

Implementation Status Report

Yakima River Basin Integrated Water Resource Management Plan

July 2016



**THE OFFICE OF
COLUMBIA RIVER**
Water for Families, Farms, and Fish



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Central Regional Office - Office of Columbia River
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July 21, 2016

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 2015 *Implementation Status Report for the Yakima River Basin Integrated Water Resource Management Plan* was prepared by the Department of Ecology (Ecology) for the Legislature as required under RCW 90.38.100. Note, it is the first status report since the Legislature passed the Yakima River Basin Water Resource Management Act (also known as Second Substitute Senate Bill 5367) in 2013. This report is now available at this website:
<https://fortress.wa.gov/ecy/publications/SummaryPages/1612002.html>.

This report along with the Units Costs for Proposed Keechelus-to-Kachess Conveyance and Kachess Drought Relief Pumping Plant (June 2016) submitted separately, documents the State's progress on Integrated Plan implementation. These two reports discuss project-by-project development; involving planning, design, permitting, funding and construction. Ecology will continue to work collaboratively with stakeholders to implement the Integrated Plan and to seek non-state funding to complement the significant investments made by the State of Washington.

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 Rauert by phone at (509) 454-4239 or email at: colleen.rauert@ecy.wa.gov.

Sincerely,

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



Implementation Status Report For The Yakima River Basin Integrated Water Resource Management Plan

Submitted by The Office of Columbia River

This Report is available on the Department of Ecology website at:
<https://fortress.wa.gov/ecy/publications/SummaryPages/1612002.html>

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Abstract/Executive Summary

Solving the water resource and aquatic resource problems of the Yakima River Basin has been among the highest priorities of Ecology's (Ecology) Office of Columbia River (OCR). To this end, OCR has partnered with the U.S. Bureau of Reclamation and a range of stakeholders in preparing the Yakima River Basin Integrated Water Resource Management Plan (Integrated Plan).

This report is the first of a series of reports to be submitted to Legislature and the Governor every biennium summarizing progress in implementing the Integrated Plan.

Since passage of 2SSB 5367 in support of the Integrated Plan in 2013, OCR has embarked on an ambitious 30-year effort encompassing an unprecedented breadth of projects and programs designed to solve the water and aquatic resource needs of the Yakima River Basin in south central Washington. Over the last two years, the program has been advancing a wide range of projects from planning, design, permitting, funding and construction as part of the first 10 years of project development (10-year Initial Development Phase).

The project-by-project activities discussed in this report include concurrent advancement of fish passage, watershed enhancement, and water supply.



Above and preceding: The Yakima River in Yakima Canyon between Ellensburg and Yakima.

Many of these efforts also provide improved stream flow in critical reaches, as well as improvements in other fish habitat conditions.

State funding for project development during the 2013-15 biennium amounted to \$143 million. This represented 61 percent of the \$234 million spent by the state, federal government, and other parties combined. The greatest single expenditure during the biennium was the State's \$99 million acquisition of the Teanaway Community Forest.

The Legislature appropriated an additional \$30 million in the 2015-17 biennium for continued implementation of the Integrated Plan. These funds are being applied now to a variety of projects in combination with funds obtained from other sources.

In order to fully fund the State's share of the ongoing 10-year Initial Development Phase, a state investment of \$100 million to \$110 million in each of the next three biennia (2017-19, 2019-21, and 2021-23) would be needed. Similar levels of funding will be sought from a combination of federal and private funding sources. Ecology and its partners will 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 productivity of the central Washington economy.

Considerable progress has been made over the past two years to secure a lasting framework for collaboration and coordination among the many entities participating in this comprehensive program, which include state, federal, local agencies, the Yakama Nation, and private organizations. The parties represented on the Yakima River Basin Water Enhancement Program (YRBWEP) Workgroup and its various committees have forged strong working partnerships resulting in valuable outcomes for fish and water supply under the challenging conditions posed by the 2015 drought.

Federal legislation has now been introduced to complement RCW 90.38.060, which is a necessary step in securing federal funding at the scale needed to construct major projects. Ecology will continue to apply a collaborative strategy to implement the Integrated Plan with stakeholder support and will continue to seek non-state funding to complement the significant investments made by the State of Washington in the Yakima River Basin.

The Office of Columbia River was created by the Washington State Department of Ecology to implement the Columbia River Water Supply Development Act (RCW 90.90) passed by the State Legislature in 2006. The RCW directs Ecology to aggressively pursue water supply development for both instream and out-of-stream uses.

Introduction

In 2013 the Washington State Legislature passed the Yakima River Basin Water Resource Management Act (Second Substitute Senate Bill 5367, aka 2SSB 5367) now embodied in RCW 90.38. This legislation authorized implementation of the Integrated Plan. The Integrated Plan was developed through a consensus-based approach by a diverse group that included representatives of the Yakama Nation; federal, state, county and city governments; environmental organizations and irrigation districts.

The 2013 legislation authorizes Ecology to:

- Implement the Integrated Plan through a coordinated effort of affected federal, state and local agencies and resources;
- Develop water supply solutions that provide concurrent benefits to both instream and out-of-stream uses; and
- 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 provisions of the Integrated Plan.

Consistent with RCW 90.38.100, this report fulfills a requirement that Ecology provide an implementation status report to the Washington State Legislature and Governor, every other year beginning in December 2015. The status report must include the following information:

- 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 biennium¹ 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 Plan for the Yakima River Basin.

This status report covers the 2013-15 and 2015-17 biennia. For related information, see the Cost Estimate and Financing Plan, prepared by Ecology and Washington State Treasurer in December 2014 (Ecology publication 15-12-003).

U.S. Senator Maria Cantwell introduced proposed legislation identified as bill number S1694 to the U.S. Senate Energy and Natural Resources Committee in July 2015. The bill was passed out of committee in November 2015. Members of Washington's congressional delegation have expressed an intent to introduce a

¹ Washington State operates on a two-year budgetary period, or "biennium." The biennium runs from July 1 of every odd-numbered year to June 30 of the next odd-numbered year (e.g. July 1, 2013 to June 30, 2015).

companion bill for consideration in the House of Representatives.

If enacted, this bill would authorize implementation of the Integrated Plan in a staged fashion over 30 years representing “Phase III” of the YRBWEP². The bill identifies the 10-year Initial Development Phase consisting of several specified projects and actions, followed by two additional 10-year phases with specific projects to be determined subsequently. It requires coordination of federal and state actions with the Yakama Nation. S1694 further requires that project actions would be subject to feasibility studies, environmental reviews and cost-benefit and other analyses. It would add municipal, industrial and domestic purposes to the authorized uses of water from the federal Yakima Irrigation Project. The bill requires that the federal cost share for the Initial Development Phase not exceed 50 percent. The bill also updates other provisions of the existing federal YRBWEP statute, besides those associated with the Integrated Plan.

The federal government has partnered with Washington since 2009 to develop the Integrated Plan. Reclamation provided funding for studies in 2010 and 2011 that were used in developing the plan. Reclamation and other federal agencies provided funding to advance a range of related activities in federal fiscal years 2012-2016. However, the large scale funding needed for construction of major projects has not been available from the federal government, pending passage of a bill authorizing the projects. If enacted, S1694 would provide that authorization and would enable Reclamation and other federal agencies to seek more robust funding levels to implement the Integrated Plan.



The Yakima River Basin Water Enhancement Project Stakeholder Workgroup participated in the development of the Integrated Plan

² Phase I of YRBWEP Congressional legislation passed in 1979 and Phase II passed in 1994.

Yakima Basin Conditions



The Yakima River Basin occupies approximately 6,000 square miles on the east side of the Cascade Range in south central Washington. It supports a population of about 370,000 people and is home to the Yakama Nation. Agriculture in the basin contributes over \$3 billion annually to the state and national economy.



The federal Bureau of Reclamation operates five reservoirs in the Yakima River Basin, with a total capacity of about 1,000,000 acre-feet (ac-ft), to provide water supply, primarily for agricultural uses. The basin is also heavily dependent on snowpack for water supply and stream flows, which historically provides approximately one-third of the runoff in the Basin.



The surface-water resources of the Yakima River Basin are over-appropriated and have been the subject of a decades-long adjudication in state court. Most rights for groundwater, supporting municipal water systems and domestic wells in the basin, are junior to Reclamation's 1905 rights for surface water. The Yakima River Basin's surface and groundwater aquifers are interconnected and must be managed as a single resource. Therefore, new groundwater uses are authorized only when mitigated by the acquisition of a more senior right through a change and transfer or water banking program.



Anadromous fish such as salmon and steelhead depend on stream flow and other habitat conditions in the basin. Resident fish, including federally listed bull trout also depend on these resources. Historically, the Yakima River Basin was the second largest producer of salmon and steelhead runs in the entire Columbia River system.



