



Yakima River Basin: Water, Jobs and Fish

Water in the Yakima River Basin is vital to Washington's agricultural economy, growing communities and businesses, and fish and other wildlife. Since the early 1900s, however, demand for water from the Yakima River has exceeded the supply. After nearly a century of discord, basin leaders have adopted the Yakima River Integrated Water Management Plan — a comprehensive agreement that advances the basin's water needs and interests:



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Food and agriculture industry jobs: This region is a major contributor to Washington's \$40 billion food and agriculture industry. These industries in the basin alone produce more than \$1.8 billion in crops and \$1.4 billion in food processing sales while supporting more than 5,700 jobs. A reliable supply of water for irrigation is a critical requirement for these industries.

Salmon: The Yakima River historically supported large salmon returns, with runs estimated between 300,000 to 960,000 fish a year in the late 1800s. These numbers have declined drastically, with some salmon species no longer present in the basin. The causes for the decline are many, including water uses. Though salmon populations have grown in recent years, they are still well below historic levels. Further recovery of salmon will require better management of river flows and fish habitat.

Population growth: Water needs in the Yakima River Basin are expected to swell due to population growth. Preparing for population growth forecasts of 1.5 percent annually through 2024, and 1 percent annually from 2025 to 2060, will necessitate finding new water supplies for city public water systems, new businesses and rural residential wells.

Results from Water Deficits

The basin's water supplies are fully appropriated and continue to fall short of the needs for fish and wildlife, dry-year irrigation and municipal water supplies. This significant water deficit results in:

- » Insufficient water to meet drought-year demands for irrigation.
- » Uncertainty about the availability of water for growing cities caused by declining groundwater and surface waters.
- » Fewer salmon returning to spawn in the river.

In addition, changes in future runoff and stream flow patterns due to climate change will increase the need for prorationing and further shrink flows for fish.

A Comprehensive Integrated Water Management Plan

Stakeholders in the Yakima River Basin have worked since 2009 with the Department of Ecology and the U.S. Bureau of Reclamation to develop and approve an integrated water management plan to address these serious problems. Elements of the plan include construction of fish passages at in-basin dams, habitat restoration, watershed protection, development of new surface water retention and groundwater storage, enhanced agricultural and municipal water conservation programs, and establishment of more effective water-banking processes. While the integrated plan incorporates nearly 50,000 acre-feet of water supply for municipal and domestic needs, it could take 20 or more years to obtain funding and authorization and to develop new water supplies.

Governor Inslee's Proposal to Support the Integrated Plan

Governor Inslee has requested legislation (House Bill 1414) that calls for the Department of Ecology to adopt the integrated plan. He also

supports the appropriation of \$23.6 million in capital funds to invest in priority projects in the Yakima River Basin identified in the plan. This investment will help restore fisheries and meet agriculture, municipal and domestic needs in the basin.

The activities recommended for funding in the capital budget are:

Completion of priority water supply projects (\$20.9 million)

The Department of Ecology will restore main stem and tributary habitat, construct fish passage facilities, divert power to support salmon migration, increase Lake Cle Elum storage, pump water into reservoirs to improve in-stream flows, enlarge Bumping Lake, construct a pipeline to connect Lake Keechelus and Lake Kachess, modify the Lake Kachess reservoir and create a groundwater infiltration system. These projects are expected to generate 316 jobs and \$43.5 million in economic benefits.

Acquisition of water rights (\$2.0 million)

The Department of Ecology will purchase existing senior water rights to provide seed water for establishing and operating basin water banks. Water banking is a mechanism used to facilitate legal transfer and market exchange of various types of surface, groundwater and storage entitlements. Setting up these banks will reduce barriers to completing water transfers and making water available for new uses.

Ensuring successful implementation (\$700,000)

The Department of Ecology, several state agencies and local governments will provide technical assistance to ensure that all projects and programs related to the Yakima River Basin are successfully coordinated and implemented.

