



Yakima River Basin Integrated Water Resource Management Plan Implementation Status Report 2017

May 2018

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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
1250 West Alder Street • Union Gap Washington 98903-0009 • (509) 575-2490

May 9, 2018

The Honorable Jay Inslee, Governor
Honorable Members of the Washington State Legislature
Olympia, Washington

RE: Implementation Status Report for the Yakima River Basin Integrated Water Resource Management Plan

This 2017 *Implementation Status Report for the Yakima River Basin Integrated Water Resource Management Plan* was prepared by the Department of Ecology (Ecology) for you and the Legislature as required under RCW 90.38.100. Note, it is the second status report since the Legislature passed the Yakima River Basin Water Resource Management Act (also known as Second Substitute Senate Bill 5367) in 2013.

Since 2013, the Yakima Basin Integrated Plan has made tremendous strides in moving a wide range of projects forward from planning and design to permitting, funding and construction. This 2017 Status Report highlights progress made on implementing the first ten years of the Initial Development Phase of this 30-year effort to provide water resiliency and ecological and watershed restoration through the Yakima River Basin Integrated Water Resource Management Plan (Integrated Plan). This report is now available at this website:
<https://fortress.wa.gov/ecy/publications/SummaryPages/1812005.html>

If you have any questions regarding this report or would like more information, please contact me by phone at (509) 574-3989 or by email at: thomas.tebb@ecy.wa.gov. If you would like hard copies of the report, contact Colleen Smith by phone at (509) 454-4239 or email at: colleen.smith@ecy.wa.gov.

Sincerely,

G. Thomas Tebb, L.Hg., L.E.G.
Director
Office of Columbia River

Yakima River Basin Integrated Water Resource Management Plan Implementation Status Report 2017

*Submitted by
The Office of Columbia River*

Office of Columbia River
Washington State Department of Ecology
Olympia, Washington

Publication and Contact Information

This report is available on the Department of Ecology's website at <https://fortress.wa.gov/ecy/publications/SummaryPages/1812005.html>

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Cover Photo: View of Cle Elum reservoir and dam, which was first constructed in the 1930s.

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Statutory Directive

RCW 90.38.100

Report to the legislature and governor. (Expires December 31, 2045.)

(1) By December 1, 2015, and by December 1st of every odd-numbered year thereafter, and in compliance with RCW 43.01.036, the department, in consultation with the United States bureau of reclamation, the Yakama Nation, Yakima river basin local governments, and key basin stakeholders, shall provide a Yakima river basin integrated water resource management plan implementation status report to the legislature and to the governor that includes: A description of measures that have been funded and implemented in the Yakima river basin and their effectiveness in meeting the objectives of chapter 11, Laws of 2013 2nd sp. sess., a project funding list that represents the state's percentage cost share to implement the integrated plan measures for the current biennium and cost estimates for subsequent biennia, a description of progress toward concurrent realization of the integrated plan's fish passage, watershed enhancement, and water supply goals, and an annual summary of all associated costs to develop and implement projects within the framework of the integrated water resource management plan for the Yakima river basin.

(2) The status report required in this section for December 1, 2021, must include a statement of progress in achieving the water supply facility permit and funding milestone, as defined in RCW 90.38.010. If, after a good faith effort to achieve the water supply facility permit and funding milestone, it appears that the milestone cannot or may not be met, the department, in consultation with the United States bureau of reclamation, the Yakama Nation, Yakima river basin local governments, and key basin stakeholders, shall provide a detailed description of the impediments to achieving the milestone, describe the strategy for resolving the identified impediments, and, if necessary, recommend modifications to the milestone.

(3) This section expires December 31, 2045.

[2013 2nd sp.s. c 11 § 9.]



Yakima River

Executive Summary

This report summarizes progress on implementing the Yakima River Basin Water Resource Management Act passed by the Legislature in 2013 and is now embodied in RCW 90.38. Here we highlight current progress on implementing the first ten-year Initial Development Phase of this 30-year effort to provide water resiliency and ecological and watershed restoration through the Yakima River Basin Integrated Water Resource Management Plan (Integrated Plan). The Integrated Plan is the third phase of the federal Yakima River Basin Water Enhancement Program (YRBWEP), see figure 1.

Since 2013, the Integrated Plan has made tremendous strides in moving a wide range of projects forward from planning and design to permitting, funding and construction.

Project achievements include:

- Raising the Cle Elum radial gates by three feet, increasing potential storage capacity of the Cle Elum reservoir.
- Contracting and groundbreaking on the Cle Elum juvenile fish passage project, which includes secant pile and bridge construction.
- Testing of innovative pneumatic fish transport system for sockeye salmon at Cle Elum dam.
- Completion of Reed diversion removal, opening up 25 miles of fish passage on Manastash creek.
- Implementation of the community based management plan and commencement of restoration work in the Teanaway Community Forest.
- Permitting finalized for the City of Yakima aquifer storage and recovery project.
- Continued pursuit of water conservation measures for major water users such as irrigation districts and municipalities.
- Initializing strategy development and request for professional services in support of water markets.

These accomplishments would not have been possible without the collaboration and coordination efforts made among the many parties participating in this comprehensive program. These parties are represented in the YRBWEP Workgroup and include state, federal and local agencies, the Yakama Nation, irrigators and farmers, cities, environmental groups, and private organizations.

The Department of Ecology (Ecology) and its co-convenor, the US Bureau of Reclamation (Reclamation), continue to apply this collaborative strategy of the YRBWEP Workgroup and its various committees in implementation of the Integrated Plan. Ecology, along with various members of the YRBWEP Workgroup, continue pursuing non-state funding, which complements the significant investments made by the state of Washington in the Yakima River Basin.

The Legislature appropriated \$143 million in the 2013-2015 biennium, \$30 million in the 2015-2017 biennium, and \$31.1 million in the 2017-2019 biennium for continued implementation of the Integrated Plan.

Figure 1

Yakima River Basin Water Enhancement Program

YRBWEP to YBIP

Yakima Basin Integrated Plan

HOW 30 YEARS OF STUDIES, PARTNERSHIPS,
FISH PASSAGE AND CONSERVATION
CREATED WASHINGTON'S MOST
SUCCESSFUL INTEGRATED WATER
MANAGEMENT PLAN.

STUDIES AUTHORIZED

1979



After a devastating drought in 1977, Congress directed the Bureau of Reclamation to work with the State of Washington to conduct studies and develop a plan to provide water for irrigation, treaty rights, aquatic life and fish habitat. This effort was titled the **Yakima River Basin Water Enhancement Program (YRBWEP)**

Early studies identified fish passage issues. The Hoover Power Plant Act of 1984 authorized fish passage facilities throughout the Yakima Basin, partially funded by the Bonneville Power Administration. YRBWEP 1 designed and enacted fish passage basinwide.



1984

YRBWEP 1
Fish Passage

YRBWEP 2 Voluntary Conservation

1994



After the 1992-1994 drought, legislation authorized water conservation and instream flow projects. Costs for water conservation are shared by Reclamation, the Washington Dept. of Ecology and irrigators. 2/3rds of irrigation water conserved remains instream to help with flows, while 1/3 is retained by irrigators for use in drought years.

Following another drought in 2005, Reclamation and Ecology built on YRBWEP 1 and 2 by creating a stakeholder workgroup to address other elements of the water supply and fisheries issue. In 2009, this group began developing the **Yakima Basin Integrated Plan (YBIP)**, a watershed-scale approach to sustainable water supply for fish, families, farms and forests.

2009

YBIP
(YRBWEP 3)
Yakima Basin
Integrated
Plan



YBIP is a 30 year package of actions divided into three 10-year phases of its own.



Introduction

In 2013, the Washington State Legislature passed the Yakima River Basin Water Resource Management Act (Second Substitute Senate Bill 5367), now embodied in RCW 90.38, which authorized implementation of the Integrated Plan. The Integrated Plan was developed through a consensus-based approach by a diverse group of representatives from the Yakama Nation, federal, state and local governments, environmental organizations, and irrigation districts.

The 2013 legislation authorized Ecology to:

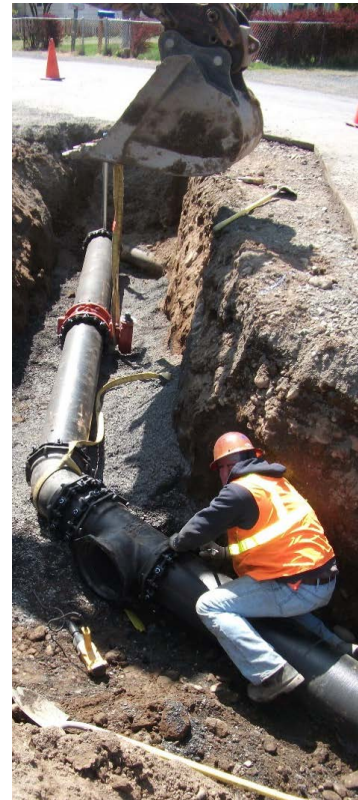
- Implement the Integrated Plan through the coordinated efforts of affected federal, state and local governments and agencies.
- Address a variety of water resource and ecosystem problems affecting fish passage and habitat functions.
- Develop agricultural, municipal, and domestic water supply in the Yakima River Basin, consistent with the provisions of the Integrated Plan.

As required by RCW 90.38.100, Ecology is to provide an implementation status report to the Washington State Legislature and Governor, every odd-numbered year beginning in December 2015.

The status report must include:

- A description of the measures that have been funded and implemented in the Yakima River Basin and their effectiveness in meeting the objectives of the 2013 legislation.
- A project funding list that represents the State’s percentage cost share to implement the Integrated Plan measures for the current biennium and cost estimates for subsequent biennia.
- A description of progress toward concurrent realization of the Integrated Plan’s fish passage, watershed enhancement, and water supply goals.
- An annual summary of all associated costs to develop and implement projects within the framework of the Integrated Plan for the Yakima River Basin.

