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## Northwest **Power** and **Conservation** Council

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May 9, 2023

### **MEMORANDUM**

**TO: Council Members**

**FROM: Stacy Horton, Washington Policy Analyst/Biologist**

**SUBJECT: Icicle Work Group**

### **BACKGROUND:**

**Presenter:** Tom Tebb, Director of the Office of the Columbia River, Washington State Department of Ecology (IWG Co-Convener)  
Mike Kaputa, Director, Chelan County Natural Resources Department (IWG Co-Convener)  
Brock Hoenes, Regional Director, Washington Department of Fish and Wildlife  
Greg McLaughlin, Program Director, Washington Water Trust  
David Child, Leavenworth Fisheries Complex Project Manager, US Bureau of Reclamation  
Chuck Brushwood, Fish and Wildlife Policy Advisor, Colville Confederated Tribes (tentative)

**Summary:** Director Tebb and members of the Icicle Work Group will discuss collaborative solutions to water management in the Icicle Creek Watershed. The Work Group has a diverse set of stakeholders working collaboratively to improve water efficiency and boost stream flows for both instream and out of stream flow needs.

**Relevance:** The Council has a strategy in its 2014 Columbia River Basin Fish and Wildlife Program that discusses and promotes public engagement. Public outreach and involvement can support the work in the Councils program and bring new capacity and vision to ecosystem and landscape

approaches, especially where we see productive partnerships across social and ecological boundaries

Background: The Act requires the Council to provide for the participation and consultation of the Pacific Northwest states; local governments; electricity consumers; customers of Bonneville; users of the Columbia River System including federal and state fish and wildlife agencies and appropriate Indian tribes; and the public in formulating regional power policies that are reflected in the Council's Northwest Power Plan and the fish and wildlife program, which is part of the power plan. Public involvement and understanding will ensure that management decisions are more sustainable. (P. 99 2014 Columbia River Basin Fish and Wildlife Program)

More Info:

Icicle Creek water supply development <https://ecology.wa.gov/Water-Shorelines/Water-supply/Water-supply-projects-EW/Icicle-Creek-strategy>

Icicle Work Group <https://www.co.chelan.wa.us/natural-resources/pages/icicle-work-group>

Icicle Work Group // The Origin Story <https://vimeo.com/622832352/58847fc44f>

Icicle Work Group // Projects : FALL 2021 UPDATES <https://vimeo.com/622815914/28affb0d02>

A scenic view of a rocky river with rapids and a small waterfall, surrounded by lush greenery. The river flows through large, dark grey boulders, creating white water rapids. In the background, a small waterfall cascades over rocks. The surrounding area is filled with green vegetation and trees.