Recurring droughts have demonstrated the vulnerability of the basin's water supplies for meeting instream and out-of-stream needs. The Yakima River Basin and much of Washington State suffered through a severe drought in 2015. The state departments of Ecology and Fish and Wildlife worked closely with the federal Bureau of Reclamation, Yakama Nation, and a range of stakeholders to take extraordinary measures to manage water supplies and instream flows in the face of record-low snowpack and stream flow conditions. This experience highlighted the importance of implementing Integrated Plan actions as well as the value of the partnerships developed among the diverse agencies and organizations participating in the Integrated Plan process.



Above:

Bumping Reservoir

Cle Elum Reservoir

Kachess Reservoir

Keechelus Reservoir

Rimrock Reservoir

After a century-long absence, the first generation of Yakima Basin hatched sockeye return to spawn in Cle Elum Reservoir tributaries.

Photo credits: US Bureau of Reclamation and Yakama Nation

Overview of The Integrated Plan

The Integrated Plan was developed by Ecology and Reclamation in partnership with the Yakama Nation and a group of stakeholders known as the YRBWEP (see right). Its goals are to:

- Provide opportunities for comprehensive watershed protection, ecological restoration, and enhancement addressing instream flows, aquatic habitat and fish passage;
- Improve water supply reliability during drought years for agricultural and municipal needs;
- Develop a comprehensive approach for efficient management 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; and
- Contribute to the vitality of the regional economy and sustain the riverine environment.

The Integrated Plan proposes to achieve those goals through implementation of the following seven (7) elements (reference the figure on page 7):

1. Fish Passage Element
 - Provide fish passage at all major Yakima River Basin dams.
2. Structural and Operational Changes Element
 - Promote operational efficiency and flexibility at existing in-basin facilities.
3. Surface Water Storage Element
 - Develop an additional 450,000 ac-ft of surface water storage for supporting instream and out-of-stream water uses.
4. Groundwater Storage Element
 - Recharge underground soil or rock formations with surface water for storage and recovery for future use.
5. Habitat/Watershed Protection and Enhancement Element
 - Protect and enhance critical habitat for anadromous and resident fish and wildlife.
6. Enhanced Water Conservation Element
 - Improve instream flows critical stream reaches by aggressively implement water use efficiency measures.
7. Market Driven Reallocation Element
 - Create conditions in which water banks can efficiently facilitate the sale of lease of water between willing parties.

YRBWEP Workgroup

State and Federal Agencies

U.S. Bureau of Reclamation
National Marine Fisheries Service
U.S. Fish and Wildlife Service
U.S. Forest Service
Washington State Department of Agriculture
Washington State Department of Ecology
Washington Department of Fish & Wildlife

Yakama Nation

Yakama Nation Natural Resources
Yakima/Klickitat Fisheries Project

Local Governments

Benton County
Kittitas County
Yakima County
City of Yakima

Irrigated Agriculture

Kennewick Irrigation District
Kittitas Reclamation District
Roza Irrigation District
Sunnyside Valley Irrigation District
Yakima-Tieton Irrigation District

Other Stakeholders

American Rivers
Trout Unlimited
Yakima Basin Fish & Wildlife Recovery Board
Yakima Basin Storage Alliance

More information on the origins, purposes and content of the Integrated Plan can be found at Ecology's Office of Columbia River web site for the plan: <http://www.ecy.wa.gov/programs/wr/cwp/YBIP.html>

Fish Passage

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

Agricultural Conservation (2013-2015)

1. Kennewick Irrigation District (KID) Division IV Lining
2. Wapato Irrigation Project (WIP) Piping Lateral 4-414C
3. Wapato Irrigation Project Piping Satus East Lateral E73
4. Manastash Creek, Anderson Diversion Irrigation Water Acquisition
5. Manastash Creek Sprinkler Conversions
6. Yakima-Tieton Irrigation District (YTID) Feasibility Study – Tieton to Ahtanum Exchange
7. Manastash – Consolidated Pipeline & Manastash Water Ditch Association (MWDA) Pipeline Construction

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

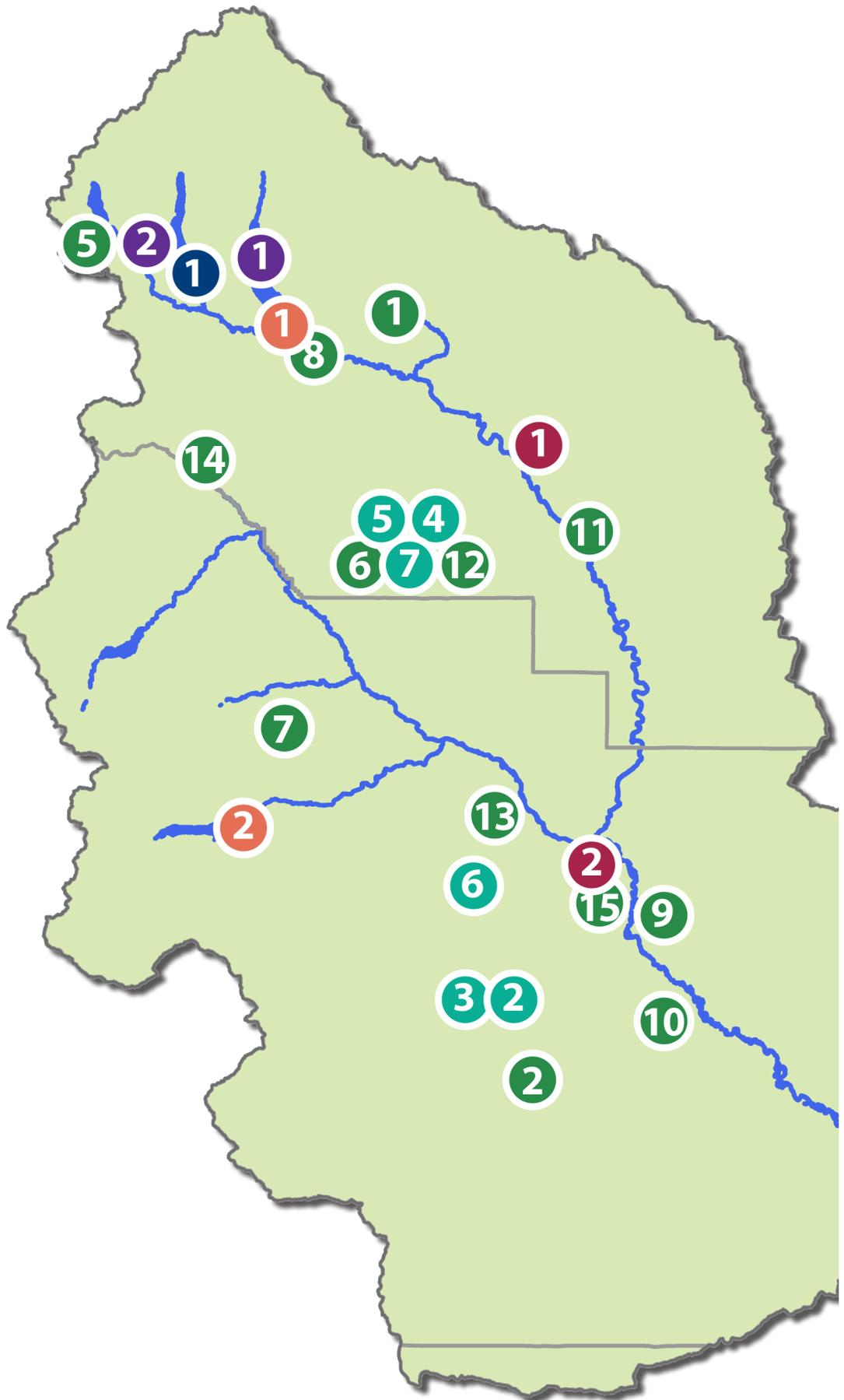
Basin Wide

Groundwater Storage

1. Upper Kittitas Aquifer Storage and Recovery
2. Yakima City Aquifer Storage and Recovery

Habitat Enhancement (2013-2015)

1. Teanaway Acquisition
2. Toppenish Fan
3. Bateman Island Causeway Modification Conceptual Design
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. Gap-to-Gap Outfall Relocation



Initial Development Phase

Ecology and its partners are currently working to implement projects and programs comprising the 10-year Initial Development Phase (IDP) of the Integrated Plan. The IDP began in July 2013 and will continue through June 2023. The IDP is structured to concurrently advance some portion of all seven plan elements listed above. It is designed to provide tangible improvements in stream flow, fish habitat, and fish passage as well as to improve security of existing, out-of-stream water supplies.

