Office of Columbia River
Overview

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Director
Office of Columbia River

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July 24, 2018
OCR’s Mission....

Aggressively pursue water supply development for both instream and out-of-stream uses. RCW 90.90.005(2)
Columbia River Basin Water Management Act (2006) RCW 90.90

- Significant investment in new storage and conservation
  - Capital: authorization for bonds of up to $200 million
  - Operating: $2.1 million and 15 FTEs
- 2/3 of funds for study & construction of new storage & pump exchanges
  - 1/3 of new storage for improving streamflows to benefit fish
  - 2/3 of new storage for new out-of-stream uses
- 1/3 of funds for all other water supply projects

Ecology was tasked with managing the funds & created the Office of Columbia River (OCR) to use these funds to develop new water supplies
RCW 90.90 Statutory Focus

1. Find alternatives to groundwater for the Odessa subarea aquifer 🚜

2. Develop water supply for pending water right applications 🚜 🏘️ 🐟

3. Create uninterruptible supply of water for interruptible water right holders 🚜

4. Meet new (future) municipal, domestic, industrial and irrigation water needs 🚜 🏘️

5. Provide water for instream needs 🐟
Water Supply Development Tools

- Surface Storage
- Structural & Operational Changes
- Aquifer Storage and Recovery
- Shallow Aquifer Recharge (aka Passive Rehydration)
- Water Right Acquisition & Leases
- Pump Exchanges
- Conservation/Piping/Lining
- Water Banking
- Habitat Enhancements
Drying Up

A serious look at what it’s going to take financially and physically to get water to the Odessa Subarea before the desert oasis goes dry
Odessa Subarea

a declining aquifer
Odessa Groundwater Replacement Program (OGWRP)
Odessa – State Investment

Investment to Date: $90 million

- Weber Siphon Complex
- Odessa Special Study
- Lake Roosevelt Incremental Storage and Releases Program
- Potholes Supplemental Feed Route
- East Low Canal Improvements
- Lind Coulee Siphons 1 & 2
- Warden Siphon
Yakima Basin Integrated Plan

For further information on the web:
http://www.ecy.wa.gov/programs/wr/cwp/YBIP.html
Yakima Basin Integrated Plan (YBIP)  
7 Elements

- Fish Passage
- Structural Operational Changes
- Surface Storage
- Groundwater Storage
- Habitat Restoration
- Market-based Reallocation
- Water Conservation
First 10 Years: Projects by Element

Yakima Basin Integrated Water Resources Management Plan
Initial Development Projects

1. Kennewick Irrigation District (KID) Division IV Lining
2. Wapato Irrigation Project (WIP) Piping Lateral 4-414C
3. WIP Piping Satus East Lateral E73
4. Manastash Creek, Anderson Diversion Irrigation Water Acquisition
5. Manastash Creek Sprinkler Conversions
6. Yakima-Tieton Irrigation District (YTD) Feasibility Study – Tieton to Ahtanum Exchange
7. Manastash – Consolidated Pipeline & Manastash Water Ditch Association (MWDA) Pipeline Construction
8. Tieton Canal Headworks Improvement and Cowiche Creek Water Exchange.
9. Roza Irrigation District Canal Lining
10. KRD North Branch Canal Lining
11. WIP Unit 2 Upper Dam Rebuild and Lower Dam Removal
12. WIP Piping of Unit 2 L672
13. WIP Water Conservation Plan
14. City of Yakima Xeriscape Demonstration Project
15. Reed Pipeline Design

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

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

Structural and Operational Changes
3. Cle Elum Pool Raise
4. Keechelus to Kachess Conveyance

Surface Water Storage
1. Kachess Drought Relief Pumping Plant

Water Bank/Exchange Programs
Basin Wide

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

Locations are Approximate
Cle Elum Fish Passage
Kachess Drought Relief Pumping Plant

Schematic Hydraulic Profile Showing Inactive Pool, Natural Lakes, Existing Kachess Dam & Reservoir, and Proposed KDRPP Drawdown

