

Aerial of the Yakima River in Washington.

Welcome to the Yakima Basin Integrated Plan Highlights

Since 2013, participants in the Yakima Basin Integrated Plan including irrigation districts, the Confederated Tribes and Bands of the Yakama Nation, environmental groups, the City of Yakima, State and Federal agencies, county governments, and others have made great strides in achieving water reliability and resource improvements for people, farms, and fisheries in one of Washington State's most important watersheds. Dedicated participants from these groups form the Yakima River Basin Water Enhancement Workgroup.

Highlights of these accomplishments are presented inside and would not have been possible without the collaboration and funding support from the Bureau of Reclamation and the Washington State Department of Ecology.

Reclamation and Ecology are committed to advancing the Integrated Plan's 30-year water strategy in collaboration with the Yakima River Basin Water Enhancement Workgroup and its various committees.

Kachess Drought Relief Pumping Plant

The collective goal of all Integrated Plan projects is to provide additional water storage to shore up existing supply.

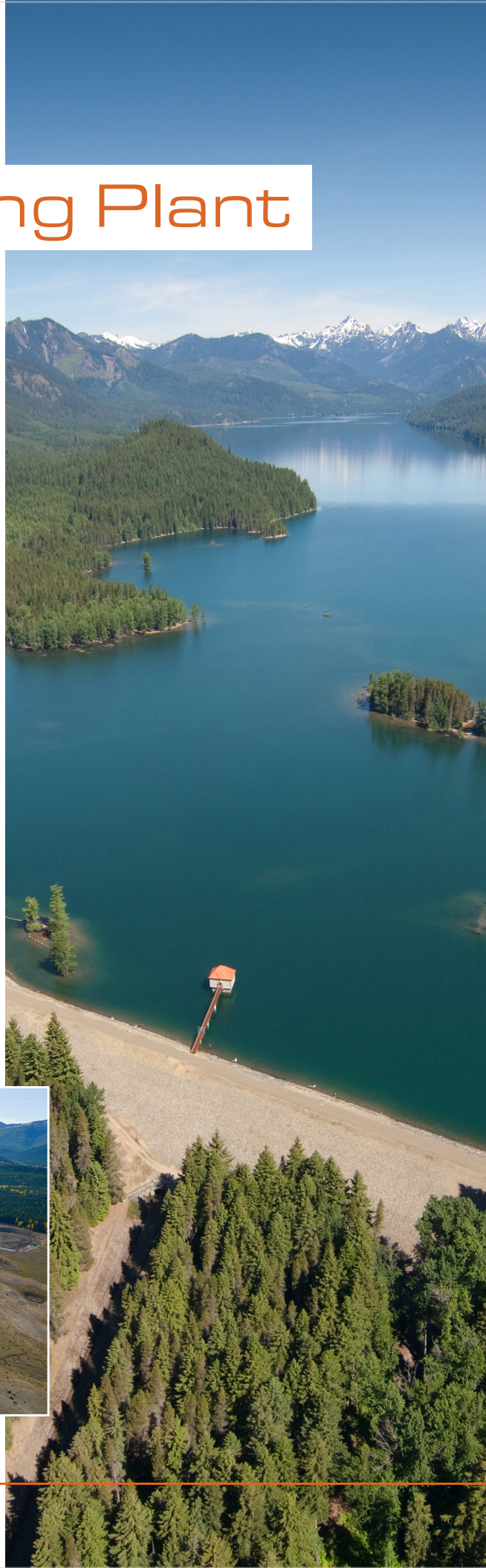
The Kachess Drought Relief Pumping Plant (KDRPP) would provide up to 200,000 acre-feet—40 percent of the storage target.

KDRPP would access water below the Kachess Dam's existing outlet works, which is a cost-effective way to provide drought relief for farmers, who often face reduced water allocations in drought years.

In January 2015, Reclamation and Ecology released the Kachess Drought Relief Pumping Plant and Keechelus Reservoir-to-Kachess Reservoir Conveyance Draft Environmental Impact Statement (DEIS) to evaluate the potential environmental effects of implementing one or both of two, closely related water resource projects in the upper Yakima River basin.

