

YBIP Project Activity Update

August 2022

Purpose: Update on ongoing technical planning studies and project implementation activities for the Yakima River Basin Integrated Water Resource Management Plan (Integrated Plan)

Fish Passage Element

Cle Elum Dam Fish Passage Facilities and Reintroduction Project

The juvenile fish passage facility will use an innovative helix design to transport juvenile fish downstream. It will allow fish to leave the reservoir as the water surface fluctuates over the top 63 feet in elevation. This will provide downstream passage from April 1 through the beginning of June in most years. The upstream adult fish passage facility will be a trap-and-haul facility where fish are trapped at the base of the spillway, loaded into a truck, and then hauled for release into Cle Elum Reservoir or upstream tributaries.

Construction Update: The access road, spillway bridge, the secant pile vault, and tunnel bypass contracts are complete. The last downstream section of the tunnel will be constructed as part of the Adult Collection Facility (ACF). Reclamation anticipates awarding the ACF contract in 2023, and it will be the final construction contract needed to complete the Cle Elum Dam Fish Passage project.

The Intake, Gate, and Helix (IGH) contractor mobilized in April 2019. After completing intake six in the fall of 2020, the contractor continued intake construction in 2021 to complete intake five in the fall. Also installed at that time was the Obermeyer Weir crest gate for intake six. In 2020, the contractor placed and sealed in concrete the majority of the precast conduits that provide the connections from the reservoir intakes to the secant vault leaving 40 feet for the final connection into the secant. The final 40 feet of conduit boxes will be placed following the penetration of the secant vault at each level. Last fall and into January 2022, the contractor tunneled through the last 40 feet to the secant piles, sawed through and removed the cut secant pile sections, and placed the conduits at levels six and five (reminder that work needs to be complete from the lowest level up). The contractor has also worked inside the secant, completing the helix/gate chamber separation and access structure walls. Each chamber will have an access structure to house an elevator and stair system. More recent work inside the secant includes constructing the floor system within the gate chamber. Levels five through one have been completed. This includes the placement of the guard gate and downstream steel pipe for each level. These guard gates will control water flow between the intake conduits and the helix system. Installation of the electrical and mechanical components used to operate and monitor the facility has also progressed. Spring and summer 2022 work completed the access shaft for the helix chamber. Construction has started on the structural steel system that will support the helical concrete flume sections. The steel roof support system for the gate chamber has been completed and is awaiting concrete placement. Preliminary grading and fill have been completed around the secant shaft. External electrical and mechanical equipment will be placed within a fenced O&M area around the secant shaft.

Videos: <https://vimeo.com/508632343> (winter 2021) & <https://vimeo.com/579619438> (summer 2021)

Sockeye Study Update: In 2018, Reclamation and the Yakama Nation worked with the U.S. Geological Survey to conduct an adult sockeye tracking test to understand their migration between Roza and Cle Elum dams. The study found that 20 of the 20 tagged fish migrated successfully to the base of Cle Elum Dam. In 2019, these same partners and the Washington Department of Fish and Wildlife (WDFW) began a sockeye tracking study in the lower Yakima River. The study reach runs from the mouth of the Yakima River up to the Roza Dam. It evaluates potential passage issues at diversion dams, possible false attraction, microclimate use, and Columbia River Stranding. Depending on the findings, we expect to conduct this study over three years.



Results from the first year of the study (2019) found very low migration success rates for tagged Sockeye primarily due to high river temperatures. Findings from 2020 continued to show that high river temperatures limit access upstream for much of the summer. Sockeye migration can be slowed down at diversion dams, and false attraction and predation may also impact upstream migration. The final report for 2020's study is complete: [Evaluation of factors affecting migration success of adult sockeye salmon \(*Oncorhynchus nerka*\) in the Yakima River, Washington, 2020 \(usgs.gov\)](#). The study for 2021 was postponed due to extreme air and river temperatures in the lower Yakima River. Our 2022 tracking study was shut down this year due to low capture rates in the Columbia River and at the Prosser fish trap. Reclamation, Yakama Nation, WDFW, Ecology, and other partners will evaluate future study efforts in November.