- Kachess Dam (Post - 1910)
- Existing Gravity Outlet Works
- Proposed KDRPP Drought Refill Pool
  - WSEL = 2,112 ft
  - 200,000 AF of Water
- Proposed Maximum Drawdown by KDRPP
  - Approximately 80 ft
- Big Kachess Inactive Pool
  - WSEL = 2,192 ft
  - 586,000 AF of Water
- Normal Full Pool Kachess Reservoir
  - WSEL = 2,262 ft (Post - 1910)
- Little Kachess Inactive Pool
  - WSEL = 2,220 ft
  - 57,000 AF of Water
- Natural Lake

WSEL = Water Surface Elevation
Not to Scale
Challenges and Next Steps

- Secure congressional authorization and funding in 2018
- Secure $42 million in state capital appropriation in 2019
- Balancing all 7 elements in the initial development phase/implementation
OCR and Chelan County
Icicle Creek Comprehensive Water Resource Strategy

Icicle Work Group
February 2016

Metrics

Improve Stream Flows
- 60 cfs minimum flows (drought years)
- 100 cfs minimum flows (non-drought years), short-term goal
- 250 cfs minimum flows (non-drought years), long-term goal
- 2,600 cfs maximum flow to preserve habitat function

Improve Sustainability at the Leavenworth National Fish Hatchery
- Meet U.S. v. Oregon and other agreements specifying fish production requirements
- 57 cfs supply protected long-term (at least 20 cfs conservation goal)
- Diverse source availability (temperature, pathogen-free) to maximize fish health
- Structures to minimize unintended fish passage impediment

Improve Agricultural Reliability
- Automate/Optimize Alpine Lakes for improved reliability (plus instream flow benefit)
- Restore/repair 8-Mile Lake up to 2,500 acre-feet (225 acre-foot agricultural benefit, 900 ac-ft additional instream flow/municipal benefit)
- Current intransitable agricultural users have firm supply in average water years/agriculture water bank (2 to 4 cfs)

Enhance Icicle Creek Habitat
- Improve passage at Boulder Field
- Make investments in physical habitat improvement with consideration for high flow habitat and low flow refuge, minimize fish passage impediments, and improve limiting factor spawning/rearing
- Offset project-related terrestrial impacts with land acquisition/easements

Improved Water Supply for Domestic Use.
- 2,300 to 4,100 acre-feet of reliable year-round supply (3 to 6 cfs average, 6 to 12 cfs peak), magnitude conditioned upon Legislation on reserve.

Protect Tribal and Non-Tribal Fish Harvest
- Catch per unit of effort (CPUE) improved
- Maintain multi-species harvest opportunities
- Tribal Impacts Assessment and Adaptive Management Plan being implemented, addressing attraction flows, sediment transport, fish migrations strife, site access and amenities

Comply with State and Federal Law and Wilderness Acts
- Identify and engage regulators in the process
- Environmental review completed (project check)
- All projects appropriately permissible (project check)
- All diversions (ENF, IPD, CIC) appropriately screened (project check) Identify and engage regulators in the process

Average Water Year
Water Supply Benefits
4 cfs added for Agriculture
5 cfs added for Domestic Use
77 cfs added for Habitat and Instream Flows
63 cfs Average Base Flow

Drought Year
Water Supply Benefits
4 cfs added for Agriculture
5 cfs added for Domestic Use
47 cfs added for Habitat and Instream Flows
20 cfs Average Base Flow

To ask about the availability of this document in a format for the visually impaired, call Office of Columbia River at 509-575-2400. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.
Chelan County and Washington Department of Ecology’s (DOE) Office of Columbia River co-convened the Icicle Work Group (IWG) in December 2012 to find collaborative solutions for water management within the Icicle Creek Watershed.

The Work Group is developing a water resource management strategy (Icicle Strategy) consisting of a comprehensive list of projects that address Icicle Creek issues and concerns identified in their Guiding Principles.

The IWG is made up of a diverse set of stakeholders representing local, state and federal agencies, tribes, irrigation and agricultural interests and environmental organizations. The IWG follows a set of operating procedures that define it's purpose, members and the ultimate goals of this effort.
Icicle Creek Water Resource Management Strategy

**ICICLE STRATEGY**

The purpose of the Icicle Creek Work Group ("Work Group") is to develop a comprehensive Icicle Strategy through a collaborative process that will achieve diverse benefits defined by all of the Guiding Principles below. The Work Group will use best available science to identify and support water management solutions that lead to implementation of high-priority water resource projects within the Icicle Creek drainage.