Following the DEIS, Reclamation and Ecology released the Supplemental Draft Environmental Impact Statement (SDEIS) in April 2018 to analyze the changes to the proposed action and alternatives described in the DEIS. The SDEIS also evaluated a new proposal for a floating pumping plant and volitional Bull Trout passage in Kachess Reservoir at the Narrows (the location between Big and Little Kachess lakes). The Final EIS is in progress.

Kachess Drought Relief Pumping Plant would pump and transfer water into the Yakima River for appropriate distribution. KDRPP would operate only during a Washington State-declared drought.



Groundwater Storage— Basinwide Analysis

Aquifer storage is an important component being explored as a way to secure water for many uses in the Yakima River basin, particularly for municipalities and fish enhancements.

Studies throughout the Yakima River basin are ongoing as Reclamation and Ecology pursue a better understanding of potential groundwater storage and optimal techniques to meet the Integrated Plan's goals. The Yakama Nation Water Resource Program, along with Ecology and Reclamation, anticipates drilling wells in the Toppenish alluvial fan in 2019 to evaluate agriculture responses to aquifer recharge. Efforts are ongoing to identify critical areas where groundwater interacts with wetlands, floodplains, rivers, and streams, as well as how pumping affects aquifer levels and streamflow. Stored groundwater may be used in lieu of reservoir releases to benefit instream flows and habitat functions. The Yakima Nation has been implementing groundwater storage on Toppenish Creek for the last few years.

The Lower River Subgroup is exploring opportunities to use groundwater recharge to improve thermal refuges for migrating fish along the lower Yakima River. An initial study has been funded to update information on temperature variations in the lower Yakima River from Wapato Dam to the Columbia River.



Mission Ditch is one of structures in a system of ditches and canals that reconnects channels to recharge groundwater in the Toppenish Alluvial fan. The earth cools and cleans the water to improve fish habitat.

City of Yakima Aquifer Storage and Recovery

The City of Yakima began storing water from the Naches River in an underground aquifer for a supplemental supply source.

In 2016, the City of Yakima received a permanent reservoir permit authorizing recharge up to 14,400 acre-feet of water per year. The City will use two

recharge wells and four recovery wells. Water will be diverted from the Naches River during high flows and stored in the aquifer until the City needs it. This is a model aquifer storage and recovery project that could be replicated by other municipal systems across the State.



Bull Trout Enhancement



Rattlesnake Creek - Bull Trout Task Force members remove a rock dam that blocks fish passage. Rock dams are usually built by recreationists in the summer, intended as harmless fun.



Bull Trout Task Force Members educate campers about how to recreate responsibly in Bull Trout waters.

A Bull Trout Enhancement (BTE) Memorandum of Understanding (MOU) was signed in October 2015 by Ecology, Reclamation, WDFW, Yakama Nation, U.S. Forest Service, and U.S. Fish and Wildlife Service.

This MOU provides a basis for improving coordination among the various water and fish managers to increase resiliency of Bull Trout populations in the Keechelus and Kachess watersheds. It was determined early that a cooperative framework among interested parties was needed to implement effective Bull Trout recovery actions as part of the Integrated Plan objectives and processes.

In October 2017, the MOU partners developed the BTE Framework, which identifies specific projects and management actions that benefit the Bull Trout populations in the Yakima River basin. Together, the MOU and the BTE Framework form an action plan intended to enhance Bull Trout populations through fish passage and habitat improvements. The BTE Framework includes watershed health projects recently identified by the U.S. Forest Service.

The following are examples of the actions and assessments included in the BTE:

- Continuing Integrated Plan support of the Bull Trout Task Force, which aims to reduce recreational impacts on Bull Trout by removing recreational rock dams, monitoring population and passage conditions, assisting with projects, and reaching out to the public
- Planning riparian and instream restoration projects in Gold Creek, Box Canyon Creek, and the Kachess River that will aid in Bull Trout recovery
- Enhancing fish passage into reservoir tributaries: Kachess River, Box Canyon Creek, South Fork Tieton River and the North Fork Tieton passage at Clear Creek Dam