Washington State operates on a two-year budgetary cycle, or “biennium”, which runs from July 1 of every odd-numbered year to June 30 of the next odd-numbered year (e.g. July 1, 2017 to June 30, 2019). This status report covers project funding during the 2015-2017 and 2017-2019 biennia. For related fiscal information, see the 2016 Cost Estimate and Financing Plan, prepared by Ecology and Washington State Treasurer (Ecology Publication 16-12-0110F¹).



Pipe Installation
Photo credit: City of Yakima

¹ <https://fortress.wa.gov/ecy/publications/documents/1612011.pdf>

Overview of the Integrated Plan

Ecology and Reclamation, in conjunction with the Yakama Nation and the YRBWEP Workgroup, laid out the following goals in the Integrated Plan Final Programmatic Environmental Impact Statement (PEIS)²:

- Provide opportunities for comprehensive watershed protection, and ecological restoration that address instream flows, aquatic habitat, and fish passage.
- Improve water supply reliability during drought years for agricultural and municipal needs.
- Develop a comprehensive approach for conservation of water supplies for irrigated agriculture, municipal and domestic uses, and power generation.
- Improve the ability of water managers to respond to and adapt to the potential effects of climate change.
- Contribute to the vitality of the regional economy and sustain the riverine environment.

To achieve these goals, the Integrated Plan advises implementation of the following seven elements:

1. Habitat/Watershed Protection and Enhancement - Protect and enhance critical habitat for anadromous and resident fish and wildlife.
2. Fish Passage - Provide fish passage at all major Yakima River Basin dams.
3. Enhanced Water Conservation - Aggressively implement water use efficiency measures to improve instream flows on critical stream reaches and achieve more precise water deliveries.
4. Structural and Operational Changes - Promote operational efficiency and flexibility at existing in-basin water supply and water conveyance infrastructure facilities.
5. Surface Water Storage - Develop an additional 450,000 ac-ft. of surface water storage for supporting instream and out-of-stream water uses.
6. Groundwater Storage - Recharge aquifers with surface water for storage and recovery and passive aquifer recharge/infiltration for improved aquatic habitats.
7. Market Driven Reallocation - Create conditions in which water can efficiently be traded between willing parties.

Initial Development Phase

Ecology and its partners continue to work together to implement projects and programs comprising the 10-year Initial Development Phase (IDP) of the Integrated Plan. The IDP, which began in July 2013 and will continue through June 2023, is designed to provide tangible improvements in stream flow, fish habitat, fish passage, and improve security of existing out-of-stream water supplies. Additionally, the IDP is structured to advance projects associated with all seven elements concurrently. Ecology's 2016 Cost Estimate and Financing Plan indicated the cost of the IDP is projected at just over \$900 million, with costs being updated as feasibility and design move forward.

² <https://www.usbr.gov/pn/programs/yrbwep/reports/FPEIS/fpeis.pdf>

The Yakima River Basin

The Yakima River Basin is located east of the Cascades and encompasses 6,155 square miles (see figure 2). This basin is home to a population of approximately 370,000, including 10,000 members of the Yakama Nation. The Yakima Basin is considered to be the most productive agricultural region in the state, yielding up to \$4.5 billion annually for crops such as hops, wine grapes, fruit orchards, and timothy hay; while providing approximately 44,300 agricultural jobs to the state economy. Water dependent recreation also contributes approximately 14,200 jobs and \$1.2 billion to the economy. Taken all together, Yakima's water dependent economy adds \$13.1 billion to the economy and 96,000 jobs, as noted in the June 14, 2017 report titled: *Water Security for the Yakima River Basin's Ecology, Communities and Watersheds* (Ecology publication no. 17-12-009)³.

The basin's cold water streams provide vital spawning and rearing habitat to federally listed⁴ Bull Trout and steelhead. Regrettably, the six existing reservoir dams block some of these historic runs. To restore these runs, the Integrated Plan is in the process of researching and developing fish passage at these dams. Construction of the first fish passage project at Cle Elum dam broke ground in 2015, representing a considerable step forward in this effort.

In managing water resources of the basin, there are several factors that must be taken into consideration. The Yakima River Basin's surface water and groundwater aquifers are interconnected and managed as single resource. Ecology continues to work closely with Reclamation to manage these water resources and maintain federally regulated flow. There are six reservoirs within the Yakima River Basin operated by Reclamation that have a combined storage capacity of about 1.1 million ac-ft., which is about one-third of the average annual run-off in the basin. In addition to these major reservoirs, the Yakima River Basin is heavily dependent on east-slope Cascade Range snowpack, which supplies approximately 2.3 million ac-ft. of water annually for irrigation.

This Cascade Range snowpack is being altered by changing climatic conditions. With rising temperatures, more winter precipitation will fall as rain instead of snow, especially in lower elevations. These precipitation changes result in reduced seasonal snowpack and decreased spring freshet flows (snowmelt adding to base flows). Climate change and retiming stream hydrology threatens an already unreliable water supply that is vital to the agriculture, fisheries and recreation in the basin.

Yakima River Basin surface water resources are over-appropriated and have been the subject of a decades-long adjudication in state court known as *Ecology v. Acquavella et al*⁵. On August 10, 2017 Yakima Superior Court Judge F. James Gavin entered a proposed final decree for the case, which included a draft schedule of rights set to be confirmed over the next eight months. Water management in this basin will continue to evolve in these changing times.

³ <https://fortress.wa.gov/ecy/publications/documents/1712009.pdf>

⁴ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E065>

⁵ <http://www.ecy.wa.gov/programs/wr/rights/adjhome.html>

Figure 2 Map of the Yakima River Basin



Program Oversight and Coordination

The Office of Columbia River has a dedicated project manager, who ensures quality and consistency for project implementation within the Integrated Plan, as well as coordinating with project managers at Reclamation. These project managers coordinate and lead contracting and financial planning, oversee project construction, and facilitate stakeholder coordination associated with the Integrated Plan projects. These efforts are crucial to successfully implement the plan.

Ecology and Reclamation support ongoing engagement through regular (quarterly) meetings with the YRBWEP Workgroup, various subcommittees, and subgroups, which include the:

- Executive Committee
- Implementation Committee
- Water Use Subcommittee
- Habitat Subcommittee
- Watershed Land Conservation Subcommittee
- Groundwater Subcommittee
- Outreach Subcommittee
- Economic Subcommittee
- Lower River Subgroup
- Municipal Water Use Subgroup
- Bull Trout Working Group

Associated Activities

Ecology, Reclamation, Department of Natural Resources (DNR), Department of Agriculture (WSDA), and the Department of Fish and Wildlife (DFW) assist the Workgroup and committees by providing technical support. A portion of Ecology's funds provide

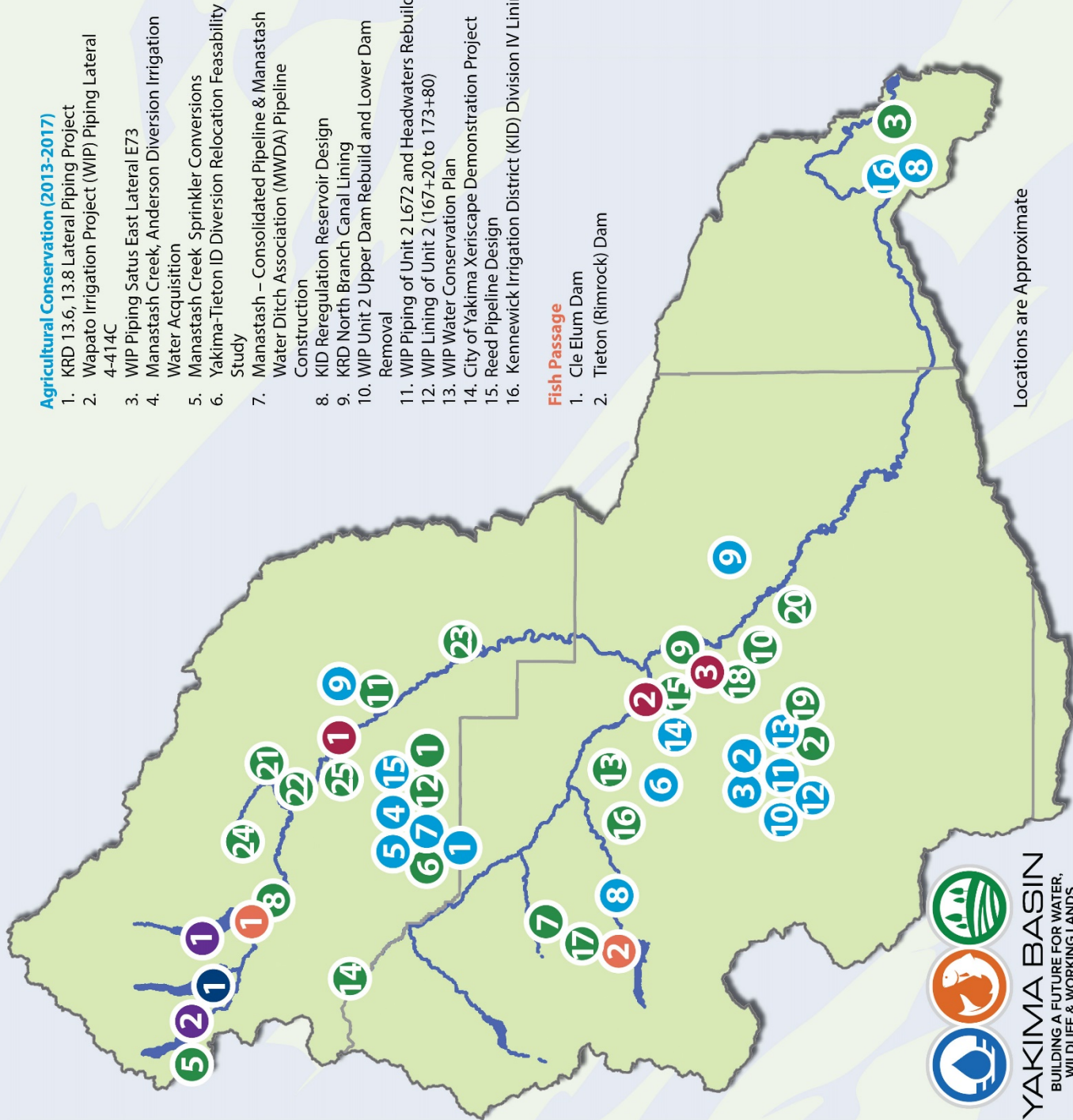
professional facilitators and technical support staff who assist the workgroup and its committees.

