

Executive Summary

S.1 Chapter 1: Purpose of and Need for Action

The Confederated Tribes and Bands of the Yakama Nation (YN) have requested funding from the Bonneville Power Administration (BPA) to modify the existing Lyle Falls Fishway located on the lower Klickitat River in Klickitat County, Washington. This fishway is owned by the Washington Department of Fish and Wildlife (WDFW) and operated by the YN. The US Forest Service (USFS) administers portions of the Klickitat River and its corridor under the National Wild and Scenic Rivers Act).

Lyle Falls, at river mile (RM) 2.2 of the Klickitat River, prevents some upstream migrating fish from reaching the upper watershed, especially when flows are low. The State of Washington constructed the existing ladder in the 1950s to provide a way for fish to migrate around the falls under a range of flow conditions. The ladder now provides only an incremental improvement in fish passage efficiency. During low flows, when fish are most challenged to ascend Lyle Falls, the fishway is least functional. Important fish species affected by these conditions include fall Chinook salmon, coho salmon, and to a lesser degree, steelhead salmon, which are listed as threatened under the Endangered Species Act (ESA).

The underlying need for the project is to improve fish passage to habitat in the upper part of the watershed. Funding from BPA would serve to provide off-site mitigation for the effects of the federal Columbia River hydroelectric facilities on fish populations by improving fish passage at Lyle Falls. While the fish passage issues at Lyle Falls were not caused by the hydroelectric facilities, this project would help BPA meet its mitigation responsibilities and potentially increase overall fish production in the Columbia Basin by enhancing fish passage into the Klickitat subbasin.

Project purposes include:

- Providing properly functioning and effective year-round adult fish passage facilities that would be compliant with current state and federal fish passage standards and criteria;
- Providing facilities to collect, monitor, and enumerate biological information that may provide a foundation for effectively monitoring success of future fishery management actions in the subbasin; and
- Enhancing opportunities for adult salmonids to access the upper Klickitat River and make use of abundant, available and under-utilized spawning and rearing habitat.

BPA will use the information in the EIS, and comments from reviewers, to decide whether to provide federal funding for modifications to the fish ladder as proposed by the

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YN (co-managers of the fishway). WDFW, the owner and co-manger of the fishway, must approve the proposed modifications. The USFS will use the EIS as a basis for determining whether the proposed Lyle Falls Fishway Project is consistent with Section 7a of the National Wild and Scenic Rivers Act (NWSRA).

S.2 Chapter 2: Alternatives

Two alternatives are evaluated in this EIS: 1) the No Action alternative and 2) the Proposed Action alternative, under which modifications would be made to the existing fishway and related facilities. At the Lyle Falls site, No Action means that the existing fishway, shown in Figure 2-1, would retain its current configuration and operational practices. The fishway is an 80-foot long, reinforced concrete vertical slot-type structure with baffled chambers and an off-ladder adult trap used to collect data on upstream migrating fish. A siphon-type auxiliary water supply system intended to provide additional attraction flow is present but non-functional. Under the No Action alternative, the fishway would continue to provide the same passage and fish sampling capabilities as it does at this time.

Under the Proposed Action, improvements would include reconstructing and lengthening the fishway, modifying the ladder entrance to facilitate fish access during low flow, upgrading the adult trapping facility, and improving fisheries monitoring capabilities by adding a PIT-tag detector and a video monitoring system. Access road conditions would be upgraded and a permanent work station provided for biologists near the fish ladder. Operationally, the Proposed Action would alter the distribution of flow passing through the natural channel and the fishway. In addition, the extent of fishway maintenance would be reduced because less rock and sediment would enter the structure. Figure 2-2 shows the location of the ladder and proposed modifications. Table 2-1 compares the existing and modified ladder with federal fishway design criteria.

The existing concrete ladder would be retained and modified at both the upstream and downstream ends. The upstream end would be extended 330 feet and a new water supply intake and fish exit structure constructed. The new upstream fish exit would be submerged in a minimum of 7 to 8 feet of water in a deep natural scour pool where water currents are much slower than at the existing exit location. The new attraction water supply intake would be integrated into this component. The downstream ladder entrance location would be retained, but the area within the entrance portal would be deepened and enlarged, extending further into the west bank (Section 2.2.2.3).

