typical varial zone, as is often seen at other similar reservoir tributary systems that experience highly variable and fluctuating water surface elevations each year (e.g., Indian Creek). Because of these stable water surface elevations where the North Fork Tieton River enters Clear Lake, fish in Clear Lake are able to freely and volitionally migrate into and out of the North Fork Tieton River at all times of the year with no physical barriers.

Lowering Clear Lake by the proposed 12 feet and holding the lake at elevation 2999 from September 29 to March 31 would have several potential hydrologic impacts to both Clear Lake itself as well as river segments of the North Fork Tieton River, both upstream and downstream of the dam (see Figure 5). These potential impacts include flow alterations to the North Fork Tieton River below the dam, spillway channel flow disconnection, water level fluctuations within Clear Lake, loss of full connectivity between Clear Lake and the North Fork Tieton River, fish stranding within Clear Lake, habitat loss, and water quality impacts. The Proposed Action may result in short-term flow fluctuations downstream of Clear Creek Dam as flows are adjusted higher at the end of September through the first 2 weeks of October 2025. This is the period when water would be released from the lake for the 12-foot drawdown and then adjusted lower during the process of refilling the lake in March, when the subsequent 12-foot rise would have to occur to bring the lake back to full pool (elevation 3011). In addition, the dam outlet channel below Clear Lake Dam could see some flow fluctuations due to the passing of natural inflows into Clear Lake during the process of holding the lake at a stable elevation of 2999 during the period from late September to March.

Reclamation anticipates that flow alterations occurring below Clear Creek Dam due to the 12-foot lowering of Clear Lake would range from between 100 to 60 cfs per day over the 12-day 1-ft per day lake drawdown period. These daily flow alterations would be added to the baseline minimum flow of between 85 cfs (July-September average discharge) and 126 cfs (June-September average discharge) that is typically released on a daily basis through the dam outlet. All water inflow into the lake would

be passed through the dam outlet because the spillway channel would be disconnected from Clear Lake and cannot be used for passing inflows. Significant flow changes are not anticipated to occur in reaches downstream of Clear Creek Dam as a result of the process of lowering Clear Lake by 12 feet between September 29, 2025, and March 31, 2026. Flow alterations are expected to be short-term in nature and would have insignificant or discountable effects to bull trout or to the available prey base (i.e., kokanee salmon) in the North Fork Tieton River below the dam. Furthermore, the Proposed Action flow alterations that are anticipated to occur downstream of Clear Creek Dam are also not likely to result in adverse impacts to bull trout or reductions in current levels of the aquatic food base in Rimrock Reservoir, the South Fork Tieton River, or Indian Creek.

During the nearly 6-month period that Clear Lake would be drawn down and held at the 2999 operating elevation, it is likely that some precipitation events would occur (in the form of either rain or snow). Because of the large area of exposed shoreline that would result from the lake drawdown, it is anticipated that some of these precipitation events would result in rain or snow falling on some muddy or silty exposed shoreline areas that could result in surface runoff with sediment-laden water that could produce high turbidity or suspended sediment impacts to Clear Lake water quality. These potential rain or snow events would largely affect shoreline areas that would receive any turbid sediment inputs during the precipitation event. Although some elevated water quality impacts can be expected from such precipitation events occurring, it is anticipated that any high suspended sediment or turbidity inputs would be locally limited to near-shoreline areas and that these events would be short-term in duration prior to settling out along the affected lake shoreline area. In addition, many of the Clear Lake lakebed areas consist of small and large gravel substrates that are not as susceptible for generating turbidity or high suspended sediment loads during precipitation events.

3.5 Transportation, Traffic, and Public Safety

3.5.1 Affected Environment

Primary access to Clear Lake is from the Yakima/Naches area via US 12. US 12 is a U.S. highway that connects Aberdeen, Washington to Detroit, Michigan and is the only numbered highway to span the entire state of Washington from west to east. US 12 crosses the Cascade Range over White Pass, south of Mount Rainier National Park, and is the only crossing of the Cascades open year-round between Interstate 90 over Snoqualmie Pass and State Route (SR)14 through the Columbia River Gorge. In the Project vicinity, US 12 is a two-lane, undivided, paved road.

Two primary NF roads, NF-1200 and NF-740, access the various campgrounds, special use areas, and private recreation facilities in and outside of the project area. NF-1200 is a two-lane paved arterial road, maintained by Yakima County, that spurs off US 12 and provides access around most of the Clear Lake perimeter. NF-740 is a loop road, connecting between the north and south sections of NF-1200, that crosses over the Clear Creek Dam spillway and the North Fork Tieton River below the damsite. The primary construction area and three CUAs are located on NF-740. Additionally, there are local, single lane, paved, gravel, or dirt surfaced roads that are maintained by

USFS. There is no information available on traffic volumes for the roads in the project area; however, USFS considers average daily traffic for the roads to be less than 400.

Construction traffic on narrow forest roads is an increased safety risk and requires extra awareness of traffic and local road conditions. Emergency vehicle access must be always maintained.

3.5.2 Environmental Consequences

Alternative A – No Action

There would be no impacts on transportation or traffic from implementing Alternative A.

Alternative B – Proposed Action

The impacts to traffic, transportation, and public safety are considered temporary, minor, and local in nature, only occurring within the Clear Lake vicinity, and limited to the duration of construction activities. There would be localized temporary, negligible impacts to emergency vehicle access because road closures would utilize barriers that could easily be moved to accommodate emergency vehicle access. There is not expected to be a significant impact on traffic volumes on US 12 or NF-1200, which are the primary roads that would be used by construction personnel and material suppliers. Post-construction, road use by Reclamation may be slightly increased in the first couple of years compared to current O&M site visits, as the fish ladder operations would be monitored and refined.

Throughout the construction period, there would be equipment and material deliveries from the Yakima area, which could increase traffic volume on US 12. One of the largest traffic increases to the project site would be associated with the delivery of concrete and return trips to Yakima. Those residing in the recreation residences, using NF-746 off of US 12, would need to be extra vigilant entering and exiting the highway, as NF-746 is at a bend in US 12 and sight distance is limited.

To increase public safety and facilitate CCDFP Project construction, several NF roads would be closed in the project vicinity from April 2025 to September 2027, as described in Chapter 2. Road closures on the east side of Clear Lake during construction could increase traffic volume on NF-1200; alternatively, recreators may opt to utilize other sites within the Okanogan-Wenatchee National Forest. Locally, there would be an increase in truck traffic hauling rock excavated from the construction site to CUA 4 to be crushed and processed, and a portion of it would be returned as backfill material for the fish ladder. After backfilling of the fish ladder, excess rock material would be hauled off-site to an acceptable commercial disposal site (e.g., rock pit or demolition debris site) as determined by the contractor and approved by Reclamation.

It is anticipated that the contractor my opt to create a one-way traffic pattern on NF-740; this way, there would be no large truck traffic going both directions on the same road. This could mean longer return routes on NF-1200 for trucks going from CUA 4 to the construction site. Empty concrete trucks or dump trucks hauling excess material for disposal could opt to return to Yakima via NF-1200 and going on the west side of Clear Lake, or via NF-1200 that runs along the south side of Rimrock Lake.

3.6 Air Quality and Climate

3.6.1 Affected Environment

Air quality at Clear Lake is generally very good. Clear Lake is within a few miles of the Goat Rocks Wilderness, a Class I airshed where air quality is above standards (EPA 2023c). There are occasional localized pollution sources in the area that can lead to short-term air quality degradation such as dust from traffic on unpaved roads and smoke from wildfires, prescribed burns on USFS lands, campfires, fireplaces, and woodstove use at summer homes.

Air quality data is not readily available for Clear Lake. However, Clear Lake is located in Yakima County, an area that is in attainment for all national and state ambient air quality standards (see Table 6). Five-year air quality trends show that most days rate as "good;" however, the year-round measure of average particle pollution (PM) is not as volatile as the daily measures. Yakima County has shown an increase in PM since 2016. The PM levels vary throughout the year with weather, pollution events (e.g., wildfires), and the change of season.

Table 6. National and Washington Ambient Air Quality Standards

Pollutant	Averaging Time	National Standards			Washington Standard
		Primary	Secondary	Form	
Ozone	8-hour	0.070 ppm[1]	Same as primary	Annual 4th-highest daily max. 8-hr concentration, averaged over 3 years	0.70 ppm
Carbon monoxide	8-hour	9 ppm[1]	--	Not to be exceeded more than once per year	9 ppm
	1-hour	35 ppm[1]	--		35 ppm
Nitrogen dioxide	Annual (arithmetic mean)	53 ppb[2]	Same as primary	Annual mean	53 ppb
	1-hour	100 ppb[2]	--	98th percentile of 1-hour daily max. concentration, averaged over 3 years	100 ppb
Sulfur dioxide	Annual (arithmetic mean)	--	--	--	0.02 ppm
	24-hour	--	--	--	0.14 ppm
	3-hour	--	0.5 ppm[1]	Not to be exceeded more than once per year	0.50 ppm
	1-hour	75 ppb[2]	--	99th percentile of 1-hour daily max. concentrations, averaged over 3 years	75 ppb
Particulate Matter (PM_{10})	24-hour	150 $\mu g/m^3$	Same as primary	Not to be exceeded more than once per year on average over 3 years	150 $\mu g/m^3$

Pollutant	Averaging Time	National Standards			Washington Standard
		Primary	Secondary	Form	
Particulate Matter ($PM_{2.5}$)	Annual (arithmetic mean)	12 µg/m^3	15 µg/m^3	Annual mean averaged over 3 years	12 µg/m^3
	24-hour	35 µg/m^3	Same as primary	98th percentile, averaged over 3 years	35 µg/m^3
Lead[3]	Rolling 3-month average	0.15 µg/m^3	Same as primary	Not to be exceeded	0.15 µg/m^3

Source: EPA 2023a, 2023b, WAC 173-476-900 (WAC 2013)
Note: This table shows criteria pollutants and hazardous air pollutants; cells with dashes (--) indicate that there is no standard for that pollutant or averaging time
[1]ppm = parts per million. Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) ozone standards additionally remain in effect in some areas. Revocation of the 2008 ozone standards and transitioning to the 2015 standards would be addressed in the implementation rule for the current standards.
[2]ppb = parts per billion. Final rule signed June 2, 2010. The 1971 annual and 24-hour sulfur dioxide standards (0.03 ppm annual and 0.14 ppm 24-hour) were revoked in that same rulemaking; however, these standards remain in effect until 1 year after an area is designated for the 2010 standard. One exception is in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.
[3]µg/m^3 = micrograms per cubic meter. Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m^3) remains in effect until 1 year after an area is designated for the 2008 standard. The one exception is in areas designated nonattainment for the 1978 standard, where the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

In the American Lung Association's *State of the Air* report (2023 Report; ALA 2023), 14 cities suffered worse year-round levels of PM during 2019-2021 than in the previous report, with two reporting their worst ever: Sacramento, California, and Yakima, Washington (for its second consecutive year). Yakima County rates 20th for Daily PM and 21st in Annual PM ranking for the United States. The 2023 report ranks the city of Yakima 11th in the nation for U.S. Cities most polluted by short-term particle pollution ($PM_{2.5}$). Yakima County does not rank nationally for any other air quality pollutant.

Emission sources in Yakima County include mobile sources (e.g., vehicles and farm equipment), stationary sources (e.g., agricultural processing plants, manufacturing, construction equipment), and area sources (e.g., wind-blown dust, wood burning, and air pollution from neighboring cities/regions/countries).

Short-term $PM_{2.5}$ particle pollution in recent years has been primarily attributable to wildfires. Wildfires have been increasing in frequency and severity across America's West. Climate change is attributed to worsening wildfire seasons as warmer temperatures cause earlier snowmelt and longer dry seasons (less rain and humidity). Unsurprisingly, due to the size and nature of wildfires, dense smoke has the propensity to travel great distances and severely impact the air quality of surrounding areas.