# Icicle Creek Integrated Water Resource Management Strategy

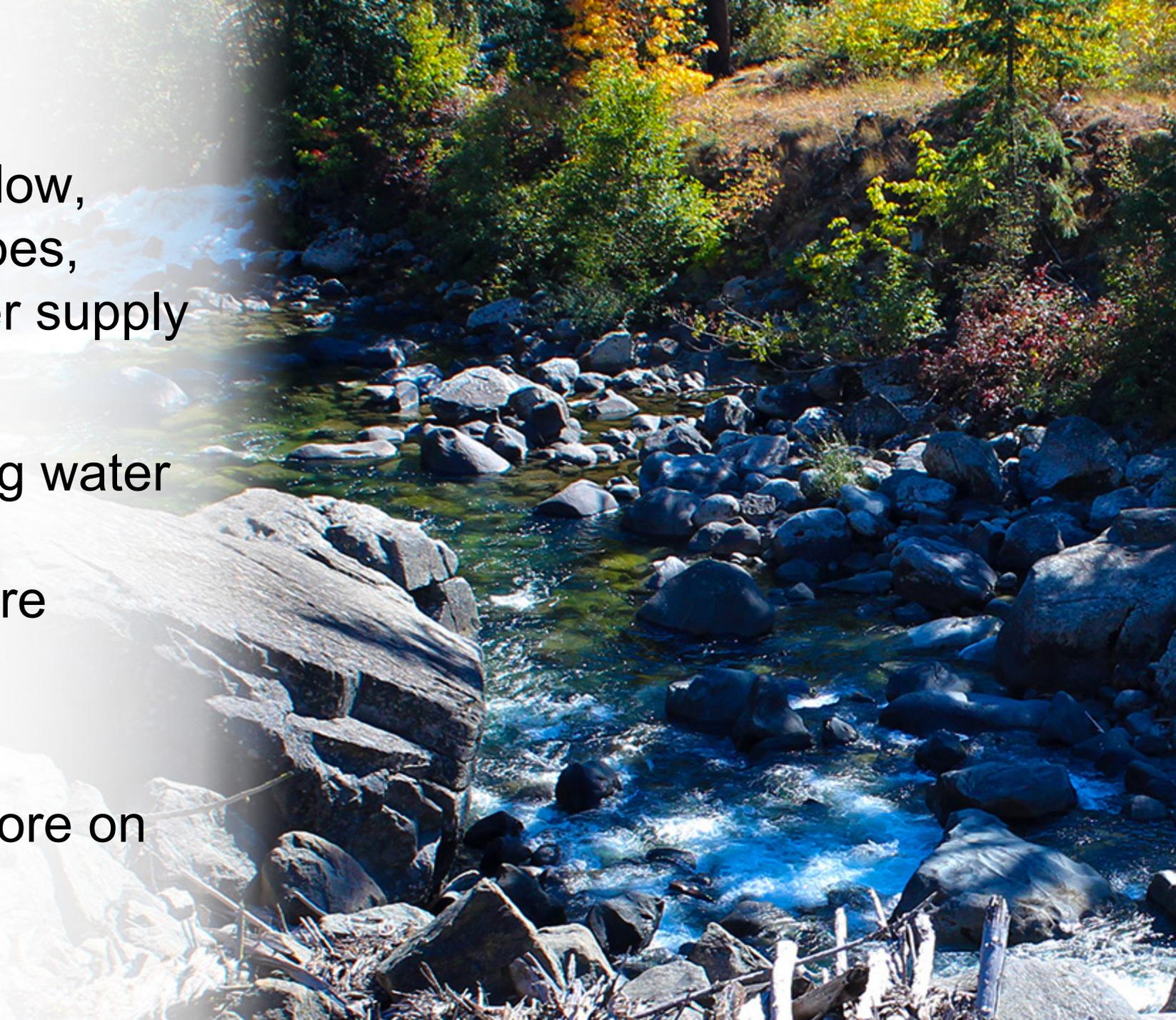
Northwest Power and Conservation Council  
May 17, 2023



**Icicle Creek is a tributary to the  
Wenatchee River (WRIA 45) located  
in Chelan County, WA**

# Background

- **Problem:** Low streamflow, unmet obligations to tribes, irrigation/domestic water supply needs, litigation
- **Opportunities:** Existing water storage in Alpine Lakes Wilderness, infrastructure improvements needed, motivated participants
- **Challenges:** Many - more on this later...



# Background

- **Co-Conveners:** Ecology's Office of Columbia River and Chelan County
- **Process:** Resolve issues through Icicle Workgroup (IWG) collaborative advisory group
- **Goals:** Meet instream and out-of-stream objectives and tribal fishery obligations; provide an alternate pathway for conflict resolution other than litigation



# IWG Members



- Ecology Office of Columbia River
- Chelan Co Board of Commissioners
- Yakama Nation
- WA State Dept of Fish & Wildlife
- Conf Tribes of the Colville Reservation
- Icicle & Peshastin Irrigation District
- USFWS – Leavenworth National Fish Hatchery
- City of Leavenworth
- NOAA Fisheries
- WA Water Trust
- US Forest Service
- Trout Unlimited
- Agricultural Representatives
- City of Cashmere
- US Bureau of Reclamation
- Cascadia Conservation District
- Cascade Orchard Irrigation Co
- Icicle Creek Watershed Council