Support staff tasks include:

- Planning and facilitating meetings focused on productive and outcome orientated discussions.
- Preparation of funding proposals.
- Developing and producing reports and educational materials.
- Providing recommendations to Ecology and Reclamation concerning Integrated Plan implementation.



Yakima Basin Integrated Plan Initial Development Projects



Locations are Approximate

Groundwater Storage

1. Upper Kittitas Shallow Aquifer Recharge
2. Yakima City Aquifer Storage and Recovery
3. Toppinich Fan Aquifer Recharge

Structural and Operational Changes

1. Cle Elum Pool Raise
2. Keechelus to Kachess Conveyance

Surface Water Storage

1. Kachess Drought Relief Pumping Plant

Water Bank/Exchange Programs

Basin Wide

Habitat Enhancement (2013-2017)

1. Manastash Creek Conservation and Tributary Enhancement Project
2. Toppenish Creek Habitat Restoration
3. Bateman Island Causeway Modification Conceptual Design/Outreach/Permitting
4. Bull Trout Habitat Improvements
5. Gold Creek Habitat Assessment and Conceptual Design
6. Reed Diversion design Barrier Removal
7. Little Rattlesnake Road Decommissioning
8. Cle Elum River Side Channel Restoration Project, Phase 2

Fish Passage

1. Cle Elum Dam
2. Tieton (Rimrock) Dam

Agricultural Conservation (2013-2017)

1. KR D 13.6, 13.8 Lateral Piping Project
2. Wapato Irrigation Project (WIP) Piping Lateral 4-414C
3. WIP Piping Satus East Lateral E73
4. Manastash Creek, Anderson Diversion Irrigation Water Acquisition
5. Manastash Creek Sprinkler Conversions
6. Yakima-Tieton ID Diversion Relocation Feasibility Study
7. Manastash – Consolidated Pipeline & Manastash Water Ditch Association (MWD A) Pipeline Construction
8. KID Reregulation Reservoir Design
9. KR D North Branch Canal Lining
10. WIP Unit 2 Upper Dam Rebuild and Lower Dam Removal
11. WIP Piping of Unit 2 L672 and Headwaters Rebuild
12. WIP Lining of Unit 2 (167+20 to 173+80)
13. WIP Water Conservation Plan
14. City of Yakima Xeriscape Demonstration Project
15. Reed Pipeline Design
16. Kennewick Irrigation District (KID) Division IV Lining

Actions Taken to Implement the Integrated Plan

This section describes specific implementation activities focused on meeting legislative objectives. The organization of this section is based on the seven elements of the Integrated Plan and largely focuses on activities, actions, and progress made during the 2015 – 2017 biennium. See figure 3 for a list of Integrated Plan projects implemented by Element from 2013 through 2017.

Habitat/Watershed Protection and Enhancement

This element targets critical habitat for wildlife and anadromous and resident fish, particularly several salmon species, including sockeye salmon, the federally-listed Bull Trout and the federally-listed steelhead, through land acquisition, watershed protection and habitat restoration and enhancement projects.

Teanaway Community Forest

In 2013, DNR purchased 50,241 acres of forest land from a private land owner. The Legislature designated this forest as a community forest, commonly referred to as the Teanaway Community Forest (TCF), which differs from the working forests that DNR manages on state trust lands. DNR and DFW formalized a co-management approach in a Deed of Habitat Restoration and Working Lands Easement on the TCF property in 2013). For the 2017-2019 biennium, DNR has been appropriated \$1.48 million for continued work in the TCF.

To remain a community forest the “Water Supply Facility Permit and Funding Milestone” must be met by June 30, 2025 (RCW 90.38.130). This milestone requires permitting and funding to be completed for one or more water supply facilities designed to provide at least 214,000 acre-feet (ac-ft.) of additional water supply under the Integrated Plan. Completion of the Cle Elum pool raise project is a step forward in meeting this milestone by providing an additional 14,600 ac-ft. of surface water storage area to the Cle Elum reservoir.



Teanaway River

The TCF advisory committee has been vital to the success of this forest as a whole through their engagement, activity, and broad representation of community and stakeholders. The advisory committee is a model of community and state cooperation. Through their efforts, the advisory committee has been able to compile and implement both the TCF management plan and the TCF grazing plan. As directed by the legislature, the TCF will continue allowing historical working land uses such as grazing. The grazing plan is fundamental in maintaining the TCF as a working forest without impacting restoration and conservation work.

Yakama Nation and DFW biologists began tributary aquatic restoration in eight priority headwater streams of the Teanaway River and Swauk Creek. The first large woody habitat project occurred in Indian Creek, where large natural materials were placed in the creek and on the floodplain, which are designed to slow and impound stream flow to improve hydrologic connectivity between the channel and the floodplain. This type of habitat restoration project directly addresses the limiting factors currently faced by cold water fish such as high water temperatures, instream flows, channel diversity, and habitat complexity. In the 2016-2017 seasons DNR and DFW worked to replace 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. DNR has reduced road-related fine sediment delivery to streams by 105 tons/year in 2016-2017 through maintenance of 33 miles of roads and abandonment of 2.2 miles of road.

The TCF advisory committee is in the process of creating a sustainable recreation plan for the community forest to provide recreation opportunities. 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.

Manastash Creek Conservation and Tributary Enhancement Project

As the first project completed under the Integrated Plan, water conserved by the completion of the Kittitas Reclamation District (KRD) 13.8 lateral and Reed Ditch piping projects in 2014, is now used yearly to enhance flows of Manastash Creek. Historically, portions of lower Manastash Creek dewatered by mid-July, but now this lower stretch of creek is hydrated during the summer months. Through this project, steelhead have already returned to over 25 miles of Manastash Creek that have previously been inaccessible for over a century. Additional instream flow and fish habitat enhancement efforts are ongoing as KRD continues collaborative efforts with Trout Unlimited on the supplementation of four upper Yakima Tributaries, which include Taneum Creek, Manastash Creek, Big Creek, and Little Creek.

Gap-to-Gap Floodplain Reconnection

Once completed, the Gap-to-Gap Floodplain Reconnection project (from the Selah gap to the Union gap along the Yakima River) will reconnect almost 600 acres of floodplain to the Yakima River and improve floodplain function to Reclamation's 700 acres of land adjacent to the river.

There are several components to this project including land acquisition, wastewater treatment plant outfall reconfiguration, levee removal, restoration design and permitting, and floodplain restoration construction. Yakima County is setting back levees and reconfiguring other infrastructure along the Yakima River, with the setback of a levee south of Hwy 24 currently under design.

In cooperation with Reclamation, Yakama Nation, US Army Corps of Engineers, Washington State Department of Transportation, and others, this project will restore the natural floodplain, enhance fish habitat, and reduce risks of flood damage to infrastructure.

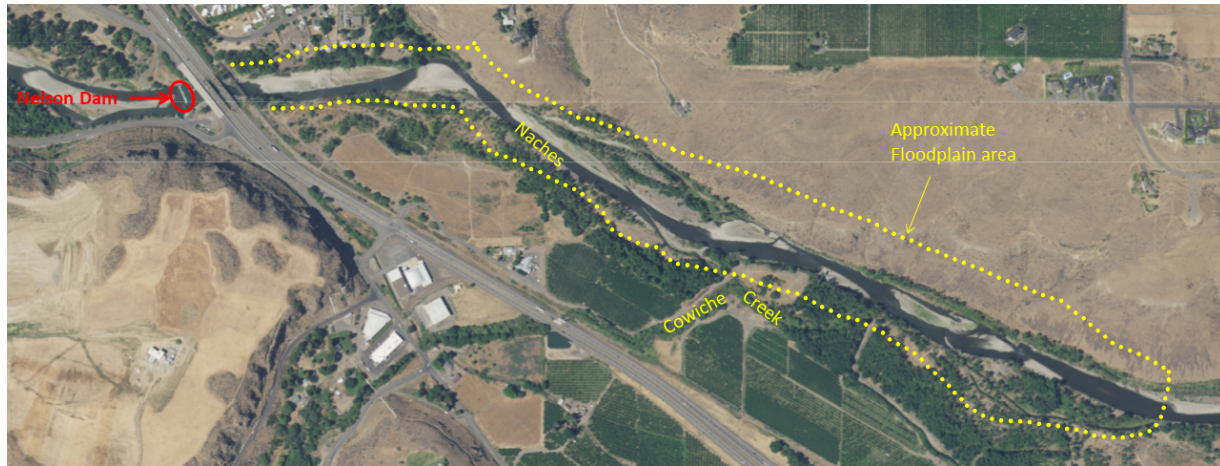
Completed portions of the Gap-to-Gap Floodplain Reconnection project include:

- Property acquisitions along the Yakima River including the former KOA and Greenway properties (see figure 4 for locations).
- Removal of over 7,200 feet of county and state owned levees, allowing for reconnection of 55 acres of floodplain on the former Greenway property north of the Terrace Heights Bridge.
- Pilot channel construction along the former Greenway property.
- Side channel excavation on both the east and west banks of the Yakima River near Sarg Hubbard Park.