Check out this video to learn more about efforts to help restore Bull Trout ecosystem

youtu.be/PskvopUh33g



Cle Elum Pool Raise

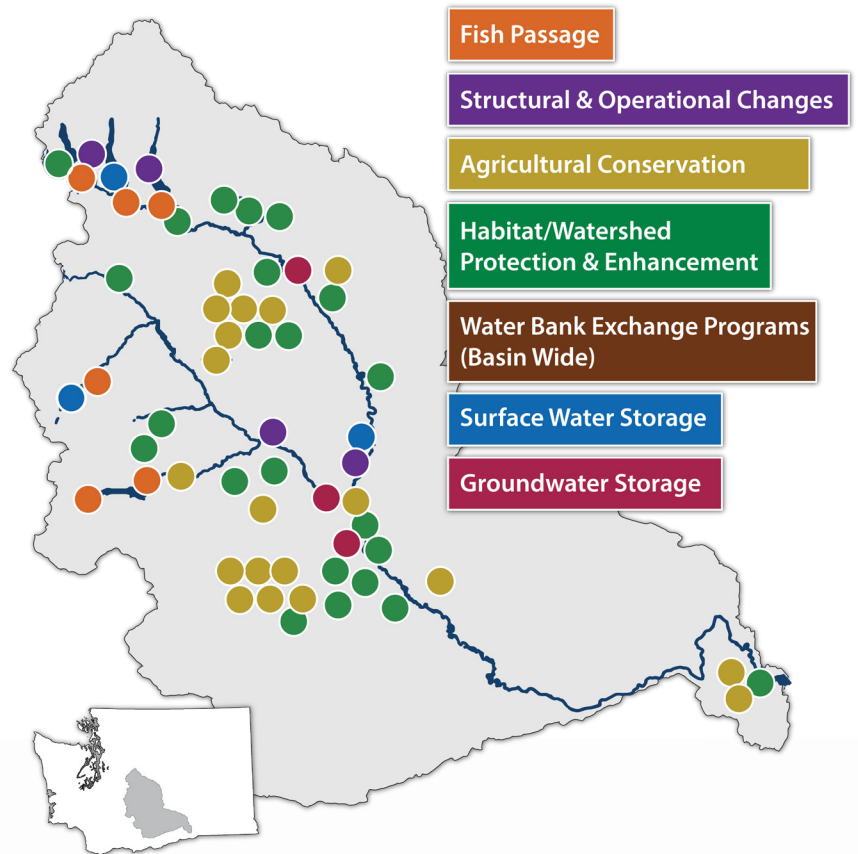
Cle Elum Pool Raise is the first additional water storage project in the Yakima basin in more than 80 years.

The purpose of the project is to increase the reservoir's capacity to provide water for fish habitat, rearing, and migration in the Cle Elum and upper Yakima rivers, thereby fulfilling the intent of the Congressional Authorization Title XII of Public Law 103-434.

In April 2017, Reclamation completed modification of the Cle Elum Dam's existing radial gates at the spillway to raise the level of the reservoir pool 3 feet. This modification will allow up to an additional 14,600 acre-feet of water to be stored and released from Cle Elum Reservoir for instream flows for fish. This would raise the pool level for about 40 days per year (usually in June and July), allowing fish a longer time to leave the reservoir.

The Pool Raise will inundate areas around the reservoir currently not inundated. Shoreline projection for the newly inundated areas is needed before the additional storage capacity is used.

The first shoreline protection project was completed November 2017 for the U.S. Forest Service Cle Elum Campground. In fall 2018, construction began to protect the U.S. Forest Service Speelyi Day Use Area, which will be completed in spring 2019. Shoreline protection actions are planned for the Wishpoosh Campground in 2019. Other related shoreline protection contracts will be awarded as funding becomes available. Reclamation and Ecology continue to meet with local landowners. The entire Cle Elum Pool Raise project is expected to take about five years to complete.



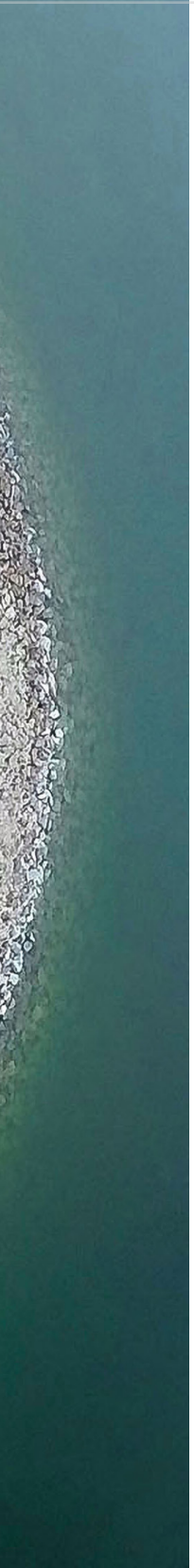
The **Yakima Basin Integrated Plan** has seven key elements that represent unique stakeholder interests, all of which are moving forward together for the health of the Yakima River basin.





