

Yakima River Basin Water Conservation: Goals, Management, and Progress

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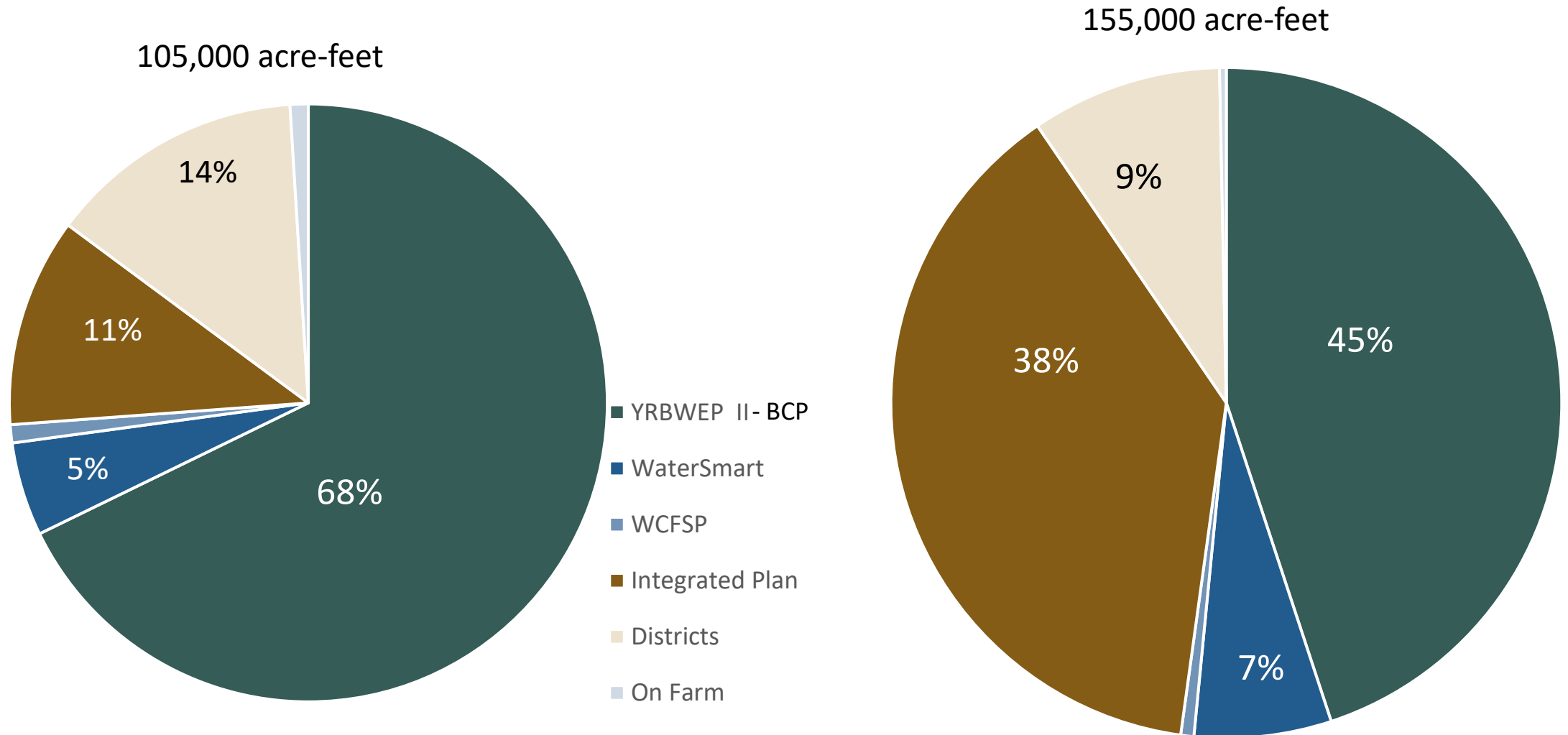


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Summary – March 2019 and March 2022

Types of Conservation in Yakima Basin



Based on estimated conserved water – for illustration purposes only
BCP = Basin Conservation Plan



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Yakima River Basin Conservation - Goals

- **1994 Yakima River Basin Water Enhancement Project (YRBWEP) Section 1203 BCP**
 - **Goal:** 165,000 acre-feet conserved
 - **Cost Share:**
 - Reclamation 65%; State 17.5%; District 17.5%
 - Districts retain 1/3; Instream flow 2/3
 - **Conserved Water:**
 - 70,000 acre-feet + Wapatox 260,000 acre-feet
 - Exceeds goal by 165,000 acre-feet.
- **2013 RCW 90.38/2019 Dingell Act**
 - **Enhanced Conservation Goal:** 170,000 acre-feet
 - **Initial Development Phase:** (2013-2029)
 - **Goal:** 85,000 acre-feet.