Figure 4 Gap to Gap Property Acquisition Map



Figure 5 Cowiche Creek and Lower Naches Floodplain



Cowiche Floodplain Restoration

The Cowiche Floodplain Restoration project is an effort by Yakima County in cooperation with the City of Yakima, Ecology’s Floodplains by Design Program, and private funders to reduce flood hazards, false attraction flows for fish, and improve floodplain habitats on both Cowiche Creek and the lower Naches River. The county purchased an easement along the lower Cowiche Creek and has completed a channel design allowing Cowiche Creek come to follow a more natural alignment. Other efforts to restore the floodplain include consolidation of irrigation diversions, which have modified and confined the lower Cowiche Creek and the Naches River, and the reconfiguration of Nelson Dam on the lower Naches River. Upon completion, floodplain function will be restored in 0.5 miles of Cowiche Creek and almost 2.5 miles of the lower Naches River (see figure 5).

Bull Trout Enhancement

The Bull Trout Enhancement (BTE) Memorandum of Understanding was signed on October 2015 by Ecology, Reclamation, DFW, Yakama Nation, US Forest Service and US Fish and Wildlife Service. This MOU provides a basis for improving coordination among the water and fish managers in the Yakima Basin to improve and increase resiliency of Bull Trout populations in Keechelus and Kachess watersheds. To accomplish this, a coordinated and cooperative framework among interested parties is needed to develop and implement Bull Trout recovery actions within the Yakima Basin, with the objective of using Integrated Plan processes and committees to ensure effectiveness of proposed Bull Trout recovery actions.

The BTE Framework was developed by Ecology and Reclamation and the BTE MOU parties October 2017, which is an action plan intended to enhance Bull Trout populations through fish passage and habitat improvements. The BTE Framework was recently updated to include watershed health projected as identified by the US Forest Service as well. The BTE Framework identifies specific projects that benefit the upper Yakima River Basin Bull Trout populations by protecting, maintaining and restoring Bull Trout habitat and population management actions.

Bull Trout Enhancement projects and assessments include:

- Continued Integrated Plan support of the Bull Trout Task Force, which aims to reduce recreational impacts to Bull Trout through public outreach, removal of recreational rock dams, monitoring population and passage conditions, and project assistance.
- Conducting eDNA (environmental DNA sampling technique created by McKelvey et al. 2016) study to detect Bull Trout presence in stream reaches.
- Conducting macronutrient counts in Kachess Reservoir and Box Canyon.
- Assessing nutrient enhancement, which replaces nutrients formerly provided by the decomposition of salmon carcasses.

Yakima River Mile 89.5 Levee Breach

This project will reconnect a 1.5 mile side channel and 200 acres of floodplain on the Yakima River near Toppenish. Floodplain reconnection will be accomplished by selectively breaching a levee and installing grade controls along river mile 89.5. Project design is currently under contract and is expected to be finished in the spring of 2018, with construction to be completed fall 2018.

Island Road Floodplain Reconnection – Toppenish Creek

Ecology is partnering with the Yakama Nation to restore 1,000 acres of floodplain along Toppenish Creek by increasing channel roughness and breaching levees. This project will provide substantial benefits for fish and wildlife habitat and increased flood storage along the creek. Design work is expected to be complete by spring 2018, with construction to be completed fall 2018.

Wapato Reach – 3-way Levee Setback

Over a half mile of levee along Toppenish Creek will be set back to increase habitat area for mid-Columbia steelhead within a critical spawning and rearing reach. This will also enhance stream function along the project reach and in downstream areas that are currently degraded by the effects of the tight constriction of the creek by the upstream levee. Project designs are currently 90-95% complete. The final version of the project design is pending a geotechnical analysis for stability, which is scheduled to occur in the spring of 2018. Construction will commence once the final design is approved.

Other Ongoing Habitat Enhancement Projects

(See figure 6 for all the Habitat Enhancement Projects)

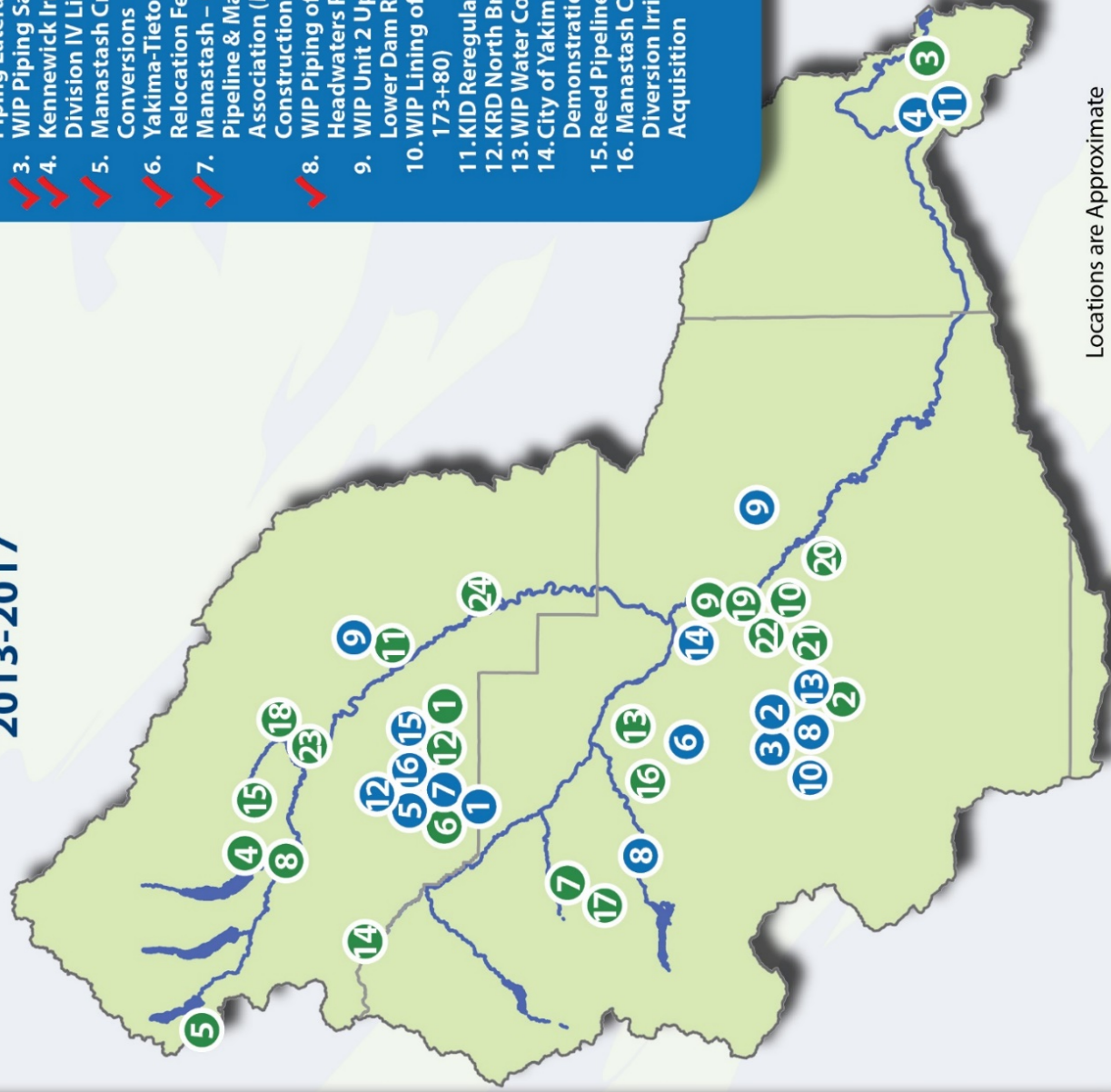
- Lower Yakima River temperature monitoring and restoration.
- Floodplain restoration of the Wapato Reach of the Yakima River.
- Trout Meadows land acquisition and flood plain enhancement.
- Upper Yakima floodplain acquisition and floodplain enhancement design on Ringer Loop Road.

