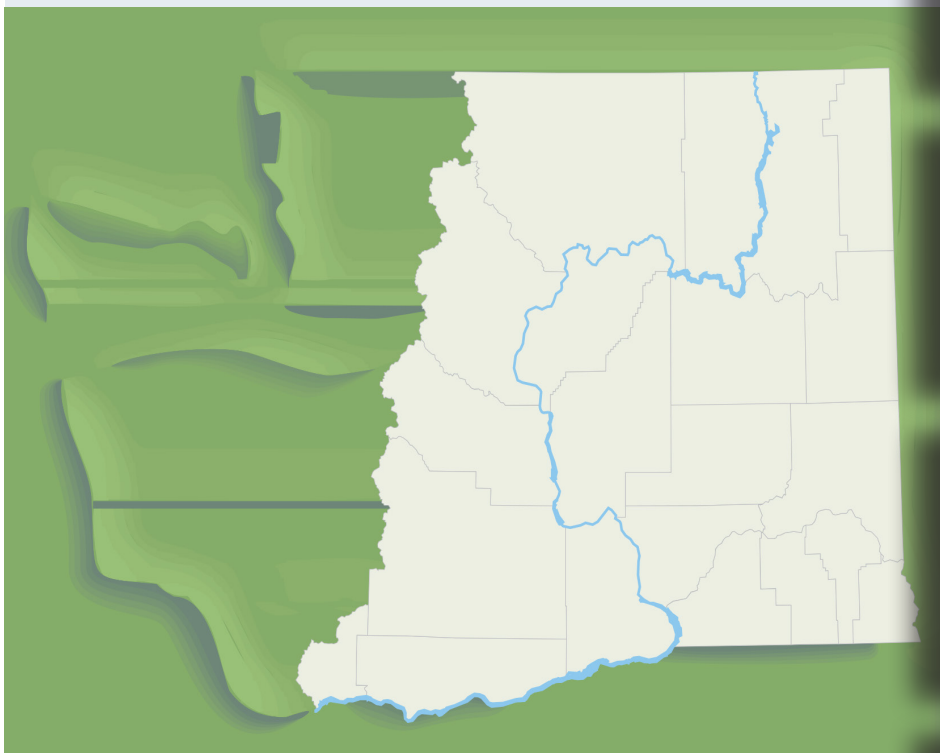
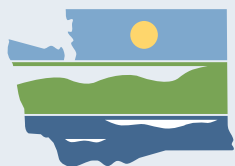


2015 Columbia River Basin WATER SUPPLY INVENTORY REPORT



*Submitted to the Washington State Legislature
Pursuant to RCW 90.90.040*



DEPARTMENT OF
ECOLOGY
State of Washington

THE OFFICE OF COLUMBIA RIVER

Water for Families, Farms, and Fish



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Central Regional Office - Office of Columbia River
1250 W Alder St • Union Gap, Washington 98903 • (509) 575-2490

January 6, 2016

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

RE: Columbia River Basin Water Supply Inventory Report

The 2015 *Columbia River Basin Water Supply Inventory Report* prepared by the Department of Ecology for the Legislature as required under RCW 90.90.040 is now available at this website: <https://fortress.wa.gov/ecy/publications/SummaryPages/1512006.html>.

This report documents our ongoing efforts in developing water supplies to meet the economic and community development needs of people and the instream flow needs of fish. It includes details on new projects, updates on projects currently underway, and an inventory of water developed through completed projects. It also provides a comprehensive inventory of all storage and conservation opportunities OCR is tracking.

If you have any questions regarding this report or would like more information, please contact me by phone at (509) 574-3989 or e-mail 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 e-mail at colleen.rauert@ecy.wa.gov.

Sincerely,

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

2015 Report to the Legislature



DEPARTMENT OF
ECOLOGY
State of Washington

Columbia River Basin Water Supply Inventory Report

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/1512006.html>

For Additional Copies of this publication, please refer
to Publication No. 15-12-006 and contact:

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This 2015 Columbia River Basin Water Supply Inventory Report
was prepared by The Office of Columbia River

*If you need this publication in an alternate format,
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Persons with hearing loss can call 711 for Washington Relay Service.
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Table of Contents

*“Shared values,
partnerships, and
innovations that
are providing
opportunities
for growing
communities,
rural economies,
and protecting
the natural
environment...”*

*Maia Bellon,
Ecology Director,
on OCR’s work to
deliver new water rights*

Introduction	page 1
Lessons Learned.....	page 2
Office of Columbia River Funded Projects.....	page 4
Project Updates and Achievements	page 6
Lake Roosevelt Incremental Storage Releases Program.....	page 6
Port of Walla Walla Lease Project.....	page 7
Red Mountain AVA Pump Project.....	page 7
Odessa Groundwater Replacement Program.....	page 8
Sullivan Lake Water Supply Project.....	page 9
Aquifer Storage and Recovery Exploration Projects.....	page 9
508-14 Rule Revision Project.....	page 9
Yakima River Basin Integrated Plan.....	page 10
Icicle Creek Workgroup and Integrated Plan.....	page 11
Methow Flow Improvement Project.....	page 11
Water Development Progress	page 12
New Water Supply Developed by the Office of Columbia River.....	page 12
Status of the Columbia River Basin Water Supply Account.....	page 13
Supply Inventory	page 14

Introduction

The Office of Columbia River (OCR), as directed by Chapter 90.90 RCW, Columbia River Basin Water Supply, continues to aggressively develop new water supplies for the Columbia River Basin to:

- Provide alternatives to groundwater for the Odessa Subarea.
- Provide water for pending water right applications.
- Secure water for drought relief and interruptible water users.
- Provide water for new municipal, domestic, industrial, and irrigation uses.
- Provide water for instream flows to benefit fish.