The existing dysfunctional attraction flow system would be replaced with a new system designed to attract fish to the ladder entrance. Without auxiliary attraction flow, functionality and effectiveness of the fish ladder is reduced. Under the Proposed Action, 110 cubic feet per second (cfs) of attraction flow would be diverted continuously from the new upstream fishway exit structure and carried to a stilling chamber in the downstream ladder entrance through a 48-inch-diameter pipeline.

A chamber would be incorporated into the new ladder segment that allows more efficient and safer conditions for monitoring and enumerating upstream migrants. It would include Passive Integrated Transponder (PIT) tag detection and video monitoring equipment that would enable biologists to collect data in a less invasive manner than presently occurs.

Currently fish capture and monitoring gear used by the YN and WDFW is stored in a metal container on the fishway. A permanent storage and maintenance building would be built in an existing cleared area upslope from the fishway under the Proposed Action (see Figure 2-2). In addition to storage space, this building would provide an on-site location for facility maintenance equipment.

An overhead power line operated and maintained by the Klickitat County Public Utility District extends across the site on wooden poles, although currently there is no interconnection to the fish ladder. A new transformer would be installed on an existing pole to provide power via underground lines to the fish ladder and maintenance building.

Access road improvements also would be made. Vehicle access to the ladder is via a 0.2-mile-long private road extending from the County-maintained Fisher Hill Road. This access road would require minor improvements to accommodate construction vehicles and long-term access for maintenance and operation of the fishway. Minor grading would be performed and several inches of crushed rock placed over the existing surface to provide all-weather single-lane access. No additional clearing is expected to be required for the 10- to 12-foot-wide road.

If the Proposed Action is adopted, construction would be accomplished over two summer seasons, each extending from late June through October. Limiting the work window to these periods would eliminate the need for the contractor to employ extensive site protection measures that would be required were the work period to extend beyond the predictably driest months. If work is confined to the lowest flow season, most construction would be performed in the dry. A temporary cofferdam would be installed to isolate the proposed upstream ladder exit work area. Other near-stream work areas could be modified without cofferdam protection. For example, modifications to the downstream ladder entrance would occur within the existing structure, which can be isolated from the river.

The new fish exit, water intake and fish transportation channel largely would be sited in areas where basalt bedrock is exposed. The basalt would be excavated by first fracturing the rock with explosive charges, then removing it with an excavator. Most fragmented rock would be transported by dump truck to a 150-foot by 200-foot disposal area located about 150 to 300 feet from the excavation sites. The disposal site is a topographic depression between the Klickitat Trail and the river's high flow channel. It would accommodate the estimated 4,000 cubic yards of excavated material. Large excavated boulders would be placed on the stream side of the new fish transportation channel to protect the concrete from heavy debris impact during high flows. These boulders also would appear as a naturally occurring component of the landscape.

S.3 Chapter 3: Affected Environment and Environmental Consequences

Existing natural and social resource conditions are described, organized by resource area. The likely effects of implementing two alternatives on each resource are disclosed based on best available information and data. Where mitigation measures could eliminate or reduce environmental impacts, the proposed measures are described. A Mitigation Action Plan would be prepared and made available prior to construction.

S.3.1 Geology and Soils

Under the No Action alternative, short-term disturbances would continue to occur periodically when accumulated sediment and gravel is removed from the Klickitat River to keep the upstream fishway exit clear.

Under the Proposed Action, construction would disturb up to 1.6 acres in the vicinity of the fishway. Although much of the work area is in basalt, soils underlying other areas have a low to severe potential to erode. Appropriately implemented erosion control measures would minimize potential runoff. Fishway operation would have no effect on geologic conditions and only minor soil compaction effects.

S.3.2 Water Resources

Water would continue to be diverted through the fishway under the No Action alternative, reducing flow in a 200-foot-long reach of the Klickitat River. Short-term increases in turbidity would occur approximately once a year (or as needed) when gravel and sediment are excavated from the river to maintain the fishway exit during lowest flows.

Under the Proposed Action, all construction would be in close proximity to the Klickitat River with the associated potential to affect water quality. Near-stream work would be isolated from flowing waters by silt fences, sediment detention tanks, and other best management practices. Instream work, disturbing approximately 1,500 square feet of the river, would be conducted within a cofferdam to reduce the potential to degrade water quality. Sediment-laden water collecting in the work area would be pumped to portable detention tanks to remove sediment before it is returned to the river.