Figure 6

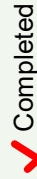
Yakima Basin Integrated Plan Habitat Enhancement/Enhanced Agricultural Conservation Projects 2013-2017

- Habitat Enhancement (2013-2017)**
- ✓ 1. Manastash Creek Conservation and Tributary Enhancement Project
 - ✓ 2. Toppenish Creek Habitat Restoration
 - ✓ 3. Bateman Island Causeway Modification Conceptual Design/Outreach/Permitting
 - ✓ 4. Bull Trout Habitat Improvements
 - ✓ 5. Gold Creek Habitat Assessment and Conceptual Design
 - ✓ 6. Reed Diversion design Barrier Removal
 - ✓ 7. Little Rattlesnake Road Decommissioning
 - ✓ 8. Cle Elum River Side Channel Restoration Project, Phase 2
 - ✓ 9. Gap-to-Gap Property Acquisitions
 - ✓ 10. Upper Wapato Riparian Restoration
 - ✓ 11. Ellensburg Water Company / Coleman Creek Restoration
 - ✓ 12. Reed Diversion Barrier Removal
 - ✓ 13. Trout Meadows Acquisition / Enhancement
 - ✓ 14. Manastash/ Little Naches Land Acquisition
 - ✓ 15. Teanaway Acquisition
 - ✓ 16. Cowiche Easement/Design
 - ✓ 17. South Fork Tieton Bull Trout Passage Feasibility and Design
 - Phase 1
 - Phase 2
 - ✓ 18. Teanaway/Indian Creek Restoration
 - Phase 1
 - Phase 2
 - ✓ 19. Gap-to-Gap Outfall Relocation, Land Acquisition and Levee Removal Design and Restoration
 - ✓ 20. Yakima Rivermile 89.5 Levee Breach
 - ✓ 21. Island Road Floodplain Reconnection - Toppenish Creek
 - ✓ 22. Toppenish Creek - 3-way Levee Setback
 - ✓ 23. Teanaway Habitat Restoration
 - ✓ 24. Upper Yakima Floodplain Acquisition and Design Ringer Loop Road

- Agricultural Conservation (2013-2017)**
- ✓ 1. KR D 13-6, 13-8 Lateral Piping Project
 - ✓ 2. Wapato Irrigation Project (WIP) Piping Lateral 4-414C
 - ✓ 3. WIP Piping Satus East Lateral E73
 - ✓ 4. Kennewick Irrigation District (KID) Division IV Lining
 - ✓ 5. Manastash Creek Sprinkler Conversions
 - ✓ 6. Yakima-Tieton ID Diversion Relocation Feasibility Study
 - ✓ 7. Manastash - Consolidated Pipeline & Manastash Water Ditch Association (MWDA) Pipeline Construction
 - ✓ 8. WIP Piping of Unit 2 L672 and Headwaters Rebuild
 - ✓ 9. WIP Unit 2 Upper Dam Rebuild and Lower Dam Removal
 - ✓ 10. WIP Lining of Unit 2 (167+20 to 173+80)
 - ✓ 11. KID Reregulation Reservoir Design
 - ✓ 12. KR D North Branch Canal Lining
 - ✓ 13. WIP Water Conservation Plan
 - ✓ 14. City of Yakima Xeriscape Demonstration Project
 - ✓ 15. Reed Pipeline Design
 - ✓ 16. Manastash Creek, Anderson Diversion Irrigation Water Acquisition



Locations are Approximate



YAKIMA BASIN
BUILDING A FUTURE FOR WATER,
WILDLIFE & WORKING LANDS

Fish Passage

This element focuses on providing both upstream and downstream fish passage at all five major storage reservoirs in the basin, allowing fish to reach the coldest and cleanest water located in the upper reaches of the Yakima Basin.

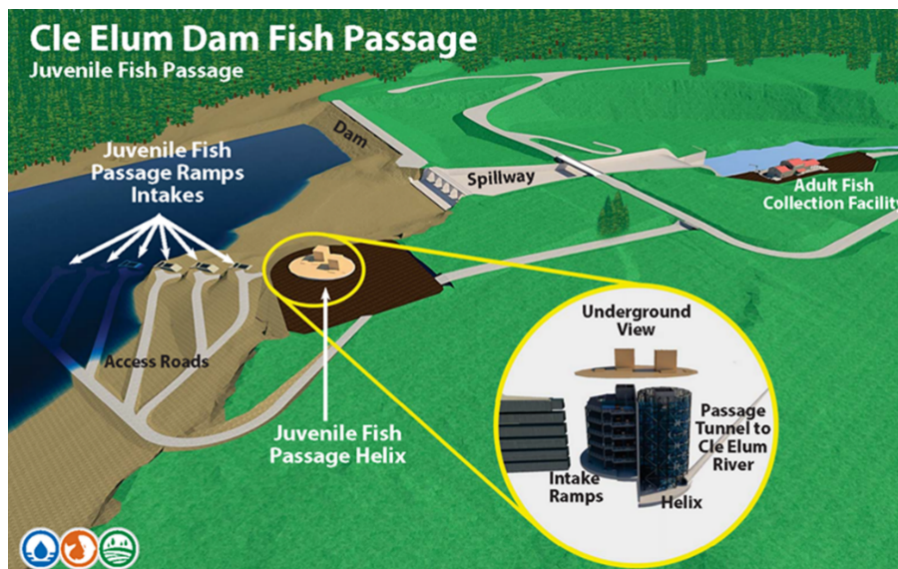
Cle Elum Dam Fish Passage

Since its construction in 1933, Cle Elum Dam has blocked salmon and steelhead from reaching historical spawning and rearing habitat. For sockeye salmon, that meant total extinction.

Building passage facilities at Cle Elum Dam restores the fishery by:

- Opening up almost 30 miles of fish habitat upstream of the dam.
- Restoring and enhancing salmon and steelhead populations in the Cle Elum River.
- Enabling the return of what was once the largest sockeye salmon run in the lower 48 states.
- Restoring access to high quality habitat for recently reintroduced sockeye and coho as well as threatened Bull Trout and steelhead.
- Allowing Bull Trout interactions with other populations below the dam while also providing upstream access to their spawning and rearing grounds.
- Improving foraging opportunities for Bull Trout, which could improve survival rates.
- Creating new recreational fishing opportunities.

The Yakama Nation reintroduced sockeye to Cle Elum Reservoir in 2009, and continues to work closely with Reclamation and YBIP stakeholders to restore passage throughout the basin. In 2016, Phase I of the Cle Elum Fish Passage Project was completed. This phase included the construction of an access road and bridge, providing access over the dam spillway to construct the fish passage facility. Phase II began in the spring of 2017 and includes construction of both the downstream and upstream fish passage facilities. Secant pile drilling was completed in November 2017 and excavation of the secant pile vault is currently underway.



Fish Passage Construction at Cle Elum Dam



The downstream fish passage facility is a unique system that includes a series of inlets at different reservoir elevations and a helix structure designed to transport juvenile fish around the dam. The facility will be operational over 63 feet of fluctuation in the

reservoir pool. This will allow fish passage over an extended period of time to meet salmon outmigration patterns and duration while the reservoir pool fills in the spring and recedes with seasonal drawdown of water to meet irrigation needs. The downstream fish passage facility is slated for completion in 2022.

The upstream adult passage under the current plan will be provided by a trap-and-haul system in which fish are trapped at the base of the dam, loaded into a truck and transported over the dam for release into the Cle Elum Reservoir. Reclamation and the Yakama Nation also tested a pneumatic fish transportation system at Cle Elum Dam in July 2017. This pneumatic fish transportation system moves fish through a flexible conduit or tube using pressure differential to either push or pull the fish through the conduit. This type of fish passage system may be added as part of the upstream passage facility in the future so that fish can pass over the dam without any handling. This method could reduce both the amount of time it takes the fish to get over the dam and the stress level of fish when compared to a trap and haul system.

Tieton Dam Fish Passage

The Tieton Dam and Rimrock Reservoir (on the Naches arm of the Yakima system) stores approximately 200,000 ac-ft. of water for irrigation and municipal uses. Like other Yakima Irrigation Project dams, Tieton Dam was constructed in the 1920's without fish passage facilities, though historically it supported salmonids and Endangered Species Act (ESA) -listed Bull Trout. An appraisal of fish passage alternatives at Tieton Dam was completed in 2015, with two downstream passage options: 1) a floating collection barge or 2) a fixed system similar to the helix at Cle Elum Reservoir. These alternatives will be assessed by fish co-managers in the basin to determine the most feasible option. Tieton Dam is likely the second reservoir within the basin to receive fish passage modifications under the Integrated Plan.

Other Fish Passage Investigations

The US Fish and Wildlife Service finalized their assessment of Bull Trout passage at Clear Creek Dam in 2016. This report⁶ determined how the challenging fish passage conditions at Clear Lake Dam affect Bull Trout and found that all monitored Bull Trout that attempted to ascend the Clear Lake spillway fish ladders, failed due to extremely rough waters and high water temperatures. This information will be used in designing a passage solution at this dam.

In 2016, Reclamation released their appraisal report⁷ on fish passage conditions affecting Bull Trout at Box Canyon Creek (a tributary to Kachess Reservoir) and on passage conditions between Little Kachess and Big Kachess Reservoirs, which become separated when Kachess Reservoir drops below the pool elevation of 2,224 feet. This appraisal provides potential mitigation measures for fish passage when the Kachess Drought Relief Pumping Plant (see page 30) is in use.

Water Conservation

This element strives to improve both instream flows in critical stream reaches and achieve more precise water delivery through aggressive implementation of water delivery and water use efficiency measures. See Figure 6 for a list of completed and ongoing water conservation projects.

The Integrated Plan water conservation element consists of additional water conservation actions not included under YRBWEP Title XII⁸. Through projects under this element, the Integrated Plan now conserves over 2,000 ac-ft. of water per year. Projects under this element include irrigation district infrastructure improvements, on-farm, commercial, industrial, municipal, and domestic water conservation measures. Project components can consist of one or more measures including the installation of flow monitoring equipment, canal lining, and open ditch canal conversion to pipe.

The YRBWEP Municipal Subgroup is tasked with synthesizing collaborative efforts that benefit communities served by municipal water supplies. These efforts reduce the risk of municipal water supply curtailment by extending existing supplies through water conservation and new supplies to support planned growth and development of local communities. Members of the Municipal Subgroup include water system managers along with state and local representatives.

Wapato Irrigation Project

The Wapato Irrigation Project (WIP), located on the Yakama Nation Reservation, aims to improve drought resiliency through efforts made towards improving operation efficiency and minimizing water transportation.

⁶https://www.fws.gov/leavenworthfisheriescomplex/MidColumbiaFWCO/pdf/2016%20Thomas%20CCDFPA_Final%20Report_Final_April%201,%202016.pdf

⁷<https://www.usbr.gov/pn/programs/yrbwep/2011integratedplan/btappraisal2016.pdf>

⁸<https://www.usbr.gov/pn/programs/yrbwep/authorization/amended-legislation.pdf>

Ongoing WIP projects include:

- Lining and re-piping of Unit 2.
- Rebuilding the Unit 2 Upper Dam.
- Removal of the Unit 2 Lower Dam.
- Converting open ditch to pipe of Satus East Lateral E73.