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2022 YRBWEP Phase II BCP, Conservation Water Pulse Flows

- Approximately 49,000 acre-feet of water for 2022 instream flows
- Shapeable conservation water varies from year to year
- Estimated 20,000 acre-feet 'shapeable' WY2022
- Discussions with SOAC will determine best use of conserved water

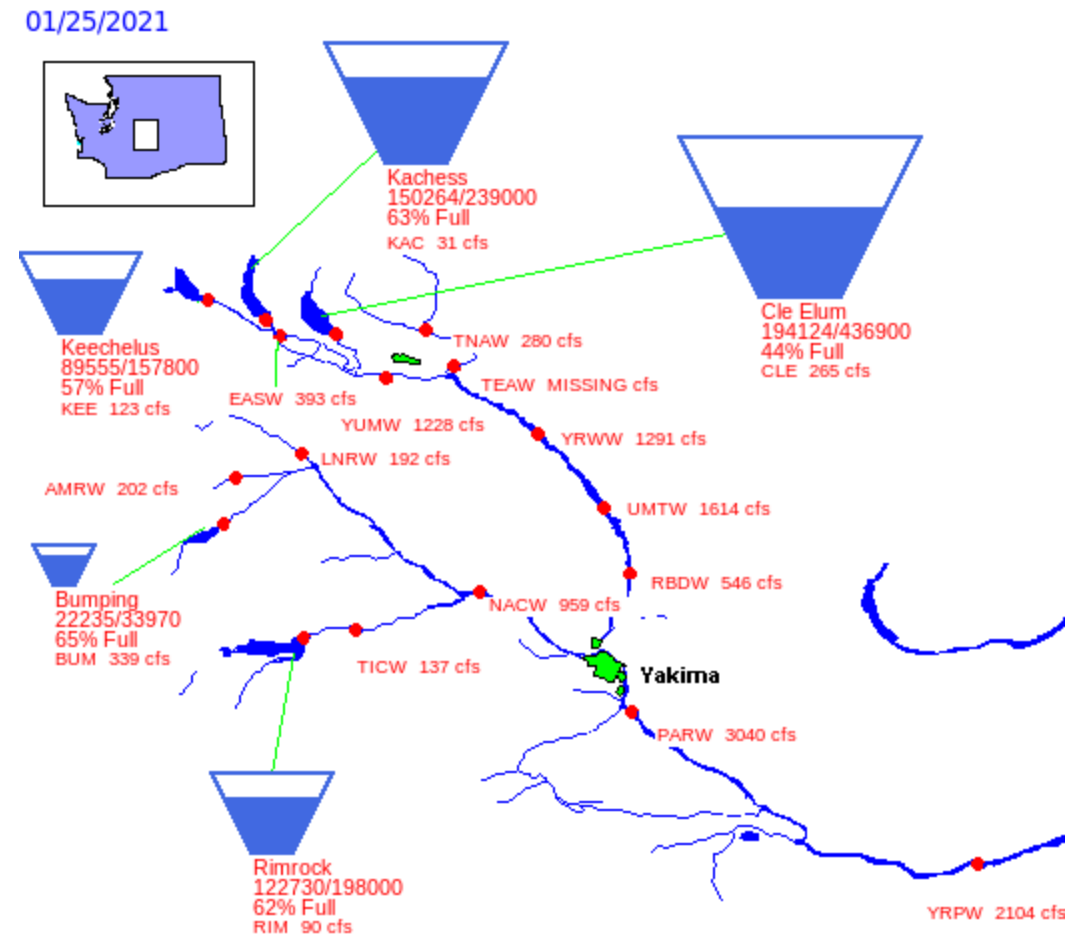


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Yakima River Flow Management