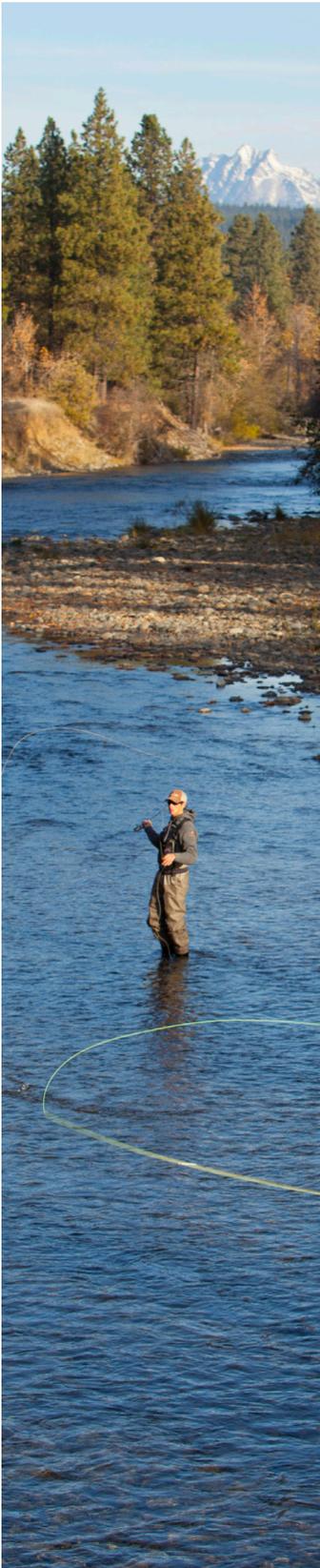
Ecology's December 2014 Cost Estimate and Financing Plan indicated the cost of the IDP would be about \$900 million, and that costs would be updated as feasibility studies proceed. This current report provides updated information on projected costs. Cost estimates are somewhat fluid as project designs are developed and refined; funding sources are identified, and permitting and mitigation requirements are determined. It should be noted that estimates of future costs are in current dollars and do not contain any inflationary or fiscal growth factor.



This wetland along the Yakima River between Selah and Union Gap was restored as part of the Integrated Plan's initial development phase.



Actions Taken Since 2013 to Implement the Integrated Plan



This section describes the specific implementation activities that have been completed since July 1, 2013 or are now under way. It is organized based on the seven elements of the Integrated Plan.

Habitat Element

The habitat element of the Integrated Plan includes actions to protect and enhance critical habitat for anadromous and resident fish. Of particular interest are several species of salmon, federally-listed steelhead, and federally-listed bull trout. The habitat element targets watershed protection and enhancement to be accomplished through protection and restoration of key land areas and associated ecosystem resources; and a mainstem and tributaries fish habitat enhancement program.

Teanaway Community Forest

Using funds appropriated by the Legislature, the Washington Department of Natural Resources (DNR) purchased 50,241 acres of forest land from a private landowner. This land has been designated as the Teanaway Community Forest (TCF). The acreage purchased achieved one of the acquisition targets identified in the Integrated Plan, for “high-elevation watershed enhancement.”

In addition to appropriating funds to acquire the TCF, the legislature established a “Water Supply Facility Permit and Funding Milestone,” for the TCF under RCW 90.38.130. In order for the TCF to remain as community forest lands, this milestone must be met by June 30, 2025. The TCF milestone requires permitting and funding to be completed for one or more water supply facilities designed to provide at least 214,000 acre-feet of additional water supply under the Integrated Plan. The milestone has not been achieved to-date, however the first anticipated project to help meet this milestone is the Cle Elum pool raise project (14,000 ac-ft) that began construction in 2016.

Working with the Department of Fish and Wildlife (DFW), DNR convened an advisory committee and prepared a Management Plan for the TCF, which was adopted by the DNR Board in June 2015. The Management Plan addresses legislative objectives. These objectives are consistent with the Integrated Plan’s habitat element, watershed functions and water supply, forestry and grazing, recreation, fish habitat and community partnership.

Early in the 2015-17 biennium, DNR and DFW convened a restructured advisory committee to provide continuing input on implementing the TCF Management Plan. Progress from 2015 forward will depend on annual operating funds made available.

Teanaway River

DFW has performed baseline monitoring studies to document the existing habitat condition of the TCF, to measure ecological benefit of future fish and wildlife restoration associated with mitigation. The information will be vital in describing the positive environmental benefits provided by the TCF as restoration actions are completed in future years. Additionally, the data will be used to identify and prioritize management and restoration actions on the TCF.

Highlights include:

- Acquisition of terrestrial LiDAR over the entire TCF and aquatic LiDAR in all priority streams of the TCF to inform riparian and aquatic habitat restoration.
- Over 620 miles of forest road assessment for fine sediment modeling.
- Mapping and classifying wetlands including 70 acres of previously undocumented wetlands, identification of fourteen wetland improvement/restoration opportunities.
- Riparian monitoring within grazing lease areas including establishment of four long-term monitoring sites.
- Forest assessment for habitat condition and forest health in the TCF.
- Large woody debris surveys and monitoring on Indian Creek, bedrock mapping in the Teanaway watershed, assistance to USFS with northern spotted owl surveys, and completion of a comprehensive fish passage barrier assessment of over 150 culverts and road crossings within the TCF.

Other Land Acquisitions

Using funds from the federal Land and Water Conservation Fund, the U.S. Forest Service acquired approximately 4,000 acres of forest land from private landowners in Cabin Creek, Log Creek/Thetis Creek, and Naches River watersheds (a portion of these acquisitions went beyond the acreage goals defined for “primary” acquisition in the Integrated Plan).

DFW acquired land in the North Fork Cowiche Creek and North Fork Manastash watersheds. The North Fork Cowiche is a culmination of OCR efforts that combine resources of Red Mountain mitigation, Kennewick General Hospital mitigation, and the Integrated Plan to achieve large scale shrub steppe conservation (2,900 acres).



*Bull trout in Deep Creek
Photo credit: WDFW*

Bull Trout Enhancement

Working with state and federal fish and wildlife agencies and the Yakama Nation, Reclamation and Ecology have identified a set of actions that would improve resiliency of bull trout populations in the Yakima River Basin. This includes four enhancement projects plus assessments designed to lead to additional projects. These activities would be carried out in conjunction with either the Keechelus-to-



Manastash Creek before and after project completion.

Kachess Conveyance or Kachess Drought Relief Pumping Plant projects described below. This program is known as Bull Trout Enhancement (BTE).

In October 2015 Reclamation, Ecology, the Yakama Nation, U.S. Fish and Wildlife Service, DFW, and U.S. Forest Service signed a MOU to provide a framework for cooperation on developing and implementing bull trout restoration and enhancement actions within the Yakima River Basin.

Manastash Creek Conservation and Tributary Enhancement Project

The Manastash effort was the first construction project to break ground as part of the 30-year Integrated Plan. Between fall 2013 and 2015, this project converted 3.2 miles of a Kittitas Reclamation District canal to a pressurized pipeline, conserving over 1,200 ac-ft of water annually. The conserved water rehydrated a dewatered stretch in lower Manastash Creek. Once improvements to the Reed diversion (a multi-water user diversion) are also completed it will be a key factor for improved access to approximately 25 miles of habitat for steelhead,

coho, bull trout and Chinook. Other benefits include improved irrigation system reliability and on-farm efficiencies.

Other Habitat Enhancement Projects

Funds appropriated by the legislature in the 2013-2015 and 2015-2017 biennia were allocated to a number of entities for habitat enhancement projects (see Table 1 for specific habitat project funding breakdown). These include funds managed by OCR and DFW specifically for the Integrated Plan as well as other programs.

Funds were disbursed and actions completed for these projects:

- Bateman Island Causeway Modification Conceptual Design.
- Gold Creek Habitat Assessment and Conceptual Design.
- Cle Elum River Side Channel Restoration Project, Phase 2.
- Manastash, Little Naches Land Acquisition.
- Bull Trout Task Force Habitat Improvements (ongoing education and outreach).
- Gap-to-Gap Outfall Relocation (completed decommissioning of old wastewater plant outfall and installed new riparian outfall; other activities are ongoing).

In addition, work has been under way, with completion scheduled for fall 2015 or spring 2016 on these projects:

- Toppenish Creek Restoration (habitat restoration, floodplain reconnection and levee setback).
- Reed Diversion Design Barrier Removal.
- Little Rattlesnake Road Decommissioning.
- Gap-to-Gap Property Acquisitions.
- Upper Wapato Riparian Restoration.
- Ellensburg Water Company/Coleman Creek Restoration (currently under construction).
- Reed Diversion Barrier Removal.
- Trout Meadows Acquisition/Enhancement.
- Cowiche Floodplain Actions (appraisals, easements and design)
- South Fork Tieton Bull Trout Passage Design Work
- Yakima River (River Mile 89.5) Levee Breach

Finally, the Natural Resources Conservation Service (NRCS) allocated funds to the Yakama Nation in 2015 for additional habitat restoration projects, which are now being initiated.