Air quality in the Yakima valley tends to suffer from higher pollution levels, despite a lower population than larger cities, because of the valley's inland geography and climate. The valley is located between two ridges and high reaching mountains, including Mount Rainer 60 miles to the northwest, with Clear Lake being between Yakima and Mount Rainier. As warmer air flows over the

valley's surrounding hills and mountains, it traps cooler air in the valley in a subsidence inversion, causing air pollution to accumulate until weather patterns change. Conversely, the Yakima valley is also affected by cool air inversions. Winters are cold and when ground-level air is freezing, a thermal inversion can occur in which a warmer layer traps freezing ground-level air below it. As with a subsidence inversion, the pollution accumulates until the weather changes.

Air quality is dependent on two primary factors: emissions and weather conditions. Emissions release air pollution into the atmosphere, and weather conditions dictate how quickly the air pollution disperses and where it travels.

The climate in the vicinity of Clear Lake is influenced by the local terrain, the prevailing westerly winds, the Cascade Range, and its distance from the Pacific Ocean. Based on 10-year trend data from PRISM Climate Group (Figure 10), data shows a trend of hotter temperatures and low precipitation in the summer with lower temperatures and higher precipitation in the fall and continuing throughout the winter. Data supports recommendations for fall seeding and planting activities. Mean annual precipitation for this area is 26 inches, according to the Western Regional Climate Center (WRCC). Accumulations of 4 to 5 feet of snow are not uncommon, and the snow typically lasts into April.

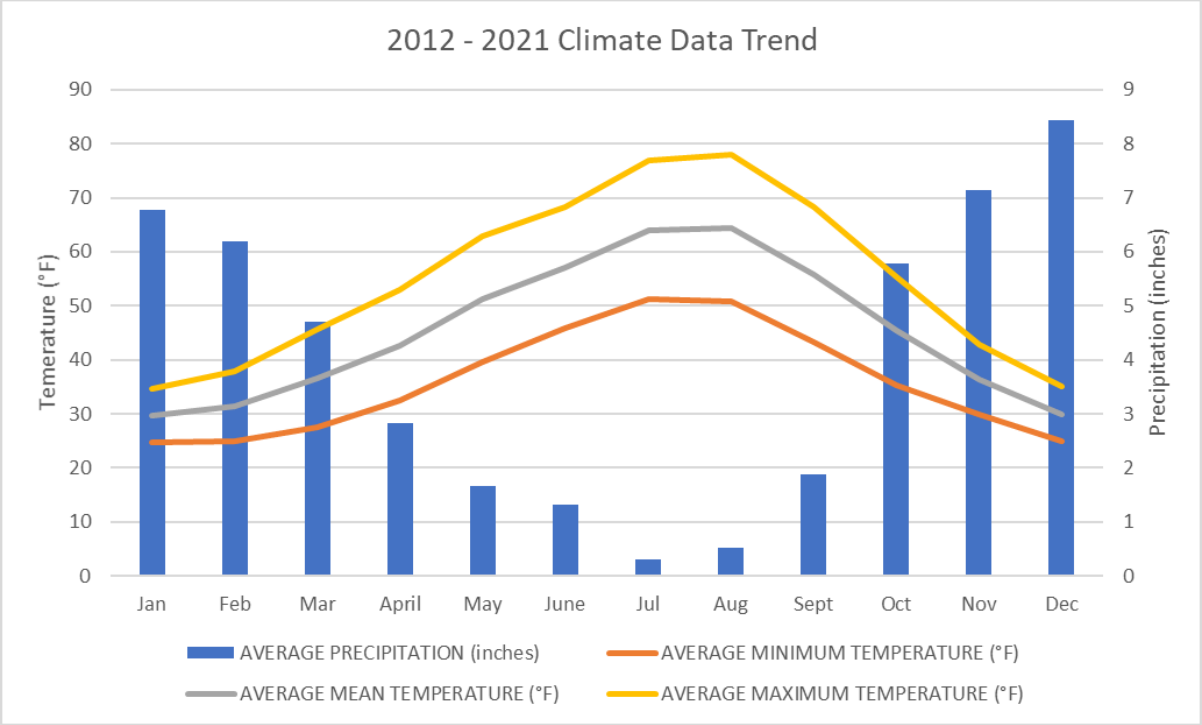

Figure 10. Monthly time series values for Yakima County near Rimrock Lake from 2012-2021 (http://prism.oregonstate.edu)

3.6.2 Environmental Consequences

Alternative A – No Action

No changes from existing conditions are anticipated.

Alternative B – Proposed Action

Construction activities would create localized, temporary, minor amounts of fugitive dust during surface-disturbing activities and from travel on unpaved portions of access roads and staging areas. Construction activities under the action alternative would also generate a temporary, unavoidable adverse source of criteria air pollutants and small amounts of hazardous air pollutants through the combustion of fuel in commute vehicles, trucks, construction equipment, and diesel-powered pumps and generators (see Table 7). Most activities would occur on already disturbed areas, limiting the creation of new areas of disturbance. Fugitive dust impacts would be minimized using standard dust control measures. Because temporary, unavoidable adverse impacts would be minimized by BMPs, there would be no long-term impacts on air or climate

The greenhouse gas (GHG) reporting threshold was formerly 25,000 metric tons of emissions; although this criterion is no longer in place, Reclamation is using it as part of the disclosure of how this project would compare to the previous reporting requirements. BMPs would be implemented to minimize combustion-related emissions.

Table 7. Estimated equipment-related emissions by proposed work component

Emission Source	Criteria Pollutants (tons)						GHGs (metric tons, CO_2e)
	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	
On-road commute	0.600	3.205	0.181	0.001	0.036	0.014	156.04
On-road trucks	0.023	0.086	0.129	0.001	0.015	0.005	38.53
Non-road equipment	0.256	1.648	1.529	0.005	0.065	0.065	425.73
Pumps/generators	0.053	0.397	0.433	0.001	0.019	0.019	88.28
On-road commute (YN trees)	0.004	0.044	0.002	0.000	0.000	0.000	2.13
Total emissions	0.937	5.379	2.274	0.008	0.136	0.103	710.72
% comparison to 2017 NEI stationary and mobile emissions	0.026%	0.040%	0.104%	0.033%	0.030%	0.027%	--
% comparison to the GHG Reporting Rule 25,000 metric ton threshold	--	--	--	--	--	--	3%

Source: Reclamation staff analysis

Notes: VOC = volatile organic compounds, CO = carbon monoxide, NO_x = nitrogen oxides, SO_x = sulfur oxides, PM = particulate matter, CO_2e = carbon dioxide equivalents, GHG = greenhouse gases, NEI = National Emissions Inventory

Greenhouse gas emissions from construction are compared with the greenhouse gas reporting requirement threshold under 40 Code of Federal Regulations 98 (25,000 metric tons of CO_2e per year) to provide context for the scale of emissions. Fish ladder operations are not one of the 41 source categories required to report greenhouse gas emissions under this program.

The State of Washington's Climate Commitment Act (CCA) went into effect on January 1, 2023. The CCA affects statewide GHG emissions. Since this estimate is based off Reclamation's concept of how the contractor might implement the project, it's not possible to tell exactly what the impacts would be on a state or national level.

Emissions associated with O&M would be about the same as current conditions. Monitoring of the fish ladder during the first year of operation would require the same number of trips as USFWS and Reclamation fisheries biologists make currently. Once the fish ladder operations are known, trusted, and seamless, it is anticipated that the number of fish biologist trips would decrease.

GHG emissions are expected to continue along current trend. The Proposed Action alternative would result in temporary emissions of GHG through the combustion of fuels and would release minor amounts of carbon in soils and vegetation during surface-disturbing activities. These would contribute to global GHG levels but would be below 25,000 metric tons of carbon dioxide equivalents per year. BMPs that reduce combustion-related criteria pollutant emissions would also reduce GHG emissions.

Historical trends and future climate projections show increased warming and shifts in the seasonality of precipitation. This may result in the project area shifting from a snow-dominant watershed to a rain/snowmelt transient watershed. This type of shift would result in less snowpack, earlier runoff, and more precipitation falling as rain, affecting the timing and volume of flows entering the North Fork Tieton River and Clear Creek. Projected climate-induced hydrological changes are generally not anticipated to affect fish ladder operations, as water needs would continue to be met by inflows. However, such changes may mean a reduction in water flowing over the spillway. There would not be an impact on the hydrological conditions of Clear Lake or its tributaries, and climate-induced hydrological changes would not be enhanced.

3.7 Vegetation, including Special Status Species, and Wetlands

3.7.1 Affected Environment

Forested habitat around Clear Lake consists of multi-layered canopy with large trees, snags, and logs. Rock cliffs are also present and the staging areas are heavily disturbed recreation areas including the Sno-Park, dispersed camping compaction, and gravel materials with invasive plants.

Dominant tree species are ponderosa pine, grand fir, Douglas fir, western pine, western hemlock, and western larch. The shrub understory varies by soil moisture but includes pine grass, penstemon-forb community, and creeping snowberry, vanilla leaf, and large leaf sandwort. Invasive species in and adjacent to areas disturbed by recreational activity or operations of Clear Creek Dam include diffuse knapweed, St. John's wort, Dalmatian toadflax, oxeye daisy, bindweed, common tansy, African wiregrass, hairy cats ear, and bull thistle. Reclamation currently uses manual, mechanical, and chemical treatment methods for non-native species along the Dam Access Road. One year of pretreatment of herbicide has been completed in the Sno-Park and roadside areas, implemented by the USFS invasive plant program.

The National Wetland Inventory maps (USGS 2023) identify about 30 acres and 5 acres of scrub-shrub wetland vegetation near where the deltas of Clear Creek and North Fork Tieton River, respectively, enter the lake. These wetlands were dominated by alder, willow, and sedges.

No ESA-listed plants were located during surveys of the affected area. A single USFS *Survey and Mange* fungi species, *Clavariadelphus ligula*, was located in the project area, where Reclamation has control for the construction, operation, maintenance, and protection of the project.

3.7.2 Environmental Consequences

Alternative A – No Action Alternative

Under Alternative A, there would be no changes to vegetation presence or management. The existing native over- or under-story vegetation would be undisturbed. Wetlands would be inundated at the same levels as for current conditions. Invasive species treatment would continue, as needed. There would be no impacts to wetlands.

Alternative B – Proposed Action

Under Alternative B, there would be local, long-term, moderate, adverse impacts to the vegetation in the local project area, which would be mitigated through implementation of the planting plan by the USFS RST. The lowering of the reservoir would not result in any local, temporary, or adverse impacts to wetlands and wetland vegetation, because the wetlands are not within the reservoir and the creeks would maintain the surface water connection to and moisture levels of the wetlands. There would be no impacts to ESA-listed plant species. No buffer is needed to protect the identified fungus as only one exterior edge of the occurrence will face the new opening and the majority of the microhabitat will be protected.

Permanent changes to the landscape would include the presence of the fish ladder and the new access road; these changes would result in an irretrievable loss of approximately 0.74 acres of vegetation.

The RST developed a draft Revegetation Plan (USFS 2023) that would be finalized after the completion of NEPA and permitting. Revegetation would occur in areas of the construction site that would not be permanently altered by the placement of facility structures (see Figure 2). Revegetation is the process of restoring areas that have been disturbed by construction activities, such as clearing and grubbing or grading. Approximately 0.77 acres would be seeded, and 0.29 acres of the reseeded area would receive additional plantings. Selected plants would be from the appropriate Provisional Seed Zone to ensure locally adapted, genetically appropriate native plants. Per the Revegetation Plan, the site conditions will shift to an early and mid-successional species composition at the edge of the cleared area. Species communities are expected to stabilize in 5-10 years with revegetation and continued weed management. More information can be found in the Revegetation Plan included in Appendix B.

Other practices to control the spread of invasive species are included in Appendix A. Invasive plant control with herbicide is covered by the *Okanogan-Wenatchee National Forest Forest-Wide Site-specific Invasive Plant Management Record of Decision* (USFS 2017) and the *Aquatic Restoration Biological Opinion* (USFWS 2013) programmatic yearly consultation.

