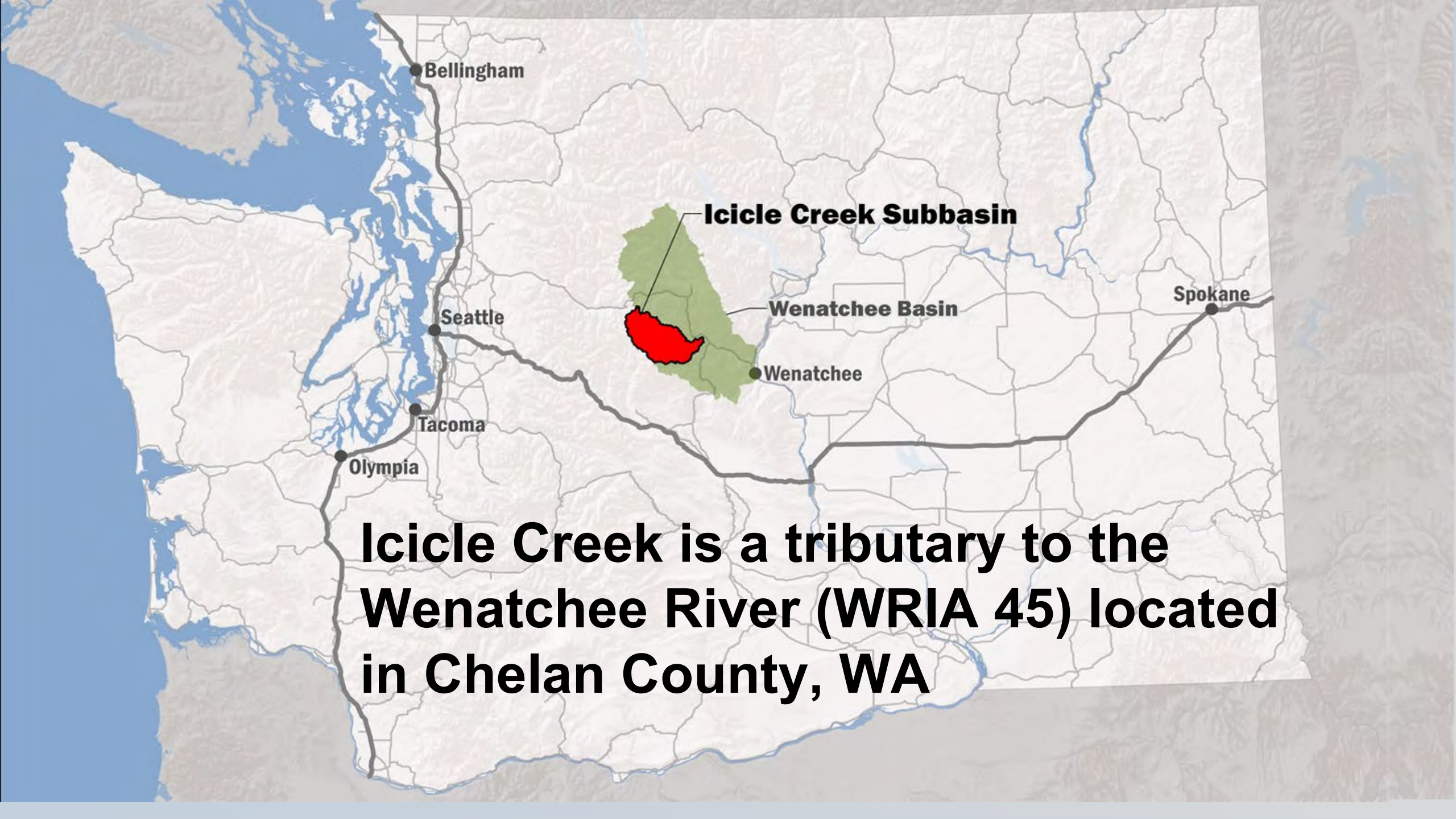


A scenic view of a rocky river with rapids and a small waterfall, surrounded by lush greenery. The river flows through large, dark grey boulders, creating white water rapids. In the background, a small waterfall cascades over rocks. The surrounding area is filled with green vegetation and trees.