- Reclamation staff work with System Operations Advisory Committee (SOAC) to schedule *pulse flows*
- Volumes of water available for pulse flows can vary annually with runoff
- Pulse flows intended to increase survival during smolt migration April, May, June—runoff forecasting is key
- Adaptive management via monitoring and studies
- Operational flexibility allows for alternative strategies: target species, life-stages

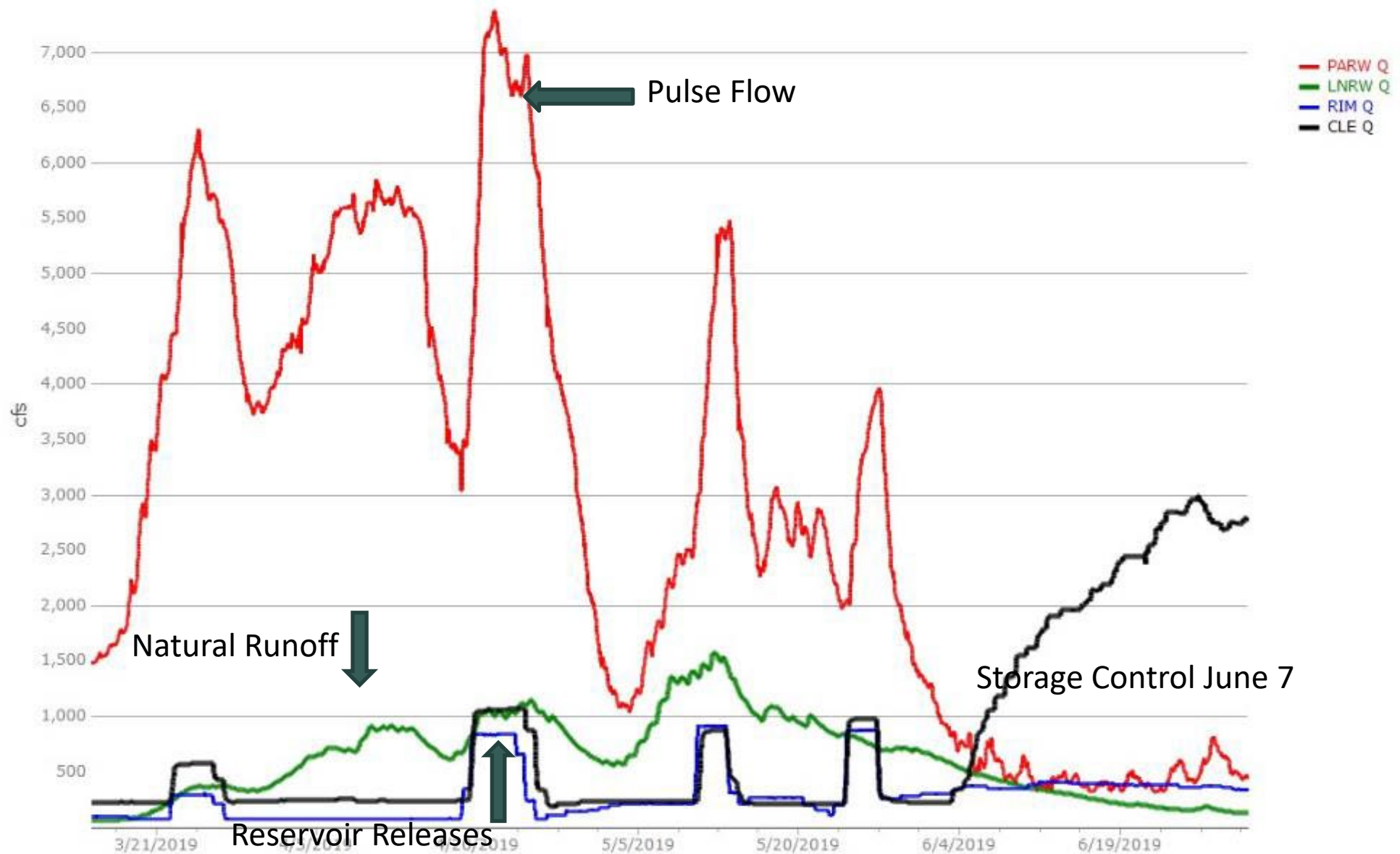


