Yakima Basin
Integrated Plan
Surface Water Storage Element - Status
Yakima River Basin Overview

- 6,155 sq. miles with 464,000 irrigated acres
- 5 reservoirs with 1M AF capacity, irrigation deliveries 2.3M AF
- ESA Listed Species: Bull Trout & Steelhead
- $4.5 Billion agriculture economy
Yakima Basin Integrated Plan Overview

- **Structural & Operational Changes**
  1. Raise the Cle Elum Pool by three feet to add 14,000 ac-ft in storage capacity.
  2. Modify Kittitas Reclamation District canals to provide efficiency savings.
  3. Construct a pipeline from Lake Keechelus to Lake Kachess to reduce flows and improve habitat conditions during high flow releases below Keechelus and to provide more water storage in Lake Kachess for downstream needs.
  4. Decrease power generation at Roosevelt Dam and Chandler power plant to support outmigration of juvenile fish.
  5. Make efficiency improvements to the Wapato Canal.

- **Surface Water Storage**
  1. Build a 152,500 ac-ft off-channel surface storage facility at Wymes on Limestone Creek.
  2. Access an additional 200,000 ac-ft of water by tapping into inactive storage at Lake Kachess.
  3. Construct a new dam at Bumping Reservoir to increase capacity to 190,000 ac-ft.
  4. Begin appraisal of potential projects to transfer water from the Columbia River to the Yakima Basin.

- **Groundwater Storage**
  1. Construct pilot projects to evaluate recharging shallow aquifers via groundwater infiltration. Full scale implementation may follow.
  2. Build an aquifer storage and recovery facility allowing Yakima City to withdraw water from the Naches River during high flow periods and store it underground for use during low flow periods.
Surface Water Storage Element

- **Kachess Drought Relief Pumping Plant**
  Existing Reservoir: Access up to 200,000 acre-feet from inactive storage pool in dry years

*RiverWare Modeling - ongoing*

- **Wymer Dam and Reservoir**
  New off-channel reservoir, 163,000 acre-feet

- **Bumping Dam & Reservoir Enlargement**
  Replace existing dam to add 165,000 acre-feet

**Additional Proposed Surface Storage**

- **Upper Yakima System Storage**
  New off-channel reservoir, 20,000 acre-feet

- **North Fork Cowiche Creek Reservoir**
  New off-channel reservoir 30,000 to 35,000 acre-feet

Potential Instream Flow being modeled
Wymer Dam & Reservoir – Pump from Yakima River

Alternatives 165,000 ac-ft and 110,000 acre-ft
Wymer Reservoir via Kittitas Reclamation District - Gravity Overview
Potential Tunnel Options to Wymer Reservoir via KRD Canal
Wymer Dam & Reservoir

- Status
  - Yakima River Basin Study Analysis – 2011
  - Geotechnical and Seismic Investigations – 2014
  - Temperature Modeling – 2014
  - Fish & Wildlife Habitat Impact Study, WDFW – 2015
  - Data Gap Analysis – 2020
  - RiverWare Modeling – ongoing
  - Land Acquisition – in process
Bumping Dam & Reservoir Enlargement

190,000 acre-feet
Bumping Dam & Reservoir

• Status
  – Yakima River Basin Analysis – 2011
  – Fish Passage Analysis – 2008, 2011
  – Fish & Wildlife Habitat Impact Study, WDFW – 2015
  – Geotechnical and Seismic Investigations – 2016
  – Data Gap Analysis – 2020
  – RiverWare Modeling – ongoing
Adaptive Management Process Overview

Based on Basin Study, Integrated Plan & Programmatic EIS (2009-2012), the following process is implemented:

1. **Project-by-Project Feasibility Studies & Costing** (Initial Development Phase in progress)
2. **Project-by-Project Environmental Reviews and Records of Decision**
3. **Project-by-Project Authorizations and Funding**
4. **Project-by-Project Permitting, Construction, and Activation**
5. **Integrated Plan Fully Built Out with all Projects Operational**

**Interim Adjustments**
- If one or more original projects cannot move forward; OR
- Changes in conditions, needs, or technologies provide new opportunities or reduced costs; OR
- New projects are proposed that were not originally considered

**Small projects in existing program categories**: Use normal subcommittee review procedure, followed by Executive Committee input.

**Large or unique projects**: Reclamation, Ecology & Yakama Nation screen proposals (see Screening Questions). Subcommittees & agencies assist with gathering necessary technical information.