The statute provides clear direction that Ecology is to ensure that water supplies made available through OCR funding of new storage facilities and pump exchanges are allocated one-third for instream flow and two-thirds made available for new out-of-stream uses. This report provides updates on how OCR is developing water for Eastern Washington's farmers, communities, industries, and fish. Since the 2006 passage of Chapter 90.90 RCW, OCR has funded projects that have developed 395,700 acre-feet of water available for both instream and out of stream uses, with an additional 320,132 acre-feet or more in near-term development (1-3 years).

OCR has also initiated updating our long-term Water Supply and Demand Forecast and Columbia River Instream Atlas, to be completed in November 2016.



Columbia River near Lyle

Office of Columbia River Policy Advisory Group

Dale Bambrick, NOAA Fisheries-
U.S. Dept of Commerce

Gregg Carrington, Chelan County PUD

Gary Chandler,
Association of Washington Business

Kathleen Collins, Water Policy Alliance

Jon Culp, Washington State
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Tony Grover,
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Jim Brown, Washington State
Dept of Fish & Wildlife

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Mike Leita, Yakima County Commissioner

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Darryll Olsen, Columbia-Snake
River Irrigators Association

Gary Passmore, The Confederated Tribes
of the Colville Reservation

Lisa Pelly, Trout Unlimited

Rudy Peone, Spokane Tribe

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Washington State Farm Bureau

Rob Swedo,
Bonneville Power Administration

Jon Unger,
Oregon Water Resources Dept

Dawn Wiedmeier, Bureau of Reclamation

Ron Walter, Chelan County Commissioner

Matt Watkins, City of Pasco

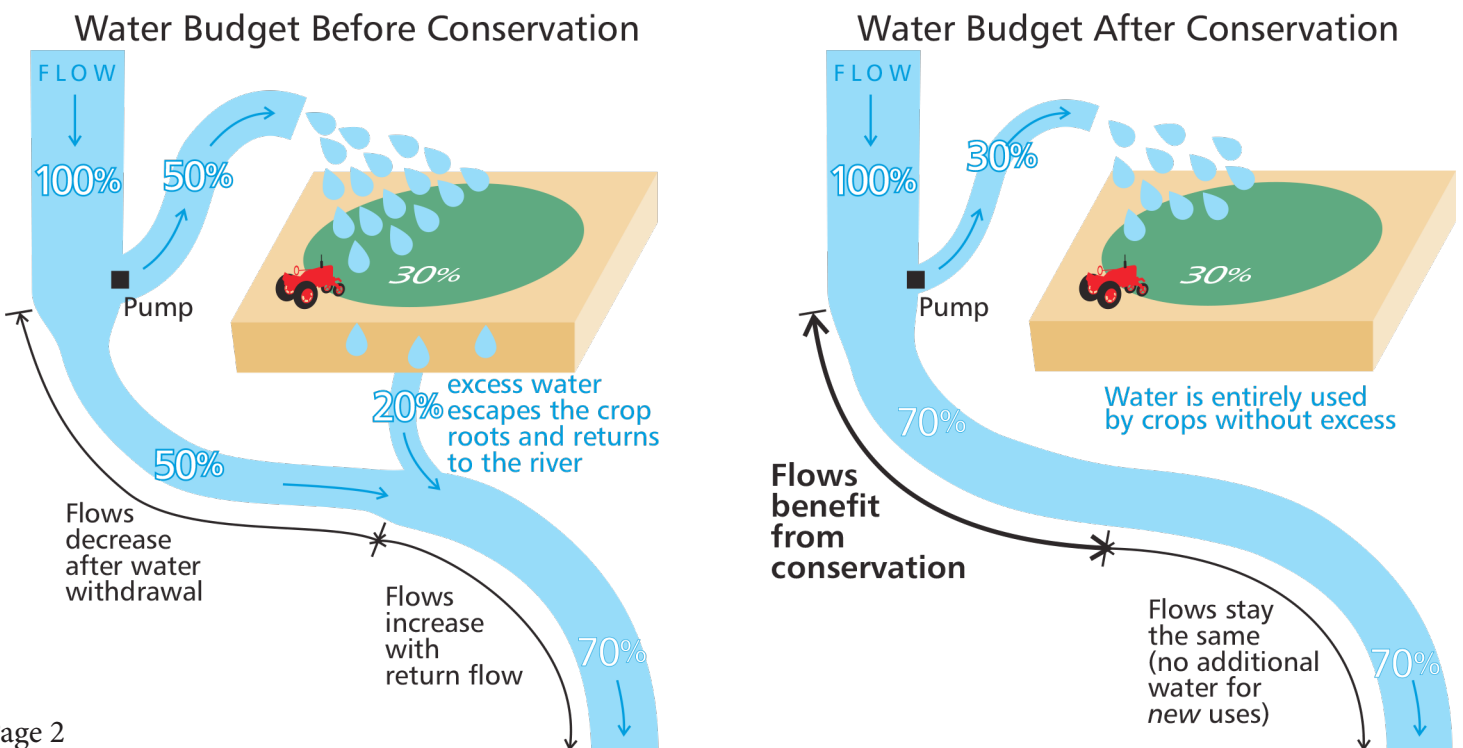
Lessons Learned

Since OCR's inception, the pursuit of developing new water supply has given us insight that now shapes the way we allocate funds and prioritize our efforts. For example, we've learned that certain project types, such as water acquisition and storage/operation modifications, more efficiently and reliably provide additional water supply than conservation and efficiency improvements. We have also learned that some conservation projects, despite their seemingly beneficial attributes, simply cannot provide a supply of water suitable for satisfying demands for new uses of water to maximize program objectives.

