

Project Activity Update

August 2020

Purpose: To provide updates on technical aspects of ongoing planning studies and project implementation 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 construction contract is complete. The secant vault construction is complete. Construction for the downstream passage tunnel is in progress. Excavation and installation of the outer tunnel liner is complete. Installation of the inner liner began in March 2020. This liner will be formed with cast in-place concrete and will have a very smooth finish to protect fish as they travel through the tunnel. Approximately $\frac{1}{4}$ of the tunnel has been placed to date. The tunnel contractor completed their work in the secant vault in July including half of the secant vault foundation and installing the anchor system for the helix structure and the training wall that will connect the helix system to the tunnel. Construction under this contract is anticipated to be complete in fall 2020.

The Intake, Gate, and Helix contractor mobilized in late April 2019. Construction of Intake #6, the lowest elevation intake within the reservoir, was completed in December 2019. In addition, trenching and shoring work, needed for the placement of precast concrete conduits that will run between the intake gates (reservoir) and the secant vault, was installed in 2019. The contractor re-mobilized on-site in July. The contractor will be working in the secant shaft installing the drain system and completing the second half of the secant vault foundation. They will also be working on intake #5 and installing some of the precast conduits/tunnel sections that will run from the intakes to the secant vault. Subcontractors will continue fabricating and constructing steelwork, gates, precast conduits and helical flume sections for future installation.

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 better 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. The study is expected to be conducted over three years depending on the ongoing 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. The 2020 Summer sockeye



study began at the end of June by tagging fish captured at Prosser Dam and in the Columbia River near Bateman Island. Tagging fish captured in the Columbia River this year ended the first week of August. Currently, we are gathering tracking data which will continue through September 2020. We expect preliminary findings for 2020 in December with a final report in March 2021.

Box Canyon Creek Fish Passage

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. Reclamation, Ecology, Yakama Nation and Yakima Basin Integrated Plan partners will finalize the design. An additional field survey was needed to move the conceptual design toward final design. This survey work was obtained October 2018. The final design work is expected to begin following discussions with potential project partners.

Clear Creek Dam Fish Passage

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 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 U.S. Fish and Wildlife Service (USFWS), Yakama Nation, WDFW, USFS and others to complete the final ladder design. The partners have met with basin biologists to define the range of species targeted for passage and provide input for designers regarding ladder geometry.

Until passage improvements are accomplished, USFWS, Reclamation, USFS, 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 was conducted in 2016, 2017, 2018, 2019, and 2020. To-date, 75 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 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 improvements were completed in May 2019.

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 is anticipated to begin in September 2020 and be complete by the end of May 2021. The construction of shoreline protection for two embankment areas on Salmon La Sac Road which will take approximately a month to complete will begin in September 2021. Remaining shoreline protection will be implemented as funding is available. Landowners and the public will be updated

periodically on project implementation via mail and postings. Reclamation will continue working with landowners along the shoreline to acquire easements as appropriate for the project.

Chandler Pumping Plant Electrification

Kennewick Irrigation District (KID) continues to evaluate an electrical pumping plant at Chandler. As of August 2020, 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 track progress on designs as well as discuss other options to address KID water supply issues, outside of an Electrical Pumping Plant. Reclamation is part of a 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, but it currently appears they are seeking other options which may include a storage reservoir.