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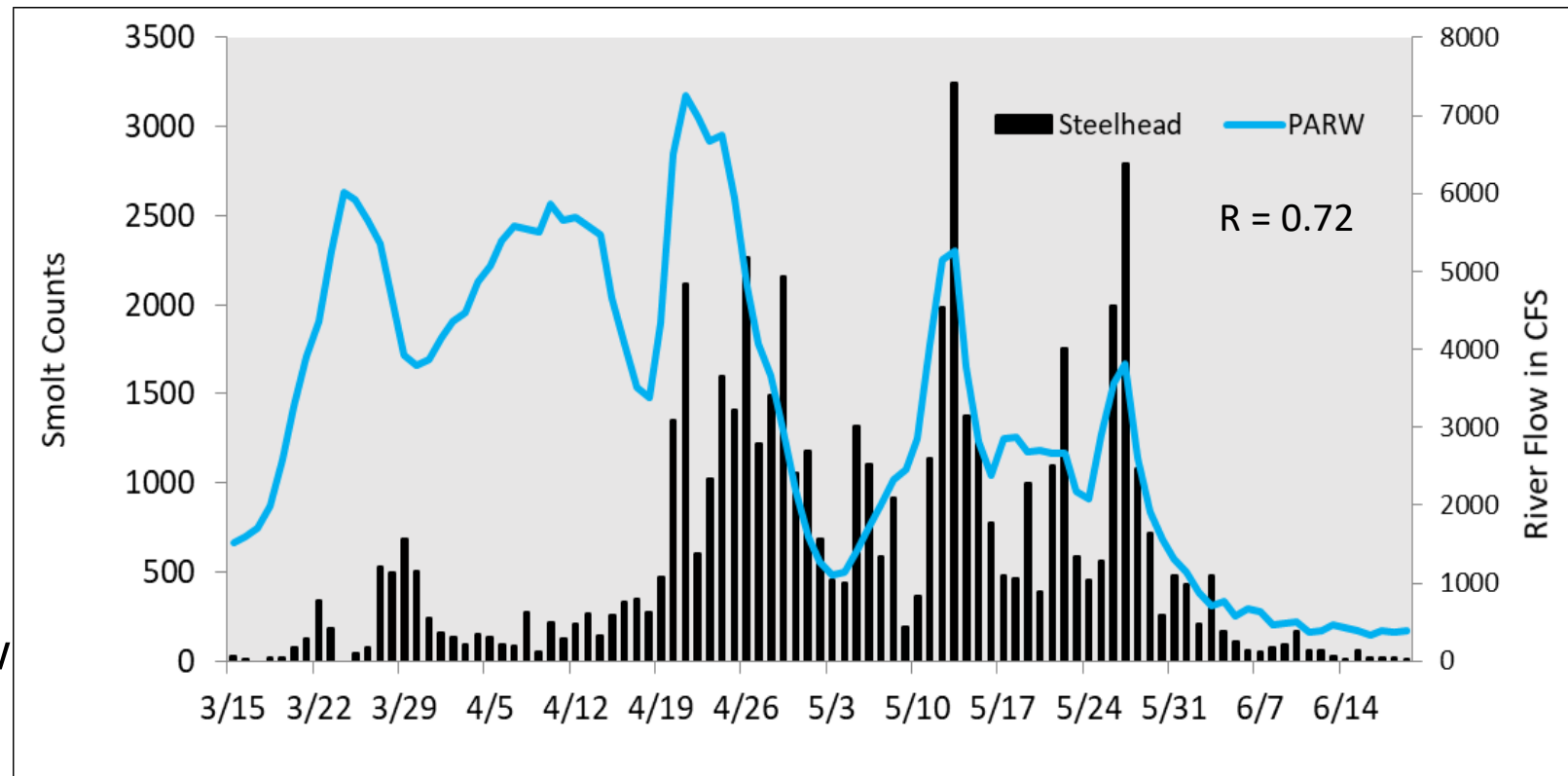
Yakima River Hydrograph - Spring 2019



Adaptive Management

- Fish trap at Prosser provides daily smolt counts, run timing, species composition, genetic data
- *Lower River Smolt Survival Study* developing models to estimate survival related to flows, facilities, predators
- SOAC and Reclamation review in-season fish and flow data to develop operations

