Project Activity Update

January 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 expected to be completed in November 2019. Installation of the inner liner, formed in place smooth concrete, will begin this winter. Construction under this contract is anticipated to be complete in 2020. The Intake, Gate, and Helix contractor mobilized in late April 2019. Construction of Intake #6, the lowest elevation intake within the reservoir, will be completed fall 2019. In addition, shoring work needed for the installation of the intake conduits that will run between the intake gates and the secant will be installed by the beginning of November 2019.

Study Update: In 2018, Reclamation and the Yakama Nation worked with the USGS to conduct an adult sockeye tracking test to understand their migration between Roza and Cle Elum dams. The partners are currently working on a sockeye tracking study in the lower Yakima River (mouth of the river to Roza Dam). The study will evaluate passage issues at diversion dams, possible false attraction, micro climate use, and Columbia River Stranding. The USGS project report is expected on March 31, 2020.

Box Canyon Creek Fish Passage:

Washington State Department of Fish and Wildlife (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 USFWS, Yakama Nation, WDFW, and others to review and refine the design. The final design will be complete by December 2019. Construction timing will depend upon final cost estimates and funding availability. 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, and 2019 to-date, 72 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 U.S. Forest Service Cle Elum River Campground shoreline protection was completed in November 2017. The U.S. Forest Service Speelyi Day Use Area shoreline protection project was completed in May 2019.

Shoreline Protection Update: Reclamation and Ecology are currently implementing shoreline protection actions for private and public lands and facilities. Shoreline protection actions will begin for the Wish Poosh Campground in 2020Shoreline landowners and the public will be notified about shoreline designs and construction timing via mail and postings at U.S. Forest Service facilities. Reclamation and Ecology continue to meet with landowners throughout project implementation.

Chandler Pumping Plant Electrification:

Kennewick Irrigation District (KID) and their consultant developed a concept design for an electric pumping plant at Chandler. Reclamation reviewed the concept design and KID performed a transient analysis in June 2017, which was reviewed by Reclamation, and comments were sent to KID September 2017. KID provided an updated concept design and transient analysis for Chandler Electrification with an isolating reservoir to Reclamation in 2018. Reclamation will continue to coordinate with KID on Chandler Electrification project design review.

Reclamation, Ecology, and HDR are completing sensitivity analysis modeling for the lower Yakima River, including examination of return flows in the lower Yakima system to determine impacts from future conservation efforts on KID. Meetings were held with KID and the Water Use Subcommittee in October 2018 to share the draft study results.

Lower Yakima River Smolt Survival Study:

The lower Yakima River smolt survival study was initiated in 2018 with funding provided by Yakama Nation, Reclamation, irrigation districts, and the US Geological Survey (USGS). During each year of the study over 1,100 juvenile salmon and steelhead are collected, tagged, and released in the Yakima River to monitor their behavior and survival as they migrate downstream. In addition, data on predator populations and environmental conditions such as river flow and water temperature are being collected and related to fish survival. Data from 2018-19 are currently being analyzed by USGS: preliminary results indicate fish survival is highest in early spring, April through mid-May, and lowest

by June when the river warms. The study is also finding survival is lower than expected for fish that become entrained in the irrigation canals, prompting additional evaluation of factors affecting fish survival such as passage through canal head gates or fish screen bypasses. Reclamation also received Science and Technology (S&T) grant funding ($150,000) to work with Pacific Northwest National Laboratory to obtain experimental tags for juvenile lamprey in 2019–2020. In 2019 126 tagged lamprey were released in the Yakima River. The goal of the S&T grant is to assist in the research and development of a viable tag for this unique species of fish. The lamprey tags are not commercially available and are the smallest, lightest tags made for fish; a portion of the study will be dedicated to evaluating and improving the performance of these tags. The Yakama Nation and partners are collecting data related to predator abundance and diet from the lower river. The final year of data collection for the lower Yakima River smolt survival study will be 2020.

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, Reclamation, and Ecology are currently developing a new Proposed Action and clarifying the FPP alternative for the KDRPP Tier 2 NEPA process. The Roza and possibly other prorated waters users (KRD, WIP, KID) would fund, design, construct, and operate the KDRPP.

Wymer Reservoir

Consideration of site requirements is ongoing. As presented at the March 13, 2019 YRBWEP Workgroup Meeting, KRD has proposed an alternative to gravity feed Wymer via Kittitas Reclamation District's system that will further reviewed under Wymer Dam and Reservoir Project.

Bumping Reservoir Enlargement Project

Consideration of site requirements is ongoing.

Groundwater Storage Element

Groundwater Storage – Basinwide Analysis

The Groundwater Storage Subcommittee is reviewing all ongoing groundwater storage projects.

Four project proposals were selected for funding and approved by the executive committee for the 2017-2019 biennium. These projects include (1) Indian Creek Groundwater Dynamics Investigation,

Oregon State University (2) Yakima Basin Focused Managed Aquifer Recharge Assessment, Kittitas Reclamation District (3) Yakima River Groundwater Infiltration Study, Selah-Moxee Irrigation District and (4) Geochemical Study of Groundwater in Potential Storage Sites, Central Washington University. These projects are coming under contract and will be implemented over the next 2 years.