Project operations would continue to be non-consumptive of water under the Proposed Action alternative, although up to 600 cfs would be diverted through the 475-foot-long bypass reach. Diversion into the ladder during the lowest flow period (with river flows at 550 cfs) would be about 22 percent more than the current diversion, dropping to approximately 5.7 percent (with river flows at 7,000 cfs) during higher flows. No effects on water quality are anticipated due to project operations, and by eliminating the need to periodically dredge the upstream ladder exit, water quality conditions actually may improve. Project operation is not anticipated to alter transport of bedload or large wood

since these movements occur during peak flows when the relative percent of diverted water is low compared to river flows. In addition, the project facilities would be extended along the bank of the river; there would be no new diversion or instream structure to trap wood or bedload.

S.3.3 Fisheries

Under the No Action alternative, upstream migration of some anadromous fish would continue to be impaired by the poorly functioning fish ladder. Although it provides some passage benefits, the ladder does not meet state or federal fish passage criteria (see Table 2-1). Poor passage conditions are most pronounced in the late summer and fall when flows are low (<1,000 cfs), migration by fish to negotiate the falls during this period is most difficult and there is inadequate flow to attract fish into the ladder (Table 3-6). Stocks arriving at this time (coho, fall Chinook and, theoretically, summer steelhead, which are non-indigenous) would continue to be most affected (Table 3-8).

Modifications to the fishway under the Proposed Action could temporarily displace adult and juvenile fish and delay upstream migration of adult fish (primarily fall Chinook, coho and summer steelhead) during construction. Handling of fish may be necessary during salvage/rescue operations in the area to be dewatered for construction, with some associated mortality risk. Operation of the modified fishway would likely increase escapement of salmon and steelhead upstream of Lyle Falls (see Table 3.9), and increase salmonid production in the upper river. Opening fish passage may also allow access to resident and non-native species that currently may not be able to negotiate the falls. Increased escapement may increase competition within and among rearing salmon and steelhead upstream of the Lyle Falls, although this is not expected to affect productivity. The presence of more salmonid carcasses higher in the watershed would increase nutrients available to the watershed. Under summer low flow conditions, ladder operation would slightly reduce the amount of time that the falls would naturally be passable; however overall, the upgraded ladder would substantially increase amount of time that favorable passage conditions would be available (see Section 3.3.2.2). Fish population monitoring/management capabilities that would be provided at the modified ladder also would benefit fisheries management in the basin.

S.3.4 Vegetation and Wildlife

Under the No Action alternative, ongoing maintenance of the ladder, fishing and camping would continue at current levels in the project area, affecting approximately the same terrestrial habitat as presently occurs. Vehicle and foot traffic would disturb vegetation around the margins of the parking area and in areas people use as informal camping sites.

Under the Proposed Action, construction would disturb up to 1.45 acres of mixed forbs and grasses, scattered shrubs, and several ponderosa pine and oak trees. Approximately 0.65 acres would be revegetated following construction, focusing on the use of native species and control of noxious weeds.

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Construction would cause local noise disturbance during two construction seasons, and many animals that likely use the site under current conditions would temporarily avoid it. Construction could disturb a pair of osprey that nest near the fish ladder, but because construction would not begin until after eggs have hatched (typically by June 30), disturbance during the period WDFW considers to be critical (April 1 through June 30) would be avoided. Consultation with WDFW would help to identify appropriate site-specific timing restrictions to protect this state “monitor” species.

Operation of the modified ladder is not expected to cause any change in levels of disturbance to vegetation or wildlife that likely occur under existing conditions. Fishing and camping would continue at Lyle Falls, and hiking and biking would continue along the Klickitat Trail. Ladder maintenance activities and fish handling tasks would continue at levels similar to those that currently exist.

S.3.5 Threatened and Endangered Species

Under the No Action alternative, upstream passage conditions for Middle Columbia River (MCR) steelhead and bull trout would be unchanged from current conditions. Given the run timing of steelhead and the months when ladder flow is too high or too low for passage, only 41 percent of the steelhead run is estimated to encounter the existing ladder when it is passable (Table 3-9). In addition, the No Action alternative would preclude substantial numbers of fall Chinook and coho from spawning above the falls, in steelhead rearing areas. The Klickitat Subbasin Plan (YN et al. 2004) has identified a lack of food as a constraint on fish production, a condition that would be sustained by the No Action alternative since additional salmon carcasses and the resulting release of nutrients to the aquatic food chain would not be available.