Yakima R. Flow and Daily Steelhead Smolt Counts 2019



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Sources for Pulse Flows

- Pulse flows have used approximately 5,000-22,000 acre-feet each event
- Volumes depend upon Total Water Supply Available (TWSA) – can be prorated
- YRBWEP Phase II BCP Conserved Water
- 2015 Yakima Project Biological Assessment i.e. BA Flows
- Yakima Project operations such as retiming of runoff
- Future project: Cle Elum Pool Raise 14,600 acre-feet



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Enhanced Water Conservation Element

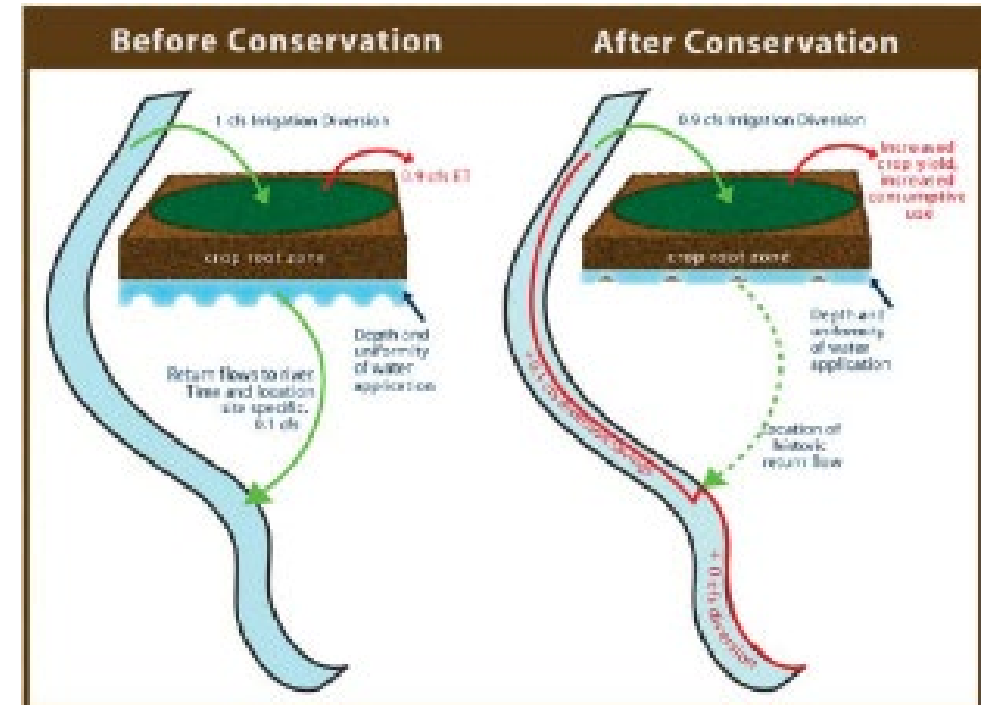
Total Goal: 170,000 acre-feet

Agricultural Conservation

- Lining/piping/sealing canals & laterals
- Water measurement devices
- Re-regulation reservoirs
- On farm irrigation efficiency
 - to reduce seepage, evaporation, & spills

Municipal and Domestic Conservation Program

- Promote efficient landscape irrigation practices
- Expand education/incentives to encourage voluntary efficiency
- Establish best practice standards



Primary Reach Benefit



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Enhanced Water Conservation

- Purpose
 - Improve instream flows in critical stream reaches to benefit priority fish species
 - Improve water management with more precise water delivery and operational efficiency
 - Improve water supply reliability and drought resiliency



*Steelhead in the Middle fork Teanaway River
(Photo by Zack Mays)*



Roza Irrigation Canal



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Enhanced Water Conservation Criteria for Accounting

- Conservation project began in 2013
- Is an agricultural or municipal improvement project resulting in conserved water
- Not part of the Title XII, Section 1203 Basin Conservation Program
- Annual project accounting



Yakima Heritage Garden



KRD Canal Lining



Wapato Irrigation Project - Unit 2 L672 Pipeline



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Enhanced Water Conservation

Meeting the Goal

- **Current status:**
- Working on accounting for existing conservation and proposal to prioritize projects to meet initial development phase goal – 85,000 acre-feet (by 2029)
- Identify projects for future conservation to develop draft proposal
- Meet with partners to review proposal, get feedback, and refine proposal