Discuss recommendation with Subcommittees, Exec. Committee, & YRBWEP Workgroup.

Reclamation, Ecology & Yakama Nation determine if advancement is consistent with IP. If so, proceed to evaluations shown above.
KRD Service Area
KRD Upper Yakima System Storage

Up to 20 kaf storage potential
Springwood Reservoir via KRD North Branch

20,000 acre-feet
Springwood Reservoir

- Status
  - Data Gap Analysis – 2020
  - Geologic Exploration – 2021
  - RiverWare Modeling – ongoing
  - Land Acquisition – TBD
2016 YTID study looked at moving YTID’s diversion 15-miles downstream to Wapatox.

1. Rimrock releases could be modified to provide greater benefits to steelhead and bull trout

2. YTID water remains in the river for fish habitat improvements and flow augmentation

3. Wapatox Pump Station and NFCCR capture and store YTID water

4. NFCCR increases TWSA. Water released from NFCCR could benefit steelhead and augment flow in local creeks

5. Prorated water districts could divert or exchange water, reducing dveryear shortages by more than 4 percent
Tieton River Restoration –
North Fork Cowiche Canyon
Reservoir, 35kaf

- Proposed Canal Diversion and Pump Station
- Proposed Wapatox Pipeline
- Proposed Valve Vault and Connection to Existing 90” Pipeline
- Naches River
- Tieton River
- Existing French Canyon Reservoir (FCR)
- Proposed N. Fork Cowiche Creek Reservoir (NFCCR)
- Tieton, WA
- Tieton Canal Replacement
North Fork Cowiche Reservoir

- Status
  - WaterSMART – Pilot Study – Reclamation/YTID
  - Data Gap Analysis – 2020
  - Geotechnical Investigations – ongoing
  - RiverWare Modeling – ongoing
  - Land Acquisition – TBD
Yakama Nation Bull Trout Rearing and Reintroduction Program

Funding and Support from:
Reclamation and Washington State Department of Ecology and the Yakima Basin Integrated Plan
Anything above 0% is successful, all of the 603 Kachess fish and 64 Gold Creek fish
Adaptive Management Strategies
2020-2021

- Lower Tank Densities
- Condense Rescue Window
- Increase Feed Rations and Frequency
- Increase Habitat in Tank
- Delay Introducing Fry in Diet

Increase in Survival:  **Kachess 74%  Gold 22%**

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<th><strong>Gold</strong></th>
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**2020-2021**

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Post Tagging/Release Survival to Date

• **2020 Release Gold Creek**
  - 47 Released 35 detected at Gold Creek Detector from May through November (last detection 11/4)
    - An additional 7 tags were detected that were determined to be mortality tags reused from early salmonid studies, but were actually Bull Trout
      - Possible 42 of the 47 released at Gold Creek Bridge were detected
      - Average length 158mm
  - 29 Released 2 detected at Gold Creek Detector
    - Average length 176mm

• **2020 Kachess Releases**
  - 81 Released 1 detected (Mouth of Gale, and Thetis Creeks)
  - 69 Released 0 detected (Mouth of Kachess River)
  - **5 acoustic tagged Bull Trout released 2 survived**
    - 1 into Box Canyon Creek (240 mm)
    - 1 in lake survived winter and still foraging (Jeremy 250mm)
Cle Elum Fish Passage Overview and Sockeye Study Update

Looking upstream at dam/spillway and tunnel portal and adult facility location, March 2019
Intake Gate & Helix - Update
Looking Downstream into Intake Conduits

Intake #6 underwater on April 14th
Intake Gate & Helix

Helix Flume Mockup
Intake Gate & Helix
Separation and Access Walls Construction
Tunnel Construction – Mobilized, March 2018

Excavation Machine and Liner Plates
Tunnel Steel Plates and Concrete Placement

Liner Placement
- Excavate
- Outer Liner Plates
- Invert Placement
- Repair as needed
- Crown Placement
Tunnel Construction, Completed March 2021

Tunnel Outfall will be constructed as part of the Adult Collection Facility

Cle Elum River

Tunnel Outfall
Tunnel Equipment Access Shaft
Cle Elum Fish Passage Construction Status

Completed three of five construction contracts to date

Go, Team!

Substantially Complete March 23, 2021
Thank You!

For further information on the web:


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