# Icicle Strategy Overview

# 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.



# Guiding Principles for the Icicle Strategy

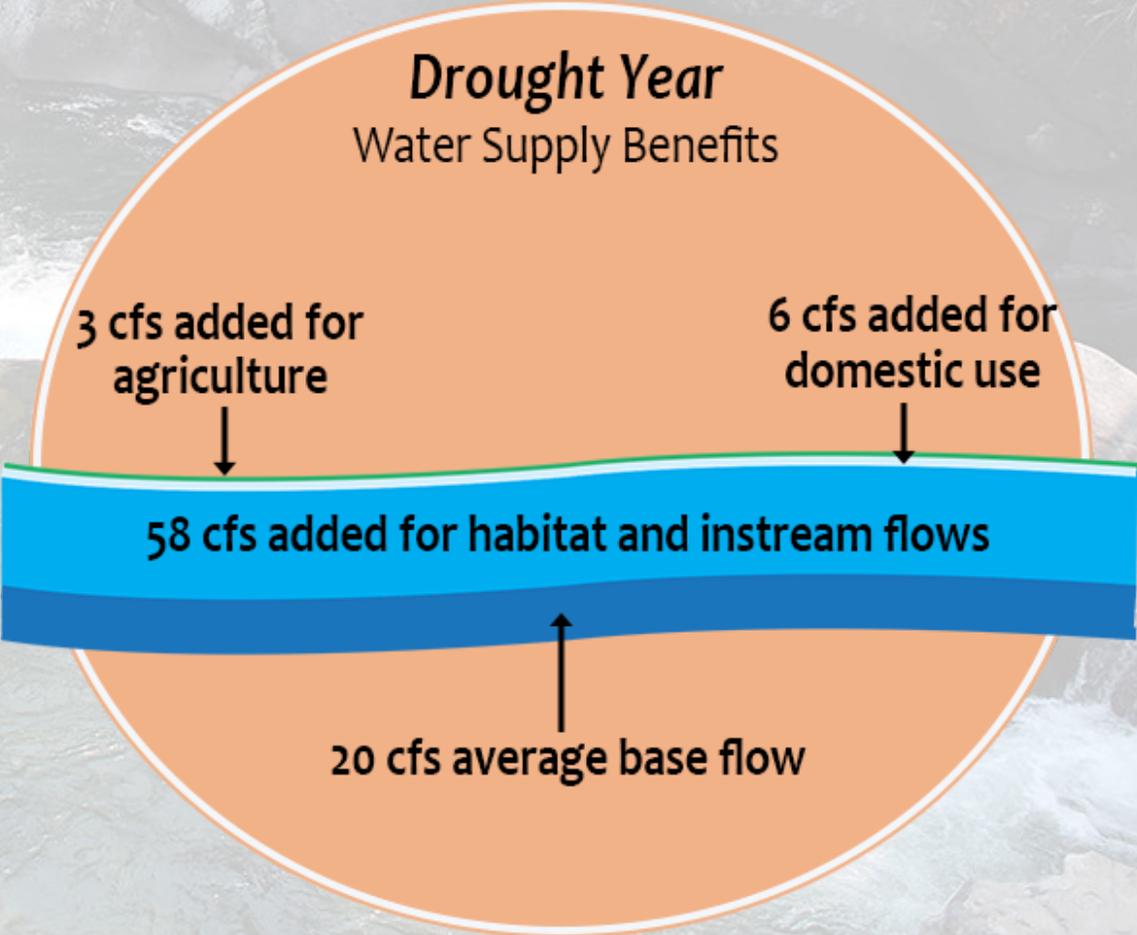
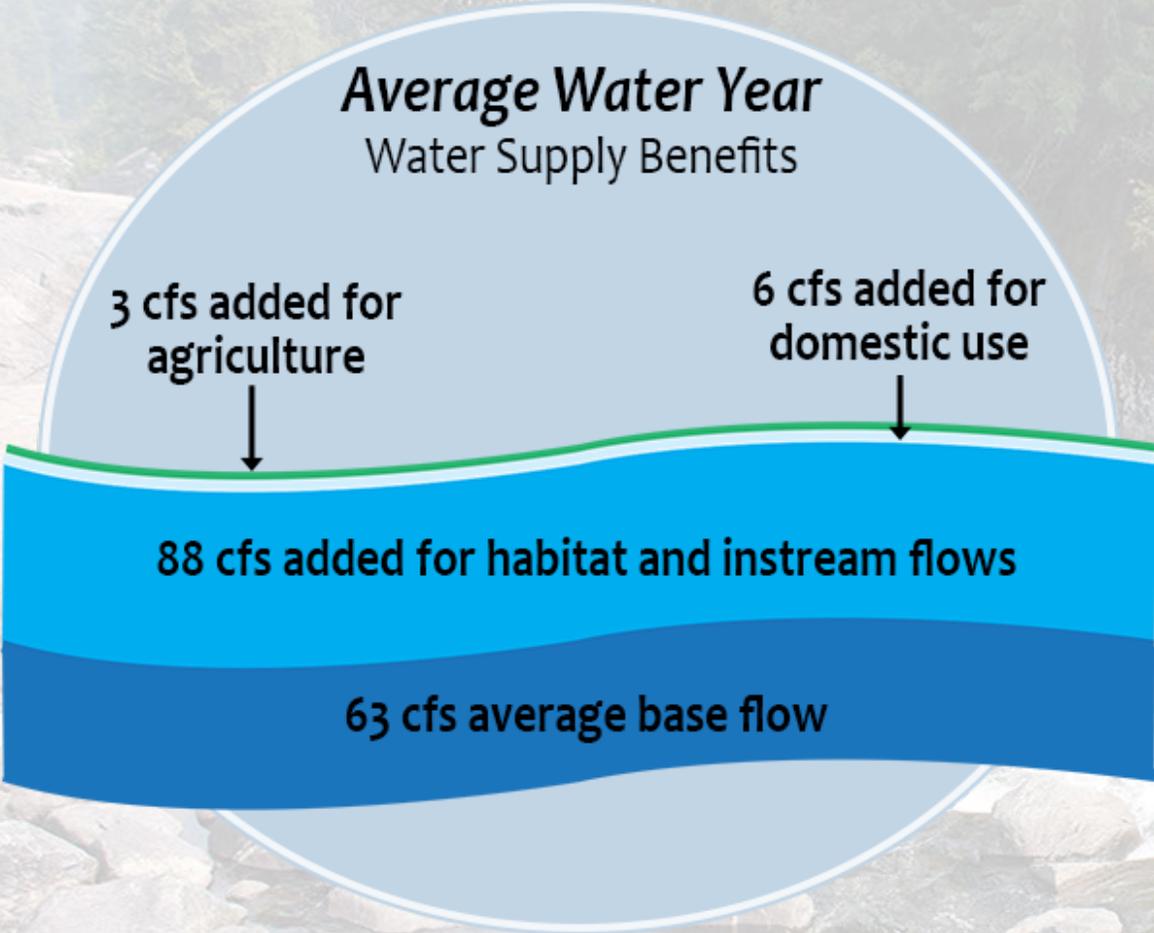
- ICICLE STRATEGY**
- i. Conservation
  - ii. Groundwater Augmentation
  - iii. Pump Exchange
  - iv. Modification of Existing Storage
  - v. New Storage
  - vi. Water Markets
  - vii. Fish Passage and Screening
  - viii. Habitat Improvement
  - ix. Tribal Fishery Enhancement