Reclamation of temporarily disturbed areas would begin immediately after construction. The contractor would place up to 24 downed trees within the 0.29 acres identified for revegetation by USFS. After the trees are placed, the contractor would decompact the soil, place the original topsoil,

and incorporate a 6-inch layer of shredded wood into both soil layers to prepare the soil bed for seeding and planting. The remaining 0.48 acres would be decompacted only. The contractor would then hydromulch the 0.77 acres. Hydromulching is a technique that efficiently applies a slurry comprised of water, a tackifier (binding agent), organic material (mulch), fertilizer, and seed to open or disturbed ground to prevent erosion while supporting revegetation. The seed mix formula used for hydromulching would comply with the USFS Revegetation Plan and would be certified weed-free.

The RST would acquire native plant material and implement the Revegetation Plan after construction activities are completed. This may occur in the fall of 2027, after the contractor has demobilized, or 1 year post-construction. Seeding or wood shreds may be applied between construction years to prevent invasive plant growth and control erosion.

3.8 Cultural Resources

3.8.1 Affected Environment

Reclamation defined the area of potential effects (APE) to include the geographic area where the project may directly or indirectly affect historic properties. The APE includes a block of land north of Clear Creek Dam that encompasses the construction of the proposed fish ladder and new access road, approximately 75 acres of the reservoir bed, and the four contractor use areas.

The project area is located within lands ceded by the Confederated Tribes and Bands of the Yakama Nation under an 1855 Treaty. Consultations on past projects within the vicinity of the current undertaking did not identify traditional cultural places (TCPs) within 1 mile of the APE.

The APE has also been influenced by the establishment of the Okanogan-Wenatchee National Forest and increasing recreational activity. The project area is part of the Washington Forest Reserve established in 1897 under executive order (Holstine 1994). Administrative name changes and boundary shifts quickly occurred as Forest Reserves became National Forests. The Wenatchee National Forest and Okanogan National Forests were both established in 1908 and were administratively combined in 2000 (USFS n.d.).

Today, the area around Clear Lake continues to be a popular recreation area. Facilities around the lake include day use areas, campgrounds, and a boat launch. Reclamation and USFS cooperatively manage the project area under a Memorandum of Agreement. USFS oversees the recreation facilities and other forest resources while Reclamation oversees dam operations.

3.8.2 Environmental Consequences

Alternative A – No Action

No impacts to historic properties, sacred sites, or TCPs would occur since there would be no construction.

Alternative B – Proposed Action

The undertaking would have No Adverse Effect on Historic Properties (36 CFR 800.5(b)). Pursuant to 36 CFR 800.2(c), the identified consulting parties for this undertaking included the Washington Department of Archaeology and Historic Preservation (DAHP), the Yakama Nation, and the Okanogan-Wenatchee National Forest (USFS). Reclamation has developed an Inadvertent Discovery Plan (IDP) to include in contract documents, and the contractor would be required to always have the IDP onsite and follow it if a discovery is made during construction. There would be no effect to sacred sites or TCPs within 1 mile of the project. Reclamation would conduct cultural resource surveys during construction, as agreed upon during consultation with DAHP, Yakama Nation, and USFS.

The research phase involved standard techniques of locating primary and secondary documents. Historical background was researched and developed to gain a historical overview and determine what was there during the period of significance versus what exists today.

Fieldwork for the undertaking occurred over multiple days and included pedestrian survey, shovel tests, and built environment assessments. Areas excluded from survey include CUA 2 and 3, CUA 4, and portions of the APE below the OHWM of Clear Lake. CUA 2 and 3 comprise the existing Clear Lake North Campground. The construction contractor would be allowed to park and stage in the campground but would not be authorized to make any modifications (no excavation, tree removal or trimming, or modification to USFS facilities). CUA 4 is a former gravel pit that is now used as a Sno-Park and OHV rock crawl area. This heavily disturbed area was surveyed for cultural resources in 2008 (Beidl). For areas inaccessible to survey, Reclamation has developed a consultation plan in coordination with the consulting parties. NHPA consultation history can be found in Chapter 4.

3.9 Wildlife and Fish

3.9.1 Affected Environment

A formal inventory of wildlife and fish was not completed for the project area. However, the forest habitat surrounding Clear Lake Reservoir is home to big game animals (i.e., deer, elk, and an occasional black bear) that bed down in the forest cover during the daytime and move out near the lake and rivers during the night to drink and forage on plant growth. This same plant cover provides habitat for songbirds, small mammals (i.e., squirrels, deer mice), amphibians, and reptiles. The population of small mammals offers a considerable food source for various predators such as long-tailed weasels, coyotes, and raptors, including red-tailed hawks and great-horned owls.

The reservoir is used for feeding and loafing by migrating and breeding diving ducks, such as common mergansers, ring-necked ducks, and Barrow's goldeneyes. The reservoir also provides escape cover for Canada geese and mallards, which feed nearby in the meadows and ryegrass. The shoreline provides foraging habitat for shore and wading birds such as killdeer, long-billed dowitchers, sandpipers, gulls, Wilson's snipe, and great blue herons. Osprey and bald eagles readily feed on Clear Lake's fish population.

Clear Lake provides a good recreational fishery for rainbow and brook trout. The rainbow trout fishery is sustained by WDFW's annual stocking program, while brook trout are a naturally reproducing, undesirable exotic species present in Clear Lake. The lake also contains nongame fish such as sculpin and dace. The North Fork Tieton River and Clear Creek have good habitat and contain natural populations of rainbow, brook, and cutthroat trout. Bull trout is a native species that moves through Clear Lake and into the headwater drainages. The presence of and impacts to bull trout are discussed in Section 3.2, Threatened and Endangered Species.

A very high value sport fishery for kokanee salmon is found in Rimrock Lake. While this project is not occurring at Rimrock Lake, mature kokanee spawn in the early fall in the mile-long section of the North Fork Tieton River that flows between Clear Lake and Rimrock Lake. Kokanee eggs incubate in the gravels through the winter with fry emergence completed about June 1. In addition, Clear Lake has been used as an emergency holding area for Rimrock kokanee during drought years, such as 1987, when they were airlifted from Rimrock to Clear Lake as it was anticipated that Rimrock would be drained. The fish were later flushed downstream back into Rimrock Lake when conditions improved.

3.9.2 Environmental Consequences

Alternative A – No Action Alternative

Under the No Action alternative, no new construction would occur and no vegetation would be removed. Changes in vegetation would occur over time, because of natural succession or events such as wildfire. Regular facility maintenance, fish management activities, camping, fishing, and other recreation would continue to cause noise disturbance in the project area. Wildlife that uses the area under current conditions are species that tolerate these types of activity. Any changes in the wildlife community would likely occur over a long period of time in response to changes in vegetation. USFWS would continue their Transport Program for relocating North Fork Tieton bull trout above Clear Creek Dam; more information on bull trout can be found in Section 3.2, Threatened and Endangered Species.

Alternative B – Proposed Action

Installation and operation of the fish ladder would have regional, long-term beneficial impacts to all fish, as they would be able to move freely in and out of Clear Lake. Construction activities would have localized, temporary, minor impacts on the movement of wildlife and fish in the project area; in addition, there would be localized, short-term, minor impacts to terrestrial wildlife due to the modification or removal of vegetation on which they are dependent on for cover and forage. There is potential for some temporary or short-term adverse impacts on fish habitat in the North Fork Tieton River below Clear Creek Dam during construction; and kokanee spawning and egg development could be adversely affected by cofferdam placement in the river or sediments washing downstream from the project area; this would be mitigated by the timing of cofferdam placement and removal, as well as by BMPs. There is no anticipated effect to WDFW's fish stocking program.

The effects of project construction on wildlife would vary from species to species. Animals that are mobile (such as deer and birds) would likely avoid the immediate area temporarily, while localized species, such as mice, would experience adverse effects (possibly injury or mortality) because of

clearing, grading, and excavation. Terrestrial wildlife would be exposed to short-term increases in noise during construction; however, the project area is adjacent to campgrounds and roads (i.e., US 12 and NF-1200) that experience a steady amount of traffic and associated vehicle noise. The noise effects would only occur during construction, and it is expected that any affected wildlife would disperse to adjacent habitat, if possible. Confining work to a relatively small footprint would minimize the potential for significant adverse impacts on mammals, birds, reptiles, and amphibians.

Since the primary construction area would be fenced off, both during and after construction, larger mammals would be excluded from the area permanently. An adverse impact is not anticipated due to similar habitat existing adjacent to the area.

Chapter 4 Consultation and Coordination

4.1 Introduction

Federal laws require Reclamation to consult with certain federal and state agencies, other entities, and Native American Tribes during the NEPA decision-making process (40 CFR 1502.24). Reclamation is also directed to integrate NEPA requirements with other environmental review and consultation requirements to reduce paperwork and delays (40 CFR 1500.4-5).

Reclamation's public involvement process presents the public with opportunities to obtain information about a given project and allows interested parties to participate in the project through written comments. The key objective is to facilitate a well-informed public that actively assists decision makers through the process, culminating in the implementation of an alternative.

4.2 Consultations

As noted above, federal laws require Reclamation to consult with certain federal and state agencies, other entities, and Native American Tribes during the NEPA decision-making process (40 CFR 1502.24). Reclamation is also directed to integrate NEPA requirements with other environmental review and consultation requirements to reduce paperwork and delays (40 CFR 1500.4-5).

4.2.1 National Environmental Policy Act

The National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.), requires federal agencies to assess and disclose the effects of a proposed action on the environment prior to funding, approving, or implementing the action. This EA has been compiled to meet NEPA requirements to disclose the potential environmental consequences of and mitigation for the Proposed Action.

The draft EA was made available on Reclamation's website for public review and a public comment period was open for 15-days. Reclamation announced the draft EA comment period at the December 13, 2023, YRBWEP Workgroup meeting and conducted social media outreach concurrent with the release of the draft EA. Reclamation issued a news release to the media that announced the 15-day public comment period. In addition, Reclamation notified individuals/groups that USFS would notify for projects in the area, as well as those contacts that have signed up to be notified of any project on the Naches Ranger District.

4.2.2 Endangered Species Act

The ESA of 1973 and its amendments (ESA, 16 U.S.C. 1531 et seq.) require federal agencies to ensure that their actions do not jeopardize endangered or threatened species or their critical habitats. There are four federally listed threatened species, and two critical habitat designations in the Action Area vicinity as identified by the USFWS IPaC database accessed December 7, 2022. Based on this information, a BA was prepared for consultation with the USFWS in accordance with ESA Section 7. Reclamation requested formal consultation on the CCDFP Project in a memorandum dated December 4, 2023, and attached the CCDFP BA (Reclamation 2023b) that identifies the Proposed Action, in its entirety, and describes the potential project related affects to the Columbia River Bull Trout (*Salvelinus confluentus*) Distinct Population Segment (DPS) and to Northern Spotted Owl (NSO) (*Strix occidentalis caurina*). The BA also provides an analysis of designated critical habitat for these species within the Action Area.

4.2.3 National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966 as amended (16 U.S.C. 470) requires federal agencies to take into account the potential effects of their undertakings on properties that are listed or eligible for listing on the National Register of Historic Places. Consultation must be undertaken with the State Historic Preservation Office (SHPO) regarding the inventory and evaluation of properties potentially eligible for National Register nomination and to determine whether the undertaking would adversely affect them.

In accordance with Section 106 of the NHPA, consultation has occurred with the SHPO and Yakama Nation. The timeline below provides an overview of the NHPA consultation.