Priority Projects — Jobs and Economic Impact

Project	Tasks	2013-15 State Budget Requests	Jobs Created	Economic Impact
Tributary/Main-stem Habitat Enhancement	Funding would be used to construct Habitat Enhancement Projects identified as top priorities by the Habitat Subcommittee to address critical tributary habitat areas in the basin. Projects are being chosen in cooperation with NOAA Fisheries, USFWS, and the Salmon Recovery Board director. Habitat enhancement is authorized under YRBWEP Title XII.	\$2,400,000	27	\$4,577,120
Watershed Acquisitions	Acquisition of critical habitat is a keystone to ecological restoration of the Yakima River Basin. Funding would be used to secure an agreement for purchase of a large tract of property in the Teanaway drainage and to purchase forest land in the Naches watershed. This priority item is being funded by the State of Washington. Acquisition and effective management of watershed land will improve water supply and water quality and protect sources of cold water habitat needed for fish spawning and rearing.	\$2,000,000	22	\$2,804,300
Cle Elum Fish Passage	The project will open approximately 29.4 miles of stream habitat to salmon and steelhead. Funding would be used to initiate hydraulic modeling, cultural surveys, and design data collection. NEPA has been completed.	\$2,200,000	40	\$5,036,195
Box Canyon Creek Fish Passage	Initial funding would be used to complete design for fish passage at Box Canyon Creek, a Kachess Reservoir tributary that serves as critical habitat for bull trout, an Endangered Species Act (ESA) threatened species.	\$100,000	2	\$228,970
Keechelus, Kachess, Tieton Fish Passage	Initial funding will be used to design upstream and downstream fish passage at these existing reservoirs. Fish passage will open approximately 53 miles of stream habitat to salmon and steelhead.	\$500,000	9	\$1,144,620
Keechelus to Kachess Conveyance	The project will convey water from Keechelus Reservoir to Kachess Reservoir, providing additional storage in Kachess reservoir to serve downstream needs and improving instream flow conditions in the upper Yakima River. Funding would be used to initiate site specific environmental compliance, perform preliminary geologic investigations, collect design data, and perform feasibility level designs.	\$500,000	7	\$1,029,970
Subordination of Power Generation	Funding would be used to quantify impacts to fisheries downstream of the Roza Dam diversion on the Yakima River and to identify the degree of subordination that would be appropriate to meet fish and power needs at this location.	\$150,000	3	\$343,460
Cle Elum Pool Raise	Spillway gates will be modified to allow Cle Elum Reservoir to be raised three feet, providing an additional 14,600 ac-ft of water that would be available for instream flow support in the Cle Elum and Yakima Rivers and to meet irrigation demand. A three-foot raise of the Cle Elum pool is authorized as part of YRBWEP Title XII legislation. Funding would be used to complete site specific environmental compliance and to initiate design data collection and final designs.	\$1,800,000	27	\$3,814,852

Priority Projects — Jobs and Economic Impact

Kachess Inactive Storage	The outlet at the existing Kachess Reservoir will be lowered to allow for an additional 80 feet of reservoir level draw down, providing access to another 200,000 ac-ft of water for drought relief. Funding would be used to initiate site specific environmental compliance, perform preliminary geologic investigations, collect design data, and perform feasibility level designs for a tunnel or pumping plant to tap 200,000 acre-feet of inactive storage in the reservoir.	\$7,000,000	122	\$15,794,763
Wymer Reservoir Assessment	Funding would be used to initiate site specific environmental compliance, perform preliminary geologic investigations, collect design data, and perform feasibility level designs associated with developing a 162,500 ac-ft reservoir at Wymer. Water from the enlarged reservoir would be used to improve both instream flows and out-of-stream water supplies in the basin.	\$500,000	8	\$1,117,829
Bumping Lake Reservoir Enlargement	Funding would be used to initiate site specific environmental compliance, perform preliminary geologic investigations, collect design data, and perform feasibility level designs associated with creation of an additional 156,000 ac-ft of new water storage at Bumping Lake Reservoir through construction of a new dam downstream of the current dam. Water from the enlarged reservoir would be used to improve both instream flows and out-of-stream water supplies in the basin.	\$500,000	8	\$1,117,829
Kittitas Co. Aquifer Storage and Recovery	Late-winter and early-spring flow will be diverted to ponds, canals, and spreading areas and allowed to infiltrate into the aquifer to be stored for later use to improve flow conditions and meet irrigation demand. Funding would be used to perform site specific environmental compliance, reconnaissance field investigations and feasibility level designs for a pilot groundwater infiltration and storage project in the Kittitas Valley. The pilot project is expected to be the basis for a future full scale project.	\$400,000	6	\$839,256
Agricultural Conservation	Agricultural water conservation measures (piping and automating canals, on-farm water conservation improvements, etc.) will conserve approximately 170,000 ac-ft of water in good water years, substantially less in drought years.	\$2,400,000	27	\$4,577,120
Municipal/Domestic Conservation	A multi-stakeholder advisory committee of municipal and domestic water conservation (including local and environmental stakeholders) will be convened to organize outreach to local elected officials and provide liaison with Reclamation, Ecology, and the Washington State Department of Health. (implementing leak control – promoting low impact landscaping and efficient indoor water use	\$100,000	2	\$228,973
Water Bank/Exchange Programs	Stage 1 of the program will continue existing water marketing and banking activities and reduce current barriers to water transfers. Stage 2 will focus on facilitating water transfers between irrigation districts.	\$350,000	7	\$815,663
TOTALS		\$20,900,000	316	\$43,470,930