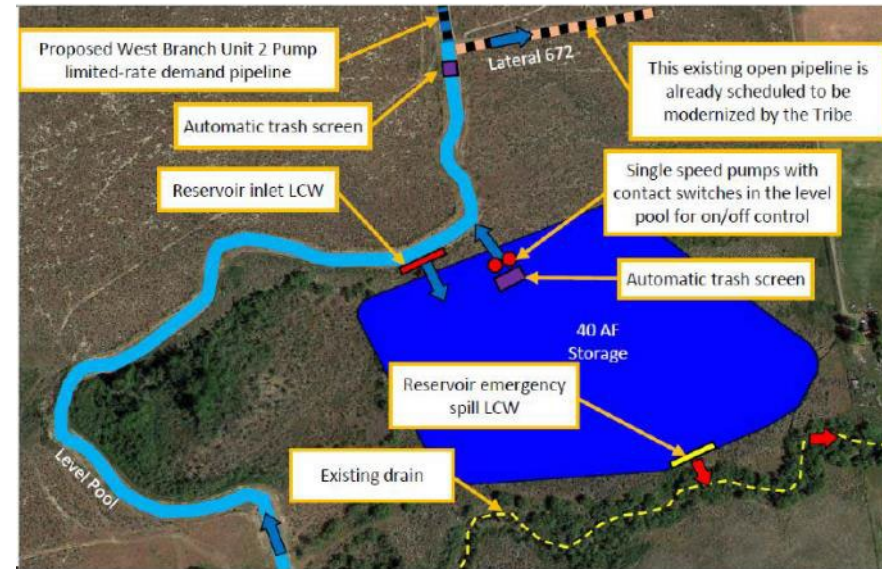


Figure 5-21. Conceptual control of the proposed West Branch Unit 2 Pump regulating reservoir

Left: NSID canal piping

Above: Proposed Unit 2 reregulating reservoir as part of WIP



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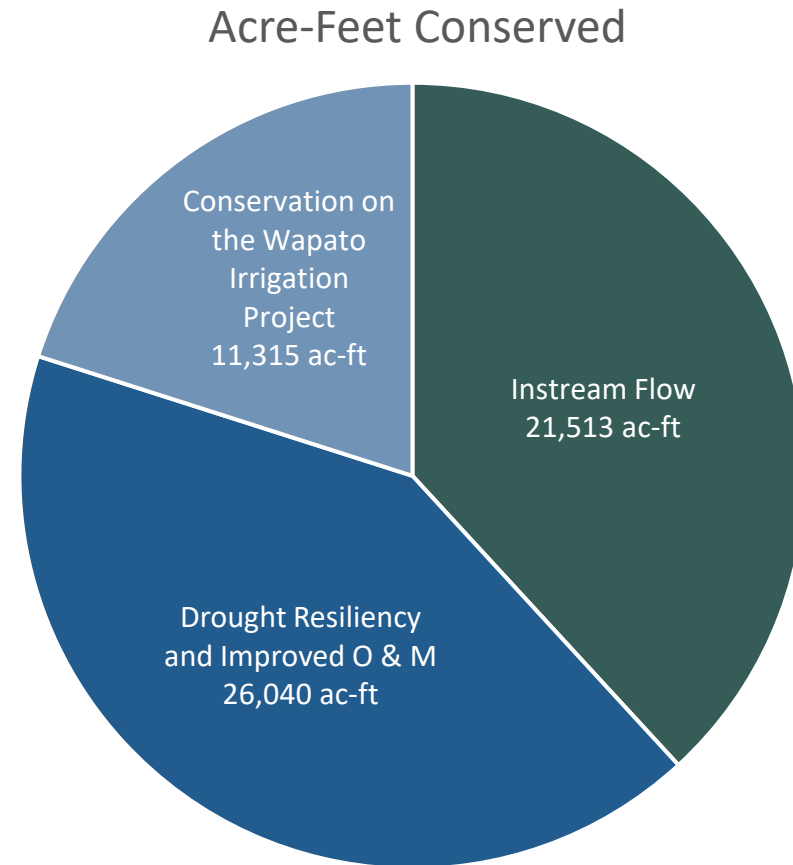
Enhanced Water Conservation 2013-2022