Last year a netting system was tested to capture and PIT tag juvenile Sockeye in Cle Elum Reservoir. An initial test last year showed successful fish capture with this netting system. Between April and May, approximately 3,600 juvenile Sockeye salmon were captured and PIT tagged this year. We are currently recording many of these fish as they pass over PIT tag antenna arrays in the Yakima and Columbia Rivers on their downstream migration to the ocean. About 450 tagged fish have been detected in different locations in the Yakima and Columbia Rivers, with some detections below Bonneville dam. We expect that a percentage of these fish will survive their downstream and ocean migration and, as they return as adults, will be detected during their upstream migration and provide valuable data.

Box Canyon Creek Fish Passage

In 2018, WDFW, with input from Reclamation, Ecology, and other passage restoration experts, completed a conceptual design for the Box Canyon Creek Fish Passage Enhancement Project. Following the completion of the conceptual design, Reclamation contracted with HDR to prepare a 60% project design. HDR completed the 60% design and cost estimate in late Fall 2021.

Clear Creek Dam Fish Passage

Reclamation and Ecology 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 will draw cool water from deeper into 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 will be deep enough to maintain suitable water temperature in the fishway for Bull Trout.

Reclamation is coordinating with Ecology, U.S. Fish and Wildlife Service (USFWS), Yakama Nation, Washington Department of Fish and Wildlife, U.S. Forest Service, National Marine Fisheries Service, and others to complete the final ladder design. The partners met with basin biologists to define the range of species targeted for passage and provide input for designers regarding ladder geometry. Reclamation conducted geotechnical investigations in October 2020 and completed 30% designs on November 2, 2020. Comments from the Yakima Storage Dams Fish Passage Core Team were reviewed on January 21, 2021 and have been sent to the technical workgroup for review and comment. A Value Engineering Study was completed the week of February 8, 2021. The 60% design was completed in June 2021. Ninety percent design was completed and provided for comment in December 2021. The 90% design comments were discussed at a technical meeting on February 10, 2022. Final comments on the 90% design were completed in March 2022 with the release of 100% design documents. Environmental compliance and permitting are in process and are expected to continue through 2023.

Until passage improvements are accomplished, USFWS, Reclamation, and WDFW will continue capturing Bull Trout from below Clear Creek Dam and transporting genetically identified North Fork Tieton River fish around the dam so they can reach spawning habitat in the North Fork Tieton River. Fish capture and transports were conducted from 2016 through 2022. To date, 111 adult Bull Trout have been transported above the dam.

Structural and Operational Changes Element

Cle Elum Pool Raise

The purpose of the Cle Elum Pool Raise Project is to increase the Cle Elum reservoir's capacity for improved aquatic resources for fish habitat, rearing, and migration in the Cle Elum and upper Yakima River, thereby fulfilling the intent of the congressional authorization, Title XII of Public Law 103-434.

Completed: Radial Gate construction was completed in April 2017. Reclamation completed modifications to three saddle dikes as of 2018. The USFS Cle Elum River Campground recreation area was completed in November 2017. The USFS Speelyi Day Use Area recreation area was completed in May 2019. Shoreline protection along Salmon La Sac Road was completed in September 2021. The final USFS facility, Wish Poosh Campground & Boat Launch, was completed in May 2022. Completed: Radial Gate construction was completed in April 2017. Reclamation completed modifications to three saddle dikes as of 2018. The USFS Cle Elum River Campground recreation area was completed in November 2017. The USFS Speelyi Day Use Area recreation area was completed in May 2019. Shoreline protection along Salmon La Sac Road was completed in September 2021. The final USFS facility, Wish Poosh Campground & Boat Launch, was completed in May 2022.

Construction Update: Reclamation and Ecology are implementing shoreline protection actions for private and public lands and facilities. The Sandelin Lane shoreline protection area contract was awarded in July 2021. Construction in the Morgan Creek Shoreline area is anticipated to begin in the spring of 2023. Construction in the Night Sky Shoreline area is anticipated to start in August 2023. The remaining shoreline protection will be implemented as funding becomes available. Landowners and the public will be updated periodically on the project via mail and website postings during project implementation. Reclamation and Ecology continue working with landowners along the shoreline to acquire easements as appropriate for the project and released a video to inform our partners and the public about the project.

Video: <https://youtu.be/9G3-CqBMOsE>.