Aerial view of the secant at Cle Elum Dam. The secant shaft is an underground vault that will eventually house the helix fish passage structure, allowing young salmon to safely bypass the dam to the river below.

Cle Elum Fish Passage and Reintroduction



Top: Panoramic view of the secant at Cle Elum Dam.

Bottom: Wild male and female Sockeye Salmon spawn in the Cle Elum River.

Since its construction in 1933, the Cle Elum Dam has blocked salmon and steelhead from reaching their historical spawning and rearing habitat.

For Sockeye Salmon, that meant extirpation from the Yakima River basin. Providing fish passage at Reclamation reservoirs is a key component of the Integrated Plan.

Reclamation is building passage facilities at Cle Elum Dam that will open nearly 30 miles of fish habitat upstream and restore salmon and steelhead populations in the Cle Elum River. When completed, this facility will enable the return of the largest Sockeye Salmon run in the lower 48 states, while creating new recreational fishing opportunities.

In September 2018, Reclamation awarded a \$75.9 million contract to construct the intake, gate, and helix—the third phase of building the innovative downstream juvenile fish passage facility at Cle Elum Dam.

Construction of the intake, gate, and helix follows the already completed construction of its related secant pile shaft. Construction will begin spring 2019 and end summer 2023. A bypass tunnel that will transport fish downstream to the Cle Elum River will connect to the helix outlet. The bypass tunnel is under construction and is expected to be completed in 2019.

The fish passage and reintroduction project requires a vital collaboration among the Yakama Nation, Reclamation, Ecology and Washington State Department of Fish and Wildlife (WDFW). This Tribal, Federal and State partnership will restore ecological connectivity and natural salmon production in the upper Cle Elum watershed. The facility will provide safe downstream passage from the reservoir to the Cle Elum River for native fish species, including juvenile Sockeye, Coho and Chinook salmon as well as steelhead trout.

Cle Elum Dam is an earth-filled dam owned and operated by Reclamation. It is located on the Cle Elum River about 75 miles northwest of Yakima, Washington. The State and Federal governments fund the projects under a 50/50 cost-share agreement.

Teanaway Community Forest

Purchased by the State of Washington in 2013, the Teanaway Community Forest (TCF) is an essential ecological and conservation priority of the Integrated Plan.

The 50,421-acre forest is designated for multiple uses and is managed jointly by the Washington State Department of Natural Resources (WDNR) and WDFW in conjunction with a citizen advisory committee.

The TCF advisory committee has been vital to the success of the forest as a whole, with broad community and natural resources stakeholder representation. The committee has compiled both the TCF management plan and the TCF grazing plan, which are fundamental to maintaining the TCF as a working forest without impacting restoration and conservation work.

The TCF advisory committee is in the process of creating a sustainable recreation plan for the community forest to provide recreation opportunities. The recreation plan will be completed by the end of 2018. These opportunities will include hiking, horse trails, campsites, and other facilities throughout the community forest. Currently, the advisory committee is determining the best sites for these activities during both the winter and summer recreation seasons.

So far, WDNR and WDFW have replaced five fish passage barrier culverts, opening up approximately 3.5 miles of habitat to fish, while also achieving some of the water goals in the TCF Plan. WDNR has reduced road-related, fine sediment delivery to streams by 105 tons per year in 2016–2017 by maintaining 33 miles and abandoning 2.2 miles of road.

To retain the community forest designation, we will develop at least 214,000 acre-feet of additional water supply by June 30, 2025. Completion of the Cle Elum Pool Raise project with 14,600 acre-feet of surface water is a step forward in meeting this milestone required by the Washington State Legislature. The Kachess Drought Relief Pumping Plant will add another 200,000 acre-feet to the plan's surface water supply goal.



Enhanced Water Conservation

Ecology continues to fund projects to promote water-use efficiency throughout the basin using voluntary, incentive-based programs.