WASHINGTON GOVERNOR
JAY INSLEE

YAKIMA RIVER BASIN INTEGRATED WATER RESOURCE MANAGEMENT PLAN

Reservoir Fish Passage

Provide fish passage at:

- Clear Lake Reservoir Dam
- Cle Elum Reservoir Dam
- Bumping Reservoir Dam
- Tieton Dam (Rimrock Reservoir)
- Keechelus Reservoir Dam
- Kachess Reservoir Dam

Surface Water Storage

- Build a 162,500 acre-feet off-channel surface storage facility at Wymer on Imuma Creek.
- Access an additional 200,000 acre-feet of water by tapping into inactive storage at Lake Kachess.
- Construct a new dam at Bumping Reservoir to increase capacity to 198,000 acre-feet.
- Appraise potential for water transfer from the Columbia River to the Yakima Basin.

Enhanced Water Conservation

Basin
Wide

- Implement an agricultural water conservation program designed to conserve up to 170,000 acre-feet of water in good water years.
- Create a fund to promote water use efficiency basin-wide using voluntary, incentive-based programs. Focus on outdoor uses as top priority.

Market Reallocation

Basin
Wide

Employ a water market and/or a water bank to improve water supply in the Yakima River basin. Market reallocation would be conducted in two phases:

The near-term phase would continue existing water marketing and banking programs in the basin, but take additional steps to reduce barriers to water transfers.

The long-term program would focus on facilitating water transfers between irrigation districts.

Groundwater Storage

- Construct pilot projects to evaluate recharging shallow aquifers via groundwater infiltration.
- Build an aquifer storage and recovery facility allowing the city of Yakima to draw and store water from the Naches River during high flow periods.

Habitat/Watershed Protection & Enhancement

- Protect 70,000 acres of land.
- Evaluate potential wilderness area and wild and scenic river designations to protect streams and habitat.
- Create a habitat enhancement program to address reach-level floodplain restoration priorities and restore access to key tributaries.

Structural & Operational Changes

- Additional 14,000 acre-feet in storage capacity at Cle Elum Pool.
- Modified Kittitas Reclamation District canals: efficiency savings.
- Tunnel from Lake Kacheelus to Lake Kachess: increase in water storage in Lake Kachess.
- Decrease power generation at Roza Dam and Chandler power plant to support outmigration of juvenile fish.
- Make efficiency improvements to the Wapatox Canal.

Governor's Request Legislation (HB 1414 and SB 5367)

Authorizes the Department of Ecology to:

- (1) Implement the integrated water resource management plan in the Yakima River Basin.
- (2) Develop water supply solutions that provide concurrent benefits to both instream and out-of-stream uses.
- (3) Address a variety of water resource and ecosystem problems affecting fish passage, habitat functions, and agricultural, municipal, and domestic water supply in the Yakima River Basin, consistent with the Integrated Plan. Creates the Yakima Integrated Plan implementation account, the Yakima Integrated Plan implementation taxable bond account, and the Yakima Integrated Plan implementation revenue recovery account.

Economic Impact

Acres of Cropland	500,000
Food Processing Industry Benefits	\$1.4 Billion
Agricultural Production	\$1.8 Billion

Early Action Projects - Jobs and Economic Impact

Investment	Jobs Created	Economic Impact
\$20.9 Million	316	\$43.5 Million



YAKIMA RIVER BASIN WATER
ENHANCEMENT PROJECT WORKGROUP