**ICICLE STRATEGY**

i. Conservation
ii. Groundwater Augmentation
iii. Pump Exchange
iv. Modification of Existing Storage
v. New Storage
vi. Water Markets
vii. Fish Passage and Screening
viii. Habitat Improvement
ix. Tribal Fishery Enhancement

Icicle Work Group Co-Conveners

Chelan County Department of Natural Resources
Ecology Office of Columbia River
Leavenworth National Fish Hatchery

Releasing alevis into the nursery tanks.

Construction of the Leavenworth National Fish Hatchery (LNFH) took place from 1938 to 1940 on 170 acres of Icicle Valley land, two miles south of the town of Leavenworth.
Icicle Peshastin Irrigation District’s Eight Mile Lake
Dams in the Alpine

A Long, Hard Haul

Hauling a load up the trail.

The Alpine Lakes: Water from the Mountains

Water gushing from Snow Lake outlet in 1941.

The Final Touch

The Snow Lake valve after installation.
Existing Dam and Spillway

Notch, Controlled By Stop Logs

Current High Water Surface Elevation ~ 4,667 Feet

Spillway

Historical High Water Surface Elevation ~ 4,671 Feet
Existing embankment

- Embankment
- Historical Embankment Crest
- Embankment Erosion
Eight Mile Lake Outlet Gate

Low-Level Outlet Gate

- Gate Stem
- 30" Pipe Inlet
- Come Along
- 30" Slide Gate
- Debris Rack
Jack Creek Fire of September 2017
Eight Mile Lake Hazard Classification revised to High

- **Gate Operation**
  - Requires come along to open and close gate
  - Rocks/debris make operation challenging

- **Dam Condition and Level Control**
  - Embankment erosion, reduced water storage
  - <1,400 acre-feet available without pumping/siphoning

- **Low-Level Outlet Pipe**
  - Multiple materials, some in poor condition
  - Pipe collapse has recently reduced capacity

- **Storage Releases are critical to IPID late summer water supply, especially during dry years**
Columbia River
(proposed)

Switzler Reservoir

<table>
<thead>
<tr>
<th>Project Elements</th>
<th>Value</th>
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<tbody>
<tr>
<td>Peak Storage Volume (acre-feet)</td>
<td>44,000</td>
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<tr>
<td>Maximum Instantaneous Filling Capacity (cfs)</td>
<td>200</td>
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<tr>
<td>Diversion Period</td>
<td>When Columbia River Water is Available</td>
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<tr>
<td>Maximum Instantaneous Draining Capacity (cfs)</td>
<td>280</td>
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<tr>
<td>Release/Supply Period</td>
<td>April 1 – October 30</td>
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<tr>
<td>Surface Water Source</td>
<td>Columbia River</td>
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Existing Easterday/Denhoed (Finley) Pump Station

Proposed Area of Inundation

Proposed Embankment Dam

Proposed Pipeline

Existing Easterday/Premier (Irogrow) Pump Station

Existing Easterday/Berrian Pump Station

Existing Easterday/Premier (Irogrow) Pump Station

Proposed Pump Station

Proposed Area of Inundation

Proposed Embankment Dam

Proposed Pipeline

Existing Easterday/Berrian Pump Station

Existing Easterday/Denhoed (Finley) Pump Station

Proposed Pump Station
Switzler Reservoir

Preferred Storage Alternative from pre-Feasibility study

Water Storage Concept:
Provide mitigation for new water rights:
- 1:1 mitigation for Columbia River diversions
- Project provides new water rights; does not deliver water

Pump from Columbia River when water is available (Winter/Spring)

Pump into surface reservoirs (low elevation)

Under new water rights, divert Columbia River water from same pool or anywhere downstream

Discharge water from reservoir back to Columbia River to mitigate for diversion quantity
# Switzler Reservoir