- August 10, 2020 – Consultation initiated (APE and Proposed Project: No Historic Property Affected)
- August 11, 2020 – DAHP concurs
- December 2, 2021 – Consultation reinitiated (project design change, APE change)
- December 8, 2021 – Yakama Nation provides comments/no concurrence, requests survey and report
- January 12, 2022 – Consultation continued with additional information (survey plan) to address Yakama Nation concerns; sent to Yakama Nation and DAHP
- January 12, 2022 – DAHP concurs
- February 7, 2022 – Yakama Nation does not concur
- May 4, 2023 – Revised APE letters sent out to DAHP and Yakama Nation
- May 5, 2023 – DAHP concurs

- September 29, 2023 -- Revised APE letters sent out to DAHP and Yakama Nation
- October 2, 2023 – DAHP concurs

4.2.4 State Environmental Policy Act

SEPA, Washington State's most fundamental environmental law, was enacted in 1971 as chapter 43.21C Revised Code of Washington. Much like the federal NEPA, SEPA is a document designed to provide decision makers and the public with impartial information about a project, and analyze alternatives to the proposal, including ways to avoid or minimize adverse impacts or to enhance environmental quality. The purpose of SEPA is to encourage harmony between the citizenry and the environment, to promote efforts that would prevent or eliminate damage to the environment, to stimulate human health and welfare, and to enrich understanding of the ecological systems and natural resources that are important to Washington State. Information provided during the SEPA review process helps understand how a proposal would affect the environment and it can be used to reduce likely effects or deny a proposal when adverse effects are identified. This EA may be adopted by one or more of the state agencies involved in approving or permitting this project to fulfill its SEPA requirement.

4.2.5 Permits and Authorizations Needed

The Proposed Action is a water-dependent use that would require permits and authorizations for in-water work. Because Reclamation is not dictating construction methodologies for how the contractor must perform the work, BMPs are being incorporated to assure consistency with the appropriate authorizations. Reclamation or its contractor would obtain all necessary federal, state, and local permits, authorizations, or exemptions prior to implementation of the Proposed Action. These permits, authorizations, reviews, or exemptions may include items displayed in Table 8.

Table 8. Permits and other approvals expected to be required for the CCDFP Project

Type of Permit or Approval	Permitting Agency	Estimated Permit Approval Timeline
Endangered Species Act	USFWS	135 days
Clean Water Act, Section 401	Ecology	3 months (expect certification under 404)
Clean Water Act, Section 402	Construction General Stormwater NPDES Permit	U.S. Environmental Protection Agency
Clean Water Act, Section 404	U.S. Army Corps of Engineers Regulatory Division	3-6 months
Hydraulic Project Approval	WDFW	45 days
Fill and Grade Permit	Yakima County	30 days
Road Use Permit	USFS	1-2 months

4.3 Coordination

Reclamation prepared this EA with an interdisciplinary approach to comply with the mandate of the NEPA to, "…. utilize a systematic, interdisciplinary approach which would ensure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision-making which may have an impact on man's environment" (40 CFR 1501.2(a)). The following resource specialists and principal disciplines were involved in the preparation or review of this EA or other supporting documents.

- Elizabeth Heether, Environmental Protection Specialist; Reclamation
- Mary Velazquez, Archaeologist; Reclamation
- Scott Willey, Fisheries Biologist; Reclamation
- Kate Hovanes, Historian; Reclamation
- Leah Hendrix, Supervisory Realty Specialist; Reclamation
- Ryan Kent, Civil Engineer; Reclamation
- Dustin Bennetts, Civil Engineer; Reclamation
- Gina Hoff, Water Quality Specialist; Reclamation
- Ken Taylor, Civil Engineer; Reclamation
- Wendy Christensen, YRBWEP Manager; Reclamation
- Candy McKinley, Supervisory Environmental Protection Specialist; Reclamation
- Bruce Sully, Project Manager; Reclamation
- Chris Lynch, Hydraulic Engineer; Reclamation
- Pat Monk, Fish Biologist; Reclamation
- Aaron Galayde, Supervisor II Maintenance; Reclamation
- Craig Haskell, Lead Fisheries Biologist; USFWS
- Jason Romine, Deputy Project Leader; USFWS
- Richard Visser, Fish and Wildlife Administrator; Reclamation
- Kathryn Furr, Yakima Basin Integrated Plan Coordinator; USFS
- Janie Pardo, Recreation & Special Uses Manager; USFS
- Bruce Bernard, Assistant Forest Engineer; USFS
- Kenneth Bigelow, Civil Engineer; USFS
- Kelly Evans, Natural Resource Specialist; USFS
- Eduardo Lopez-Owsley, Civil Engineer; Reclamation
- Matthew Maling, Supervisory Civil Engineer; Reclamation
- Gary Torretta, Fishery Biologist; USFS
- Kevin Haydon, Yakima Basin IP Project Manager/Environmental Planner; Ecology
- Melissa Downes, Financial and Projects Section Manager; Ecology
- Sepideh Sadeghi, Civil and Environmental Engineer; Ecology
- Aaron Stockton, Naches District Ranger; USFS
- Sienna McDonald, District Botanist; USFS
- Helen Lau, Cle Elum District Botanist; USFS
- Karina Bryan, Heritage Program Manager; USFS
- Thomas Tebb, Director Office of Columbia River; Ecology

Chapter 5 Glossary

Access—The ability of a particular transportation mode, such as a vehicle, bicycle, or pedestrian, to enter or use a portion of the transportation network.

Anadromous—The term that describes fish born in freshwater who spend most of their lives in saltwater and return to freshwater to spawn, such as salmon and some species of sturgeon.

Average daily traffic—The number of vehicles that pass a point on a given road in a determined number of days, divided by the number of days.

Biological opinion—Document which includes: (1) the opinion of the USFWS or the NMFS as to whether or not a federal action is likely to jeopardize the continued existence of listed species, or result in the destruction or adverse modification of designated critical habitat; (2) a summary of the information on which the opinion is based; and (3) a detailed discussion of the effects of the action on listed species or designated critical habitat. [50 CFR Section 402.02, 50 CFR Section 402.14(h)]

Climate—The collective typical weather conditions in a region averaged over a series of years.

Climate change—A change in global or regional climate patterns, in particular a change apparent from the mid- to late twentieth century onward and attributed largely to the increased levels of atmospheric carbon dioxide.

Cofferdam—A watertight enclosure pumped dry to permit construction work below the waterline.

Construction methodologies—the building practices used by professionals to build structures. Construction methods cover the processes and techniques used and are often dictated by industry standards. However, there can be more than one technique/method that could work under a larger type of work. For instance, excavation is a broad category that has eight main types of excavation accomplished by different equipment (however the same piece of equipment can also be used in different manners too). The eight main types of excavation include: topsoil, rock, muck, earth, cut and fill, trench, basement, and dredging. in each construction scenario. Construction methods anticipated for the Proposed Action include, but are not limited to excavation, earthmoving, formwork, concrete placing, and electromechanical installation.

Cooperating Agency—Those federal, state, and local agencies, and Tribes, that have jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed project or project alternative (40 CFR Section 1508.5).

Cubic feet per second (cfs) —An Imperial unit/U.S. customary unit volumetric flow rate, which is equivalent to a volume of 1 cubic foot flowing every second. The amount of cubic feet of water that passes a specific point on the river in 1 second.

Cultural resources—The present expressions of human culture and the physical remains of past activities, such as historic buildings, structures, objects, districts, landscapes, and archaeological sites. These resources can be significant in the context of national, regional, or local history, architecture, archaeology, engineering, or culture. They may also include sacred sites and natural features of landscapes that are significant to living communities.

Distinct Population Segment—"Population," or "distinct population segment," are terms with specific meaning when used for listing, delisting, and reclassification purposes to describe a discrete vertebrate stock that may be added or deleted from the list of endangered and threatened species. [61 FR 4722-4725 (February 7, 1996)]

Environmental designation for noise abatement (EDNA)—An area or zone (environment) within which maximum permissible noise levels are established (Chapter 173-60-020 WAC).

Essential fish habitat—Defined in the Magnuson-Stevens Fishery Conservation and Management Act as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

Fugitive dust—Atmospheric dust arising from the mechanical disturbance of granular material exposed to the air. Dust generated from these open sources is termed fugitive because it is not discharged to the atmosphere in a confined flow stream. Common sources of fugitive dust are unpaved roads, agricultural tilling operations, aggregate storage piles, and heavy construction operations.

Hydraulic hoe ram "breaker" excavator—a breaker is a percussion hammer fitted to an excavator. Other names for this combination of equipment include hoe ram, breaker, and rock hammer.

Incidental take—Take of listed fish or wildlife species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by a federal agency or applicant. [50 CFR Section 402.02]

Incidental take statement—The part of a biological opinion issued by the USFWS or NMFS that specifies the extent to which a federal agency's proposed action would result in the incidental taking of a threatened or endangered species; includes measures that minimize the incidental taking's impact, as well as terms and conditions that implement the measures.

Invasive plants—Nonnative plants that have been introduced into an environment that they did not evolve in and are capable of establishing free-living populations in areas beyond their natural range of dispersal.

Level of Service—A metric that describes the operating conditions of a roadway based on factors such as physical roadway capacity, speed, maneuverability, safety, and traffic volume.

Listed species—Any species of fish, wildlife or plant which has been determined to be endangered or threatened under Section 4 of the Endangered Species Act [50 CFR Section 402.02].

National Register of Historic Places—A listing of resources that are considered significant at the national, state, or local level and that have been found to meet specific criteria of historic significance, integrity, and age.

Noxious weeds—Designated and regulated by state and federal laws because they are known to be detrimental to agriculture, commerce, natural resources, and public health. Noxious weeds are a subset of invasive plants.

Ordinary high water line (OHWL)—"The mark on the shores of all water that would be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in ordinary years as to mark upon the soil or vegetation a character distinct from the abutting upland. Provided, that in any area where the ordinary high water line cannot be found, the ordinary high water line adjoining saltwater is the line of mean higher high water and the ordinary high water line adjoining freshwater is the elevation of the mean annual flood." (WAC 220-660-030). Also see ordinary high water mark.

Ordinary high water mark (OHWM)—"That line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." (33 CFR 328.3(e)). Also see ordinary high water line.

Pollutants (pollution)—Unwanted chemicals or other materials found in the environment. Pollutants can harm human health, the environment, and property. Air pollutants occur as gases, liquid droplets, and solids. Once released into the environment, many pollutants can persist, can travel long distances, and can move from one environmental medium—air, water, or land—to another.

Pool—A body of water of varying depth that share the characteristic of slow-moving water. Pools often form behind dams or after the vertical force of water falling over logs or rocks carves out a deep spot in the stream.

Section 7—The section of the ESA of 1973, as amended, outlining procedures for interagency cooperation to conserve federally-listed species and designated critical habitats. Section 7(a)(1) requires federal agencies to use their authorities to further the conservation of listed species. Section 7(a)(2) requires federal agencies to consult with the Services to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat.

Stream mix—Clean, round, river rock.

Take—To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct [ESA Section 3(19)]. Harm is further defined by the USFWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by the USFWS as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering [50 CFR Section 17.3].

Chapter 6 References

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Appendix A – Environmental Commitments and Best Management Practices

To minimize impacts on resources from the Proposed Action, the Best Management Practices (BMPs) described in Table A-1 would be implemented. BMPs are drawn from the following sources:

- General Conservation Measures (GCMs) for ESA-listed salmonids in the programmatic biological opinion for USACE permitting of fish passage and restoration actions in Washington State (FPRPIII; NMFS 2017).
- GCMs for bull trout and other ESA-listed salmonids in the programmatic biological opinion for the Washington State fish passage and habitat enhancement and restoration program (NMFS and USFWS 2008).[10]
- Measures described in the construction specifications, including measures associated with site layout, temporary access, staging and stockpile areas, equipment use, erosion control, dust abatement, timing of in-water work and worksite isolation, and spill prevention and control.

Reclamation would also obtain required regulatory permits and implement terms and conditions contained therein. If permit requirements, BMPs, or other measures contradict each other, the contract specification requires that the contractor abide by the most stringent of requirements. A list of general, applicable permit conditions is included following table.

[10] This combined agency programmatic biological opinion expired on December 31, 2013. The USACE and NMFS reinitiated consultation and NMFS has issued subsequent biological opinions for the nationwide permit program. However, the USACE has been operating under consultation extensions from USFWS, with the most recent extension expiring June 30, 2020. Reclamation anticipates that ESA Section 7 consultation with the USFWS for the SWISP Project would result in similar conservation measures as those contained in the expired programmatic biological opinion.