125 conservation projects to date

- ~\$119M invested

Conserved ~**58,868 acre-ft**
= 69% of 85k ac-ft 2029 goal

- \$2,022/acre-ft
- Accounting is on-going



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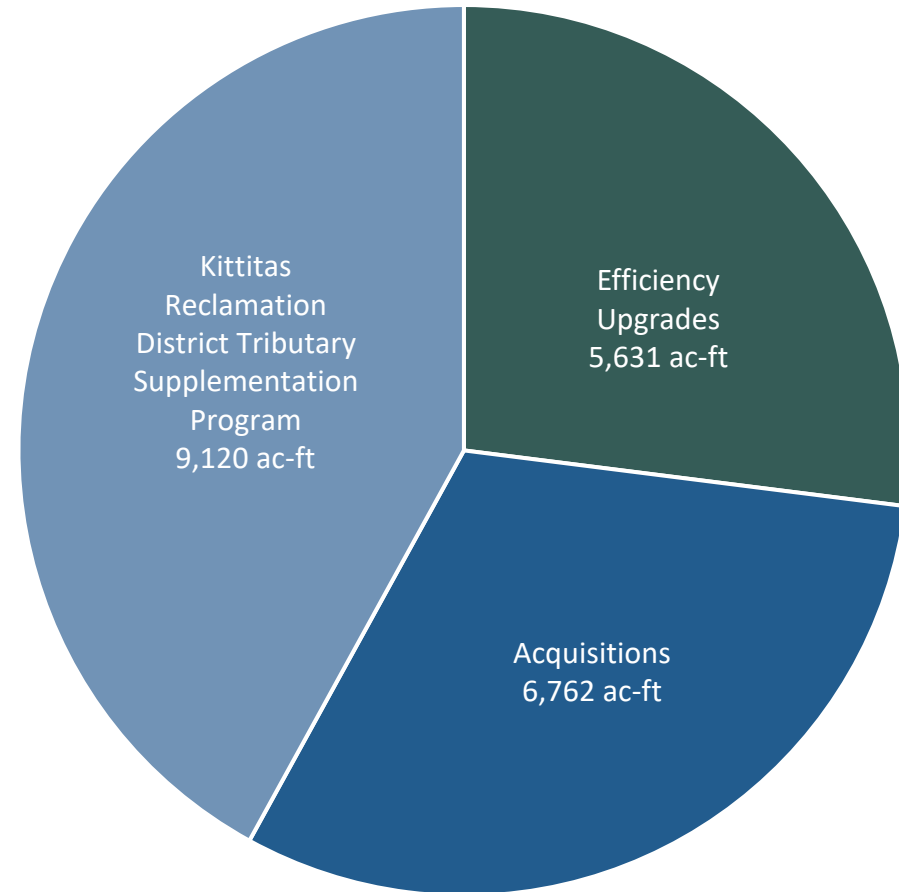