In addition, Reclamation sends out a quarterly update postcard to landowners to continue outreach around Cle Elum Reservoir.

Chandler Pumping Plant Electrification

Kennewick Irrigation District (KID) continues to evaluate an electrical pumping plant at Chandler. As of August 2022, Reclamation continues to work with KID. KID is preparing updated design drawings and operational diversion plans of the Chandler Electrical Pumping Plant for review by Reclamation. Reclamation has extended an existing Memorandum of Agreement through 2022 with KID for this work. Reclamation and KID have regular meetings to address KID water supply issues. Reclamation is part of the Lower River Leadership team along with Ecology, Yakama Nation, and KID. The team discusses many options to meet KID's lower river flow needs. KID may still consider an electrical pumping plant; however, recently, KID has been reviewing other options, including an onsite storage reservoir.

Lower Yakima River Smolt Survival Study

The Lower Yakima River Smolt Survival Study has been monitoring smolt survival since 2018, with the last full season of fieldwork in 2022. Efforts are underway to complete data analysis, and modeling of Chinook salmon and steelhead survival in various river reaches associated with river flow, water temperature, and other important variables. Preliminary results showed fish survival was higher when river flows were higher and temperatures were cooler. Fish that were diverted into canals at Wapato, Sunnyside, and Prosser dams had lower survival than fish remaining in the river. These results were used to help develop the Sunnyside Dam fish guidance boom and sluice gate project. Preliminary monitoring data indicates the Sunnyside boom and gate combination are effective at reducing the numbers of fish being diverted into the Sunnyside Canal. Data analysis, modeling, and reporting on the results of the Lower Yakima River Smolt Survival Study are expected to continue through 2023.

Surface Water Storage Element

Kachess Drought Relief Pumping Plant (KDRPP)

The KDRPP is proposed to access 200,000 (out of 585,000) acre-feet of inactive storage in the Kachess Reservoir below the current outlet works for use in severe drought.

On April 26, 2019, Reclamation signed the *Record of Decision* (ROD), which does not approve the implementation of any alternatives but carries forward Alternative 4 - KDRPP Floating Pumping Plant (FPP) for further analysis. Consistent with this decision, the remaining alternatives in the FEIS, including the Kachess to Keechelus Conveyance, are unlikely to be carried forward. Reclamation and Ecology will use a phased approach for further site-specific analysis in a Tier 2 NEPA process to narrow the range of feasible alternatives for KDRPP.

In coordination with Reclamation and Ecology, the Project Proponent, the Roza Irrigation District, is currently developing a new Proposed Action and clarifying the FPP alternative for the KDRPP Tier 2 NEPA process. This final and complete Proposed Action and Reclamation's subsequent Notice of Intent (NOI) for the Tier 2 EIS are currently projected for 2022. Roza and possibly other proratable waters users (Kittitas Reclamation District (KRD), Wapato Irrigation Project (WIP), and Kennewick Irrigation District (KID) would fund, design, construct, and operate the KDRPP.

Wymer Reservoir

Consideration of site requirements is ongoing.

Bumping Reservoir Enlargement Project

Consideration of site requirements is ongoing.

Groundwater Storage Element

Groundwater Storage

Work got underway on the new projects listed below during the second quarter of 2022. Of note, a small working group began advising the development of a Central Data Repository / GIS Clearinghouse for groundwater data and studies in the Yakima Basin. The results of this effort will be an open-access data portal to aid project implementers and researchers working on groundwater storage in the Yakima Basin. The Subcommittee also heard results from a CWU study evaluating the effects of large wood installations on groundwater recharge in the Teanaway and finalized project evaluation criteria for the 2023-2025 biennium project rating.

New investigations/projects:

- MAR Evaluation of Basalts in the Konnawac Pass Area (CWU)
- Evapotranspiration and Floodplain Aquifer Storage Capacity Study (CWU)
- City of Ellensburg Phase 1 ASR Feasibility Study
- City of Moxee Phase 1 ASR Feasibility Study
- Basalt ASR Assessment (KRD)
- Central Data Repository/GIS Clearinghouse (KRD)

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- Effects of Channel Wood Restoration on Groundwater Storage and Recharge in the Teanaway River Valley
- Evaluation of the Hydrogeology in the Badger-Coulee Area (CWU)

Aquifer Storage and Recovery (ASR)

The City of Yakima is planning a full build-out for its permitted ASR program and intends to drill two ASR devoted wells: the first is estimated for 2023-2024, and the second is estimated for 2026-2027. The City has requested funds for future projects from a number of sources.