Under the Proposed Action, effects for MCR steelhead would be the same as described above in Fisheries. The estimated maximum passage rate through the modified ladder would be 98 percent (Table 3-9). Due to the very low abundance of Columbia River bull trout in the lower Klickitat River, temporary construction disturbance would have negligible effects, whereas the beneficial effect of providing an unobstructed route for upstream migration would be permanent. Improving upstream passage would both aid the few migratory bull trout that may inhabit the Klickitat River subbasin, and facilitate passage for migrants from other subbasins to expand their distribution. Depths and velocities inside the fishway generally would be more conducive to passage than either the natural falls or the existing fishway over a wider range of flow conditions. BPA will consult with the fish and wildlife agencies under ESA, to ensure that actions undertaken with this project appropriately protect and conserve listed species and their habitat.

Other ESA species listed in Klickitat County that could be in the project area are the gray wolf, northern spotted owl, Canada lynx, and Ute ladies'-tresses. However, a no-effect determination will be prepared for these species for a variety of reasons.

S.3.6 Wetlands and Floodplains

Under the No Action alternative, ladder operations would continue without affecting the 1,350-square-foot wetland located in the project area and without changing conditions in the floodplain.

Expansion and operation of the fishway under the Proposed Action would have no effect on the existing small wetland because its location could easily be isolated from construction. Fish ladder modifications would increase the volume of built structures within the floodplain; however, because water would flow through these structures, there would be a negligible effect on the overall flood flow elevation.

S.3.7 Cultural Resources

No changes would occur under the No Action alternative that could affect the two National Register-eligible properties at Lyle Falls. Tribal fishing would continue as it always has at Lyle Falls, with no measurable change in catch rates attributable to the fishway.

Under the Proposed Action, construction activity would occur within the National Register-eligible Lyle Falls Traditional Cultural Property (TCP), temporarily introducing laborers and heavy equipment to this site. These factors would alter the setting of this TCP for about eight months and would prevent access to two or three traditional fishing scaffolds for approximately four months. Construction access would cross another National Register-eligible site, the railroad corridor that now is the Klickitat Trail. Operational effects to cultural resources would be limited. Fishway improvements are expected to reduce the number of fish that concentrate at the base of Lyle Falls in the late summer/fall when low flows make upstream passage difficult. This may, in part, affect the catch rate at the two or three fishing scaffold sites located at the base of the ladder entrance. However, the long term harvest is expected to improve as more adult fish will be returning to the Klickitat River.

S.3.8 Air Quality, Noise, Human Health and Public Safety

Air quality would be unchanged from current conditions under the No Action alternative, degraded only by fugitive dust generated by vehicles using the unsurfaced access road. Noise levels would be unchanged and no additional public health or safety risks would be introduced.

Under the Proposed Action, construction would introduce dust and emissions from vehicles and heavy equipment, temporarily degrading air quality. This effect would be minimized by surfacing the access road with rock and implementing other standard containment measures. No changes would occur to air quality from continued fishway operation. Construction noise would be generated by heavy equipment, blasting, and

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rock drilling / excavation. Upon completion, noise levels would return to current conditions.

Human safety concerns would require closure of up to three traditional fishing sites for as long as four months while the downstream ladder entrance is modified. Similarly, access along the Klickitat Trail would be interrupted for very brief periods (less than 30 minutes) when charges are set off to fracture rock for ladder construction. Comparable interruptions would be experienced by kayakers during blasting. No new long-term operational safety concerns have been identified, although working conditions for fish biologists performing regular monitoring in the ladder would be improved.

S.3.9 Aesthetics

Visual conditions at the fishway and its immediate surroundings would be unchanged from current conditions under the No Action alternative. The US Forest Service Visual Quality Objective (VQO) for this reach of the Klickitat National Wild and Scenic River is not achieved from two key viewpoints due to the extent of site alteration (Key Observation Point 3 and 4). The VQO objective is met from the two other key viewpoints (Key Observation Points 1 and 2).