Lower Yakima River Smolt Survival Study

The survival of juvenile salmon (smolts) migrating to the ocean can influence the abundance of returning adults and the availability of fish for harvest years later. Smolt survival is affected by passage at dams, predators, and other factors such as river flows and water temperatures. Factors affecting smolt survival are being identified by the Lower Yakima River Smolt Survival Study with the goal of developing recommendations for improvement projects. The study area includes the mainstem Yakima River from the City of Yakima to the Columbia River confluence. Project funding comes from Yakama Nation (YN), Reclamation, irrigation districts, Ecology, and the US Geological Survey (USGS), with YN and USGS leading the field work and data analysis. During each year of the study (2018–2020) over 1,100 juvenile salmon and steelhead were collected, tagged, and released in the Yakima River to monitor their behavior and survival as they migrated downstream. Additional data on predator populations, river flows, and water temperatures are being related to fish survival. Preliminary results indicate smolt survival was highest in early spring and lowest in June when the Yakima River warmed and flows declined. Survival was lower than expected for fish that were inadvertently diverted into canals. In 2020 research was paused in late March due to statewide travel restrictions. However, by early May, USGS and YN developed safe work practices, resumed tagging, and released 348 Spring Chinook, 495 subyearling Chinook, and 376 steelhead. In 2020 the study focused on evaluating survival at Wapato, Sunnyside, and Prosser dams. The study is also assisting in the research and development of a tag for Pacific Lamprey, a unique species of migratory fish that have been declining in numbers in recent decades. Lamprey monitoring is a partnership with Reclamation’s Technical Services Center, Pacific Northwest National Laboratory, USGS, BPA, and YN Pacific Lamprey Program.

Sunnyside Division Board of Control Fish Boom

The first project being developed to improve lower river smolt survival based on study findings to date is a partnership with the Sunnyside Division Board of Control to install a fish guidance boom and improved juvenile salmon passage at the headgate of Sunnyside Canal. The fish boom is expected to guide fish passing downstream away from the canal and so that they stay in the mainstem Yakima River, where survival is higher. Fish guidance booms and dam gate modifications will be designed and constructed during 2020-2021, with the goal of reducing smolt entrainment into Sunnyside Canal, thereby decreasing mortality and migration delays. In 2021 the smolt survival study will evaluate the effectiveness of the structural modifications to the dam.

Surface Water Storage Element

Kachess Drought Relief Pumping Plant (KDRPP)

The KDRPP is proposed to access 200,000 acre-feet of inactive storage below the current outlet works in the Kachess Reservoir to use in severe drought. Since the proposed KDRPP and KKC projects are closely connected, they were analyzed together.

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 KKC, will not 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, Roza Irrigation District, in coordination with Reclamation and Ecology, are currently developing a new Proposed Action and clarifying the FPP alternative for the KDRPP Tier 2 NEPA process. Roza Irrigation District and possibly other prorated waters users (KRD, Wapato Irrigation Project [WIP], 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 – Basinwide Analysis

The Groundwater Storage Subcommittee is continuing the process of reviewing and selecting potential projects for the 2019-2021 biennium. Seven funding requests totaling approximately \$1 million were received and are being reviewed by the Subcommittee. Three projects have been selected for funding: 1) Field Assessment of High-Priority Managed Aquifer Recharge (MAR) Sites in the Upper Yakima, Kittitas Reclamation District; 2) Strategies for Groundwater Storage in Diverse Settings of the Yakima Basin: Headwater Tributaries and Lower Basin Irrigation Districts, Central Washington University, and; 3) Low Head Check Structures, Yakima Nation.

Kittitas Reclamation District has recently completed an initial MAR assessment and site ranking report for the Yakima Basin. This report identifies potential MAR sites in the Yakima Basin and aims to advance the Groundwater Storage element from a general basin assessment to specific MAR project locations and projects. Once the report has been finalized, the final report will be available on Ecology's website.

Aquifer Storage and Recovery (ASR)

The City of Yakima's ASR program is fully permitted. The City recharged at the Gardner Well for 45 days in February and March. The City is planning full build-out for the program. They intend to drill two ASR devoted wells: the first well is estimated for 2022-2023, and the second is estimated for 2025-2026.

Habitat Protection and Enhancement Element

Targeted Watershed Protection and Enhancement

The Watershed Lands Conservation Subcommittee is developing a new 10-year lands plan. The plan will describe the Subcommittee's goals and objectives for continued implementation of the Targeted Watershed Protection and Enhancement component of the Habitat Element of the Integrated. The Subcommittee is working to develop the new plan by the end of 2020.