These projects will increase safety, reduce water transpiration, and improve water management through updated flowmeters and other water control equipment. Lining of Unit 2 is expected to conserve approximately 230 ac-ft. per year. Water conservation from WIP is estimated to be over 1,600 ac-ft. per year. Water savings resulting from irrigation system improvements are available for Yakama Indian Nation to use.



Roza Irrigation District

Roza Irrigation District completed sealing of the main canal mile post (MP) 17.7 to 18.9, preventing future seepage and reducing the amount of needed water delivered for irrigation. The sealing of main canal section MP 65.7 to 66.1 is currently underway and efforts are ongoing for the lining and sealing of remaining portions of the main canal in need of this repair. These efforts will minimize water transportation leakage, increasing drought resiliency, and improve operation efficiency.

Kennewick Irrigation District

The Kennewick Irrigation District is currently working on design of the Amon storage reservoir. This design will include canal lining to reduce water loss through seepage, automated gates for improved management of water supplies, and re-regulation of the reservoir to allow for water to be stored instead of spilled. Design plans are currently at 60% completion.

City of Yakima Xeriscaping

The City of Yakima has completed their xeriscaping design and bids are currently out for a landscaper to install this project. Xeriscaping is a style of designing landscapes using native and drought resistant vegetation. Changing green areas from traditional landscaping to xeriscaping will reduce maintenance needs, and can reduce or even eliminate the need for irrigation.

Kittitas Reclamation District

The Kittitas Reclamation District continues to upgrade existing infrastructure throughout their service area. This includes installation of new valves, overflows, turnouts, and canal lining. The North Branch Canal lining is near completion. Lining of the South Branch Canal is expected to commence mid-2018.

Like the Roza Irrigation District projects, this work will improve operation efficiency, minimize water transportation leakage and increase drought resiliency for the district.



Structural and Operational Changes

This element promotes operational efficiency and flexibility at existing in-basin facilities, some of which are over 100 years old, through facility expansion and conveyance improvements.

Keechelus-to-Kachess Conveyance

The Keechelus-to-Kachess (KKC) project is analyzed in the Kachess Drought Relief Pumping Plant (KDRPP) and KKC Draft Supplemental Environmental Impact Statement, which was released for public comment in April 2018. This project will help to refill the Kachess Reservoir in the years following a drought in which KDRPP would be used. While Keechelus Reservoir is smaller than neighboring Kachess, it has a much larger watershed catchment. The KKC would divert water from the Yakima River immediately downstream from the Keechelus Dam during high flows and convey it through a tunnel to the Kachess Reservoir.

This diversion serves two purposes:

1. Reduce high summer flows below the Keechelus dam, which would improve spawning and rearing habitat for Yakima River fish, particularly Chinook salmon and steelhead.
2. Accelerate refilling of the Kachess Reservoir if the proposed KDRPP is constructed and operated during official drought years.

Cle Elum Pool Raise

Construction of the Cle Elum radial gate modification has been completed. This raises the spillway gates at the dam by an additional 3 feet, allowing the Cle Elum Reservoir to hold up to 14,600 ac-ft. of additional storage water. Once shoreline protection around the reservoir is completed by Reclamation, the additional water can be stored and released for augmentation of instream flows.



Cle Elum Dam Radial Gate Construction

Kittitas Reclamation District Canal Modifications

The Kittitas Reclamation District has completed construction on an irrigation delivery ditch known as Lateral 13.8, which consisted of installing a pipeline in a previous earthen-lined ditch. These conservation measures free up canal and lateral capacity so that water can be conveyed for



Cle Elum Dam Radial Gate Completed

the tributary supplementation program. Water is now, and will continue to be, successfully piped to boost stream flows in a number of tributaries on an annual basis. Rewatering of these local creeks provides significant benefits for ESA listed steelhead and other species challenged by low flows and high temperatures. This project is a component of the Manastash Creek Conservation and Tributary Enhancement Project (see page 19).

Upper Yakima System Storage

The Kittitas Reclamation District (KRD) conducted an initial water storage assessment to determine possible surface water storage locations within or adjacent to the KRD service area. Out of 51 sites, 10 were selected as ideal sites based on construction cost and ability to use existing KRD infrastructure to fill the proposed storage site by gravity. This assessment is the first of five phases of this project. Initial results will be used in determining a feasible site for a potential small scale surface water storage project.

Yakima-Tieton Irrigation District

The Yakima-Tieton Irrigation District (YTID) approached the YRBWEP Workgroup's Executive Committee, and subsequently the Water Use Subcommittee, seeking partial funding for an analysis of upgrading the existing YTID main canal infrastructure and a creating a potential 20,000 – 30,000 ac-ft. off-channel reservoir (North Fork Cowiche Reservoir) in a

manner that would align with both parties' objectives. A key portion of this assessment includes the possibility of changing YTID's point of diversion from the Tieton River to the Wapatox dam on the Naches River. This would allow removal of the YTID diversion dam, increase operational flexibility at Rimrock and Bumping, and potentially improve instream flows. A revised Draft Feasibility Study was completed in December of 2016. Further exploration and discussion about these YTID infrastructure projects is on-going with the Water Use Subcommittee.

Subordination of Power Generation

In 2017, Kittitas Irrigation District (KID) and their consultant developed a concept design for an electric pumping plant at Chandler. The electrification of the Chandler Pumping Station would enhance Yakima River flows between Prosser Dam and the pump station by eliminating the need to divert water to operate the hydraulic turbines that in turn supply water to KID. Less water being diverted with electrical pumps translates to more water for fish and increases the reliability of water delivered to the KID main canal during droughts. Further assessment of power subordination at other facilities, including Roza Power Plant are needed to evaluate economic and operational impacts.



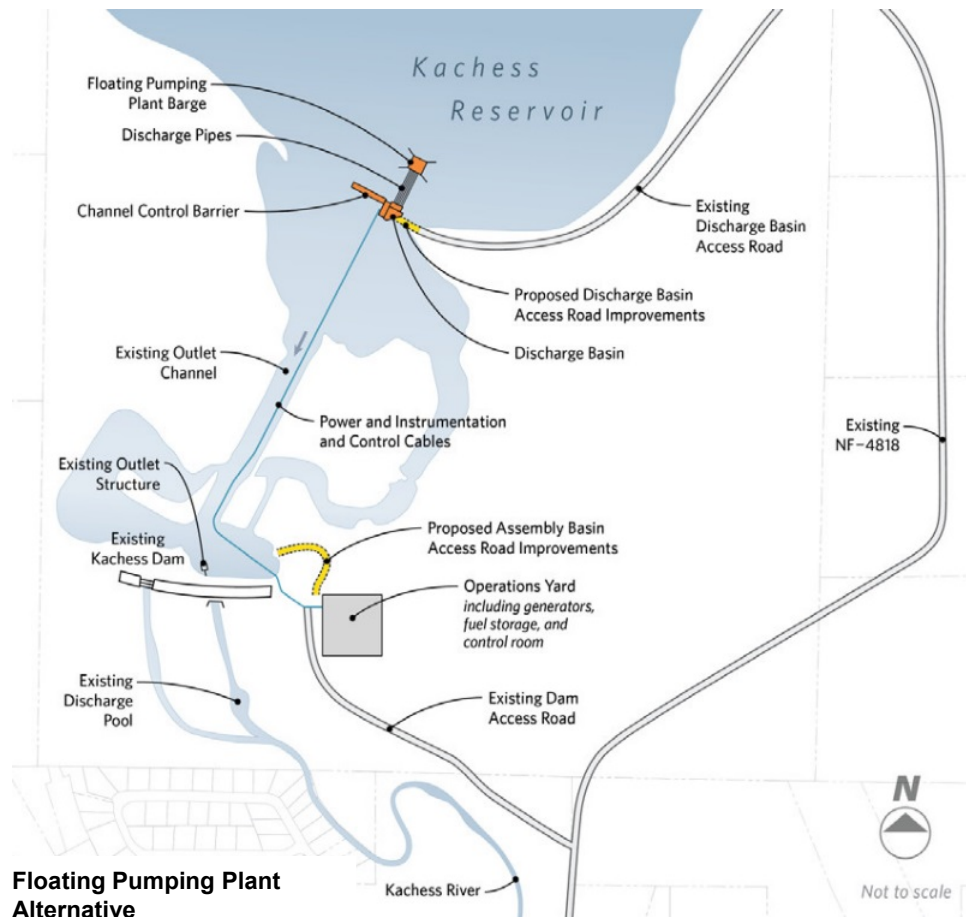
Surface Storage

This element strives to develop an additional 450,000 ac-ft. of new surface water storage for supporting in-stream and out-of-stream water uses.

Kachess Drought Relief Pumping Plant

The Kachess Drought Relief Pumping Plant (KDRPP) project is one potential surface-water supply project being studied by Reclamation and Ecology to improve water resources management in the Yakima River Basin. During a drought, demand for irrigation water exceeds supply, endangering the basin's \$4.5 billion agricultural economy. KDRPP could deliver up to an additional 200,000 ac-ft. of water by tapping into the 'inactive pool' below the reservoir's current outlet. This would draw the reservoir down up to an additional 80 feet, transferring the water into the Yakima River for distribution to participating proratable irrigation districts.

Pumping will only be possible during a state declared drought, with the goal of providing junior water users up to 70% of their water supply. Due to substantial changes to the Proposed Action and action alternatives of this project, Reclamation and Ecology determined that a Supplemental Draft Environmental Impact Statement (SEIS) was required. The draft SDEIS for KDRPP was released in April 2018 with a final SEIS to follow.