Under the Proposed Action, construction at Lyle Falls would alter this quiet rural setting for two summers, lasting about four months each. Active construction (personnel, vehicles, equipment and material movement and storage) would temporarily degrade site aesthetics. The VQO would not be achieved from the same two viewpoints (Key Observation Points 3 and 4) that are affected by current conditions. The new equipment storage building would be apparent from Key Observation Points 1 and 3, as well as to tribal members using the existing parking area. Aesthetic considerations would include material and color selection that blends rather than contrasts with the setting.

S.3.10 Land Use, Transportation and Recreation

Under the No Action alternative, land use and vehicle traffic in the project area would be consistent with current conditions. Recreational use of the adjacent Klickitat Trail could be expected to increase moderately as it becomes better known to regional visitors and trail improvements are made by the USFS or the Washington State Parks and Recreation Commission (WSPRC). Presently most rafters on the Klickitat River disembark approximately one mile upstream of Lyle Falls due to the hazardous nature of the falls; however, the USFS anticipates increased future use of the project area reach.

Under the Proposed Action, the fishway extension would expand upon an existing use; therefore, land uses would be unchanged from current conditions. A larger area would be affected temporarily during construction and permanently by the expanded facilities. The site is zoned as Open Space by Klickitat County and conservation uses, such as the fishway, are permitted outright. It is also within a National Wild and Scenic River corridor administered by the USFS. Existing roadways would experience increased traffic during construction over two 4-month summer periods. Additional trucks on county roads and the private access road would be expected. The access road would be

upgraded with a crushed rock surface to accommodate the increased use. Upon completion, both land uses and transportation would be consistent with levels and types currently experienced.

Recreation use largely would be unaffected by implementation of the Proposed Action; however, the extended fishway would be located on the shoreline where wishing to portage the falls typically disembark. These users would be displaced during portions of one summer construction season. Throughout construction, warning signs would be posted for hikers on the Klickitat Trail and upstream of the site for boaters, alerting them of potential brief delays due to construction activities.

Fishing that occurs at the existing fish ladder is composed of traditional tribal users rather than recreational anglers. The Klickitat Trail is the primary recreation resource in the area and use would be interrupted for brief periods over two summer seasons when charges are set off to fracture rock. Hikers, bikers and equestrian users may experience trail blockages lasting less than 30 minutes. Upon completion of ladder modifications, no long-term recreation effects would occur.

S.3.11 Socioeconomics

Fishway modifications would introduce no significant impacts to local or state populations, thus no measurable service effects would be experienced. Similarly, there would not be a major change to local/state employment and income, although the minor impacts would be positive. About 22-26 direct, secondary, and induced state-wide jobs would be created during construction, corresponding to about \$2.4 to 2.8 million in income effects. Project-related construction expenditures (goods and services) can be extrapolated to have an overall statewide beneficial impact of about \$7.0 to \$8.0 million. It is expected that some construction positions potentially would be available to members of the Yakama Nation. The overall project would contribute beneficially to the cultural and economic livelihood of Yakama Nation members, as well as potentially improving other fishing opportunities.

S.4 Chapter 4: Consultation, Review and Permit Requirements

The proposed project is evaluated to ensure compliance with the following federal laws and requirements:

- National Environmental Policy Act of 1969, as amended (42 USC 4321 et seq.)
- Endangered Species Act of 1973, as amended (16 USC 1531 et seq.)
- Fish and Wildlife Coordination Act of 1934 (16 USC 661 et seq.)
- National Historic Preservation Act of 1966 (16 USC 470)
- Executive Order 1988 (Floodplain Management)
- Executive Order 11990 (Protection of Wetlands)

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- National Wild and Scenic Rivers Act (PL 90-542 as amended; 16 USC 1271-1287)
- Clean Water Act of 1977 (33 USC 1251 et seq.)
- Farmland Protection Act (7 USC 4201 et seq.)
- Noise Control Act of 1972 (42 USC 490 et seq.)
- Clean Air Act of 1970 (42 USC 741 et seq.)
- Resource Conservation and Recovery Act (42 USC 692 et seq.)
- Toxic Substances Control Act (15 USC 2601)
- Insecticide, Fungicide and Rodenticide Act (7 USC 136 et seq.)
- Executive Order 12898 (Environmental Justice)

Various other tribal, state and county requirements to be met prior to initiating this project include land use and building permits and in-water work permits.