Fish Passage Element

The coldest, cleanest water in the Yakima River Basin occur in the tributaries. The fish passage element of the Integrated Plan is designed to restore access to habitat above the five existing large storage reservoirs in the Yakima River Basin, and to provide upstream and downstream passage for anadromous salmon, bull trout and other resident fish. Construction of the fish passage facilities at all 5 major dams will provide fish access to cold, clean waters to support spawning and rearing.

Cle Elum Dam Fish Passage

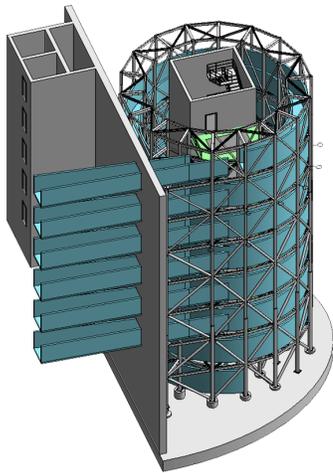
Since the dam's construction over 80 years ago, Cle Elum Dam has blocked salmon and steelhead from reaching historical spawning and rearing habitat. Building fish passage facilities at Cle Elum Dam will open up almost 30 miles of fish habitat upstream of the dam, restore and enhance salmon and steelhead populations and enable the largest Sockeye salmon run in the lower 48 states.

Reclamation, in coordination with state and federal fish and wildlife agencies and the Yakama Nation, finalized its design for the downstream fish passage facility at Cle Elum Dam in 2014. In July 2015, Reclamation awarded a contract for Phase 1 - the bridge across the dam spillway and access roads for the fish passage facilities. Surveying and clearing for the fish passage access road began in November 2015 representing the initial step towards project construction.

Tieton Dam Fish Passage

Reclamation, in coordination with state and federal fish and wildlife agencies and the Yakama Nation, performed an appraisal assessment of fish passage at Tieton

Building fish passage facilities at Cle Elum Dam will open up almost 30 miles of fish habitat upstream of the dam, restore and enhance salmon and steelhead populations and enable the return of what once was the largest sockeye salmon run in the lower 48 states.



A state of the art juvenile fish passage facility will provide salmon safe downstream access over a wide range of Cle Elum Reservoir levels.

Dam, and prepared a draft appraisal assessment report. The report describes alternatives for upstream and downstream passage, provides preliminary cost estimates, and identifies environmental considerations. This will serve as the basis for upcoming work on a feasibility study and environmental review of passage at Tieton Dam.

Other Fish Passage Investigations

USFWS is nearly finished with an assessment of bull trout in Clear Creek and Rimrock Reservoir, to determine how they are affected by the challenging fish passage condition at Clear Lake Dam. This information will be used in designing a solution to this issue.

Reclamation is developing an appraisal report 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, which become separated when the pool level in Kachess Reservoir drops. The report is currently scheduled for completion February 2016.

Structural and Operational Changes Element

This element involves modifying existing structures and operations to improve flows, fish bypass and smolt out-migration.

Keechelus-to-Kachess Conveyance

During 2014 and 2015, Reclamation performed a feasibility study of the Keechelus-to-Kachess Conveyance (KKC), which would involve constructing a tunnel to transfer water from storage in Keechelus Reservoir to storage in Kachess Reservoir. Reclamation also continued a program of geotechnical investigation of rock conditions along the proposed tunnel route. The feasibility study established the cost of the project and refined understanding of project benefits, either for a stand-alone project or a project in combination with a project at Kachess Reservoir. In addition, Reclamation and Ecology prepared a Draft Environmental Impact Statement (DEIS), issued in January 2015. DFW conducted fish and wildlife surveys of the project area and documented likely habitat impacts by the KKC to Priority Habitats and Species (PHS), including wetland, forest, and instream habitat. DFW also identified actions to avoid species and habitat impacts, as well as potential mitigation actions if the project is developed.

Cle Elum Pool Raise

Reclamation and Ecology issued a FEIS on the Cle Elum Pool Raise project in May 2015. In September 2015 Reclamation issued a contract for modifications to the radial gates at Cle Elum Dam. Construction is scheduled to begin in 2016, representing the first step in implementing this project. The radial gate modification will enable Reclamation to store an additional three feet on top of

the existing high level of the reservoir pool, amounting to 14,600 ac-ft of new water storage capacity for instream flow benefits. Subsequent steps on this project will involve shoreline improvements to protect public and private properties from erosion associated with the higher pool level.

DFW assessed impacts to the littoral zone, wetlands, and coniferous forest due to the proposed increase in pool elevation and inundation of shoreline habitat. DFW staff completed general habitat, wildlife, and bird surveys within wetlands and the area below the Cle Elum Dam likely to be impacted by the proposed fish passage facilities. Wetlands likely to be impacted were classified and mapped. DFW staff assessed impacts to Endangered Species Act (ESA)-listed species including northern spotted owl, bald eagle, bull trout, and steelhead; and PHS species such as white-headed woodpecker and several species of fish life. DFW staff recommended actions to avoid species and habitat impacts and potential mitigation alternatives.

Subordination of Power Generation

Reclamation oversaw a three-year program to collect data on fish survival associated with different flow levels on the Yakima River below Roza Dam. A report was completed in September 2015. Results will be used as a basis for discussions with Bonneville Power Administration and stakeholders regarding potential seasonal adjustments to power diversions aimed at improving fish survival.

During 2015, Reclamation began reviewing past documents that discussed the cost and feasibility of the Chandler pumping plant electrification. Electrification of this pumping plant would enhance Yakima River flows between Prosser Dam and the Chandler pump station by eliminating the need to divert water to operate the hydraulic turbines which in turn supply water to Kennewick Irrigation District. Less water being diverted with electrical pumps translates to more water for fish but also means a decrease in power generation at the Chandler power plant.

Further power subordination at these two facilities must be assessed relative to economic and operational impacts for the Roza and Kennewick Irrigation Districts, Reclamation and Bonneville Power Administration.

Kittitas Reclamation District Canal Modifications

Kittitas Reclamation District completed construction on an irrigation delivery ditch (also known as Lateral 13.8). The project largely consisted of installing a pipeline in a previous earthen-lined ditch. This project is operating successfully, additionally this piping



Little Creek before and after Kittitas Reclamation District stream supplementary releases.

effort supported the Kittitas Reclamation District with its efforts to boost stream flows in a number of tributaries during the 2015 drought.

During the 2015 drought, Kittitas Reclamation District collaborated with Ecology, the US Bureau of Reclamation, DFW, the Yakama Nation and others to channel releases intended for downstream districts through its canal system and into local creeks. This rewatering of local creeks provided significant benefits for steelhead and other species challenged by low flows and high temperatures. The parties are discussing opportunities to institutionalize this approach for future droughts.

Surface Storage Element

This element involves development of new and expanded facilities to store surface water to supply instream and out-of-stream water needs. Projects identified in the Integrated Plan would store just over 450,000 ac-ft of additional water.

Kachess Drought Relief Pumping Plant

With state funding, Ecology and Reclamation performed a feasibility study of the Kachess Drought Relief Pumping Plant (KDRPP), which would involve extracting up to 200,000 ac-ft of water from the inactive storage pool of Kachess Reservoir. The feasibility study established the cost of the project and the benefits, for either a stand-alone project or a project in combination with the KKC. In addition Reclamation and Ecology prepared a DEIS, issued in January 2015 covering both KKC and KDRPP.

Reclamation and Ecology have been gathering data on select issues discussed in the DEIS, such as potential effects of reservoir drawdown on water wells adjacent to the reservoir; and conditions for passage of fish from the lower pool (“Big Kachess”) to the upper pool (“Little Kachess”).

DFW completed the first year of sampling associated with a food-web study to determine impacts to the reservoir’s primary productivity and effects on bull trout and other aquatic species. DFW also completed the first of two years of northern spotted owl surveys in a nearby area historically known to be spotted owl territory.

DFW staff completed night-snorkeling bull trout surveys in three streams where upstream passage conditions are likely to be impacted to some extent by the increased drawdown of the reservoir pool. DFW Staff assessed impacts of various proposed constructed infrastructure on aquatic and terrestrial Priority Species and Habitats, including a forest assessment. DFW staff recommended actions to avoid species and habitat impacts and various mitigation actions that could be taken.