Resource Topic	Best Management Practice
General	• Heavy equipment use would be limited to that with the least adverse effects on the environment (e.g., minimally sized, low ground pressure equipment, use of matting, etc.; NMFS 2017). • Conduct operations to prevent unnecessary destruction, scarring, or defacing of natural surroundings in the vicinity of the work.
Air Quality and Climate	• Dust control and abatement measures would be implemented during construction. • Vehicle traffic on unpaved surfaces would be limited to 10 miles per hour to minimize dust generation. • Prevent, control, and abate dust pollution on government rights-of-way. • Provide labor, equipment, and materials, and use efficient methods wherever and whenever required to prevent dust nuisance or damage to persons, property, or activities. • Provide means for eliminating atmospheric discharges of dust during mixing, handling, and storing of cement, pozzolan, and concrete aggregate. • Use reasonably available methods and devices to prevent, control, and otherwise minimize atmospheric emissions or discharges of air contaminants. • Do not operate equipment and vehicles that show excessive exhaust gas emissions until corrective repairs or adjustments reduce such emissions to acceptable levels.
Geology and Soils	• The number of temporary access roads would be minimized on the primary construction site, and no temporary access roads would be created in CUAs. • Existing roadways or travel paths would be used whenever possible (NMFS 2017). • For each existing or planned road, meet Aquatic Conservation Strategy objectives by: minimizing disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow and restricting sidecasting as necessary to prevent the introduction of sediment to streams. (Aquatic conservation strategy, Northwest Forest Plan, RF-2) • Minimize sediment delivery to streams from roads. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is unfeasible or unsafe. Route road drainage away from potentially unstable channels, fills, and hillslopes. (Aquatic conservation strategy, Northwest Forest Plan, RF-5)
Water Resources (Stream Conditions)	• Cofferdam placement would maintain natural stream flow within the greatest amount of natural streambed width as possible.

Resource Topic	Best Management Practice
Water Resources (Water Quality)	**General** • Perform construction activities by methods that would prevent entrance, or accidental spillage, of solid matter, contaminants, debris, or other pollutants or wastes into streams, flowing or dry watercourses, lakes, wetlands, reservoirs, or underground water sources. • Measures shall be taken to ensure that no petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into waters of the U.S. (NMFS 2017). **In-water work** • Prepare a Work Area Isolation Plan for all work below the bankfull elevation requiring flow diversion or isolation. Include the sequencing and schedule of dewatering and rewatering activities, plan view of all isolation elements, as well as a list of equipment and materials to adequately provide appropriate redundancy of all key plan functions (e.g., an operational, properly sized backup pump and/or generator) (NMFS 2017). • Use of rapidly deployable prefabricated cofferdam systems would minimize impacts to subgrade and surrounding water. • If geo-bags/supersacks are used for the temporary cofferdams, the fill material must be clean, round river rock ("stream mix"). • When conducting in-water or bank work, machine hydraulic lines would be filled with vegetable oil for the duration of the Project to minimize impacts of potential spills and leaks. • Spill prevention and clean-up kits would be on site when heavy equipment is operating within 25 feet of the water (NMFS 2017). • To the extent feasible, work requiring use of heavy equipment would be completed by working from the top of the bank (i.e., landward of the OHWM) (NMFS 2017). • Equipment shall be checked daily for leaks and any necessary repairs shall be completed prior to commencing work activities around the water (NMFS 2017). • Equipment would cross the stream in-water only under the following conditions (NMFS 2017): o A. Equipment is free of external petroleum-based products, soil and debris has been removed from the drive mechanisms and undercarriage; and o B. The substrate is bedrock or coarse rock and gravel; or o C. Mats or logs are used in soft bottom situations to minimize compaction while driving across streams; and

Water Resources (Water Quality, continued)	o D. Stream crossings would be performed at right angles (90 degrees) to the bank if possible; and o E. No stream crossings would be performed at spawning sites when spawners of ESA listed fishes are present or eggs or juvenile fish could be in the gravel; and o F. The number of crossings would be minimized. • Project operations would cease under high flow conditions that could inundate the Project Area, except as necessary to avoid or minimize resource damage (NMFS 2017). • If high flow conditions that may cause siltation are encountered during the Project, work shall stop until the flow subsides or the tide falls (NMFS 2017). • Where practicable, a turbidity and/or debris containment device shall be installed prior to commencing in-water work (NMFS 2017). • When working in-water, some turbidity monitoring may be required, subject to the USACE permit requirements or CWA section 401 certification. Turbidity monitoring generally is required when working in streams with more than 40 percent fines (silt/clay) in the substrate. Turbidity would be monitored only when turbidity generating work takes place, for example, installation of cofferdams, pulling the culvert in-water, reintroducing water. The applicant would measure the duration and extent of the turbidity plume (visible turbidity above background) generated. The data would be submitted to the USACE, NMFS, and the USFWS immediately following Project construction. Turbidity measurements would be taken in NTUs and are used by project proponents to develop procedures to minimize turbidity and estimate take for future projects (NMFS 2017). • Equipment used in the instream channel would have containment methods to address possible fuel and oil leaks. • The amount of concrete admixtures should be limited to the minimal amount needed to accomplish the viscosity needed to accomplish the underwater concrete placements. • A burlap tarp, or similar, should be placed on top of the underwater concrete placements so no concrete is in direct contact with the water column. Underwater concrete placement techniques shall use best practices to prevent excess concrete entering the water outside of the intended placement. Erosion and spill prevention and control • A Temporary Erosion and Sediment Control plan and a Spill Prevention Control and Containment plan, commensurate with the size of the Project, must be prepared and carried out to prevent pollution caused by surveying or construction operations (NMFS 2017). o Address snow removal and piling of snow, accounting for snow melt, in Erosion and Sediment Control plan. • A Spill Prevention, Control, and Clean-Up plan would be prepared prior to construction for every project that utilizes motorized equipment or vehicles (NMFS 2017).

Resource Topic	Best Management Practice
	• A SPCC Plan in accordance with 40 CFR, Part 112 is required where release of oil and oil products could reasonably be expected to enter into or upon navigable waters of the U.S. or adjoining shorelines in quantities that may be harmful (40 CFR, Part 110), and aggregate on site oil storage capacity is over 1,320 gallons. Only containers with capacity of 55 gallons and greater are included in determining on site aggregate storage capacity.
Water Resources (Water Quality, continued)	**Erosion and spill prevention and control** o Prevent, stop, and control spills or leaks during construction activities: o Stop source of spill or leak. o Stop migration of spill or leak. o Place berm of sorbent material around perimeter of spill. o Solidify free standing oil. • A supply of emergency erosion control materials would be on hand and temporary erosion controls would be installed and maintained in place until site restoration is complete (NMFS 2017). • Landward erosion control methods shall be used to prevent silt-laden water from entering waters of the U.S. These may include, but are not limited to, filter fabric, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas (NMFS 2017). • Control pollutants by use of sediment and erosion controls, wastewater and stormwater management controls, construction site management practices, and other controls including State and local control requirements. • Sediment and Erosion Controls: o Establish methods for controlling sediment and erosion which address vegetative practices, structural control, silt fences, straw dikes, sediment controls, and operator controls as appropriate. o Institute stormwater management measures as required, including velocity dissipators, and solid waste controls which address controls for building materials and offsite tracking of sediment. • Pollution Prevention Measures: o Use methods of dewatering, unwatering, excavating, or stockpiling earth/rock/snow materials which include prevention measures to control silting and erosion, and which would intercept and settle any runoff of sediment-laden waters. o Prevent wastewater from general construction activities such as drainwater collection, aggregate processing, concrete batching, drilling, grouting, or other construction operations, from entering flowing or dry watercourses without the use of approved turbidity control methods. o Divert stormwater runoff from upslope areas away from disturbed areas.

Resource Topic	Best Management Practice

Water Resources (Water Quality, continued)	**Erosion and spill prevention and control, continued**
	• Turbidity Prevention Measures:
	  o Use methods for prevention of excess turbidity which include, but are not restricted to, intercepting ditches, settling ponds, gravel filter entrapment dikes, flocculating processes, recirculation, combinations thereof, or other approved methods that are not harmful to aquatic life.
	  ▪ These actions cannot occur within any CUA, as CUAs must be used 'as is.'
	  o Wastewaters discharged into surface waters shall meet conditions of Clean Water Act section 402, the National Pollutant Discharge Elimination System (NPDES) permit.
	  o Do not operate mechanized equipment in waterbodies without having first obtained a Clean Water Act Section 404 permit, and then only as necessary to construct crossings or perform the required construction.
	• Clean up spills or leaks in a manner that complies with applicable federal, state, and local laws and regulations.
	• Dispose of spilled or leaked materials:
	  o Handle and dispose of spilled or leaked materials contaminated with 50 ppm or greater polychlorinated biphenyls.
	  o Handle and dispose of spilled or leaked materials not contaminated or contaminated with less than 50 ppm polychlorinated biphenyls in accordance with applicable federal, state, and local regulations.
	Discharge water and wastes
	• All discharge water created by construction (e.g., concrete washout, pumping for work area isolation, vehicle wash water, drilling fluids) would be treated to avoid negative water quality and quantity impacts. Removal of fines may be accomplished with bioswales; concrete washout water with an altered pH, may be infiltrated (NMFS 2017).
	• Wastewater from Project activities and water removed from within the work area shall be routed to an upland disposal site (landward of the OHWM or extreme high tide line) to allow removal of fine sediment and other contaminants prior to being discharged to the waters of the U.S. (NMFS 2017).
	• All waste material such as construction debris, silt, excess dirt or overburden resulting from the Project would generally be deposited above the limits of flood water in an upland disposal site. However, material from pushup dikes may be used to restore microtopography (e.g., filling drainage channels) (NMFS 2017).
	• The contractor's Stormwater Pollution Prevention Plan would address potential pollution generating activities that may be reasonably expected to impact the quality of stormwater discharges from the construction site, including melting snow.

Resource Topic	Best Management Practice
Water Resources (Water Quality, continued)	**Storage and staging** • The contractor would store and protect manufactured products in accordance with manufacturer's instructions and the Reclamation Safety and Health Standards (available at: http://www.usbr.gov/safety/rshs/index.html). • The contractor is required to obtain instructions from the manufacturer before delivery of materials to the jobsite and maintain a copy of the instructions at the jobsite; these instructions may include but not be limited to protect materials subject to adverse effects from moisture, sunlight, ultraviolet light, or weather during storage at jobsite. • When not in use, vehicles and equipment containing oil, fuel, and/or chemicals would be stored in a staging area located at least 150 feet from the USACE jurisdictional boundary of wetlands and waterbodies. If possible, staging would be located at least 300 feet away from the USACE jurisdictional boundary of wetlands and waterbodies, and on impervious surfaces to prevent spills from reaching ground water. When moving equipment daily at least 150 feet from waterbodies would create unacceptable levels of disturbance (for example, requiring multiple stream crossings, multiple passes over sensitive vegetation), a closer staging location with an adequate spill prevention plan may be proposed and approved as described in Minor Project Modifications (NMFS 2017). • Equipment would not be stored overnight in the instream channel. • Do not stockpile or deposit excavated materials or other construction materials, near or on, stream banks, lake shorelines, or other watercourse perimeters where they can be washed away by high water or storm runoff or can in any way encroach upon the watercourse. • Petroleum Product Storage Tanks Management. o Place oil or other petroleum product storage tanks at least 20 feet from streams, flowing or dry watercourses, lakes, wetlands, reservoirs, and any other water source. o Do not use underground storage tanks. o Construct storage area dikes at least 12 inches high or graded and sloped to permit safe containment of leaks and spills equal to storage tank capacity located in the area plus sufficient freeboard to contain the 25-year rainstorm. Line diked areas with an impermeable barrier at least 50 mils thick. o Areas for refueling operations: Lined with impermeable barrier at least 40 mils thick covered with 2 to 4 inches of soil. **Reclamation of temporary disturbance** • All temporary access would be removed (including gravel surfaces) and planted after Project completion (NMFS 2017).