Conservation projects, which are abundant on our project inventory lists, are often suggested as a way to make more water available for instream flow and other uses. Despite the presumed benefits, increasing irrigation efficiency does not readily translate to water supply made available for new allocation. While these projects can provide valuable benefits to streamflows supporting aquatic species and habitat, implementation of these projects generally does not yield enough benefits to achieve out-of-stream goals. The amount of water used consumptively by crops remains essentially constant throughout a range of application efficiencies. In some instances, enhanced water use efficiency results in higher consumptive use by crops and less water being available in stream.

As depicted in the following illustration, water conserved through increased efficiency generally would have returned to the water body as "return flow", and would not have been used consumptively by the crops. However, as OCR attempts to allocate new sources of water, we cannot use these return flow portions, because it will actually reduce streamflows in areas downstream from the historic return flow location. Conservation projects have successfully been used in instances where there is a localized need for increasing flows in an affected reach and to ensure that developed supplies are used in the most efficient manner with a minimum amount of waste.

As OCR investigates the feasibility of projects, some present obstacles that are technically, economically, or environmentally unable to be resolved. In these cases, we have removed these projects from consideration at the present time. Should there be shifts in the economic climate, or should other factors arise that make these projects viable, it is possible that further study could be warranted. We continue to use the Columbia River Instream Atlas to identify stream reaches where flow is indicated as the limiting factor to environmental health. Conservation projects that directly benefit those reaches are generally more likely to receive funding support.





Yakima River near Kiona

Additionally, after water has been developed, OCR has encountered delays in users' ability to deliver the water for its intended purpose. This encompasses many factors, including financial delays, infrastructure and construction delays, permitting by other agencies, or other user induced delays. OCR's development of water supply generally is constrained to those portions of the project which require Ecology permitting, environmental review, funding, or other partnership. For instance, once OCR has issued a new water right under one of our permitting programs, the impetus for continuing the project then falls on the permittee to provide the necessary infrastructure to deliver water for their intended use consistent with the requirements of the program. Delays may occur at this stage outside of OCR's control. Further, there is no simple way for OCR to account for what quantity of water has been put to use (delivered) by the recipient after it has been made available. Permittees are required to report to Ecology when they have put water to beneficial use. OCR's documentation doesn't require an instantaneous accounting of how much water has been delivered. Aside from the standard provisions to report project completion and submit annual metering records, our documentation does not allow for a more instantaneous accounting of actual water use.

OCR PROJECTS 2015

- **Completed, Developed**
 - **Active, Under Development**
- Locations are approximate

Methow Trust Water Acquisition
79 ac-ft Out-of-Stream

Methow Projects
2854 ac-ft Out-of-Stream

Peshastin Pump Exchange
Ac-Ft TBD

Peshastin ID Piping
360 ac-ft Instream

Lower Wenatchee Instream Flow Enhancement
7,823 ac-ft Instream

Yakima Basin Integrated Plan Initial Development Projects

Basin-Wide Projects

Habitat Enhancement & Restoration through 2015
3,170 acres of floodplain reconnected
47,921 acres of Little Naches watershed protected

Enhanced Water Conservation through 2015
2,874 acre-feet

Other Yakima Basin Integrated Plan Projects
226,000 ac-ft Instream & Out-of-Stream