Habitat Protection and Enhancement Element

Targeted Watershed Protection and Enhancement

The Watershed Lands Conservation Subcommittee continued working on implementing the Phase 2 acquisitions and designations elements of the Lands Plan. Discussions centered on parameters around Central Cascade Forest's Cle Elum Ridge parcels, which are identified as potential acquisition targets, and the need to fund O&M and loan repayment for the Teanaway Community Forest. The Subcommittee will continue to provide a forum for these discussions in the coming months and is scheduled to brief the Executive Committee in August.

Mainstem Floodplain and Tributaries Fish Habitat Enhancement Program

The Habitat Subcommittee is monitoring the implementation of projects funded in the 2021-2023 biennial Habitat budget. The Subcommittee finalized the proposed 2023 – 2025 biennial budget and the 10-year plan at its July 2022 meeting. The plan was revised to reflect shifting priorities based on new information derived over the initial implementation period. The 10-year plan identifies capital projects by priority river reach.

Enhanced Water Conservation Element

Upon passage of the Dingell Act in March 2019, Reclamation, Ecology, Yakama Nation, and YRBWEP Workgroup Partners have a goal to conserve 85,000 acre-feet of water by 2029. The overall conservation savings goal upon full Integrated Plan implementation is 170,000 acre-feet. Reclamation and Ecology are conducting an inventory of water conservation accomplishments associated with the Integrated Plan. Projects that county towards this goal must adhere to three parameters:

- Begin in 2013 or later
- Be an agricultural or municipal improvement project resulting in conserved water, and
- Not be part of the Title XII, Section 1203 Basin Conservation Plan.

To date, there have been 125 conservation projects implemented (completed or in progress). Approximately \$119 million invested will result in approximately 59,000 acre-feet of conserved water (\$2,000 per acre-foot). A technical memorandum explaining the history, accounting, and future framework planning for the Enhanced Water Conservation Element projects was released to the Water Use Subcommittee in April 2021. Within this memorandum, Reclamation and Ecology have developed a proposal for achieving the remaining portion of the initial development phase goal. In May 2022, the Water Use Subcommittee received eight project proposals under review for funding in the '23-'25 biennium. These proposals add up to approximately \$6.5 million and would have a cumulative conservation benefit of about 3,700 acre-feet.

Market Reallocation Element

The Kittitas Reclamation District and Trout Unlimited continued water market research and development as part of the Market Reallocation element of YBIP. The project team completed the draft Technical Report that includes a draft Market Strategy. The Technical Report compiles the technical memoranda that describe the work undertaken to evaluate different areas of the Yakima Basin water market. The information and findings from these technical memoranda and the literature review and outreach efforts inform the draft Market Strategy. The project partners presented the Market Strategy results to the YBIP Workgroup and other stakeholders in late May and early June. These presentations provided an opportunity to gather feedback on the initial draft Market Strategy. Outreach continued with COVID-19 restrictions in place.

More information about the project can be found at <https://www.yakimabasinwatermarketing.org/>.

Proposed Projects for Consideration

During the implementation of the Integrated Plan, an adaptive approach is being used periodically to assess progress towards meeting the identified instream flow objectives, the 70 percent proratable supply goal for irrigation, and goals for other out-of-stream needs. The need for additional water supply enhancements would depend on the effectiveness of projects implemented as part of the Integrated Plan, how the Yakima basin economy develops over time, and the timing of and manner in which climate changes affect water supply availability. New projects may be identified (and proposed) from time to time for consideration under the Integrated Plan. Reclamation, Ecology, Yakama Nation, and the Executive Committee have developed a formalized process to consider new projects. In December 2021, Reclamation, Ecology, Yakama Nation agreed to include YTID's proposal for change in point of diversion to Wapatox and removal of the Tieton Diversion Dam as part of the Integrated Plan. In addition, Upper Yakima System Storage was also included as part of the Integrated Plan.

Contacts for Information on the Integrated Plan:

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Project website: <http://www.usbr.gov/pn/programs/yrbwep/index.html>