Enhanced Water Conservation in coordination with the Integrated Plan is designed to conserve up to 170,000 acre-feet in good water years.

During the 2017–2019 biennium, \$5 million was appropriated by the Washington State Legislature for additional projects. Project proponents include Kittitas County Conservation District, Kittitas Reclamation District (KRD), Roza Irrigation District, Wapato Irrigation Project, and Benton Conservation District.

Tributary Supplementation Program

Demonstrating the benefits and trust built through the Integrated Plan, KRD has been augmenting streamflows in its nearby tributaries during low water years.

During the severe drought of 2015, KRD secured funding to help save endangered fish through tributary supplementation. This was accomplished by transporting Yakima Project water destined for downstream uses through KRD canals. Water delivered to creeks via the KRD canal system prevented the mortality of thousands of fish stranded in pools that would soon become dry.

WDFW documented listed salmonids in multiple life stages that were “rescued” by the cold, clean water KRD delivered. In 2016, WDFW monitored creek levels and requested water to help save fish in seven tributaries.

The KRD continues to work with Integrated Plan partners to implement additional conservation measures. Integrated Plan projects like the KDRPP will make additional water available in drought years for added streamflow in the tributaries using the KRD canal.



Construction workers lining KRD canals.



Yakima Basin's "Wood Fiesta" — Stream Restoration 2018

- 14 project locations in the Yakima River basin
- 24 miles of stream and floodplain enhanced
- Over 5,000 logs placed

Yakama Nation and WDFW biologists began tributary aquatic restoration in several priority headwater streams of the Teanaway River and Swauk Creek of the Teanaway Forest.

Adding logjams to streams helps create ideal habitat for fish spawning and aquatic insects. Large logs and root wads also help to slow water during floods and allow water to spread onto the floodplain. Water on the floodplain soaks into the ground and recharges the groundwater table.



Photos by Merritt Mitchell-Wajeeth on behalf of Mid-Columbia Fisheries.

In fall 2018, the Yakima basin Wood Fiesta expanded what was started in the Teanaway, bringing stakeholders together to restore streams and floodplains greatly altered by past management practices.

More than 5,000 logs were placed by helicopter in seven remote Yakima River tributaries to improve habitat for native fish species. Log placement occurred in Lick, Swauk, Umtanum, and North Fork Manastash creeks in Kittitas County, and the Little Naches River, Little Rattlesnake Creek, and Satus Creek in Yakima County.



More than 5,000 logs were placed by helicopter in seven remote Yakima River tributaries...

Thousands of logs came from local thinning projects intended to make the forest more resilient against wildfires—a win-win for both forest and stream habitat.

Multiple organizations were involved in the Wood Fiesta, including Yakama Nation Fisheries, Mid-Columbia Fisheries Enhancement Group, the U.S. Forest Service, and private landowners.

The Wood Fiesta is a great example of collaborative efforts dedicated to restoring the health of the Yakima River watershed.

Market Reallocation

Market reallocation moves existing water rights to new uses and improves streamflows in the Yakima basin.

Reclamation's WaterSMART grants program is one strategy to make water transfer programs more streamlined and flexible.

Water rights can be bought, sold, or leased on a temporary or permanent basis for improving water supply and instream flow conditions.

The Integrated Plan identifies two phases to improve market-driven reallocation:

- (1) A short-term phase builds on existing water market programs and takes added steps to streamline water transfers.
- (2) A long-term phase facilitates water transfers between irrigation districts that allows them to fallow land within the district and lease water rights for that land outside the district.

In September 2017, the Kittitas Reclamation District was awarded Reclamation's WaterSMART Water Marketing Strategies Grant to begin analyzing market-based water right transfers in the Yakima basin. Trout Unlimited will partner with KRD to implement the project.

Yakima and Kittitas counties continue to work on market-based transfers that support current and future economic development and environmental improvement.

The program seeks to identify thousands of acre-feet of water that could be reallocated. Efforts are ongoing to enhance market conditions for future leasing and transferring of rights from willing sellers.

The Yakima River and Mt. Adams on a beautiful fall day. #yakimawater

Learn more about the Yakima basin water supply

<https://www.usbr.gov/pn/programs/yrbwep/2011integratedplan/>