Wymer Dam and Reservoir

Reclamation completed a draft geotechnical investigation at the proposed Wymer Reservoir site in 2014. Ecology and Reclamation also performed a right-sizing and cost-risk analysis that same year. Consideration of site requirements and property acquisition are ongoing.

Bumping Reservoir Enlargement

Reclamation performed geophysics testing at the site in 2014 - 2015, and drilling in 2016. A draft feasibility report has been prepared and is currently under review. The results from the geophysics testing will be used to determine the best dam location and alignment. Consideration of site requirements are ongoing.

Data gathered for Wymer Dam and Reservoir and Bumping Reservoir Enlargement during the Initial Development Phase of the Integrated Plan will be used to evaluate which of the two large surface storage projects will advance in Intermediate and Final Development Phases.



Bumping Reservoir

Groundwater Storage

This element is designed to use surface water to recharge aquifers to store water for later withdrawal and use, and improve stream flow conditions.

The Integrated Plan Groundwater Subcommittee is charged with the task of recommending funding and scoping of groundwater storage projects under the Managed Aquifer Recharge

component of the Integrated Plan to the YRBWEP Workgroup (via the Executive Committee). These projects include managed aquifer recharge or aquifer storage and recovery at any location within the Yakima Basin.

City of Yakima Aquifer Storage and Recovery

In 2015, the City of Yakima began storing water from the Naches River underground in an aquifer as a supplemental water supply source. Now with a permanent reservoir permit issued in 2016 that authorizes up to 14,400 ac-ft. per year for recharge, the city is embarking on a five-year pilot phase to analyze and evaluate the capacity of two operating recharge wells, and four recovery wells. This is a model aquifer storage and recovery project and could be reproducible by other municipal systems.

Regional Groundwater Storage Options

Studies throughout the Yakima Basin are ongoing as Reclamation and Ecology pursue better understanding of potential groundwater storage within the basin as well as optimal techniques to meet the Integrated Plan's goals. The Yakama Nation Water Resource Program, along with Ecology and Reclamation, anticipate drilling wells in the Toppenish alluvial fan to evaluate agriculture responses to aquifer recharge spring 2018. Efforts are ongoing to identify critical areas where groundwater interacts with wetlands, floodplains, rivers and streams, as well as how pumping will affect aquifer levels and streamflows. This managed aquifer recharge effort is estimated to capture approximately 5,000 ac-ft., which could be used in lieu of reservoir releases in the future.

Market Driven Reallocation

Market Driven Reallocation improves water supply and instream flow conditions through banking and exchange programs that build on existing water market programs, reduce barriers to exchanging water and focus on water transfer between districts, which requires changes to existing laws and policies. Ecology has been working diligently in moving water from rural areas to domestic uses.

This element of the Integrated Plan involves reallocating water through a water market and/or water banks, where water rights can be bought, sold, or leased on a temporary or permanent basis, to improve water supply and instream flow conditions. There are two phases to market driven reallocation, near-term and long-term. The near-term phase continues existing water marketing and banking programs in the basin, but take additional steps to reduce barriers to water transfer. The long-term phase focuses on facilitating water transfers between irrigation districts, allowing irrigation districts to fallow land within the district and lease water rights for that land outside the district.

In September 2017, KRD in cooperation with Trout Unlimited was awarded Reclamation's WaterSMART Water Marketing Strategies Grant to begin working on water banking analysis in the basin. Trout Unlimited and Mammoth Trading will be partnering with KRD in the implementation of this project. Yakima County and Kittitas County are actively working on

procedures to enable property developments that rely, in part, on water acquisition or mitigation credits from willing sellers. Kittitas County has several water banks in place for this purpose, but they can be only used in certain areas of the county. We anticipate working efforts to be ongoing with basin water rights holders to enhance market conditions for future leasing and/or transferring rights on a willing seller basis.

Complementing Federal Actions to Implement the Integrated Plan

Federal Legislation

Much effort has been put towards establishing legislative intent to promote timely and effective implementation of the Integrated Plan and to promote the aggressive pursuit of water supply solutions that provide concurrent benefits to both instream and out-of-stream uses. Federal legislative efforts have been ongoing since 2015 when Senators Cantwell and Murray introduced legislation. Following on the heels of Senators Cantwell and Murry were Representatives Reichert and Newhouse introducing legislation in 2016. Unfortunately, neither of these efforts resulted in federal authorization for the Integrated Plan. On November 16, 2017, Representatives Newhouse and Reichert introduced H.R. 4419, the Bureau of Reclamation and Bureau of Indian Affairs Water Project Streamlining Act of 2017. This bill includes language in Section 8 necessary to advance the Integrated Plan (along with 3 other Reclamation projects) by authorizing federal actions and future appropriations for Initial Development Phase projects. Gaining federal authorization and funding is essential for the state-local-federal partnership to move the Integrated Plan forward.

Yakima Basin Integrated Plan and Washington DC Leadership Group

While some elements of the Integrated Plan can be implemented immediately by Ecology and Reclamation, other activities need the involvement and leadership of other federal agencies, additional compliance activities, and/or authorization from congress. To successfully implement an effort of this magnitude, Reclamation, Ecology, and non-federal sponsors recognize that the coordinated involvement and leadership of other federal agencies is essential. As a result, in 2013, the Implementation Committee members of the Integrated Plan worked with Reclamation and other federal agencies to form an executive team comprised of senior level executives within the federal government who have direct engagement in activities in the Yakima Basin.

The DC Leadership Group⁹ is led by Department of Interior's Assistant Secretary of Water and Science, who facilitates the members of the DC Leadership Group representing the relevant federal agencies from across government. The Department of Interior Assistant Secretary for Water and Science also coordinates at the appropriate departmental levels to ensure effective collaboration and communication in support of the DC Leadership Group.

⁹ <https://www.usbr.gov/pn/programs/yrbwep/2011integratedplan/2016meetings/12-18-2016/3dcleadership.pdf>

The DC Leadership Group provides the regional federal agency leadership and the Implementation Committee with assistance on addressing questions of national policy, clarifying and strategizing on authority issues, and identifying potential funding opportunities.



DC Leadership Group October 2016 Integrated Plan Field Trip of Yakima Basin

Federal agencies includes:

- Bureau of Reclamation
- U.S. Fish and Wildlife Service
- Bureau of Indian Affairs
- Bureau of Land Management
- U.S. Forest Service
- Natural Resources Conservation Service
- National Oceanic and Atmospheric Administration Fisheries
- U.S. Army Corps of Engineers

The Implementation Committee and Local Leadership's direct engagement with the Regional Leadership are expected to enhance the timeliness of relevant policy and budget decisions and the effectiveness of cross organizational collaboration. The Integrated Plan Executive Committee hosted the DC Leadership Group for site tours in the Yakima Basin on October 12 and 13, 2016. The purpose of the visit was to update the DC Leadership Group on progress to date in implementation of the Integrated Plan, clarify and strategize on authority and funding opportunities, and to celebrate the completion of the first phase of construction associated with the Cle Elum Fish Passage facility.

A half-day session was also spent at Ecology's Central Regional Office in Union Gap discussing the various issues and funding opportunities to pursue. The group also discussed the pending (at the time) presidential election and new administration and the likelihood of federal personnel changes and the need to update and re-confirm the purpose and intent of the DC Leadership Group once new personnel were appointed and in place.

Department of Ecology

The Integrated Plan continues to meet Ecology’s objectives by advancing projects throughout all seven elements of the plan. Many of the projects being implemented meet multiple objectives of the seven key elements. Groundbreaking of the Cle Elum fish passage and steps taken on a wide range of habitat protection and restoration projects listed in the previous sections directly address Ecology’s objective of the protection, mitigation, and enhancement of fish and wildlife. Projects under the elements of surface storage, groundwater storage, and water conservation continue advancement in addressing the objective to improve water availability and reliability, as well as increasing water delivery efficiency through water conservation, groundwater storage, and surface water storage projects. Finally, projects encompassed under the Market Driven Reallocation and the Structural and Operational elements directly address the Ecology objective to establishing more efficient water markets and more effective operational and structural improvements.

Ecology and its partners are currently working to implement projects and programs comprising the first 10 year phase of the Integrated Plan. The first 10 year phase is commonly referred to as the initial development phase (IDP) and began in July 2013 and will continue through June 2023. The IDP advances all seven elements on the plan and is estimated to cost approximately \$909 million, with non-state sources picking up \$490 million or 54 percent of projected expenses. However, cost estimates are expected to be fluid as projects move from concept to feasibility to design and construction. Efforts to secure non-state funding are ongoing as Ecology and its partners continue to implement the program adaptively depending on actual funding levels, as well as ongoing developments that may affect project design, costs, hydrologic conditions, fisheries health and the vibrant agriculture based economy of south-central Washington. Table 1 shows the breakdown of the IDP project funding. The costs in Table 1 represent the best available estimates based upon current information and is subject to change as project feasibility and design proceed.



Ceremonial Opening of Cle Elum Fish Passage Access Road and Spillway Bridge

Pictured: Tom Tebb (Ecology), Estevan Lopez (Reclamation), Derek Sandison (WA Department of Agriculture), Michael Connor (US Department of Interior), Phil Rigdon (Yakama Nation), Wendy Christensen (Reclamation), Lorri Gray (Reclamation), and Tom Iseman (US Department of Interior).