Kachess Drought Relief Pumping Plant
200,000 ac-ft Out-of-Stream

Cle Elum Pool Raise
14,000 ac-ft Out-of-Stream

Cle Elum Fish Passage
Reservoir Fish Passage

Teanaway Acquisition
50,272 acres of Watershed Protected

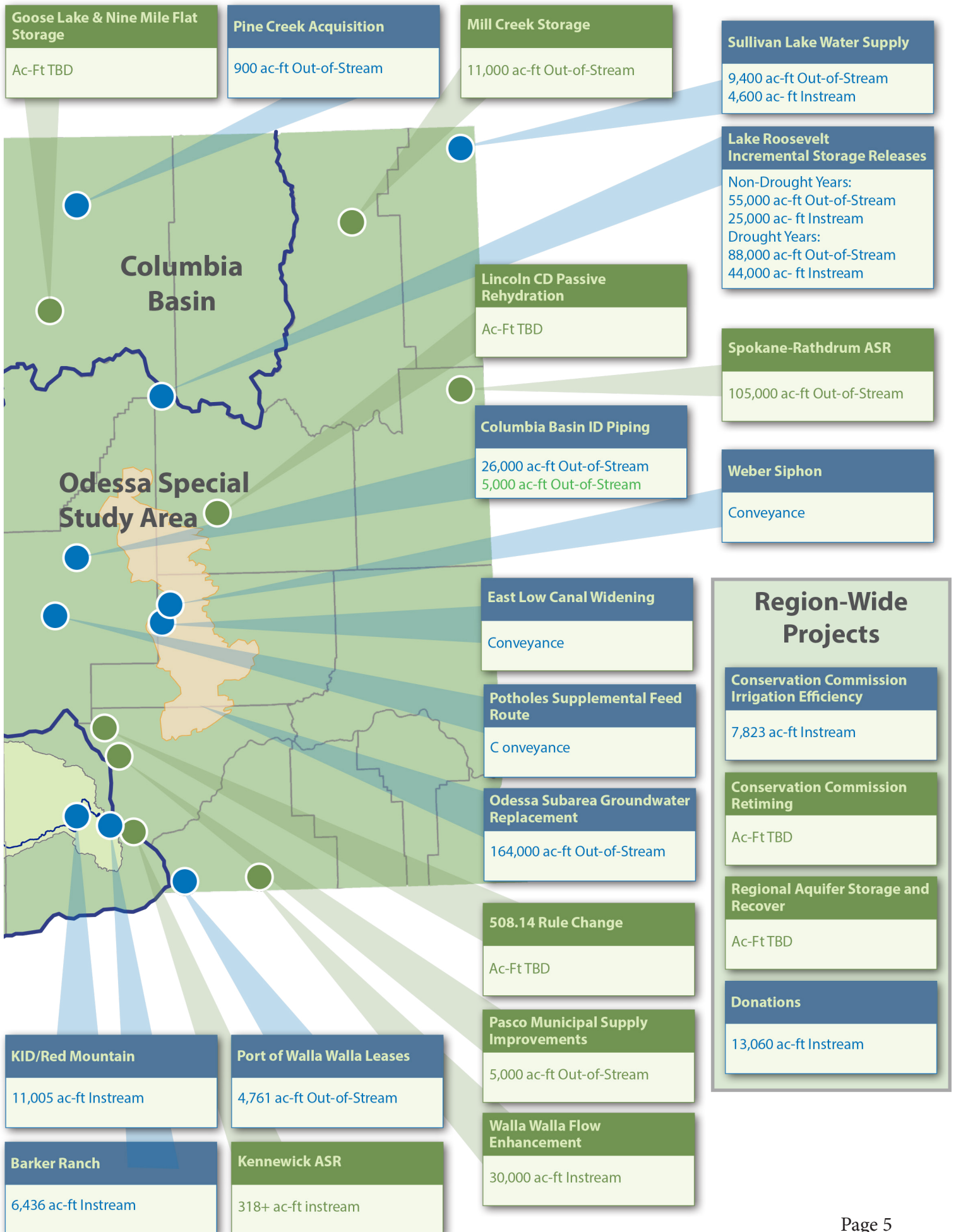
Manastash Conservation and Tributary Enhancement
1,300 ac-ft Instream

Yakima City ASR
10,000 ac-ft Out-of-Stream
Instream ac-ft TBD

White Salmon ASR
145 ac-ft instream

Sunnyside Valley ID
7,815 ac-ft instream

Horse Heaven Hills
105,000 ac-ft Out-of-Stream



Project Updates and Achievements

Along with meeting the five legislative directives that provide benefits for instream and out-of-stream users, OCR-funded projects produce economic benefits throughout the Columbia River Basin.

Lake Roosevelt Incremental Storage Releases Program



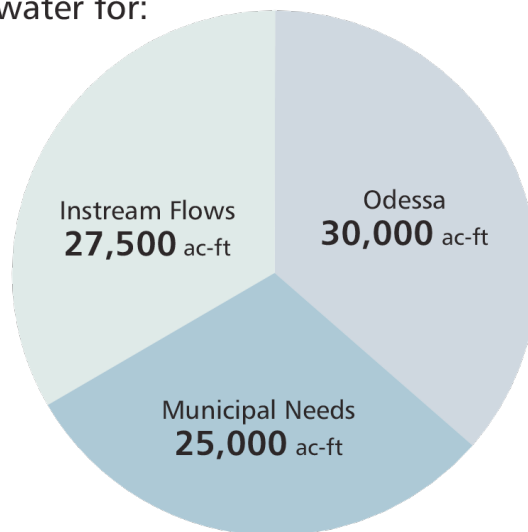
OCR is actively processing applications for municipal, domestic, and industrial water using the 25,000 acre-feet made available through this program. To date we have permitted 38 water rights totaling 4,890 acre-feet per year, and have contacted the remaining 10 pending applicants totaling up to approximately 12,000 acre-feet per year to determine interest and eligibility and begin permitting. OCR is now able to begin processing newly submitted applications which qualify for this program as they are received. Recipients of water under this program are required to pay cost-recovery fees associated with the development of the source at a rate of \$35 per acre-foot per year.

Additionally, this program designates 30,000 acre-feet to replace declining groundwater in the Odessa Subarea and 27,500 acre-feet for instream flows. In drought years, an additional 50,000 acre-feet is available, with one-third (17k acre-feet) for instream flow and two-thirds (33K acre-feet) for interruptible water users.

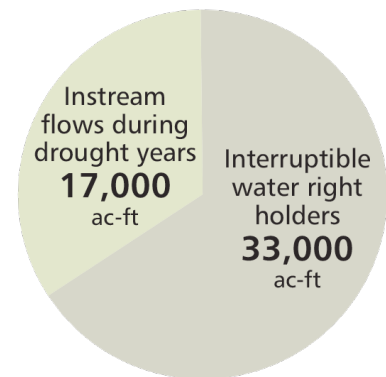
While the governor declared a statewide drought on May 15, 2015, the March 1 forecast for the Columbia River was above the 60 million acre-foot threshold defined in Chapter 173-563 WAC. Therefore, despite the statewide drought declaration, the additional 50,000 acre-feet were not released under the program.