**Icicle Work Group Co-Conveners**

Chelan County Department of Natural Resources  
Ecology Office of Columbia River

Aspect CONSULTING  
0 1.5 3 6 Miles

# Water Supply and Streamflow Benefits





# Completed & Near-Term Projects

# Water Conservation and Efficiencies

## Municipal and Domestic

- Status: City of Leavenworth Advanced Metering Infrastructure (AMI) Implementation Fall 2020-Summer 2021
- Upcoming
  - Leak detection and pipe replacement
  - Rate study
  - City and Rural Voluntary Lawn Reduction and water use efficiencies



# Water Conservation and Efficiencies

## Icicle Peshastin Irrigation District

- 15 miles of pipe installation plus lining projects completed
- Wooden Flume replacements completed
- Additional piping and lining being planned and implemented annually
- Status: estimated 7 cfs savings to date
- Goal: 10 cfs water savings



# Stream Habitat Enhancements

- Several Riparian Improvement and Sediment Reduction Projects being designed.
- Construction completed at river mile 1.0 in 2022
- Upcoming Projects may include riparian planting, side channel restoration, engineered log jams



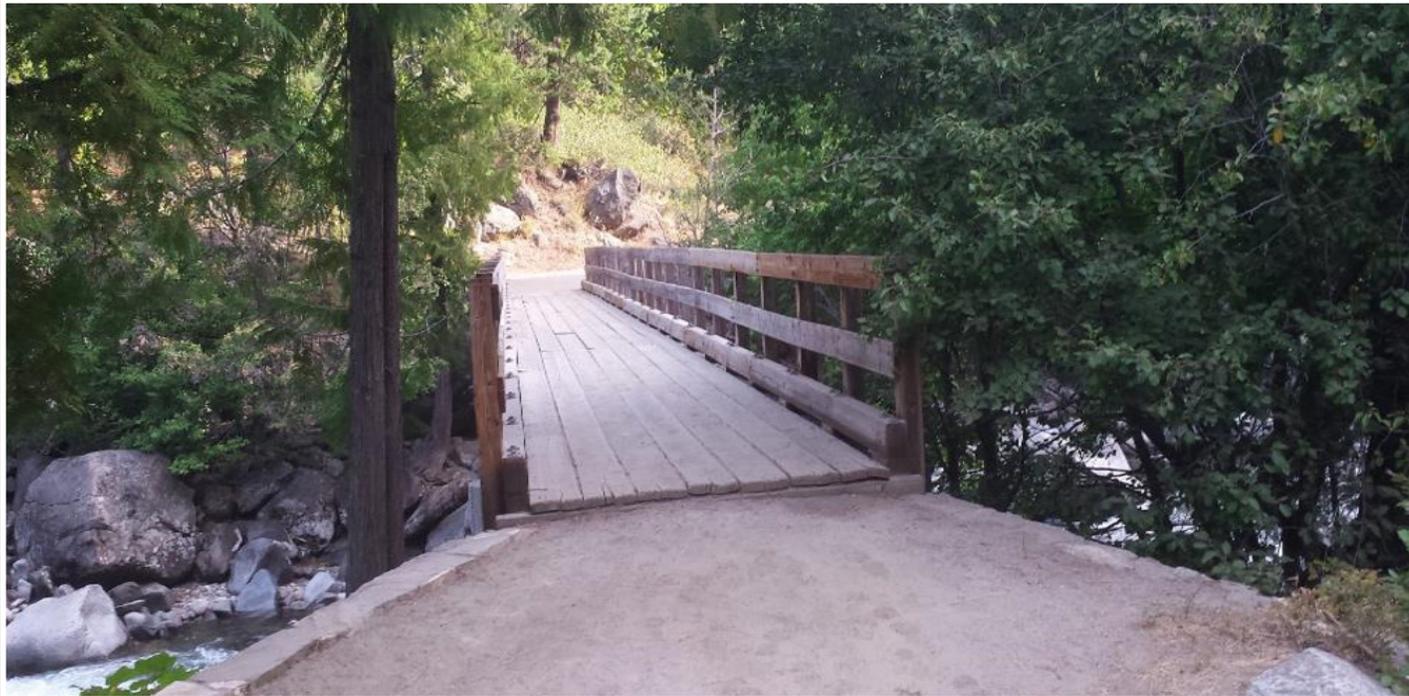
# Boulder Field Fish Passage



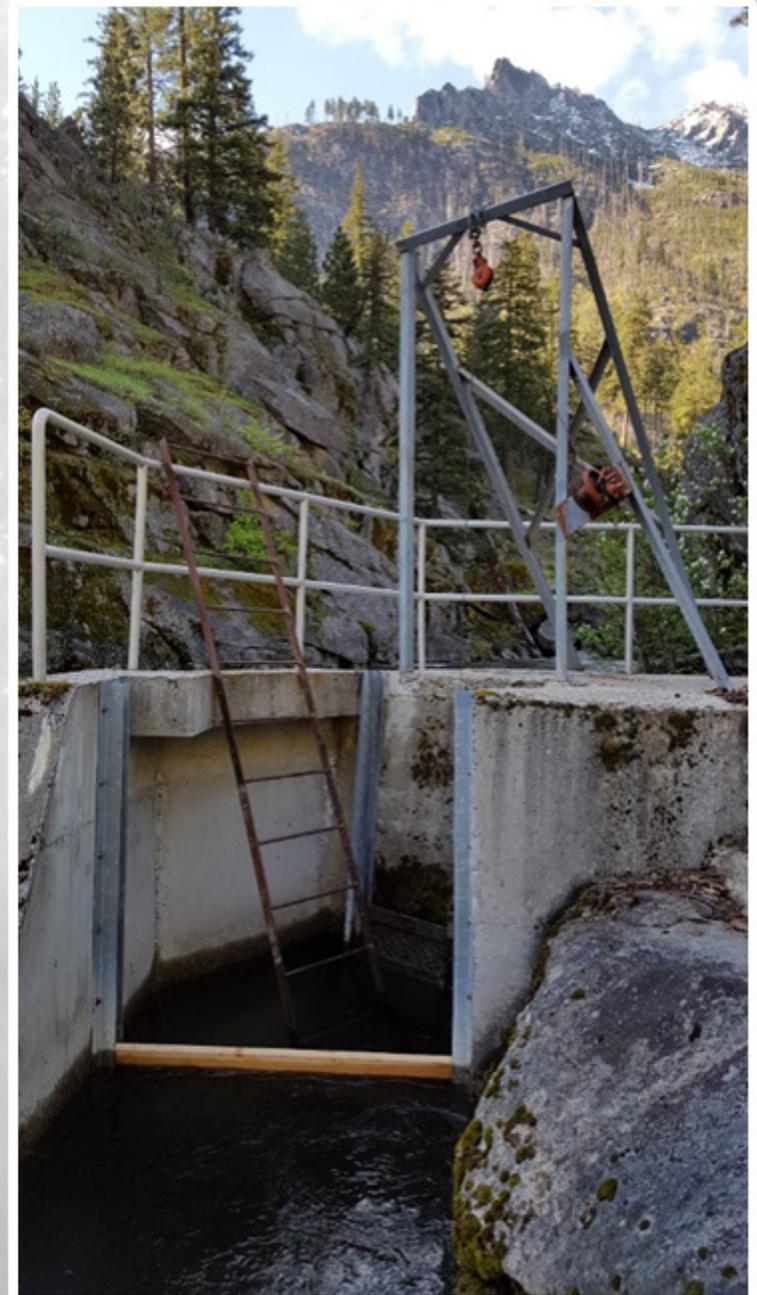
- Replaced ~ 1600 feet of City of Leavenworth Mainline
- Upgraded fish screen facilities for COL
- Constructed step-pool passage channel and channel adjustment

# Fish Passage and Fish Screens

- City of Leavenworth screen completed summer 2020
- Snow Creek bridge replaced in March 2021 (enables screen construction)
- IPID screen construction completed Spring 2023