Resource Topic	Best Management Practice
Water Resources (Water Quality, continued)	• Within seven calendar days from Project completion, any disturbed bank and riparian areas shall be protected using native vegetation or other erosion control measures as appropriate. For erosion control, sterile grasses may be used in lieu of native seed mixes. Alternative methods (e.g., spreading timber harvest slash) may be used for erosion control if approved by the USACE (NMFS 2017).
Water Resources (Water Rights)	• Contractor would have flow meter installed and functional when withdrawing water from Clear Lake for dust abatement or other contract purposes.

Biological Resources (Vegetation)	• Preserve natural landscape and preserve and protect existing vegetation not required or otherwise authorized to be removed. • Protect vegetation from damage or injury caused by construction operations, personnel, or equipment using protective barriers or other approved methods. • Minimize, to the greatest extent practicable, clearings and cuts through vegetation. • Do not use trees for anchorages except in emergency cases or as approved by Reclamation. Where approved, wrap the trunk with a sufficient thickness of approved protective material before rope, cable, or wire is placed. • Before bringing construction equipment on site, clean it to remove dirt, vegetation, and other organic material to prevent introduction of noxious weeds, and invasive plant and animal species. • Contractor cleaning procedures shall result in equipment being cleaned as well or better than the procedures described in Reclamation Cleaning Manual (Reclamation 2010). Reclamation would inspect construction equipment following procedures described in Reclamation Cleaning Manual before allowing the equipment onsite. • All mud, dirt, and plant parts would be removed from all heavy equipment prior to entering National Forest System Lands, including service vehicles that stay on the roadway, traveling frequently in and out of the project area. (USDA Forest Service 2005, ROD Standard 2) • All off road equipment would be cleaned prior to leaving the project site, if moving to uninfested areas (USDA Forest Service 2005, ROD Standard 2). • When equipment is moving from one portion of project area that is weed infested to another portion that is weed free, it would be required to be cleaned as described above. A District Noxious Weed Coordinator or District Botanist would provide locations of weed-infested treatment units on project maps. • Personnel would inspect, remove, and properly dispose of weed seed and plant parts on their clothing, equipment, and vehicles. (USDA Forest Service 2005, ROD Standard 2) • Locally adapted native plant material or seeds are the first choice in revegetation or restoration where timely regeneration is not likely to occur. Under no circumstances will non-native invasive plant species be used for regeneration. (FSM 2070, 2008, USDA Forest Service 2005, ROD Standard 13) • Certified Weed free plant materials and mulch would be used for revegetation and site stabilization. (USDA Forest Service 2005, ROD Standard 3) • Seeding and/or planting would occur at the appropriate times in the spring or fall where needed to reduce erosion, prevent weeds from re-invading, or to hasten recovery of non-weed species. (USDA Forest Service, 2002, BMP I-4.6, III-10.2) • All gravel, fill, sand, quarry and borrow material must be inspected by the county weed board or a district weed specialist before transport or used

in the project area. Infested sources are required to be treated before any use of pit material is used (USDA Forest Service 2005, ROD Standard 7).

- Revegetation efforts would be monitored and evaluated. (USDA Forest Service, 2002, BMP I-4.9, III-10.2; Standard 12)
- Weed free woody mulch material can be used to cover disturbed areas if vegetation loss has occurred and bare soil is present to prevent invasive species establishment. (based on USDA Forest Service 2005, ROD, Standard 13, Standard 3)
- Early Detection and Rapid Response Approach will be employed by recording and documenting invasive plants as discovered. Treatment methods would be the same as those described for known infestations (ROD 2017).
- Restore contractor use areas to pre-construction condition.
- Areas of temporary disturbance must be re-seeded according to specification and revegetation plan, as appropriate.

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- Establish designated areas for equipment staging and parking to minimize the area of ground disturbance.
- Develop an erosion control and sediment plan that covers all disturbed areas.
- Use suitable species and establishment techniques to cover or revegetate disturbed areas in compliance with local direction and requirements per FSM 2070 and FSM 2080 for vegetation ecology and prevention and control of invasive species.
- Use suitable measures in compliance with local direction to prevent and control invasive species.
- Install sediment and stormwater controls before initiating surface-disturbing activities to the extent practicable.
- Operate equipment when soil compaction, displacement, erosion, and sediment runoff would be minimized.
    - Avoid ground equipment operations on unstable, wet, or easily compacted soils and on steep slopes unless operation can be conducted without causing excessive rutting, soil puddling, or runoff of sediments directly into waterbodies.
    - Evaluate site conditions frequently to assess changing conditions.
    - Adjust equipment operations as necessary to protect the site while maintaining efficient project operations.
- Install suitable stormwater and erosion control measures to stabilize disturbed areas and waterways on incomplete projects before seasonal shutdown of operations or when severe storm or cumulative precipitation events that could result in sediment mobilization to waterbodies are expected.
- Routinely inspect disturbed areas to verify that erosion and stormwater controls are implemented and functioning as designed and are suitably maintained.

Resource Topic	Best Management Practice
	• Maintain erosion and stormwater controls as necessary to ensure proper and effective functioning. o Prepare for unexpected failures of erosion control measures. • Implement mechanical treatments on the contour of sloping ground to avoid or minimize water concentration and subsequent accelerated erosion.
Biological Resources (Fisheries and Aquatic Ecosystems)	**Riparian areas** • The removal of riparian vegetation for access would be minimized (NMFS 2017). • All native, non-invasive organic material (large and small wood) cleared from the action area for access would remain on site (NMFS 2017). • Boundaries of clearing limits associated with site access and construction would be marked to avoid or minimize disturbance of riparian vegetation, wetlands, and other sensitive sites (NMFS 2017). • If native riparian vegetation is disturbed it would be replanted with native herbaceous and/or woody vegetation after Project completion. Planting would be completed between October 1 and April 15 of the year following construction. Plantings would be maintained as necessary for 3 years to ensure 50 percent herbaceous and/or 70 percent woody cover in year 3, whatever is applicable. For riparian impact areas greater than 0.5 acre, a final monitoring report would be submitted to the USACE in year 3. Failure to achieve the 50 percent herbaceous and 70 percent woody cover in year 3 would require the permittee to submit a plan with contingency measures to achieve standards or reasons to modify standards (NMFS 2017). • Per NWP 27, post-planting monitoring may be required for up to 10 years in order to ensure an 80 percent planting survival rate is met. • Fencing would be installed as necessary to prevent access to revegetated sites by livestock, beavers, or unauthorized persons. Beaver fencing would be installed around individual plants where necessary (NMFS 2017).

Biological Resources (Fisheries and Aquatic Ecosystems, continued)	**Fisheries and aquatic wildlife** • Instream (river) work, such as cofferdam placement, is limited to construction of the cofferdam between October 15 and April 15. Removal of the cofferdam cannot take place between April 15 and August 20, nor between September 10 and October 15. • Work site dewatering would follow the Dewatering and Fish Capture Protocol (Appendix D of NMFS and USFWS 2008). Fish removal from dewatered work sites would be overseen by a fisheries biologist. Electrofishing for fish relocation/work area isolation must follow the most recent NMFS guidelines (NMFS 2017). Record all incidents of listed fish being observed, captured, handled, and released (USFWS 2011). • Re-watering of the construction site occurs at such a rate as to minimize loss of surface water downstream as the construction site streambed absorbs water (NMFS and USFWS 2008). • The design of passage structures would follow the appropriate design standards in the most current version of the NMFS Anadromous Salmonid Fish Facility Design manual (NMFS and USFWS 2008). • Post-construction monitoring of the fish ladder would be done to ensure effectiveness. **Forest Service National Core BMPs—AqEco-2** • Use suitable measures to protect the waterbody when preparing the site for construction or maintenance activities. o Clearly delineate the work zone. o Locate access and staging areas near the project site but outside of work area boundaries, AMZs, wetlands, and sensitive soil areas. o Refuel and service equipment only in designated staging areas. o Develop an erosion and sediment control plan to avoid or minimize downstream impacts using measures appropriate to the site and the proposed activity. o Prepare for unexpected failures of erosion control measures. o Consider needs for solid waste disposal and worksite sanitation. o Consider using small, low ground pressure equipment, and hand labor where practicable. o Ensure all equipment operated in or adjacent to the waterbody is clean of aquatic invasive species, as well as oil and grease, and is well maintained. o Use vegetable oil or other biodegradable hydraulic oil for heavy equipment hydraulics wherever practicable when operating in or near water. • Use suitable measures to avoid or minimize impacts to the waterbody when implementing construction and maintenance activities. o Conduct operations during dry periods.

Resource Topic	Best Management Practice
	o Stage construction operations as needed to limit the extent of disturbed areas without installed stabilization measures. o Promptly install and appropriately maintain erosion control measures. o Promptly install and appropriately maintain spill prevention and containment measures. o Promptly rehabilitate or stabilize disturbed areas as needed following construction or maintenance activities. o Identify suitable areas offsite or away from waterbodies for disposal sites before beginning operations. o Use suitable species and establishment techniques to revegetate the site in compliance with local direction and requirements per FSM 2070 and FSM 2080 for vegetation ecology and prevention and control of invasive species. • Inspect the work site at suitable regular intervals during and after construction or maintenance activities to check on quality of the work and materials and identify need for mid-project corrections. • Include implementation and effectiveness monitoring to evaluate success of the project in meeting design objectives and avoiding or minimizing unacceptable impacts to water quality
Biological Resources (Fisheries and Aquatic Ecosystems, continued)	• Screens, including screens installed in temporary pump intakes, would be designed to meet standards in the most current version of the NMFS Anadromous Salmonid Passage Facility Design manual (NMFS and USFWS 2008). • Pumps used to dewater the work isolation area or supply temporary hatchery water during construction, would have a fish screen installed, operated and maintained according to NMFS' fish screen criteria (NMFS 2017). • Blasting is not permitted. • Monitor, capture, and release listed fish species within the cofferdam in accordance with applicable protocol in NMFS (2017a), USFWS (2011), and as identified through consultation for the Project's Biological Assessment.
Biological Resources (Terrestrial Wildlife)	• Prior to initiating any tree removal activities, work with Okanogan-Wenatchee National Forest, Naches Ranger District to survey for northern spotted owl presence or site occupancy. Use USFWS NSO Survey Protocols for Automated Recording Units methods.
Cultural Resources	• As required by the Washington State Historic Preservation Officer, the *Plan and Procedures for the Inadvertent Discovery of Cultural Resources and Human Remains* (Inadvertent Discovery Plan) would be followed in the case of inadvertent discovery of cultural resources or human remains during construction.