More information: http://www.ecy.wa.gov/programs/wr/cwp/cr_lkroos.html

The Lake Roosevelt storage release would divert up to 82.5K ac-ft of water for:



In a drought year an additional 50K ac-ft of water for:



Port of Walla Walla Lease Program

OCR has issued 5 term permits totaling 4,496 ac-ft of water leased from the Port of Walla Walla, with 265 acre-feet of water still available. The term permits provide water on a temporary basis, allowing time for water users to find a permanent supply. The term permits expire December 31, 2020, unless terminated sooner. Term permits are issued to seasonal water users and, in some cases, to unauthorized users as a means to attain temporary compliance. All water users are required to pay an annual cost-recovery fee of \$105 per acre-foot to offset costs to Ecology.

Red Mountain AVA Pump Project

The Red Mountain AVA Pump Project, after years of collaboration with stakeholders, is now complete. Water delivery infrastructure has been installed by the Kennewick Irrigation District to enable the irrigation of 1,785 acres of new vineyards, while allowing up to 14,155 acre-feet per year to remain in low-flowing reaches of the Yakima River. Water was diverted from the Kiona headworks during the 2015 irrigation season. Individual district members are now installing infrastructure and planting new acreage in the district.

More information: <http://www.ecy.wa.gov/programs/wr/cwp/redmtn13.html>



A newly constructed diversion at Kiona allows KID to deliver water to satisfy the irrigation of 1,785 acres on Red Mountain, funded in part by OCR.

Throughout the report, these symbols are used to identify the legislative directive that the project addresses:



Alternatives to groundwater for Odessa Subarea



Pending water right applications



Future water supplies for interruptible water right holders



Future water supplies for municipal, domestic, industrial and irrigation



Instream benefits



Odessa Subarea Groundwater Replacement Program

OCR, in partnership with the US Bureau of Reclamation (Reclamation) and East Columbia Basin Irrigation District (ECBID), provided surface water from the Lake Roosevelt Incremental Storage Releases Program to replace 10,000 acres of groundwater irrigated land used by farmers in the rapidly declining aquifer of the Odessa Subarea.



Additionally the Coordinated Conservation Program, involving all 3 Columbia Basin Irrigation Districts, will result in a maximum of another 10,000 acres of replacement water.



In 2012, OCR and Reclamation released a final Environmental Impact Statement (EIS) for the Odessa Subarea Special Study. The preferred alternative is a modified partial replacement which would allow for up to 70,000 acres of groundwater irrigated lands to receive replacement surface water from the Federal Columbia Basin Project. In total, approximately 90,000 acres of Odessa lands are eligible for replacement water from the Federal Columbia Basin Project via the Odessa Groundwater Replacement Program (OGWRP).

Eligibility for replacement water under the Program is subject to the following criteria:

1. Lands must be within the Federal Columbia Basin Project
2. Lands must have a valid state-issued groundwater right (permit or certificate)
3. Lands must be within the Odessa Subarea Special Study area boundary
4. Landowners must be able to enter into a water service contract

Expanded infrastructure will provide replacement surface water for up to 90,000 acres currently irrigated by groundwater from the declining aquifer of the Odessa Subarea.

The first increment of water has been put to use under the program this year, replacing over 2,000 acres of groundwater irrigation with surface water.

This year's progress includes continued canal widening, installation of the Lind Coulee Siphons, county road bridge improvements, and radial gate installation. The Potholes Supplemental Feed Route is near complete with initial test flows being diverted down this route during the 2015 irrigation season.

The first increment of water has been put to use under OGWRP this year, replacing over 2,000 acres of groundwater irrigation with surface water. Additional uses are expected to begin next irrigation season as contracts and infrastructure designs are finalized.

More information: http://www.ecy.wa.gov/programs/wr/cwp/cr_odessa.html



Sullivan Lake Water Supply Project

This project makes 14,000 acre-feet of water available for instream flow in the Columbia River and out-of-stream uses in six northeastern Washington counties. As directed by the legislature, 4,700 acre-feet of water will be available for municipal, domestic, and industrial needs, and another 4,700 acre-feet will be available for irrigation and other uses. The remainder will be used for instream flow enhancement. Pend Oreille County Public Utility District, OCR's partner in this project, has released the first two increments of water which are being placed into the State Trust Water Program to offset the new uses. Construction activities are complete that now allow the PUD to release the entire 14,000 acre-feet per year through a cold water discharge facility necessary to preserve water quality standards.

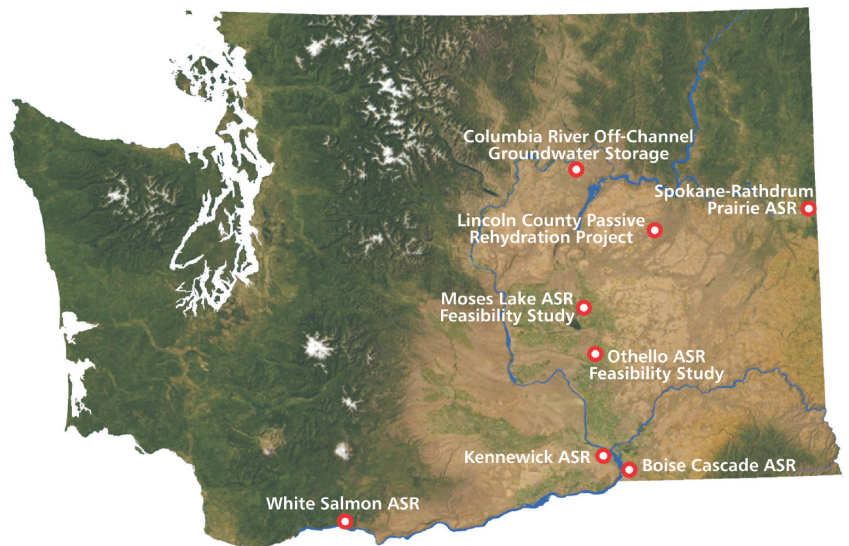
Ecology has begun processing the pending applications which qualify for this water supply project and will continue into 2016. OCR has issued one permit totaling 1,100 acre-feet per year. The quantity of water requested by pending applications far exceeds the water supply available for new permits. Recipients are required to pay a one-time cost-recovery fee of \$1,500 per acre-foot, with payment plans available.