The Lower River Subgroup is exploring opportunities to use groundwater recharge to enhance thermal refuges for migrating fish along the lower Yakima River. An initial study has been funded to develop current information on temperature variations in the river from Wapato Dam to the Yakima River mouth. The USGS is currently processing temperature data from this study and will work with Benton Conservation District to determine optimum locations for additional monitoring.

Toppenish Fan Recharge - In the Wapato Irrigation Project (WIP), additional monitoring-well locations have been identified, which will help with observation of the aquifer system response to recharge activities from Toppenish Creek. Reclamation has completed drilling of three (3) additional wells. Ecology will provide pressure transducers, and data will be retained and analyzed to determine the benefits of the recharge activities. Monitoring of existing sites continues.

Aquifer Storage and Recovery (ASR)

The City of Yakima's ASR program is fully permitted. The City recharged at the Kissel 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 Washington State Department of Fish and Wildlife (WDFW), in partnership with Forterra, purchased approximately 5,000 acres of shrub-steppe land in the Cowiche Creek area. Two-thirds of the funding was provided by WDFW, and one-third of the funding was provided by Forterra. WDFW will purchase the remaining third from Forterra at a later date. $500,000 was approved in the Integrated Plan capital budget for stewardship activity start-up. WDFW is proposing the additional of an employee who will conduct planning, oversight, and implementation of stewardship activities.

The Washington State Department of Natural Resources (DNR) has maintained 45 miles of road from the road maintenance backlog in the Teanaway Community Forest. Another 3.3 miles of road were abandoned along with a fish passage barrier which opened up 0.3 miles of new fish habitat. The Carlson Bridge has been replaced with a new structure with better flow passage and allowed access for additional log/stream restoration work in Carlson creek by the Yakima-Klickitat Fisheries Project.

DNR constructed 7,700 feet of new range fence and are actively fixing areas of deficient fence throughout the North Fork. DNR and WDFW, along with grazers in the Teanaway area, are learning how best to implement the grazing management plan.

The slow fire season allowed DNR fire crews and the DNR fuels module to do pruning and thinning along the North Fork county road to mitigate fire risks. The DNR's 20-year forest health strategy forest health assessment has been completed and was introduced to the TCF advisory committee. Further work will begin now on meeting the habitat goals of the TCF management plan, and blending in the forest restoration needs, in the form of a long-term forest management plan.

Recreation development/renovation has stalled somewhat due to delays in completing cultural resources reviews and consultation along with permitting activities with Kittitas County. DNR has hired an archaeologist to get these projects back on track and work on a cultural resources management plan for the TCF. Also helping with this, the Mountains to Sound Greenway is implementing a contract for cultural resource surveys in areas identified in the TCF management plan for recreation improvements.

Mainstem Floodplain and Tributaries Fish Habitat Enhancement Program

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). Washington State Department of Fish and Wildlife has been identified as the non-federal cost share partner, and the two agencies have entered into a cost share agreement. The Corps has begun the initial 1135 planning process and will host a public meeting about the project on November 20.

The Yakama Nation has completed the Large Wood Placement project in Box Canyon Creek. The Tribe is concurrently working on the rescue and captive rearing operation of bull trout in the Kachess River and Gold Creek, to improve Juvenile Bull Trout survival. These projects are complementary in that they jointly work to improve conditions for bull trout in the Yakima basin. The long-term goal is for habitat conditions in the upper watershed to improve to the point where populations are independently sustainable and rescue and captive rearing is no longer necessary to sustain the population.

Enhanced Water Conservation Element

Funding of $4.25 million for water conservation projects during the 2019-2021 biennium was appropriated by the State Legislature. The Water Use Subcommittee has allocated these funds to the various projects the Subcommittee selected for funding in 2018. Contracting and project work are underway.

In the Municipal Conservation Element, Benton Conservation District has been conducting the Heritage Gardens Low Water Use Program in Yakima County. 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 intends to continue the program in the 2021-2023 State biennium and plans to expand the program 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 partners advanced policy and technical analyses related to the various tasks needed to identify and develop a potential smart market framework for water transfers in the Yakima Basin. Specifically, the partners and contractors worked on: geospatial mapping to help with instream flow and water rights suitability analyses; a literature review on water markets throughout the west and select countries to help identify common issues and concerns; and outreach to various groups to describe the efforts.

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.

YTID Diversion Relocation (under evaluation)

In March 2018, Yakima-Tieton Irrigation District (YTID) completed a report that evaluates alternatives to replace or repair the YTID main canal. Alternatives considered include:

1. Baseline Alternative (Tieton Main Canal Repair)
2. Tieton Main Canal Replacement
3. Diversion Relocation to Wapatox Diversion Dam (and associated new conveyance system)
4. New North Fork Cowiche Creek Reservoir, either with or without the Wapatox diversion.

YTID continues to evaluate these and new alternatives and was recently selected for the WaterSMART Basin Study Pilot program. On November 15, 2019, YTID will meet with agencies, Yakama Nation and stakeholders to discuss WaterSMART grant tasks and review adaptive management framework for potential inclusion in 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