Resource Topic	Best Management Practice
Land Use	• Restore contractor use areas to pre-construction condition. • Prior to construction activities, the Forest Service will provide to Reclamation an inventory of type, number, and condition of infrastructure within the proposed contractor use areas. Reclamation will require that the contractor verify the inventory and that the contractor return contractor use areas to a similar state before contract close out and prior to concessionaire reopening sites. Contractor responsibilities will include repair or replacement of inventoried infrastructure as necessary to meet the "similar state" requirement. (Forest Service) • Monitor the closed construction area for prohibited dispersed recreation use. Where needed to prevent public entry, identify informal access routes and block with suitable barriers, such as boulders or Jersey barriers, for the duration of construction. Notify the Forest Service for enforcement of the closure. (Forest Service) • During implementation, provide advance notification to the Forest Service when project activities may impact permit holders. Advance notification should be sufficient for Forest Service and Reclamation staff to identify potential mitigation and for Forest Service staff to contact representatives of effected Special Use Permits holders at least 45 days in advance of potential impacts. (Forest Service) • Post notification of closures and restrictions to impacted recreation sites. Information should be posted at these sites, at the Naches Ranger Station (10237 US-12, Naches, WA 98937) and to social media. Provide text to Forest Service for posting on the Okanogan-Wenatchee websites and Facebook page. (Forest Service)
Transportation	• Perform work on rights-of-way established by the government as necessary to construct and maintain any roads, bridges, or drainage structures required for establishment and use of haul routes for construction operations. • Use existing available public highways, roads, or bridges as haul routes subject to applicable local regulations. • Minimize interference with or congestion of local traffic. • Provide barricades, flaggers, and other necessary precautions for safety of the public where haul routes cross public highways or roads. • Maintain roadways, parking areas, and haul routes in a sound, smooth condition. • Promptly repair ruts, broken pavement, potholes, low areas with standing water, and other deficiencies to maintain road surfacing and drainage in original or specified condition, and consistent with any road use permits. • Meet requirements of the Manual on Uniform Traffic Control Devices for Streets and Highways, Part 6 (Temporary traffic control; https://mutcd.fhwa.dot.gov/) and WAC 296-155-305 (Signaling and flaggers). • Provide cones, delineators, concrete safety barriers, barricades, flasher lights, danger signals, signs, temporary fencing, and other temporary traffic

Resource Topic	Best Management Practice
	control devices as required to protect work, public safety, pedestrians, and other recreationists on public property. o Includes access to and within CUAs. • Provide flaggers and guards, as required, to prevent accidents and damage or injury to passing traffic and pedestrians. • Protect roads closed to traffic with effective barricades and warning signs. Illuminate barricades and obstructions from sunset to sunrise. • Remove traffic control devices when no longer needed. • Maintain vehicle and pedestrian traffic flow and conduct construction operations to minimize obstruction and inconvenience to public traffic. • The contractor would secure the required road use approval from the Forest Service, most likely under a road use permit. • Traffic control devices need to be installed at the intersection of FS Road 746 and Highway 12 to close Indian Creek Dispersed Campground but provides access to cabin owners that utilize FS Road 746 to access their cabins. This intersection has poor visibility; Reclamation or contractor provided services should take this into consideration when determining safe options. Suggested options include "Cabin Owner Traffic Only" signs, temporary gate keyed only for cabin owners. (Forest Service)
Noise	• Construction hours are 7:00 a.m. to 7:00 p.m. o Work outside of these hours must be approved by the COR 72-hours in advance. • Blasting is not permitted.
Recreation	• No tree cutting, tree pruning, or excavation can occur within CUA 1. • CUA 2 and 3 campgrounds can be used to stage and store equipment, store smaller fabricated features, and potentially house construction trailers. No tree pruning, tree clearing, excavation, or other surface modification are permitted in the campgrounds. All campgrounds must remain in as-is conditions. • CUA 4 (OHV play area/Cold Creek Sno-Park) would be closed, temporarily, and returned to pre-project conditions or better. No tree pruning, tree clearing, or excavation are permitted. • Light Controls o Direct stationary floodlights shall shine downward at an angle less than horizontal. o Shield floodlights so that floodlights would not be a nuisance to surrounding areas. o Direct lighting so that adjacent roadways are not in direct beam of light. o Correct lighting control problems when they occur as approved by Reclamation's COR.
Visual Resources	• Minimize, to the greatest extent practicable, clearings and cuts through vegetation. Irregularly shape authorized clearings and cuts to soften undesirable aesthetic impacts.

Resource Topic	Best Management Practice
Socioeconomics and Environmental Justice	• Reclamation policy is to avoid impacts on Indian sacred sites whenever possible. Continued coordination with affected Tribe may result in future identification of sacred sites. If this occurs, Reclamation would further evaluate impacts on these resources. Consultation with the Yakama Nation would identify how to protect sacred sites if they were identified and how to provide continued access if any such sites were affected by Project construction.
Utilities	• A locate for underground utilities would be coordinated with the Washington Utility Notification Center (http://www.callbeforeyoudig.org/washington/index.asp) prior to construction.
Hazardous Materials and Public Health and Safety	• Vehicle traffic on unpaved surfaces would be limited to 10 miles per hour to minimize dust generation. • Nuisance flows from seepage and leakage through the cofferdams would be managed to maintain a safe working environment. • Hazardous Waste Disposal: o Dispose by removal from jobsite. o Recycle hazardous waste whenever possible. o Dispose of hazardous waste materials that are not recycled at appropriately permitted treatment or disposal facilities. o Transport hazardous waste in accordance with 49 CFR 171-179. • Any accidental release of hazardous materials would be cleaned up according to the Contractor's SPCC Plan. • Provide protection for personnel and existing facilities from harm due to demolition activities. • Arrange protective installations to permit operation of existing equipment and facilities by the government while work is in progress. • Inadvertent discovery of hazardous wastes or materials would be reported to Reclamation and Ecology within 24 hours of discovery. Construction in the vicinity of the discovery would cease until the appropriate disposal procedures were identified and carried out in coordination with Reclamation and Ecology. • Provide cones, delineators, concrete safety barriers, barricades, flasher lights, danger signals, signs, temporary fencing, and other temporary traffic control devices as required to protect work, public safety, pedestrians, and other recreationists on public and private property. o Includes access to and within Contractor Use Areas.

Resource Topic	Best Management Practice
Hazardous Materials and Public Health and Safety (continued)	• Provide flaggers and guards as required to prevent accidents and damage or injury to passing traffic and pedestrians. • Maintain vehicle and pedestrian traffic flow and conduct construction operations to minimize obstruction and inconvenience to public traffic. • A list of all major fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard would be developed by the contractor as part of the Fire Protection and Prevention Plan. • Follow Industrial Fire Protection Levels as established by the Washington Department of Natural Resources (see https://www.dnr.wa.gov/ifpl#:~:text=Activated%20when%20needed%20during%20the,forestland%20protected%20by%20the%20agency). (Forest Service) • Contractor would develop a means to educate all construction workers about the risk of starting a wildfire and how to avoid it and who to contact in case a wildfire is started. • Passenger vehicles and construction machinery requirements. o Passenger vehicles, cars, pickups, light trucks, shall be equipped with one water fire extinguisher or backpack pump 5-pound minimum capacity, excluding personal vehicles parked at Field Office area. o Any internal combustion engine operated on or near forest, brush, grass covered land shall be equipped with a spark arrester or the engine shall be constructed, equipped, and maintained for prevention of fire. • Fire tools required in areas where portable tools powered by internal combustion engines are used within 25 feet of any flammable material. o Maintain one serviceable round point shovel, minimum overall length 46 inches, and one 5-pound minimum pressurized fire extinguisher or 5-pound back pump. o Keep required fire tools within 25 feet of operating equipment powered by internal combustion engine.

Resource Topic	Best Management Practice
Hazardous Materials and Public Health and Safety (continued)	• Provide water truck equipped with 500 feet of 1.5-inch single jacket hose, nozzle, and pressure pump. Truck with 300-gallon (minimum) water must be on site at each work feature where work is being performed with trained operator during work hours. Water truck may be used for other watering work, such as dust suppression, but must be immediately available for fire suppression duty. • Light Controls o Direct stationary floodlights shall shine downward at an angle less than horizontal. o Shield floodlights so that floodlights would not be a nuisance to surrounding areas. o Direct lighting so that adjacent roadways are not in direct beam of light. o Correct lighting control problems when they occur as approved by Reclamation's COR. • Emergency vehicle access shall be maintained at all times. • Traffic control devices need to be installed at the intersection of FS Road 746 and Highway 12 to close Indian Creek Dispersed Campground but provides access to cabin owners that utilize FS Road 746 to access their cabins. This intersection has poor visibility; Reclamation or contractor provided services should take this into consideration when determining safe options. Suggested options include "Cabin Owner Traffic Only" signs, temporary gate keyed only for cabin owners. (Forest Service)
Tribal Interests	• Reclamation policy is to avoid impacts on Indian sacred sites whenever possible. Continued coordination with affected Tribes may result in future identification of sacred sites. If this occurs, Reclamation would further evaluate impacts on these resources. Consultation with the Yakama Nation and Colville Tribes would identify how to protect sacred sites if they were identified and how to provide continued access if any such sites were affected by Project construction.

Appendix B – Revegetation Plan

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USDA Forest Service- Region 6 Restoration Services Team
1220 SW 3rd Ave Portland, OR 97204

RESTORATION SERVICES TEAM

Clear Creek. Photo by Kelly Evans

Revegetation Plan

Clear Creek Fish Passage Project

Prepared by: United State Department of Agriculture, Forest Service Region 6 Restoration Services Team

Prepared for: Bureau of Reclamation and Department of Ecology

Date Prepared: 11/13/2023

DRAFT

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PROJECT INFORMATION

Project Information

Provisional seed zone: 15-20 Deg. F./2-3	Lat:46.627949 Long: -121.269972	Elevation: 3,011 ft

LOCATION

The project location is located on the Okanogan-Wenatchee National Forest, Naches Ranger District, approximately 30 miles southwest of Naches, WA and 48 miles west of Yakima. Clear Creek flows into Clear Lake, which is just above Rimrock Lake, a much larger reservoir that supplies water to the valley. The legal description of the project site is Township 13N, Range 12E, Section 12.

PROJECT HISTORY

An assessment of Clear Creek Dam was started in 2012 showed that the dam was an obstruction to fish passage for bull trout, and the current fish passage was inadequate. Events were set in motion for correcting the obstruction. The Bureau of Reclamation along with the Department of Ecology and other cooperators banded together to build a functioning fish ladder at Clear Creek Dam.

AGENCIES AND PARTNERS

Multiple agencies and partners are involved on this project, including the 2 lead agencies of the Washington State Department of Ecology and the US Department of the Interior Bureau of Reclamation. Other partners and agencies include the Yakama Nation, US Fish and Wildlife Service, Washington State Department of Fish and Wildlife, Washington State Department of Archaeology and Historic Preservation, the Army Corp of Engineers, and the USDA Forest Service.

SOILS PRESENT

The primary soils for this area are McDanielake-Singh complex, 15 to 30 percent slopes and Tumac gravelly ashy sandy loam, 30 to 55 percent slopes near Clear Creek Dam (NRCS). These sites have been heavily impacted by human use.

PROJECT INFORMATION

CLIMATE

Based on 10 year trend data from PRISM Climate Group (Figure 1), data shows a trend of hotter temperatures and low precipitation in the summer with lower temperatures and higher precipitation in the fall and continuing throughout the winter. Data supports recommendations for fall seeding and planting activities. Mean annual precipitation for this area is 26 inches according to the Western Regional Climate Center (WRCC).