More information: <http://www.ecy.wa.gov/programs/wr/cwp/sullivan.html>

Aquifer Storage and Recovery Exploration Projects

The study of aquifer storage and recovery sites throughout the Columbia Basin continues with funding from OCR. Drilling, testing, and analysis is currently ongoing and OCR endeavors to find suitable areas to locate new water storage. Preferred sites will have minimal environmental impacts, low capital costs, and will not impair existing water rights. Similar to above ground storage, if water supply is developed, two-thirds of the water will be for out of stream uses and one-third for instream benefit.

More detailed information on the individual projects can be found on our interactive project map at: <http://www.ecy.wa.gov/programs/wr/cwp/projects.html>



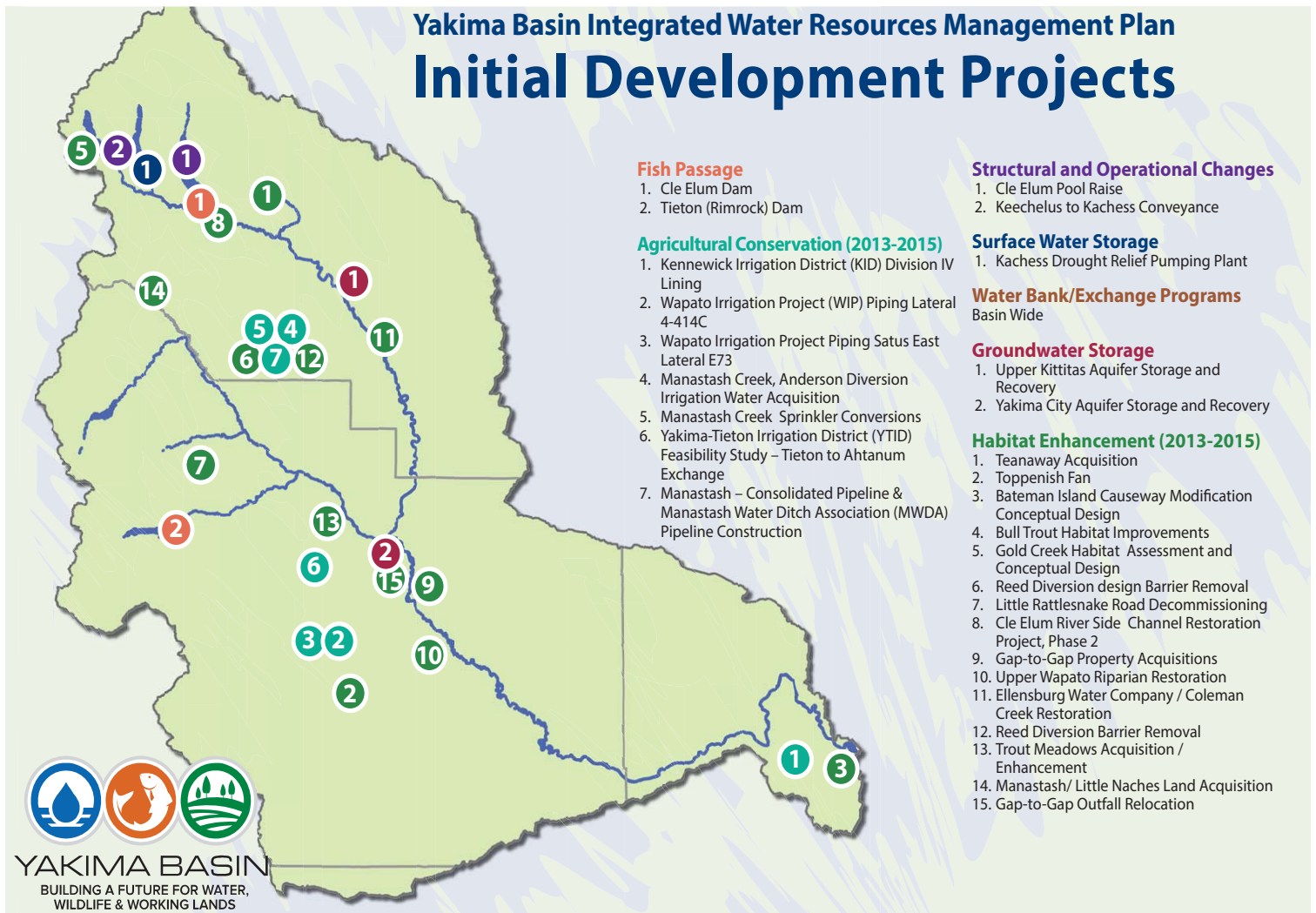
Rule Revision Project

Amendment to Chapter 508-14 WAC will define how much groundwater in an area northwest of Pasco may be allocated by the state and how much is reserved for the federal Columbia Basin Project. This will allow new water rights to be issued in portions of Franklin, Adams and Grant Counties. Initial economic analyses indicate that the rule change would significantly increase agricultural and commercial land values, farm production incomes and jobs. Ecology partnered with the US Bureau of Reclamation and the US geological Survey to develop the necessary groundwater/surface water hydrologic model for the 508-14 area. This modeling effort is currently underway. The Department of Ecology is currently evaluating options to amend the 508-14 rule and is preparing to initiate SEPA scoping activities.