## Capital Cost

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<th>Item</th>
<th>Cost</th>
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<tr>
<td>General</td>
<td>$18.6M</td>
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<tr>
<td>Site work</td>
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<tr>
<td>Embankment Dam</td>
<td>$113.5M</td>
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<tr>
<td>Operational and Appurtenances</td>
<td>$11.5M</td>
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<tr>
<td>Surface Water Pump Station</td>
<td>$14.3M</td>
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<tr>
<td>Environmental Mitigation</td>
<td>$2.5M</td>
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**Construction Cost Subtotal** $181.0M
**Contract Cost Total (Incl. Contingency and WSST)** $243.5M
**Non-Contract Total** $37.0M

**Project Cost Total** $280.5M

## Public Funding vs. End User Share

<table>
<thead>
<tr>
<th>Public Match Level</th>
<th>Project Cost (per acre-foot per year)</th>
<th>Funding: State / Federal Match</th>
<th>Funding: End User Share</th>
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<tr>
<td>0% Public Match</td>
<td>$427</td>
<td>$0</td>
<td>$427</td>
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<tr>
<td>33% Public Match</td>
<td>$427</td>
<td>$141</td>
<td>$286</td>
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<tr>
<td>50% Public Match</td>
<td>$427</td>
<td>$213</td>
<td>$214</td>
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Comparison of Dry, Average, Wet Year Flows to Instream Flow Rule

(Columbia River at McNary Dam)
Where are We Headed?

- On-going need to develop water supplies and invest in infra-structure
- Forecasting future water supply needs based on more sophisticated methodology, surface and groundwater inter-relationships and curtailment
- Building innovative and sustainable partnerships
- Secure long-term source(s) of funding
- Delivering integrated multi use water resource solutions
COLUMBIA RIVER TREATY
STATUS UPDATES
CRT 2013 Regional Recommendations

Calls for:

• New formula for calculating the Canadian Entitlement to reflect actual value of coordinated operations

• Re-establishing some level of assured flood storage in Canada

• Pursuing more coordinated use of Treaty and Non-Treaty storage to increase flexibility/benefits associated with meeting ecosystem based functions, flood risk management, and other authorized water supply purposes in both countries

• Providing releases from Canada to promote productive populations of anadromous and resident fish, including flow augmentation operations/incorporating dry year strategy

• Establishing domestic processes for resolving issues such as water allocation, flood risk management
CRT Current Status

• Circular 175 Negotiating terms completed October 2017

• US State Department names Jill Smail new Canadian Treaty negotiator October 2017

• Formal negotiations between US and Canada commenced on May 29, 2018 additional negotiations planned

• Important to separate treaty from background noise (NAFTA, Trade tariffs, steel and Aluminum, aircraft, soft wood tariffs, etc.)
May 2016 – US District Court of Oregon
Decision Regarding Federal Columbia River
Power Supply System

**Ruling:**
- FCRPS Bi-Op violated Endangered Species Act (ESA)
- FCRPS operations also violated ESA
- Corps and Reclamation violated NEPA by adopting 2014 Supplemental Bi-Op

**Required:**
- NMFS issue a new Bi-Op by December 31, 2018
- BPA, Corps, and Reclamation complete a NEPA EIS on Columbia River System Operations (CRSO) by March 26, 2021 with Record of Decision by September 24, 2021.
- EIS must include alternative involving breaching of one or more dams
- 2018 spill increases
Extra Points Regarding Court Decision

• Four main-stem dams and locks and four lower Snake River dams and locks allow barge passage as far inland as Lewiston, Idaho – would be precluded by dam removal

• Water supply alternative being advanced through the CRSO EIS that would account for second half of Columbia Basin Project

• Washington State Departments of Agriculture, Ecology, and Fish and Wildlife all cooperating agencies on CSRO EIS

• U.S. House Bill 1344 would undo most of the provisions of the court decision
Columbia River near Vantage
Challenges that Lie Ahead

• Supreme Court decisions & legal uncertainties
• Columbia River Treaty negotiations
• Long-term funding uncertainties
  o Federal, State and Local
• Projects that span multiple biennia (funding, political support)
• Investing in aging water supply infrastructure
• Climate change, shifting water supplies & drought
• Federal Columbia River Power System Biological Opinion (FCRPS BiOP) Uncertainties
• Keeping the Momentum going!
Questions or Discussion

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