Table 1 Breakdown of Initial Development Phase Project Funding

Amount in Millions (blank cells denote "0" funding or request)					Appropriated State Funding			Anticipated State Funding Requests 2019 - 2023		Federal & Other Sources of Funding	
Integrated Plan Elements	Projects	Projected Funding Requests from all Sources 2013-2023	Anticipated Federal & Other Share 2013-2023	Anticipated State Share 2013-2023	2013-2015	2015-2017	2017-2019	2019-2021	2021-2023	2014 - 2017	2018-2023 ^a
Habitat	Teanaway Forest Acquisition	99.3		99.3	99.3						
	Teanaway Forest Planning & Operations	7.5		7.5	1.0	0.5	1.5	2.3	2.2		
	Kittitas County impacts offset for Teanaway Forest	10.0	5.0	5.0	5.0						5.0
	Other State Land Acquisitions ^b	12.9	7.1	5.8	5.8					3.2	3.9
	NRCS RCPP - Yakama Nation Projects	22.6	22.6							4.6	18.0
	NRCS EQIP	20.5	20.5							2.5	18.0
	NMFS Pacific Coastal Salmon Recover Fund	20.4	20.4							4.8	15.6
	USACOE levee reconfiguration, setback & removal	13.2	13.2							4.7	8.5
	BPA NPCC Fish and Wildlife Program	79.1	79.1							79.1	0.0
	Tributary/Mainstem Habitat Restoration Projects	39.8	19.9	19.9	2.4	2.5	5.4	4.8	4.8		19.9
	Bull Trout Enhancement	13.6	6.8	6.8		1.7	1.7	1.7	1.7		6.8
	Federal, Tribal, Local Habitat Actions & Land Acquisitions ^c	7.2	6.9	0.3		0.3				6.9	0.0
Fish Passage	Cle Elum Dam	135.1	71.9	63.2	8.8	9.0	9.0	23.6	12.8	24.2	47.7
	Tieton Dam	85.8	42.9	42.9	0.6	0.5		20.9	20.9		42.9
	Clear Lake Dam passage	9.0	4.5	4.5			1.5	1.5	1.5		4.5
	Box Canyon Creek	TBD	TBD	TBD				TBD	TBD		TBD
	USFWS National Fish Passage Program funds	0.5	0.5							0.5	0.0
Structural & Operational	Keechelus to Kachess Conveyance Project	172.3	86.4	85.9	0.5	4.2		40.6	40.6	0.8	85.6
Modifications	Cle Elum Dam/Pool Raise	26.8	13.4	13.4	2.8	1.0	3.0	3.3	3.3		13.4
	Roza Power Subordination ^d	TBD	TBD	TBD	0.2			TBD	TBD		TBD
	Chandler Power Subordination ^d	TBD	TBD	TBD				TBD	TBD		TBD

	Kittitas Reclamation District Canal Modifications	TBD	TBD	TBD				TBD	TBD		TBD
Surface Storage	Kachess Drought Relief Pumping Plant (KDRPP) ^e	36.2	18.6	17.6	12.6	4.3	0.7			2.0	16.6
	Wymer Dam and Reservoir	7.0	3.5	3.5	0.5		3.0				3.5
	Bumping Reservoir Enlargement	1.0	0.5	0.5	0.5						0.5
Groundwater Storage	Regional Storage Options	8.0	4.0	4.0	0.2	0.5	1.1	1.1	1.1		4.0
	Municipal ASR Projects	0.4	0.2	0.2	0.2						0.2
Water Conservation	Agricultural Conservation Projects	74.4	38.1	36.3	2.4	4.8	5.0	12.1	12.0	3.8	34.3
	Municipal/Domestic Conservation Programs	1.2	0.6	0.6	0.1	0.2	0.1	0.1	0.1		0.6
	BIA WIP improvements	2.3	2.3							2.3	0.0
Market Driven Water Reallocation	General support for markets and banking	3.0	1.5	1.5	0.4	0.5	0.6			0.1	1.4
	TOTAL	909.1	490.4	418.7	143.3	30.0	32.6	112.0	101.0	139.5	350.9
Percentage Share		100%	53.9%	46.1%	15.8%	3.3%	3.6%	12.3%	11.1%	15.3%	38.6%

Notes:

- (1) RCW 90.38.120 - Legislative Intent - Cost to implement integrated plan states: (1)(a) It is the intent of the legislature for the state to pay its fair share of the cost to implement the integrated plan. At least one-half of the total costs to finance the implementation of the integrated plan must be funded through federal, private, and other nonstate sources, including a significant contribution of funding from local project beneficiaries. This section applies to the total costs of the integrated plan and not to individual projects within the plan.
- (2) RCW 90.38.120 - Legislative Intent - Cost to implement integrated plan states: (1)(b) The state's continuing support for the integrated plan shall be formally reevaluated independently by the governor and the legislature if, after December 31, 2021, and periodically thereafter, the actual funding provided through nonstate sources is less than one-half of all costs and if funding from local project beneficiaries does not comprise a significant portion of the nonstate sources.
- (3) The projects and specific costs are subject to change or modification as new information becomes available over the course of the 30 year implementation schedule of the Yakima Integrated Plan. The state and non-state cost share is yet to be defined. This estimate is guided by the projected state support provided over the next three biennia. If non-state funding was increased during this time, the required state funding might need to be increased to conform to RCW 90.38 and in conformance with agreed upon cost-share methodology. The estimates provided in this projection illustrates a possible state and non-state cost share approach and may not be consistent with other published cost estimates for the overall integrated plan.
- (4) Costs do not include inflation. They are listed in dollars from the most recent study available (typically 2012 to 2015 dollars) and are subject to change as new information becomes available through additional feasibility and design studies and/or changes by the Yakima Integrated Plan Workgroup.
- (a) The funding estimate for 2018-2023 federal and other sources is projected to be equivalent to the anticipated state share of funding for the 2013-2023 timeframe. The specific amount dedicated to each project is yet to be determined for the federal and other sources of funding.
- (b) Includes Tieton Cattle Co./North Fork Cowiche Creek; and Heart of the Cascades/Manastash Block.
- (c) Funded by LWCF in 2014 and 2015. Includes acquisitions in Naches watershed; Cabin Creek, Log/Thetis Creek. Some of these went beyond "primary" YBIP goals.
- (d) Funding for power subordination costs and KRD canal modification costs are listed as TBD due to insufficient information to reasonably cost-out. Inclusion of costs for these three items will increase the total state and non-state share of overall funding.
- (e) Includes funds spent by Roza ID on Kachess Emergency Floating Pumping Plant - cost assumes floating plant alternative.

Conclusion

The Integrated Plan is a balanced approach agreed upon by a diverse coalition of irrigators, farmers, environmental and outdoor enthusiast groups, local, state and federal governments, and the Yakama Nation. It is designed to address the need for economic and environmental sustainability, meeting the needs of water users, while restoring abundant salmon, Bull Trout, and steelhead runs and improving habitat. By working together, the Integrated Plan's is meeting its goals through partnerships and cooperation, when in the past we were in conflict.

Since its creation in 2013, the Integrated Plan has made advancements on projects from all seven elements of the Integrated Plan and continues to make advancements toward meeting legislative objectives. These accomplishments were possible through our framework of collaboration and coordination among multiple entities of the Yakima River Basin Water Enhancement Project (YRBWEP) workgroup and its subcommittees.

Accomplishments include:

- Breaking ground on the Cle Elum fish passage project.
- Completing construction of the Cle Elum radial gate modification and initiating shoreline protection around the reservoir.
- Continued community based management and restoration work for the Teanaway Community Forest.
- Finalized ASR permitting for the City of Yakima and formed a Groundwater subcommittee.
- Release of the Supplemental Draft Environmental Impact Statement for the Kachess Drought Relief Pumping Plant and Keechelus-to-Kachess projects in April 2018.
- Ongoing water conservation efforts including lining and piping projects that have conserved over 2,000 ac-ft. of water per year.
- Awarding Reclamation's WaterSMART Water Marketing Strategies grant to Kittitas Reclamation District to begin a water marketing analysis for the Yakima Basin.

Many ongoing Integrated Plan projects require continued funding for completion. For the 2017-2019 biennium, Ecology received \$31.1 million for continued implementation of the Integrated Plan. Except for Cle Elum Fish Passage project, large-scale funding needed for construction of major projects has not been provided by the federal government and is pending enabling legislation. If enacted, H.R. 4419 would provide the necessary federal framework authorizing Reclamation and other federal agencies to seek more robust funding levels to implement the Initial Development Phase of the Integrated Plan.

During the 2017-2019 biennium, the Integrated Plan aims to continue project advancement through all seven elements, with attention on making measurable progress in the Surface Storage and Market Driven Reallocation elements. The objectives of the Integrated Plan cannot be met without significant improvements in surface water storage and further investigative analyses are needed at Bumping and Wymer Reservoirs. The Market Driven Reallocation element will advance with KR D developing a Smart Market Strategy Framework by the end of 2019. The YRBWEP Workgroup is working with the State's Congressional Delegation to ensure the Yakima portion of H.R. 4419 accomplishes the all the goals of the Integrated Plan.

Over the last seven years, a unique and diverse collaboration has emerged in the Yakima Basin focused on developing a collective vision for the future of water in the Yakima Basin; a future where there is water for farming, water for anadromous fish, and water for families even when we have years of less than adequate water supplies. Congressional authorization of the Initial Development Phase of the Integrated Plan is the next vital step forward in making that future possible.

Yakima Basin Integrated Plan Workgroup Members

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Mike Williams US Forest Service	Bret Walters US Army Corps of Engineers	Jaclyn Hancock WA Department of Agriculture
Tom Tebb WA Department of Ecology	Mike Livingston WA Department of Fish & Wildlife	Rick Roeder WA Department of Natural Resources
Dave Fast Yakama Nation	Phil Rigdon Yakama Nation	Alex Conley Yakima Basin Fish & Wildlife Recovery Board
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