OCR support for the Yakima Basin Integrated Plan (YBIP) continued in 2015. This year’s milestones include the introduction of federal legislation in June 2015 by Senators Maria Cantwell and Patty Murray endorsing the YBIP and authorizing its initial development phase and allowing for future funding of the plan. Other efforts include beginning construction on the Cle Elum Dam fish passage facility, finalizing the Cle Elum pool raise Environmental Impact Statement, and the imminent completion of the City of Yakima Aquifer Storage and Recovery Project, which is expected to be finished by the end of 2015. In addition, environmental review for the Kachess Drought Relief Pumping Plant (KDRPP) and the Keechelus to Kachess Reservoir Conveyance (K to K) projects is currently under way. Two separate legislative reports, directed under Chapter 90.38 RCW, are being produced for 2015, which will provide a status update on the Integrated Plan and financial analysis for the KDRPP and K to K projects.

More information: <http://www.ecy.wa.gov/programs/wr/cwp/YBIP.html>

Yakima Basin Integrated Water Resources Management Plan Initial Development Projects



Icicle Creek Workgroup and Integrated Plan

OCR and Chelan County co-convened a workgroup in December 2012 of interested stakeholders with the intent of finding collaborative solutions to resolve chronic water supply issues facing the Icicle Creek Watershed. Projects are currently being evaluated for feasibility. Projects will be selected to meet the workgroup's guiding principles to achieve multiple instream and out-of-stream benefits through investment in conservation, storage restoration and reoperation, water marketing, and habitat and fish passage projects. SEPA and initial permitting is expected to begin in 2016.

More information at the Icicle Workgroup Website: <http://www.co.chelan.wa.us/natural-resources/pages/icicle-work-group>

Methow Flow Improvement Project

This project augments instream flows and fish habitat in Alder Creek and the Twisp and Methow Rivers, provides more reliable and efficient service for irrigators, provides additional water to the Town of Twisp, and resolves long-standing tension over water resources in the basin. Project components include abandoning the Methow Valley Irrigation District (MVID) diversion from the Twisp River, piping portions of the District's canal system to allow for increased efficiency, and conversion of some surface water irrigated lands to groundwater.

Instream flow benefits of this project include:

1. *Improved habitat complexity in the Twisp River*
2. *Reduced impacts to ESA listed fish*
3. *Lower water temperatures*
4. *Increased instream flows in the Methow and Twisp Rivers*
5. *Reconnecting Alder Creek with the Methow River*

More information: <http://www.ecy.wa.gov/programs/wr/cwp/Methow.html>

MVID West Canal near its diversion point. Portions of the canal will be converted to a pressurized pipe system while other users are switching their sources to groundwater wells.



Water Development Progress

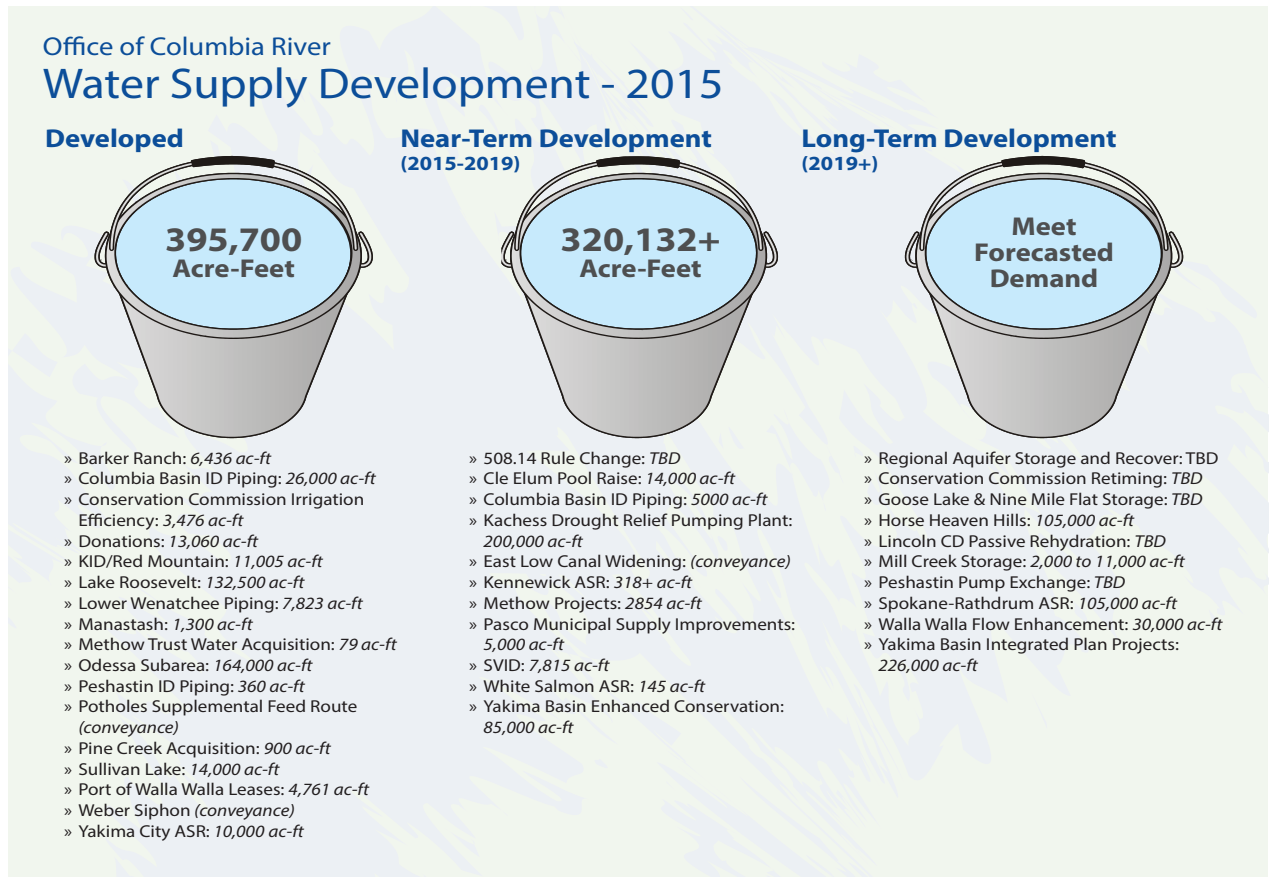
OCR has made over 395,700 acre-feet available to Eastern Washington's water supply and continues to develop additional water resources through near term and long term projects. OCR prepares a Long-Term Water Supply and Demand Forecast (Forecast) every five years. The Forecast provides a generalized, system-wide assessment of how future environmental and economic conditions are likely to change water supply and demand 20 years into the future. Understanding where additional water supply is most critically needed will assist OCR in making smarter investments that help improve water supply for eastern Washington's instream and out-of-stream users. OCR is currently updating the Forecast for release in November 2016.