In May 2015, Reclamation and Ecology conducted a value analysis study to evaluate proposals that may reduce project costs. Reclamation held a Value Analysis workshop in June 2015 with Reclamation, HDR, Yakama Nation and



Kachess Reservoir

irrigation district staff. Based on the analysis performed by the Value Analysis Team a floating pumping plant option would reduce the construction cost. The proratable irrigation districts are in discussions on a plan to privately finance a floating pumping plant that could access up to 200,000 acre-feet of storage from the inactive pool of Kachess Reservoir. Reclamation and Ecology are currently beginning work on a Supplemental DEIS to evaluate the impacts of this alternative.

Wymer Dam and Reservoir

Reclamation completed a geotechnical investigation at the proposed Wymer Reservoir site adjacent to the Yakima River Canyon in 2014. Ecology and Reclamation with HDR also performed a right sizing and cost-risk analysis that same year. DFW completed Priority Habitat and Species surveys and habitat assessments for shrub-steppe, wetlands, cliffs, talus, aspen, riparian and instream habitat, golden eagle, greater sage-grouse, and several PHS fish species including steelhead. PHS species were documented when encountered. DFW staff completed electrofishing surveys at three reference reaches in Lmuma creek over two seasons. DFW staff recommended future species surveys, including Greater sage-grouse surveys, and basalt daisy surveys. DFW staff recommended actions to avoid species and habitat impacts and potential mitigation activities if the proposed storage project advances.

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 Phase II development.

Bumping Reservoir Enlargement

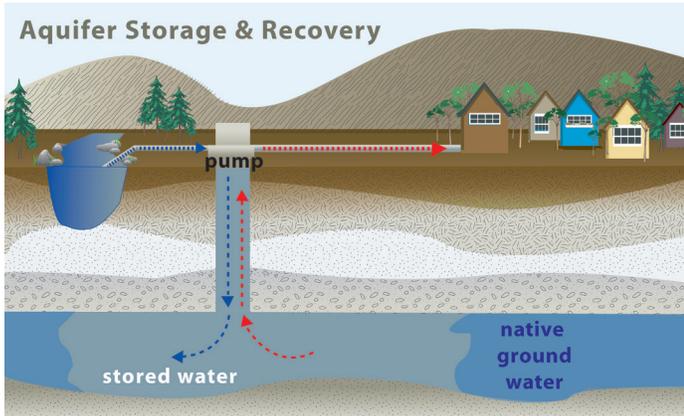
Reclamation performed geophysics testing at the Bumping Reservoir Enlargement site in 2014 and 2015 and plans to perform drilling in 2016. DFW completed bull trout snorkeling surveys in nine streams that would be inundated by the proposed reservoir. DFW staff completed an assessment of spawning habitat impacts in the primary bull trout spawning stream of Bumping Reservoir; completed coarse level northern spotted owl habitat mapping, and delineated and classified wetlands within the proposed inundation area. DFW staff also completed Priority Habitat and Species surveys and habitat assessment for wetlands, cliffs, talus, and aspen. DFW staff identified potential Larch Mountain salamander habitat to be surveyed at a later date, and recommended future species surveys, including more specific northern spotted owl and Larch Mountain salamander surveys. DFW staff recommended actions to avoid species and habitat impacts and potential mitigation activities.

Data gathered for Wymer Dam and Reservoir and Bumping Reservoir Enlargement during the Initial Development Phase of the Integrated Plan will



Geotechnical investigation at Wymer Reservoir site.

be used to evaluate which of the two large surface storage projects will advance in Phase II development. (Note: it is anticipated that only one large surface-water storage project would be implemented as part of the Integrated Plan).



Groundwater Storage Element

The groundwater storage element is designed to use surface water to recharge aquifers, store water for later withdrawal and use, and improve stream flow conditions. It consists of a City of Yakima project and a regional approach using irrigation-district infrastructure to recharge groundwater. Other municipal systems may reproduce (or follow suit).

City of Yakima Aquifer Storage and Recovery

Ecology issued a temporary permit to the City of Yakima in March 2015 to allow the City to begin storing water from the Naches River underground in an aquifer used by the City for supplemental water supply. The City began recharging the aquifer in 2015 and monitored aquifer conditions in response. This is the first step in implementing this project. The City will evaluate installation of recovery wells as part of its capital improvement plan for the municipal water system. Ecology is currently reviewing the City's application for a long-term permit for this system.

Regional Groundwater Storage Options

Reclamation and Ecology have been engaged in pilot studies throughout the Yakima Basin to better understand the potential of groundwater storage and the best way to use this technique to meet Integrated Plan goals. The first pilot study uses the Kittitas Reclamation District (KRD) system in the Kittitas Valley to better understand the relationship between KRD's canal and shallow groundwater in the area. The study will also investigate how water in KRD's canal influences water in the local tributaries in early . Reclamation and Ecology have also worked with the Yakama Nation on a pilot study they are conducting in the Toppenish Creek, White Swan area.

Water Conservation Element

The water conservation element of the Integrated Plan consists of additional agricultural water conservation actions not included in YRBWEP Title XII implementation plans, along with municipal and domestic water conservation programs.

Projects completed for the 2013-2015 biennium include:

- Kennewick Irrigation District Division IV Lining.
- Wapato Irrigation Project Piping Lateral 4-414C.
- Manastash Creek Sprinkler Conversions.
- Yakima-Tieton Irrigation District Feasibility Study – Tieton to Ahtanum Exchange.

- Manastash – Consolidated Pipeline and Manastash Water Ditch Association Pipeline Construction.

Additional activity is under way with completion expected in 2016 through Summer 2017 for these projects:

- Wapato Irrigation Project Piping Satus East Lateral E73.
- Manastash Creek Anderson Diversion Irrigation Water Acquisition.
- Yakima Tieton Irrigation District – canal headworks improvement.
- Roza Irrigation District Canal Lining.
- City of Yakima – Xeriscape Demonstration Project.
- Wapato Irrigation District (Upper dam rebuild, lower dam removal, conservation plan and canal piping).

The Natural Resources Conservation Service (NRCS) allocated funds to the Yakama Nation in 2015 for additional conservation projects that are now being initiated.

The YRBWEP Workgroup’s Municipal Water Subgroup is currently developing an initiative to promote water conservation in the municipal sector, beyond minimum requirements established by the state Department of Health.

In light of the 2015 Drought, subgroup members provided Kittitas and Yakima Valley cities and schools with information on ways to consider reducing water consumption through a variety of best management practices for lawns, school yards and gardens.

Market Driven Reallocation Element

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.

Yakima County and Kittitas County have been developing procedures to enable property development that rely, in part, on acquisition of water or mitigation credits from willing sellers. Kittitas County has several water banks in place for this purpose, though they can be used only in certain areas of the county. Governor Inslee issued a drought declaration for 2015 affecting the Yakima River Basin. This enabled Ecology to lease water from willing sellers to meet certain needs within the basin this year. A “reverse auction” was held in April 2015 to identify potential lease opportunities in order to protect instream flow and fish habitat from low flows. Six bids were accepted, representing up to 4.7 cubic feet per second and 878 ac-ft, among the Teanaway River, Big Creek, Taneum Creek, and Roslyn Creek.

Ecology anticipates further efforts working with basin water rights holders to enhance market conditions for leasing and/or transferring rights on a willing-seller basis, in 2016 and upcoming years.



Manastash Water Ditch Association Pipeline Construction

Effectiveness in Meeting Legislative Objectives

This section summarizes the overall effectiveness of the actions described in the previous section, in meeting the objectives of the State's 2013 Yakima River Basin Resource Management Act..

Effectiveness in Meeting Overall Legislative Purposes

Section 2 of the legislation states the following purposes:

1. Improve the ability of the state to work with the United States and various water users of the Yakima River Basin in a program designed to satisfy both existing rights, and other presently unmet as well as future needs of the basin;
2. Establish legislative intent to promote timely and effective implementation of the Integrated Plan in the Yakima River Basin, and to promote the aggressive pursuit of water supply solutions that provide concurrent benefits to both instream and out-of-stream uses in the Yakima River Basin as rapidly as possible; and
3. Take advantage of affordable real estate prices to acquire community forest lands that are useful for protecting and enhancing watershed function.

The actions taken since July 2013 support and advance these legislative purposes. The departments Ecology and Fish and Wildlife have worked actively with their counterparts in the federal government and with water users on actions aimed at satisfying rights and needs within the basin. Examples include the joint state/federal preparation of two environmental impact statements on specific projects; active coordination of the YRBWEP Workgroup and its several subcommittees; and negotiation and signature of the MOU for bull trout enhancement activities. Through these actions the legislative purpose of working with key partners is being successfully advanced.