Mainstem Floodplain and Tributaries Fish Habitat Enhancement Program

The Habitat Subcommittee has developed its 2021-2023 biennial budget proposal to Ecology for the Habitat Element. The Subcommittee spent much of spring strategizing about shifting its emphasis to address significant lower river mortality of juvenile salmon and steelhead during outmigration. The Yakama Nation will hire a Lower River Project Lead who will focus on Wapato reach, groundwater and wetlands, stargrass control and management, and lower river action plans. The position will work with agency partners on lower river thermal projects and provide quarterly reports to the Habitat Subcommittee. This is a critical resource for ensuring the lower river emphasis is successful. The Subcommittee also proposed funding for the South Fork Tieton Bridge Replacement Project, which includes cost share with Reclamation.

The Subcommittee obligated remaining funds from the 2019-2021 budget to the Sunnyside Division Board of Control Diversion Fish Boom project, and continues considering options for obligating remaining funds.

The U.S. Army Corps of Engineers has completed a federal determination of interest in conducting the Yakima River Delta Enhancement Project (Baseman Island Causeway Removal). WDFW has been identified as the non-federal cost share partner, and the two agencies have entered into a cost share agreement. Mid-Columbia Fisheries is also a significant cost share partner.

Integrated Plan partners, led by the Yakama Nation and WDFW, are working together on the rescue and captive rearing operation of bull trout in the Kachess River and Gold Creek, to improve juvenile Bull Trout survival. At the June 2020 Workgroup meeting, project partners presented data describing fish captured (July/August 2019), reared (Winter 2019-2020), and released (May 2020). 230 salvaged Bull Trout averaging about 155 mm (average size at rescues was approximately 50 mm) were returned and released near their natal streams, Gold Creek and the Kachess River. These fish were PIT tagged and are being monitored to determine if they successfully spawn and increase Bull Trout production for these ESA Threatened populations. Fish survival during rearing was reduced due to cannibalism, and the project partners are implementing adaptive management strategies to increase captive rearing survival in future seasons.

Enhanced Water Conservation Element

Upon passage of the Dingell Act in March 2019, the Integrated Plan has 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 count towards this goal must adhere to three parameters:

- Begin in 2013 or later
- Be an agricultural or municipal improvement project resulting in conserved water

- Not be part of the Title XII, Section 1203 Basin Conservation Plan

To date, there have been 58 conservation projects implemented. Approximately \$66 million invested has resulted in approximately 35,000 acre-feet conserved (\$1,900 per acre-foot). Reclamation and Ecology have developed a draft project prioritization proposal for achieving the remaining portion of the initial development phase goal is under review by the Water Use Subcommittee.

The Water Use Subcommittee has received project proposals for funding in the 2021-2023 State biennium. The Subcommittee will meet to hear presentations from the project sponsors and develop a budget proposal for the Executive Committee.

In the Municipal Subgroup, Benton Conservation District (BCD) has been conducting the Heritage Gardens Low Water Use Program in Yakima County. In 2019, BCD gave eight presentations, conducted 45 site visits, and certified 4 home heritage gardens. BCD has noted an overwhelmingly positive response from program participants. BCD is conducting their 2020 program and is requesting funding in the 2021-2023 State biennium to further develop the program, which includes program expansion into Kittitas County. The Municipal Subgroup will support and advocate for the program moving forward.

Market Reallocation Element

The Kittitas Reclamation District (KRD) and Trout Unlimited (TU) continued work on the Market Reallocation element of the Yakima Basin Integrated Plan. The project is designed to develop a Yakima basin-specific Smart Market and involves significant research and analysis. Over the last quarter, work has continued in areas of: policy analysis and stakeholder outreach in coordination with a review of Washington State water banking and trust water laws, rules, and policies; water right suitability analysis; and GIS-mapping and data interpretation. Public education and outreach safely continue through the Water Marketing website and by phone.

Proposed Projects for Consideration

During implementation of the Integrated Plan, an adaptive approach will be 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. Projects proposed for evaluation and those currently being evaluated are listed here:

- Tieton River Restoration, including proposed North Fork Cowiche Creek Reservoir.
- Upper Yakima System Storage

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