Snow Creek bridge



City of Leavenworth diversion

# LNFH Projects Relevance to Icicle Strategy

- Icicle Strategy Guiding Principles

- Adequate Streamflow



- Sustainable Hatchery



- Tribal Harvest



- Municipal Supply

- Agricultural Reliability

- Habitat Improvement



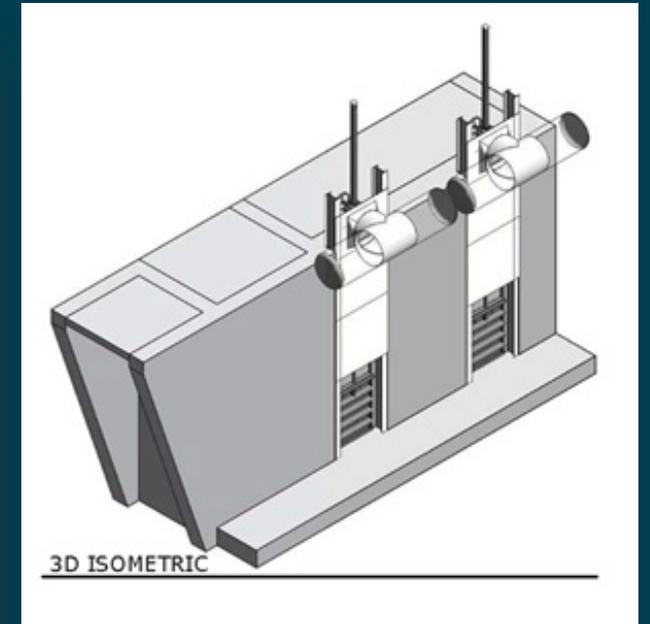
- Laws and Regulation



\*  Fish denotes relevant guiding principle to projects, details to follow



# Surface Water Intake Fish Screens, Passage Project (SWISP) & Pipeline Rehabilitation



# SWISP Phase I Year 1 Construction Pictures



# Pilot Circular Tanks



- 4 circular tanks have been installed to meet BiOp requirement; helps to inform water conservation goals and phosphorus discharge issues
- Project also includes UV treatment of water for fish health, and sludge tanks to contain solids
- Circular tank technology is expected to reduce hatchery water use by at least 50%



# Tribal Fishery Adaptive Management

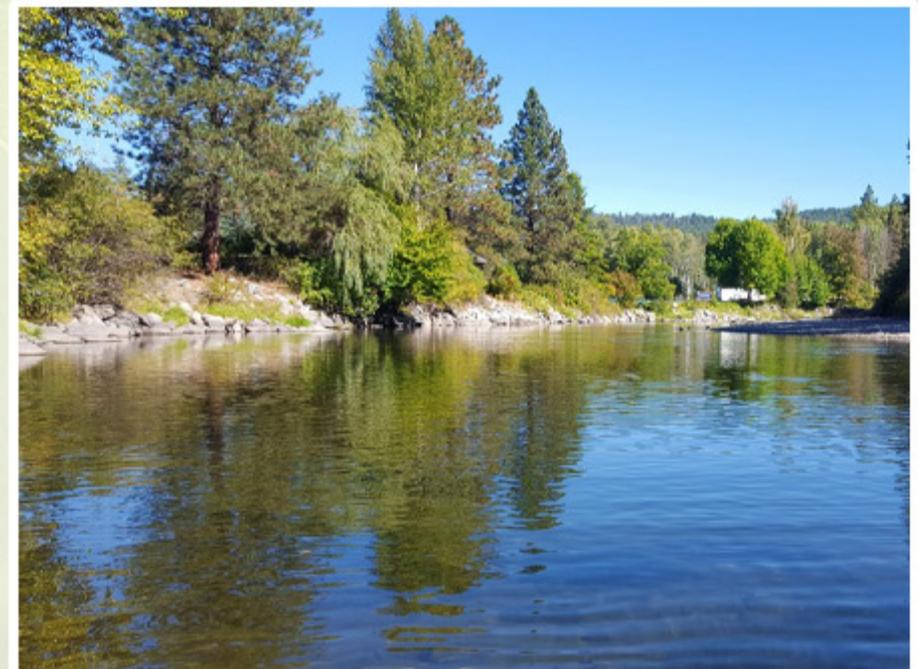
- Projects being identified by Tribal fishers and coordinated with Leavenworth National Fish Hatchery
- Assessing flow and channel morphology
- Tribal fishery effectiveness monitoring



# Pump Exchange – Cascade Orchard Irrigation Co.

## Cascade Orchard Irrigation Company (COIC) Irrigation Efficiency and Instream Flow Enhancement

- Construction planned for 2023-24
- Move diversion from RM 4.5 to RM 1.9 with new pump station and fish screen.
- Convert open ditch to closed pipe.
- Instream Flow: 11.9 cfs and 4,012 acre-feet/year for 2.6 miles



# Modification of Existing Storage - Eightmile Lake Dam Rebuild and Restoration

- IPID and Ecology Dam Safety Office developed options to meet safety requirements
- Office of Columbia River is prepared a Draft EIS under SEPA to examine alternatives
- Alternatives include retaining existing storage and restoring lake to historical elevation which would increase storage flexibility



A scenic landscape featuring a calm river in the foreground, a dense forest of evergreen trees on the right bank, and a mountain range in the background under a clear blue sky. The left side of the image is faded, creating a soft transition for the text.

# Accomplishments, Challenges + Next Steps

Questions?