Enhanced Water Conservation

Instream Flow

21,513 acre-feet

- ~\$57.5M invested
- \$2,670/acre-ft
- Accounting is on-going



■ Efficiency Upgrades ■ Acquisitions ■ KRD

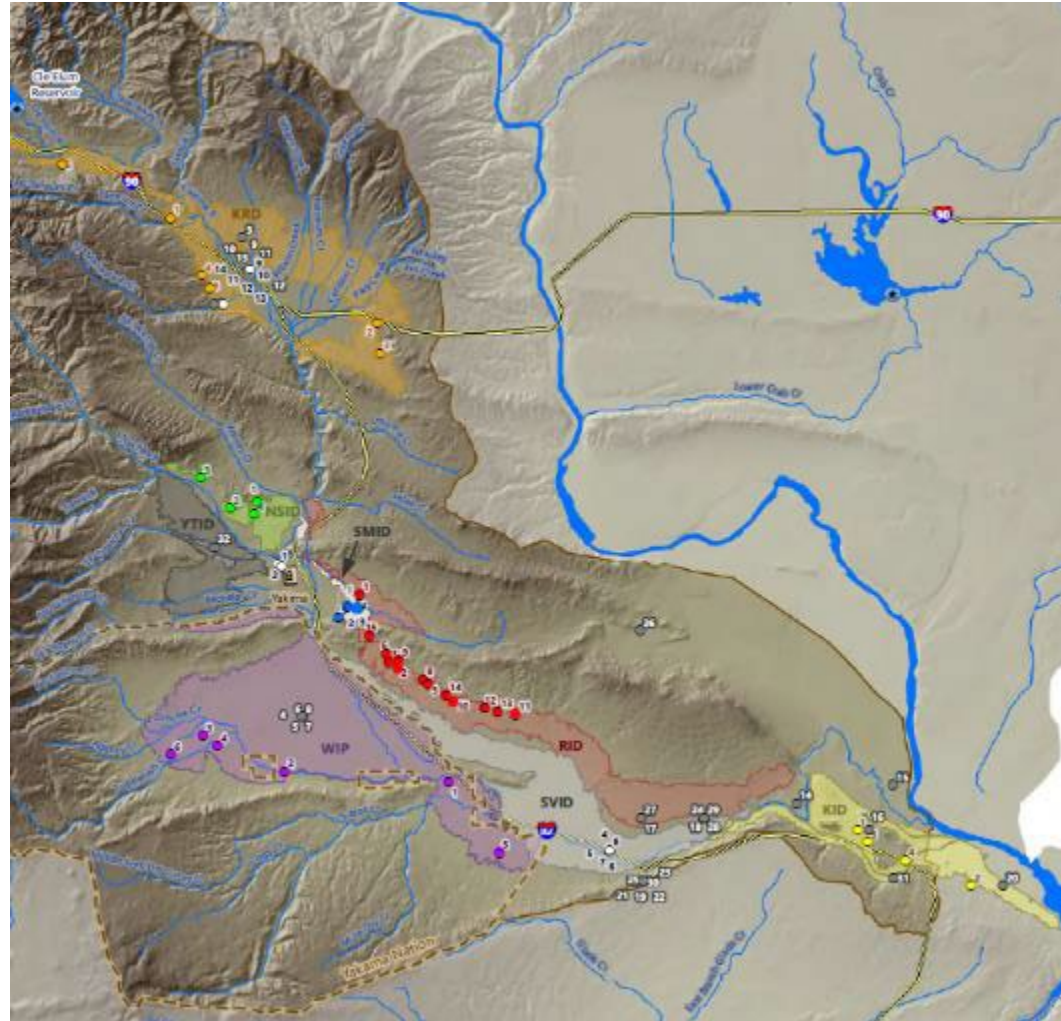


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Enhanced Water Conservation Project Distribution



Source: 2021 Enhanced Water Conservation Framework Technical Memorandum

Additional Resources

- Yakima Basin Enhanced Water Conservation Projects Story Map.
 - Available at: <https://storymaps.arcgis.com/stories/94785e4754a84e79b06432e6dbd0fdb9>
- Enhanced Water Conservation Element Framework Technical Memorandum (2021).
 - Available at: <https://www.usbr.gov/pn/programs/yrbwep/2011integratedplan/TMenwat2021.pdf>
- Yakima River Basin Study – Agricultural Water Conservation Technical Memorandum (2011).
 - Available at: <https://www.usbr.gov/pn/programs/yrbwep/2011integratedplan/TMenwat2021.pdf>



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Yakima River Basin Water Conservation

Contributing Partners

- Bureau of Reclamation
 - WaterSMART
 - YRBWEP
- Ecology
 - YBIP
 - Floodplains by Design
 - Streamflow Restoration Act
- Yakama Nation - WIP
- Natural Resource Conservation Service
 - RCPP
 - EQIP
- Kittitas County
- Trout Unlimited
- Washington Water Trust
- City of Yakima
- Columbia Basin Water Transactions Program
- Conservation Districts
 - Kittitas
 - North Yakima
 - South Yakima
 - Benton
- Salmon Funding Recovery Board (RCO)
- Yakima Basin Fish and Wildlife Recovery Board
- Irrigation Districts
 - KID
 - KRD
 - Roza
 - SDBOC/SVID
 - Selah-Moxee
 - Naches-Selah
 - CID
 - Others



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Yakima River Basin Conservation Summary

- Focus on water conservation continues
- Part of the solution - need storage to help manage conservation water
- Progress!
 - Several water conservation projects implemented and more planned
 - Increased on-district and on-farm efficiencies
 - Strategically use conserved water to increase instream flows for outmigration of smolts
 - Adaptive management for drought resiliency and climate change
- Continue to implement and strategize on key reaches and instream flows and how to optimize storage



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Thank You!

Questions?



Photos: Manastash Creek at Cove Road before and after stream supplementation

For further information on the web:

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

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