The identified purpose of promoting timely and effective implementation and aggressive pursuit of actions for concurrent benefits to instream and out-of-stream uses is being met through concurrent implementation of actions under all seven elements of the Integrated Plan, as listed in the prior section. OCR's implementation strategy is based on a recognition that projects at different scales must be moved along differing timelines appropriate to their complexity and funding requirements.

Small, local projects can be funded and executed within one to two years, such as many of land acquisition, habitat and water conservation projects described in the previous section. More complex, mid-sized projects have been advanced through initial stages of concept-development, design and/or permitting, making them ready for further actions leading to full implementation. Meanwhile, the state



Yakima Basin Orchards

has laid the necessary groundwork for implementing the largest infrastructure projects identified for development in the ten-year Initial Development Phase, including Cle Elum Fish Passage, Cle Elum Pool Raise, KKC and KDRPP. Depending on where these large projects were at the outset of implementation, they have been advanced through required stages of feasibility study and environmental review. The Cle Elum Fish Passage and Cle Elum Pool Raise projects are now entering the construction phase.



Teanaway Community Forest

Finally, the purpose of acquiring community forest lands at favorable prices to support watershed functions was achieved during the 2013-2015 biennium. DNR completed acquisition of the TCF in October 2013 just two months after passage of the 2013 legislation. DNR and DFW subsequently formed an advisory committee and developed a management plan for the community forest. The DNR Board approved the management plan in June 2015, meeting the statutory deadline. While much remains to be done (habitat restoration work and water supply facility permit and funding milestone work) to secure the benefits of the TCF, a solid foundation has been laid.

Effectiveness in Meeting Goals and Objectives for Department of Ecology Actions

Section 3 of the legislation lists goals and objectives of Ecology actions, as follows:

1. Protection, mitigation, and enhancement of fish and wildlife through improved water management; improved instream flows; improved water quality; protection, creation, and enhancement of wetlands; improved fish passage, and by other appropriate means of habitat improvement, including the protection and enhancement of natural wetlands, floodplains, and groundwater storage systems;
2. Improved water availability and reliability, and improved efficiency of water delivery and use, to enhance basin water supplies for agricultural irrigation, municipal, commercial, industrial, domestic, and environmental water uses;
3. Establishment of more efficient water markets and more effective operational and structural changes to manage variability of water supplies and to prepare for the uncertainties of climate change, including but not limited to the

facilitation of water banking, water rights transfers, dry year options, the voluntary sale and lease of land, water, or water rights from any entity or individual willing to limit or forego water use on a temporary or permanent basis, and any other innovative water allocation tools used to maximize the utility of existing Yakima River Basin water supplies, as long as the establishment and use of these tools is consistent with the Integrated Plan.

Protection, Mitigation and Enhancement of Fish and Wildlife

The actions taken in the first two years of implementation have provided tangible benefits in some areas and laid the foundation for additional, significant benefits later in the IDP. Perhaps the most significant project yielding immediate, tangible benefits is the Manastash Creek project, which improved flows to enable steelhead to access a 25 mile reach of Manastash Creek once the Reed diversion barrier is removed in a subsequent phase of the project.

The collaborative process under the Integrated Plan also facilitated the temporary use of KRD's canal system during the Summer of 2015 to enhance flows in nine Kittitas Valley tributaries to avoid dewatering these streams, which provided significant benefits to steelhead spawning.

Initial steps have been taken on a wide variety of other habitat restoration projects, as listed in the prior section. Ecology, DFW and tribal and federal partner agencies expect that these projects, when complete, will collectively provide significant improvements for survival of anadromous and resident fish in the Yakima River Basin.

Execution of the MOU on Bull Trout Enhancement by state, federal and tribal agencies represents a powerful step forward for this federally-listed species. The MOU provides a basis for improving coordination among the water and fish managers in the Basin. Prior to consummation of the MOU, bull trout recovery efforts were disconnected. Very few projects have been implemented since the USFWS listed the bull trout as threatened in 1998, and bull trout continue to be at risk seventeen years later. The MOU provides for improved communication and cooperation among the state, federal, tribal and non-governmental organizations in the basin. The ambitious goal of recovering the Basin's bull trout population to the point where ESA protection is not necessary and harvestable populations are possible is now conceivable.

Finally, the initial work on constructing fish passage facilities at Cle Elum Dam represents a major milestone for restoring the sockeye run in the Yakima River Basin and will provide benefits for bull trout, steelhead and coho as well. While this project will take several years and additional funding to complete, Ecology, Reclamation and the Yakama Nation are pleased with progress on this critical

The actions taken in the first two years of implementation have provided tangible benefits in some areas and laid the foundation for additional, significant benefits later in the IDP.

fish passage project. Continued progress towards installing the fish passage facilities will eventually open up nearly 30 miles of habitat that has been blocked for almost 80 years.

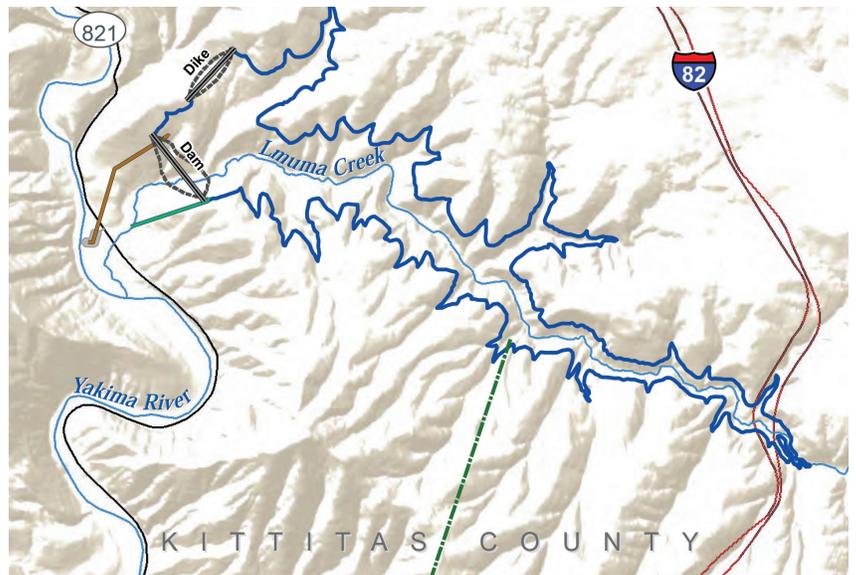
Improved Water Availability, Reliability and Efficiency of Water Delivery and Use

In February 2015 Ecology issued a temporary permit to the City of Yakima for its aquifer storage and recovery program. This enabled the City to begin recharging water from the Naches River to the aquifer underlying the City. Ecology continues to work towards processing the City’s application for a long-term permit to support this project. Ecology has also gathered field data in the Kittitas Valley aimed at evaluating groundwater recharge capacity and interactions with local creek flows in that area.

Irrigation districts and the Yakama Nation and Bureau of Indian Affairs continue to make significant improvements to water conveyance and delivery infrastructure using a variety of funding sources. At the same time, members of the YRBWEP workgroup have called attention to unintended consequences such as reduction of the return flows that provide water to irrigators in the lower Yakima River Basin. Kennewick Irrigation District experienced challenges in 2015 that are potentially attributable to water conservation improvements over the past ten years. Reclamation is revisiting and modifying its modeling tool for the lower river to improve understanding of these effects.

The draft feasibility study prepared for the KDRPP and the DEIS issued in January 2015 have provided an improved understanding of the facilities, costs, operational considerations and environmental impacts associated with taking water from the inactive pool of Kachess Reservoir. Roza Irrigation District recently performed investigation of a temporary floating pumping plant alternative at Kachess Reservoir. The information gathered since 2013 will be used in a continued effort to seek a cost-effective and viable long-term use of the Kachess Reservoir inactive pool.

Ecology has also continued to partner with Reclamation in characterizing site conditions at the proposed Bumping Reservoir Enlargement and Wymer Dam and Reservoir sites. This has included drilling and geophysical testing to characterize



Wymer Reservoir footprint

Development of new water supplies requires a long lead time, as indicated by the three, 10-year stages involved in implementing the Integrated Plan. Activities in the first two years since passage of 2SSB 5367 provide significant progress through the series of investigations and evaluations necessary to design the projects and meet cost, environmental, and other criteria.

key characteristics of site geology at both sites. This information will be used to help determine which of these projects should be prioritized for implementation during the next development phase.

Development of new water supplies requires a long lead time, as indicated by the three, 10-year stages involved in implementing the Integrated Plan. Activities in the first two years since passage of 2SSB 5367 provide significant progress through the series of investigations and evaluations necessary to design the projects and meet cost, environmental, and other criteria.

