

YBIP Project Activity Update

May 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 to upstream tributaries.

Construction Update: The access road and spillway bridge and 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 2022 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 intakes five fall 2021. Also installed at that time were the Obermeyer Weir crest gates 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 level six and five (reminder that work needs to be complete from the lowest level up). The contractor has also been working inside the Secant completing the helix/gate chamber separation wall and the access structure walls. Each chamber will have an access structure that will house an elevator and stair system. More recent work inside the secant includes construction of the floor system within the gate chamber. Levels five through one have been completed which 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 that will be used to operate and monitor the facility has also progressed. Work continues on the access shaft construction for the helix chamber. Work on the remaining intakes will begin as the reservoir is drawn down.

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, along with 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 and is evaluating potential passage issues at diversion dams, possible



false attraction, microclimate use, and Columbia River Stranding. We expect to conduct this study over three years depending on the study findings.

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 be impacting 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. Reclamation, Yakama Nation, WDFW, Ecology and other partners will resume the study this summer (2022). The first adult Sockeye returning in the Columbia River in 2022 passed over Bonneville Dam on May 22. Reclamation, Yakama Nation, WDFW, Ecology and other partners plan to start this year's study mid-June.

Last year we started to test a netting system to capture and PIT tag juvenile Sockeye in Cle Elum Reservoir. Initial test last year showed that we could successfully capture fish with this netting system. This year, during April and May, approximately 3,600 juvenile Sockeye were capture and PIT tagged. We are currently recording many of these fish as they pass over PIT tag antenna arrays located in the Yakima and Columbia Rivers on their downstream migration to the ocean. About 450 tagged fish have been detected in different location 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, providing valuable data for future management actions.

Box Canyon Creek Fish Passage

In 2018, WDFW, with input from Reclamation, Ecology, and other passage restoration experts, has 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 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 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 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 February 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 in February 2022. Final design documents were completed in March 2022. Environmental compliance and permitting is in process.

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 transport has been conducted 2016 through 2021. To date, 107 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 2021.

Construction Update: Reclamation and Ecology are currently implementing shoreline protection actions for private and public lands and facilities. Construction of shoreline protection at Wish Poosh Campground & Boat Launch began in April 2021 and will be completed by the end of May 2022. The Sandelin Lane shoreline protection area contract was awarded in July 2021. Construction in the Morgan Creek Shoreline area is anticipated to begin in April of 2023. Construction in the Night Sky Shoreline area is anticipated to begin in August 2023. 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 public on the project.

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

In addition, Reclamation sends out a quarterly update postcard to landowners around Cle Elum Reservoir as part of outreach efforts.

Chandler Pumping Plant Electrification

Kennewick Irrigation District (KID) continues to evaluate an electrical pumping plant at Chandler. As of May 2022, Reclamation continues to work with KID. KID is preparing updated design drawings and operational diversion plans for review of Chandler Electrical Pumping Plant 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 to discuss a multitude of options to meet lower river flow needs for KID. An electrical pumping plant may still be considered by KID, however, recently KID has been reviewing other options which may including a storage reservoir within the District.

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 field work 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, and 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. Monitoring data indicate 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 is 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 that is 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 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.

The Project Proponent, the Roza Irrigation District, in coordination with Reclamation and Ecology, 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 later in 2022. Roza and possibly other pro-ratable 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 – Basin-wide Analysis

The Groundwater Storage Subcommittee initiated work on several new groundwater storage investigations and continued work developing and expanding groundwater storage projects already underway.

New investigations/projects:

- Managed Aquifer Recharge (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)

Continued development:

- Taneum Creek MAR Pilot Testing (KRD)
- Continue and Expand On-going Monitoring Efforts at High Priority MAR Sites (KRD)
- Toppenish Fan MAR – Marion Drain, Hunt Creek Check Structures; Optimization of Existing Irrigation Induced Recharge Recapture Facilities (YN)
- 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 full build-out for its permitted ASR program and intends to drill two ASR devoted wells: the first well is estimated for 2022-2023, and the second is estimated for 2025-2026. The City has requested funds for future projects with Reclamation.

Habitat Protection and Enhancement Element

Targeted Watershed Protection and Enhancement

The Watershed Lands Conservation Subcommittee continued working on early steps in implementing the Phase 2 acquisitions and designations elements of the Lands Plan through focused subgroup discussions. The Subcommittee heard briefings from sponsors pursuing conservation lands acquisitions that support Integrated Plan goals for habitat and watershed protection and will continue to provide a forum for these discussions in the coming months.

Mainstem Floodplain and Tributaries Fish Habitat Enhancement Program

The Habitat Subcommittee is monitoring implementation of projects funded in the 2021-2023 biennial Habitat budget. The Subcommittee has completed a draft of the budget proposal for the 2023 – 2025 biennial budget.

The Subcommittee has completed the draft of its new 10-year strategic plan. 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.

The Subcommittee will finalize the proposed 2023 – 2025 biennial budget and the 10-year plan at its June 2022 meeting.

Enhanced Water Conservation Element

With 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 8 project proposals which are under review for funding in the 2023-2025 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 (KRD) and Trout Unlimited (TU) continued water market research and development as part of the Market Reallocation element of YBIP. In the last quarter, the project team developed the draft Yakima Basin Water Market Strategy. The project team also advanced significant technical analyses on smart market simulations (to model market activity under different scenarios) and instream flow needs. An analysis on the administration/legal requirements for the market was also concluded. The resulting draft strategy incorporates the different technical, legal, and policy evaluations and provides recommendations for implementation of a smart market. 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 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 that are 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. From time-to-time, new projects may be identified (and proposed) 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>