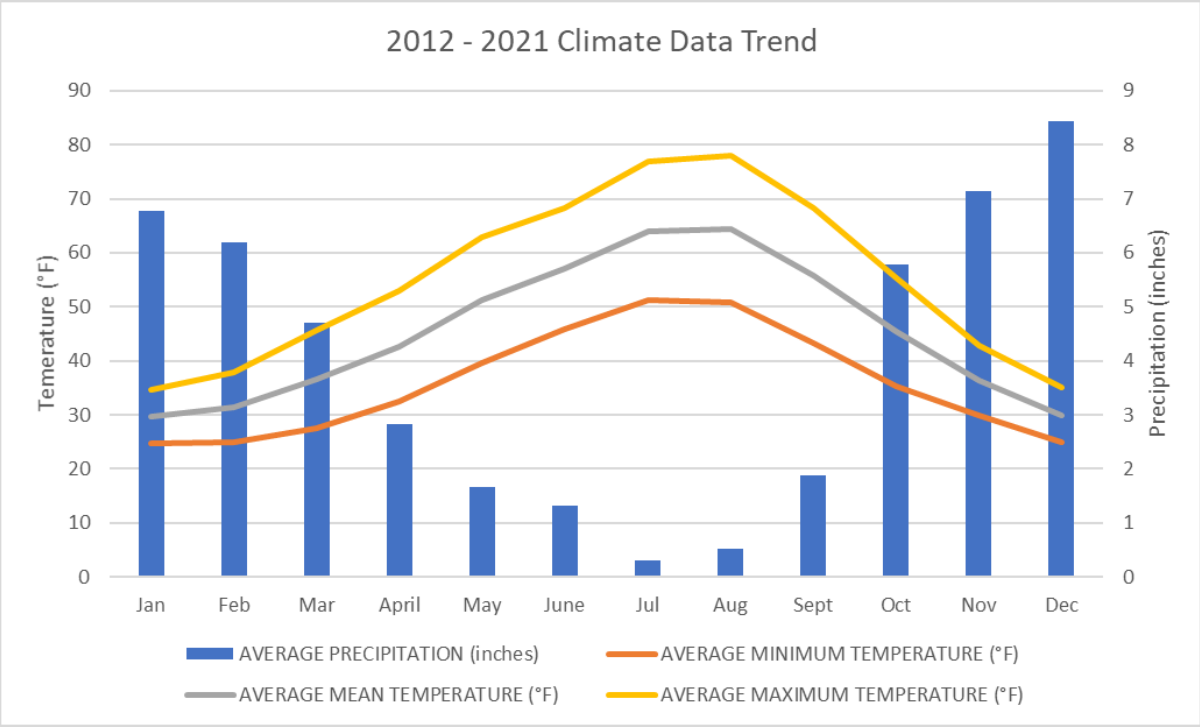
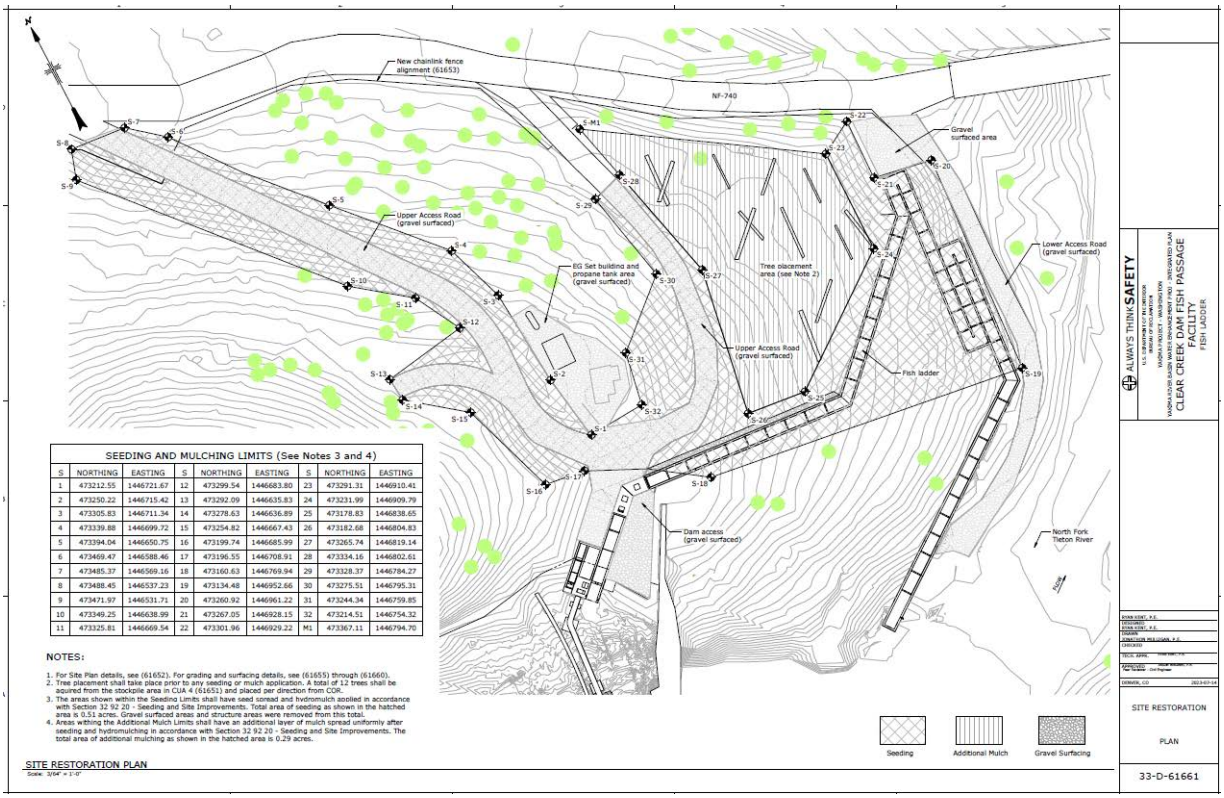


Figure 1. Monthly time series values for Washington State, Yakima County, near Rimrock Lake from 2012-2021. (http://prism.oregonstate.edu)

CONSTRUCTION

Clear Creek Fish Passage construction is estimated to start in spring 2025 and be completed approximately fall 2027; the Forest Service will revegetate an approximately 0.29 acre disturbance footprint fall 2027, dependent upon construction timeline, or one year post-construction through seeding and installing containerized plants (Figure 2).

PROJECT INFORMATION



S	NORTHING	EASTING	S	NORTHING	EASTING	S	NORTHING	EASTING
1	473212.55	1446721.67	12	473299.54	1446683.80	23	473291.31	1446910.41
2	473250.22	1446715.42	13	473292.09	1446635.83	24	473231.99	1446909.79
3	473305.83	1446711.34	14	473278.63	1446636.89	25	473178.83	1446838.65
4	473339.88	1446699.72	15	473254.82	1446667.43	26	473182.68	1446804.83
5	473394.04	1446650.75	16	473199.74	1446685.99	27	473265.74	1446819.14
6	473469.47	1446588.46	17	473196.55	1446708.91	28	473334.16	1446802.61
7	473485.37	1446569.16	18	473160.63	1446769.94	29	473328.37	1446784.27
8	473488.45	1446537.23	19	473134.48	1446952.66	30	473275.51	1446795.31
9	473471.97	1446531.71	20	473260.92	1446961.22	31	473244.34	1446759.85
10	473349.25	1446638.99	21	473267.05	1446928.15	32	473214.51	1446754.32
11	473325.81	1446669.54	22	473301.96	1446929.22	M1	473367.11	1446794.70

Figure 2. Clear Creek fish passage design plan (Bureau of Reclamation).

Revegetation Plan

STRATEGY

Revegetation techniques for theses project shall be site-specific and guided by using a restoration approach developed by the Federal Highway Administration, the Forest Service, and other collaborators (Armstrong et al.). The site conditions of these project sites shall not significantly change from current conditions. Plant material shall be collected from the appropriate Provisional Seed Zone (WWETAC) as determined by the Forest Service to ensure the use of locally adapted, genetically appropriate native plants on the project as directed by Forest Service Policy (USFS).

For Clear Creek, there shall be 2 planting zones: upland and seed only. The upland planting zone shall also be seeded to reduce the establishment of noxious weeds using a genetically appropriate seed suitable for the area based on the Region 6 Provisional Seed Zones (Figure 3). The upland planting zone shall be primarily planted with site-appropriate vegetation to mitigate disturbance but allow access to the fish ladder for inspection and maintenance. All disturbance shall be seeded including some staging areas as part of weed management.

Figure 3. Provisional Seed Zone 15-20°F/2-3 for Clear Creek Fish Passage project site.

REVEGETATION PLAN

REFERENCE SITE(S)

Locally sourced, genetically adapted plant materials collected from the same seed zone will be utilized for this project. Species selection is based on the known vegetation for the area as well as similar habitats in the surrounding area. Plant material collected from site-specific seed zones and propagated by local and Forest Service nurseries has had a high success rate upon outplanting. The restoration techniques described in this document have also been used on multiple projects with great success. Reference species are described as plants which are more commonly documented in the local habitats and have a variety of root shapes and depth structure to aid in slope stability with considerations to successional processes.

REVEGETATION UNITS AND SITE PREP

Designated areas of construction disturbance shall be revegetated with containerized plants either 40 cubic inches (3.5 in. diameter x 10 in.) or 4 inch pots, dependent upon species. (Table 1). Plantable areas shall be decompacted to an appropriate depth based on rooted material and contain a medium of native soils, a maximum of 18 inches. A 6" layer of shredded wood shall be incorporated into the site post-construction to prepare the soil bed for planting and seeding.

Table 1. Clear Creek species list (0.29acres, 2500plants/acre).

Species	Type	1st Year Qty
Acer glabrum	D40	5
Pinus ponderosa	D40	5
Pseudotsuga mensiezii	D40	15
Symphoricarpos albus	D40	150
Penstemon attenuatus	D40	75
Senecio integerrimus	D40	75
Antennaria rosea	D40	100
Holodiscus discolor	D40	100
Amelanchier alnifolia	D40	100
Paxistima myrsinites	D40	50
Sedum stenopetalum	4 in	50
TOTAL		**725**

Native Seed Mixes

Seed mixes shall be determined by the Forest Service for the species composition best suited for the project site. A proposed list of restoration seed mixes, species, and biotypes is shown in Table 2 that was successfully used in a similar project, but mix may vary at time of application. Forest Service shall provide the primary construction contractor with seed mix for temporary erosion control post-construction if planting cannot occur until the following year. Temporary seed applied by hydroseeder by the primary construction contractor is recommended to only be applied between September 1 and November 1 and soil temperature shall be less than 60°F but above 32°F. Seed applied earlier than this timeframe does not provide adequate erosion control as the seed tends to emerge the year after a cold stratification. The Forest Service or Forest Service contractor shall apply permanent seed for erosion and weed infestation mitigation and install all plant material post-construction.

Table 2. Example of seed mix species, biotypes, ratios, and seeding rate.

SPECIES	LBS/ACRE
Blue Wildrye (*Elymus glaucus*) 'Keechelus'	**10.0 lbs/acre**
Mountain brome *(Bromus marginatus)* 'Upper Yakima' or 'Reecer'	**9.0 lbs/acre**
Slender Hair Grass (*Deschampsia elongata*) 'Upper Yakima'	**2.0 lbs/acre**
Spike bentgrass (*Agrostis exarata*) 'Upper Yakima'	**1.5 lbs/acre**
Mt Stuart bluegrass (*Poa curtifolia*) Upper Yakima	**1.0 lbs/acre**
Common yarrow *(Achillea millefolium)* 'Upper Yakima'	**0.5 lbs/acre**
Broadleaf lupine (Lupinus latifolia) 'Upper Yakima'	**1.0 lbs/acre**
TOTAL	**25.0 lbs/acre**

SEEDLINGS

Native plant containerized stock for the project shall be obtained by the Forest Service from source-identified native plant nurseries via a micropurchase, a plant propagation contract through the Region 6 Restoration Services Blanket Purchase Agreement (BPA), or through a Forest Service nursery from stock grown using seed or plant material provided by the Forest Service from the appropriate Provisional Seed Zone for the project site.

SPACING and SITE PREP

Plant numbers are roughly 2,500 plants/acre, depending upon plantable area. Plant spacing in upland plantings shall be approximately 3 feet on center for containerized shrubs and 10 feet on center for trees but shall be dependent upon suitable planting areas. Plantable areas shall be decompacted by the prime construction contractor at a depth of 18" from the surface, and should contain a mix of organic soils and shredded wood to optimize plant survivorship and establishment. For planting occurring one year post-construction, the planting contractor may need to decompact planting areas prior to planting.

Non-Native Plant Control

CURRENT CONDITIONS

Non-native plant populations shall be evaluated for management pre – and post-construction.

DESIRED FUTURE CONDITIONS

Future goals for this project are to establish vegetation in disturbed areas post-construction for the Clear Creek Fish Passage Project and to minimize the establishment of state-listed invasive plant populations in the project area.

Monitoring Plan

SUCCESS CRITERIA

TBD- awaiting permitting process.

Approximate Timeline and Budget

PROJECT ESTIMATED TIMELINE			
Spring 2025	**Summer 2027**	**Fall 2027**	**Fall 2028**
Construction starts	Construction completed	1st Planting	Contingency planting at 30%

Figure 4. Project timeline.

TASK	DESCRIPTION	AMOUNT
1	General Project Management, Coordination, and Monitoring	$ 19,188.05
2	In-house seed and plant material collection	$ 16,089.80
3	Estimated Plant Cost	$ 7,520.00
4	Estimated Planting Cost	$ 7,250.00
	TOTAL	**$ 50,047.85**

Figure 5. Estimated budget.

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CONTACT INFORMATION

Contact Information

FOREST SERVICE	POSITION TITLE	CONTACT INFORMATION
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Kathryn Furr	YBIP Coordinator	O: 509-996-4043 Email: kathryn.furr@usda.gov

BUREAU OF RECLAMATION	POSITION TITLE	CONTACT INFORMATION
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