Water Markets and Operational and Structural Changes

Reclamation completed a three-year study of impacts on fisheries from subordinating power production to improve stream flow in the mainstem Yakima River. This information will be used in completing the evaluation of this approach.

The draft feasibility study prepared for the KKC and the DEIS issued in January 2015 have provided an improved understanding of the required facilities, costs, operational considerations and environmental impacts associated with conveying water from the Keechelus Reservoir to Kachess Reservoir.

Ecology has provided facilitation support to Kittitas and Yakima Counties in support of advancing water banking capacity to mitigate for effects of new ground water development associated with population growth.

Finally, completion of the Final EIS on the Cle Elum Pool Raise project, and issuance of the initial federal contract for radial gate modification to enable the pool raise represents significant progress towards providing an additional 14,600 ac-ft of water to support instream flow and fish habitat in the Cle Elum River and upper Yakima River.

As with the other areas discussed above, the Integrated Plan is enabling Ecology and its partners to make steady progress in improving water allocation through the use of market-based tools and operational and structural changes.

Breakdown of 2013-15 and 2015-17 Project Funding

Table 1 shows funding provided in the State capital budget for the 2013-15 and 2015-17 biennia, together with funding provided by federal and other sources during the same approximate two-year period. The largest single expenditure was \$99.3 million spent in 2013 for acquisition of the TCF. This was a unique, one-time opportunity that the Legislature chose to fund through a single appropriation. The remaining state funding during the 2013-15 biennium amounted to \$44 million for a variety of projects. The state funding for the 2015-17 biennium amounted to \$30 million for a variety of projects.

The federal government has a different funding cycle, consisting of fiscal years that begin in October of each year. During the two federal fiscal years 2014 and 2015 (which overlap with most of the State's 2013-15 biennium), federal funds spent on water supply, fish passage and fish habitat improvements in the Yakima River Basin amounted to \$86.3 million. This includes ratepayer-funded dollars provided by BPA, which were \$39 million of this total. Irrigation districts in the Yakima River Basin spent an additional \$4.3 million, mostly for water conservation projects involving district facilities.

Taken altogether, Table 1 shows that \$240.2 million were provided from all sources for the Integrated Plan and closely related activities in the Yakima River Basin (for the years 2013, 2014, & 2015). The State share of this funding, \$173.3 million, was approximately 72 percent of the total amount listed. This value was strongly affected by the TCF acquisition.



Drip irrigated vineyard at Red Mountain.

| Amount in Millions (blank cells denote "0" funding or request) | | | | | | | | | | | | |
|--|---|---|---|-----------------------------------|---------------|---------------------|-----------|---|-----------|-------------|------------------------------------|------------------------|
| Integrated Plan Elements | Projects | Projected Funding Requests from all Sources 2013-2023 | Anticipated Federal & Other Share 2013-2023 | Anticipated State Share 2013-2023 | State Funding | | | Anticipated State Funding Request 2017-2023 | | | Federal & Other Sources of Funding | |
| | | | | | 2013-2015 | 2015-2017 (CURRENT) | 2017-2019 | 2019-2021 | 2021-2023 | 2014 & 2015 | | 2016-2023 ^a |
| Habitat | Teanaway Forest Acquisition | 99.3 | | 99.3 | | 99.3 | | | | | | |
| | Teanaway Forest Planning & Operations | 7.5 | | 7.5 | | 1.0 | 0.5 | 2.0 | 2.0 | 2.0 | | |
| | Kititas County impacts offset for Teanaway Forest | 10.0 | | 5.0 | | 5.0 | | | | | | 5.0 |
| | Other State Land Acquisitions ^b | 12.9 | | 7.1 | | 5.8 | | | | | | 1.3 |
| | NRCS RCPP - Yakama Nation Projects | 22.6 | | 22.6 | | | | | | | | 4.6 |
| | NRCS EQIP | 20.5 | | 20.5 | | | | | | | | 2.5 |
| | NMFS Pacific Coastal Salmon Recover Fund | 20.4 | | 20.4 | | | | | | | | 2.4 |
| | USACOE levee reconfig., setback & removal | 13.2 | | 13.2 | | | | | | | | 0.4 |
| | BPA NPCC Fish and Wildlife Program | 79.1 | | 79.1 | | | | | | | | 39.1 |
| | Tributary/Mainstem Habitat Restoration Projects | 39.8 | | 19.9 | | 19.9 | 2.4 | 2.5 | 5.0 | 5.0 | 5.0 | 19.9 |
| Fish Passage | Bull Trout Enhancement | 13.6 | | 6.8 | | 6.8 | | 1.7 | 1.7 | 1.7 | | 6.8 |
| | Federal, Tribal, Local Habitat Actions & Land Acquisitions ^c | 7.2 | | 6.9 | | 0.3 | | 0.3 | | | | 0.3 |
| | Cle Elum Dam | 110.7 | | 57.5 | | 53.2 | 8.8 | 9.0 | 23.6 | 11.8 | 4.3 | 53.2 |
| | Tieton Dam | 83.0 | | 41.5 | | 41.5 | 0.6 | 0.5 | 20.2 | 20.2 | | 41.5 |
| | Clear Lake Dam passage | 9.0 | | 4.5 | | 4.5 | | | 1.5 | 1.5 | | 4.5 |
| | Box Canyon Creek | TBD | | TBD | | TBD | | | TBD | TBD | | TBD |
| | USFWS National Fish Passage Program funds | 0.1 | | 0.1 | | | | | | | | 0.1 |
| | Keechelus to Kachess Conveyance Project | 172.3 | | 86.4 | | 85.9 | 0.5 | 4.2 | 40.6 | 40.6 | | 0.5 |
| | Cle Elum Dam/Pool Raise | 26.8 | | 13.4 | | 13.4 | 2.8 | 1.0 | 4.8 | 4.8 | | 13.4 |
| | Structural & Operational Modifications | Roza Power Subordination ^d | TBD | | TBD | | TBD | 0.2 | | TBD | TBD | |
| Chandler Power Subordination ^d | | TBD | | TBD | | TBD | | | TBD | TBD | | TBD |
| Kititas Reclamation District Canal Modifications | | TBD | | TBD | | TBD | | | TBD | TBD | | TBD |
| Kachess Droughth Relief Pumping Plant | | TBD | | TBD | | TBD | | | TBD | TBD | | TBD |
| Surface Storage | (KORPP) ^e | 36.2 | | 18.6 | | 17.6 | 12.6 | 4.3 | 0.7 | | 1.0 | 17.6 |
| | Wyrmer 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 | | 4.0 |
| | Municipal ASR Projects | 0.4 | | 0.2 | | 0.2 | 0.2 | | | | | 0.2 |
| Water Conservation | Agricultural Conservation Projects | 76.4 | | 40.1 | | 36.3 | 2.4 | 4.8 | 9.7 | 9.7 | | 36.3 |
| | Municipal/Domestic Conservation Programs | 1.2 | | 0.6 | | 0.6 | 0.1 | 0.2 | 0.1 | 0.1 | | 0.6 |
| | BIA WIP improvements | 0.3 | | 0.3 | | | | | | | | 0.3 |
| | General support for markets and banking | 3.0 | | 1.5 | | 1.5 | 0.4 | 0.5 | 0.6 | | | 1.5 |
| Market Driven Water Reallocation | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Total | | 881.5 | 474.2 | 407.3 | | 143.3 | 30.0 | 30.2 | 110.3 | 93.7 | 66.9 | 407.3 |
| Percentage Share | | 100% | 53.8% | 46.2% | | 16.3% | 3.4% | 3.4% | 12.5% | 10.6% | 7.6% | 46.2% |

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 2016-2023 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 (b) Includes Tieton Cattle Co./North Fork Cowlitz 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
 - (e) Includes funds spent by Roza ID on Kachess Emergency Floating Pumping Plant - cost assumes floating plant alternative.

Cost Estimates for Upcoming Biennia

Table 1 also shows projected funding needs for the Initial Development Phase (IDP) of the Integrated Plan. The first column listing financial values indicates the expected funding amount that will be needed to fully fund all projects included in the IDP. This amounts to \$881 million. The next column to the right shows the non-state anticipated cost share of the IDP at \$474.2 million (53.8 percent of the total) and the third column then shows share of the total IDP cost that Ecology anticipates will be requested from State sources, which is \$407.3 million (46.2 percent of the total). The next series of columns provide a rough breakdown across the next four biennia through 2023. For individual biennia, these values range from \$30 million to \$110 million.