Once new water supplies are developed for instream flows, minimal permit processing is needed before water is available to use. However, water for out-of-stream uses requires several other steps before Ecology can issue permits, including consultations with government agencies, tribal councils, and interested parties, and environmental reviews. Sometimes, external factors such as litigation may also delay processing. Typically, it takes several months to issue a new water right permit. Additionally, time may be needed for the water user to put the water into use for a host of reasons, including the feasibility, design, and construction of infrastructure, Compliance with the State Environmental Policy Act (SEPA), permitting required by other regulatory entities, or securing financial support to implement a project. The graphic below shows the status of OCR's water supply development activity.

The first bucket below shows the total amount of water currently developed through new projects for out-of-stream and instream uses. The second bucket shows the amount of water expected to be developed within one to three years. The third bucket shows the amount of water expected to be developed beginning three or more years from now.

Long term projects are either under study or awaiting federal or other approval. The results will determine if these projects move forward.

New Water Supply Developed by the Office of Columbia River



Status of the Columbia River Basin Water Supply Account

The table below shows the current allocation of funds from the original \$200 million Columbia River Basin Water Supply Development Account. Under RCW 90.90.010(2)(b), two-thirds of the account must be spent on storage and pump exchanges and, one third for other purposes.

Prior Biennium Expenditures	\$123,600,337
2015-17 Reappropriation	\$52,010,000
2015-17 New Appropriation	\$16,800,000
Yakima GWMA Reappropriation	\$450,000
Future Biennium Appropriations	\$7,139,663
Total Columbia River Project Funding	\$200,000,000

As of this publication, OCR has developed 395,700 acre-feet of new water supply at a cost of around \$187 million dollars, with more water soon to be developed in the 2015-2017 budget cycle. That pencils out to less than \$473 per acre-foot, an incredible bargain in a market where water typically sells for well over \$1,500 per acre-foot.



Wind turbines south of Kennewick, Washington.

Supply Inventory

OCR's grant program focuses on projects that will deliver permitable water to the Columbia River or one of its tributaries. Permitable water is water that is stored, retimed or conserved through farm management practices such as crop changes or fallowing. OCR screens the projects in its inventory and meets with project proponents to determine grant eligibility. The inventory includes projects whose feasibility is untested, lack project proponents and where adequate funding has not been secured. Projects are prioritized to balance where supply is available with the demands for the five legislative directives: Odessa Subarea, Pending Water Right Applications, Drought Relief, New Municipal, Domestic, Industrial and Irrigation, and Instream Flows. Since the \$200 million dollar funding appropriated is relatively small compared to the total costs to develop projects, projects that leverage other federal, state and local funding sources are favored. This approach maximizes the public return on investment.

As stated in the 2014 report, OCR is eliminating projects from our inventory lists that do not seem to provide attainable benefits in reaching our statutory goals at this time. This includes large projects that have critical defects due to environmental, technical, or economic issues as well as smaller projects such as irrigation efficiency upgrades that provide no permitable water or needed instream flow benefits. Some projects may be evaluated on a case-by-case basis to address specific needs for flow augmentation or other factors. Removing such projects allows the inventory list to be more useful in determining and accounting for potential projects that meet our goals. We will continue to refine the list as further information on project feasibility is acquired. To view our current inventory of projects, please refer to the expanded supply inventory located online at: <https://fortress.wa.gov/ecy/publications/SummaryPages/1512006.html>

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