The Yakima River
Photo credit: Tom Ring

Program Oversight and Coordination

Coordination and Oversight Activities

Ongoing Stakeholder Coordination

Stakeholder coordination remains crucial to successful implementation of the Integrated Plan. Ecology and Reclamation have supported ongoing engagement by stakeholders through regular meetings of the YRBWEP Workgroup and its various subcommittees. During the period starting July 1, 2013, the YRBWEP Workgroup has met once each quarter to review progress and discuss ongoing activities. In addition the Workgroup has several standing committees. These include:

- Executive Committee
- Implementation Committee
- Water Use Subcommittee
 - Municipal Water Use Subcommittee
 - Lower Reach Water Use Subcommittee
- Habitat Subcommittee
- Land Subcommittee
- Outreach Subcommittee
- Operational Guidelines Group

Some of these committees meet monthly, while others meet on an “as-needed” basis ranging from about two to eight times per year.

Committees also have formed sub-groups to bring focus to particular topics; currently there are two active subgroups reporting to the various committees.

Ecology and DFW provide technical support to assist the workgroup and committees with collaboration and coordination. In addition, Ecology uses a portion of its funding for the Integrated Plan to provide professional facilitators and technical support for DFW staff who assist the workgroup and its committees to plan meetings, hold productive, outcome-oriented discussions; prepare funding proposals; produce reports; and make recommendations to Ecology and Reclamation.



Program Administration

Currently all administrative and technical staffing to support the Integrated Plan is provided by OCR Director and existing OCR staff. In 2016, OCR is expecting to devote a dedicated Project Manager to the Integrated Plan Projects to ensure quality and consistency of implementing the plan. In addition, this position will coordinate and lead the contracting and financial planning aspect associated with the increasing complexity of Integrated Plan projects. OCR anticipates additional administrative and technical staffing FTEs will be requested in the 2017-19 biennium to support Integrated Plan implementation.

Costs for Associated Activities

Staff identified in the 2013-15 and 2015-17 biennial capital budgets equate to 1.15 FTEs and \$130K annually for Yakima River Basin. Additionally, services contracted by Reclamation using a multi-firm consulting team led by HDR, for facilitation and technical support to the Workgroup and subcommittees, averaged \$260K per year, during the past two years.



Tribal fishing platform on the Yakima River at Prosser Dam

Overall Progress toward Achieving Goals of the Integrated Plan

Since passage of 2SSB 5367 the program has embarked on an ambitious 30-year effort that applies an unprecedented breadth of projects and programs to solve multiple problems over a large region of south central Washington. The activities during these two years involve a range of projects at differing stages of project development and widely varying scope. The projects are advancing along parallel paths through a sequence of steps involving planning, design, permitting, funding, and construction, as follows:

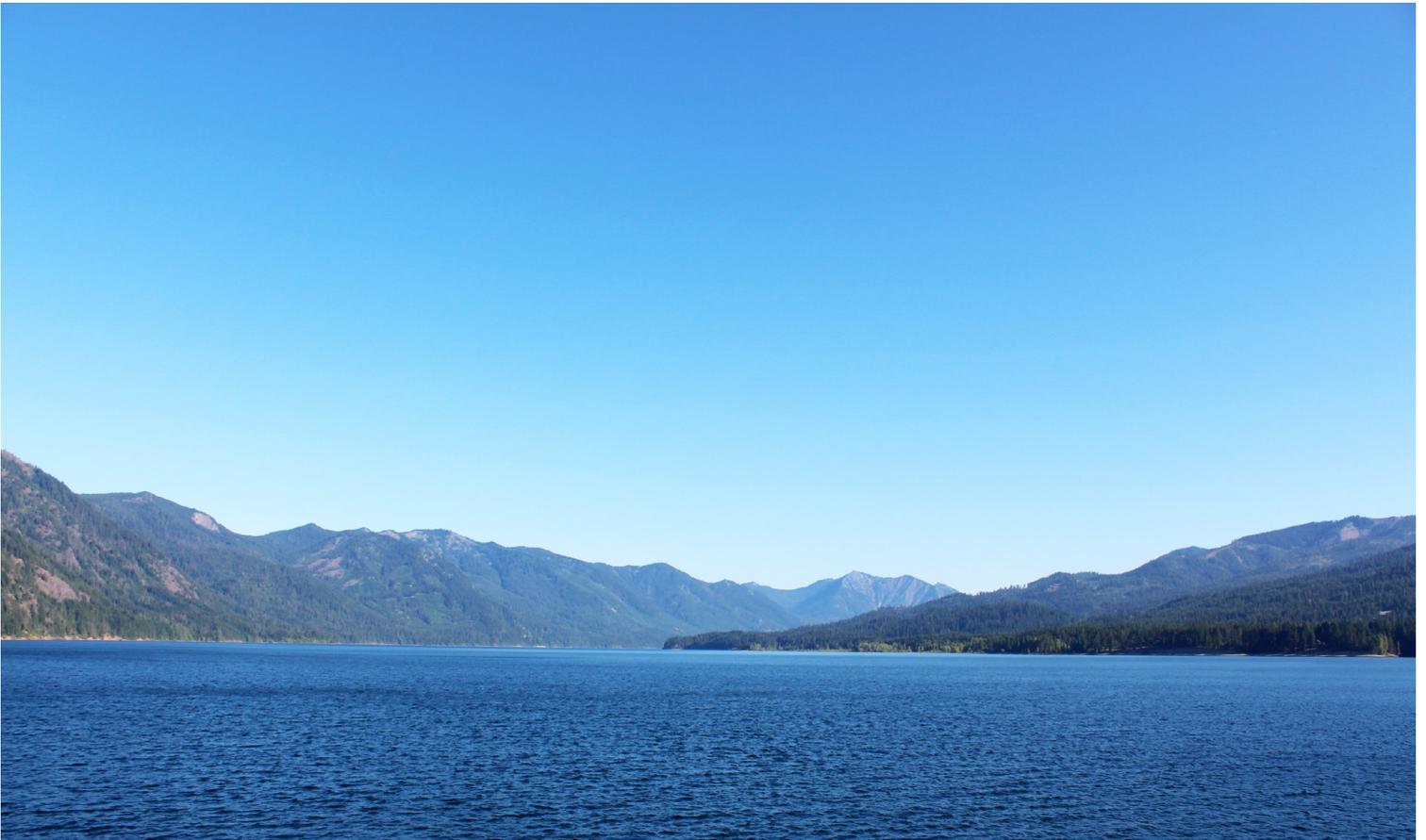
- Projects that are ready to advance quickly, that require little inter-jurisdictional coordination, and that involve relatively simple construction. These tend to be smaller projects such as local habitat and water conservation projects with available sponsors and limited permitting hurdles. Projects funded in the 2013-15 biennium have been implemented or are currently in the process of being implemented for near term completion. Projects funded in the 2015-17 biennium are currently being implemented and most are under construction currently with expected completion during 2017.
- Projects that had progressed through initial stages of design and environmental reviews prior to passage of RCW 90.38.060 and that received funding. Since 2013, these were advanced to the initial stage of construction activity or program activation. Examples include the Cle Elum Fish Passage, Cle Elum Pool Raise, and City of Yakima aquifer storage and recovery.
- Large projects selected for implementation in the Initial Development Phase are being advanced through design and environmental review processes (e.g. KDRPP and KKC) or the development of necessary prerequisites to tangible action (e.g. BTE MOU).
- Finally, projects planned for implementation during a subsequent phase or those requiring a sustained period of data collection in order to assess feasibility and cost. These projects were advanced by the acquisition of field data during the 2013-15 and 2015-17 biennia (e.g. Wymer Dam and Reservoir; Bumping Reservoir Enlargement, power subordination).

It should be noted that the Yakima Basin experienced many effects of the 2015 declared drought. The 2015 Drought Response activities and funding were not provided for with Integrated Plan funds, but rather with Water Resources Program funds. The 2015 drought experience highlighted the importance of implementing Integrated Plan actions to help alleviate such extreme effects in the future.

The project-by-project activities advance fish passage (represented by the Cle Elum Fish Passage project and Manastash project), watershed enhancement (especially TCF and other land acquisitions), and water supply reliability (aquifer storage, water conservation, and surface storage projects). Many of these efforts also provide improved stream flow in critical reaches, as well as improvements in other fish habitat conditions.

Ecology will continue to apply a collaborative strategy to implement the Integrated Plan with stakeholder support and will continue to seek non-state funding to complement the significant investments made by the State of Washington in the Yakima River Basin.

The various parties represented on the YRBWEP Workgroup and its various committees have forged strong working partnerships that created valuable outcomes for fish and water supply under the challenging conditions posed by the drought in 2015. Federal legislation introduced in the Summer of 2015 complements RCW 90.38.060; a necessary step in securing federal funding at the scale needed to construct major projects. Ecology will continue corroboratively to implement the Integrated Plan and seek non-state funding to complement the significant state investments.



Cle Elum Reservoir