Icicle Creek Integrated Water Resource Management Strategy

Community Meeting
July 7, 2022



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

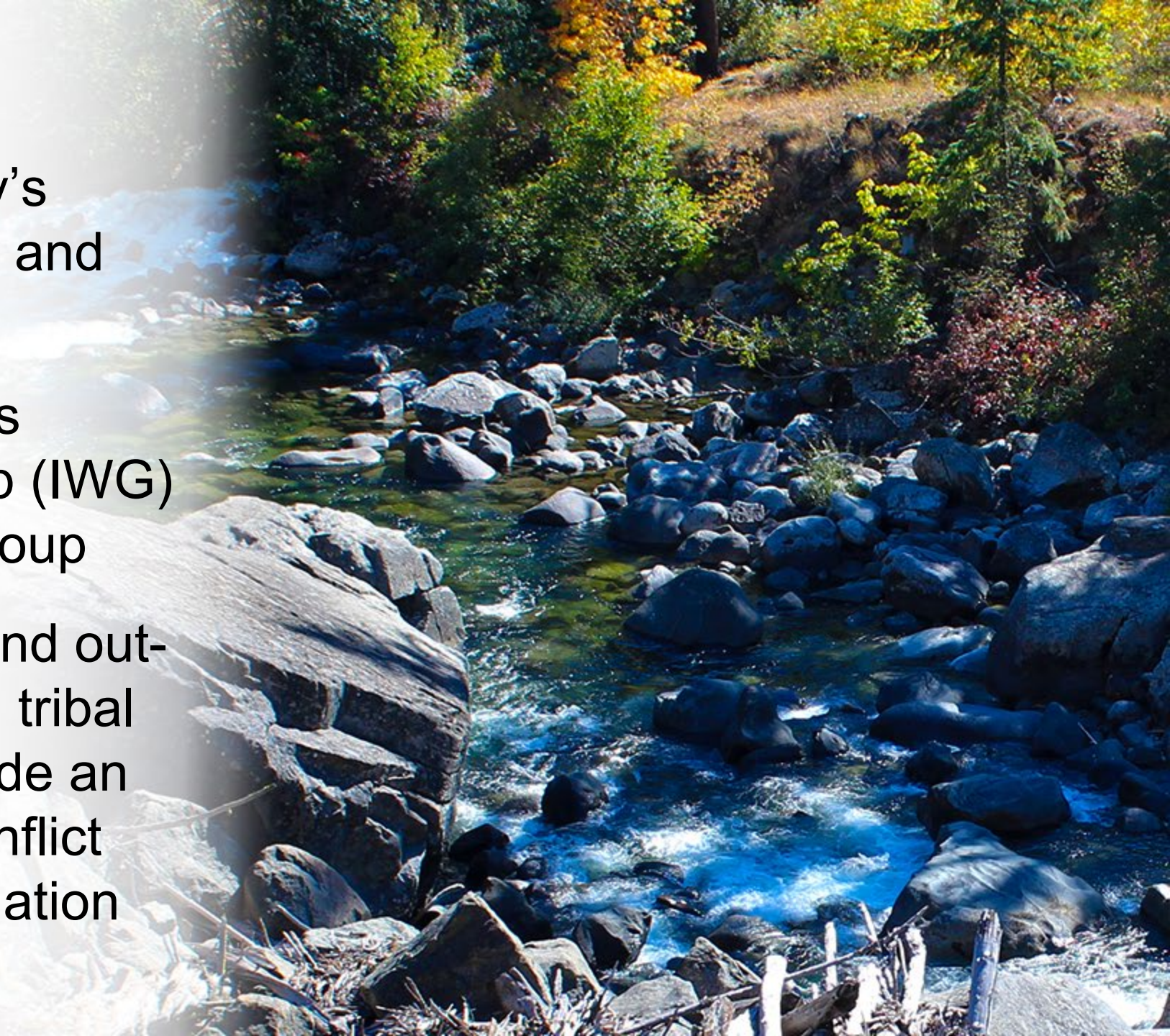
Background

- **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

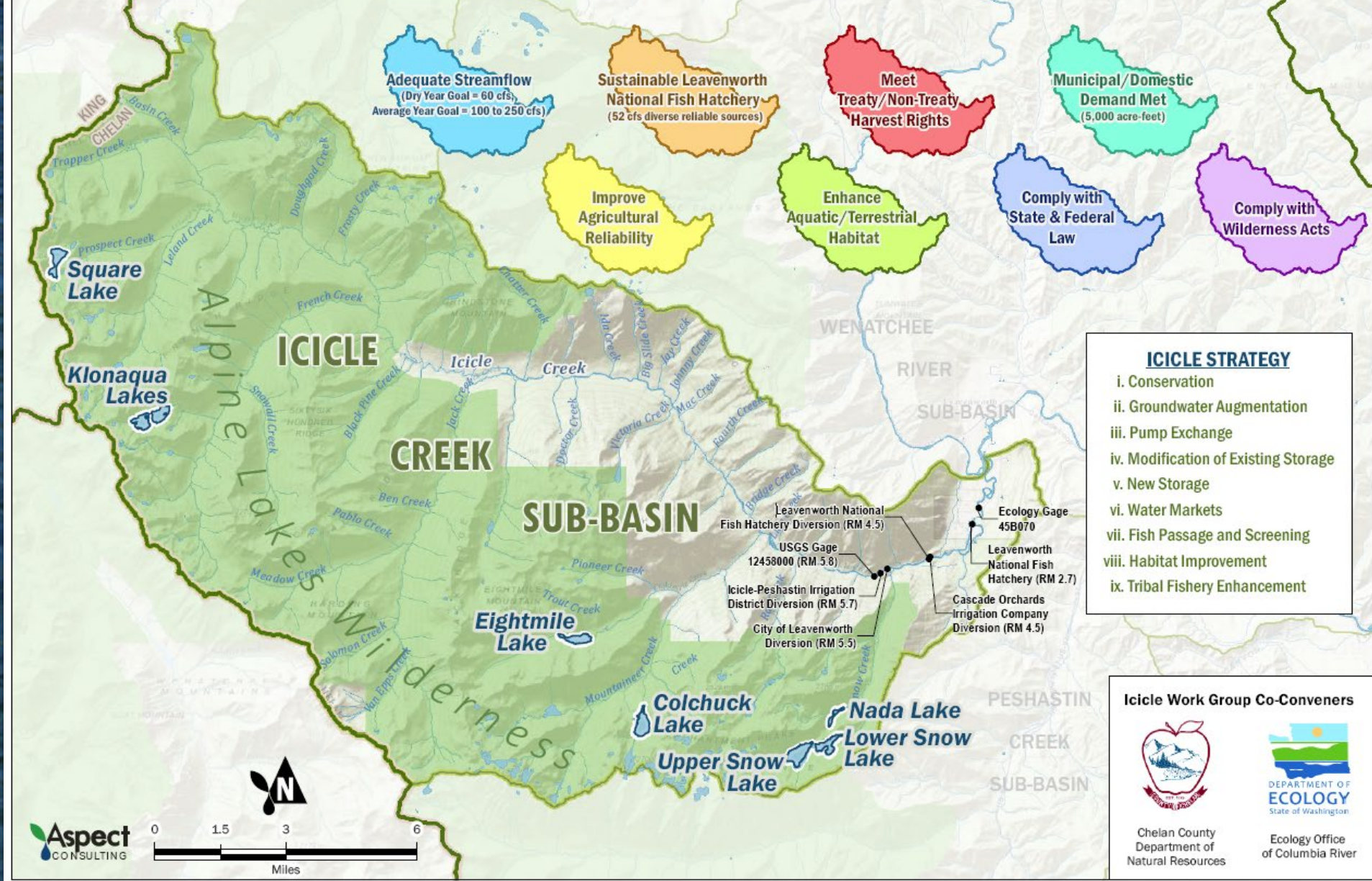
A group of approximately 15 people are seated around a large, U-shaped conference table in a meeting room. The room has a wooden ceiling and walls, and large windows in the background. The people are engaged in a meeting, with some looking towards the center of the table. The table is covered with a white tablecloth and has various items like water bottles and papers on it. The chairs are patterned and wooden.

- 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.



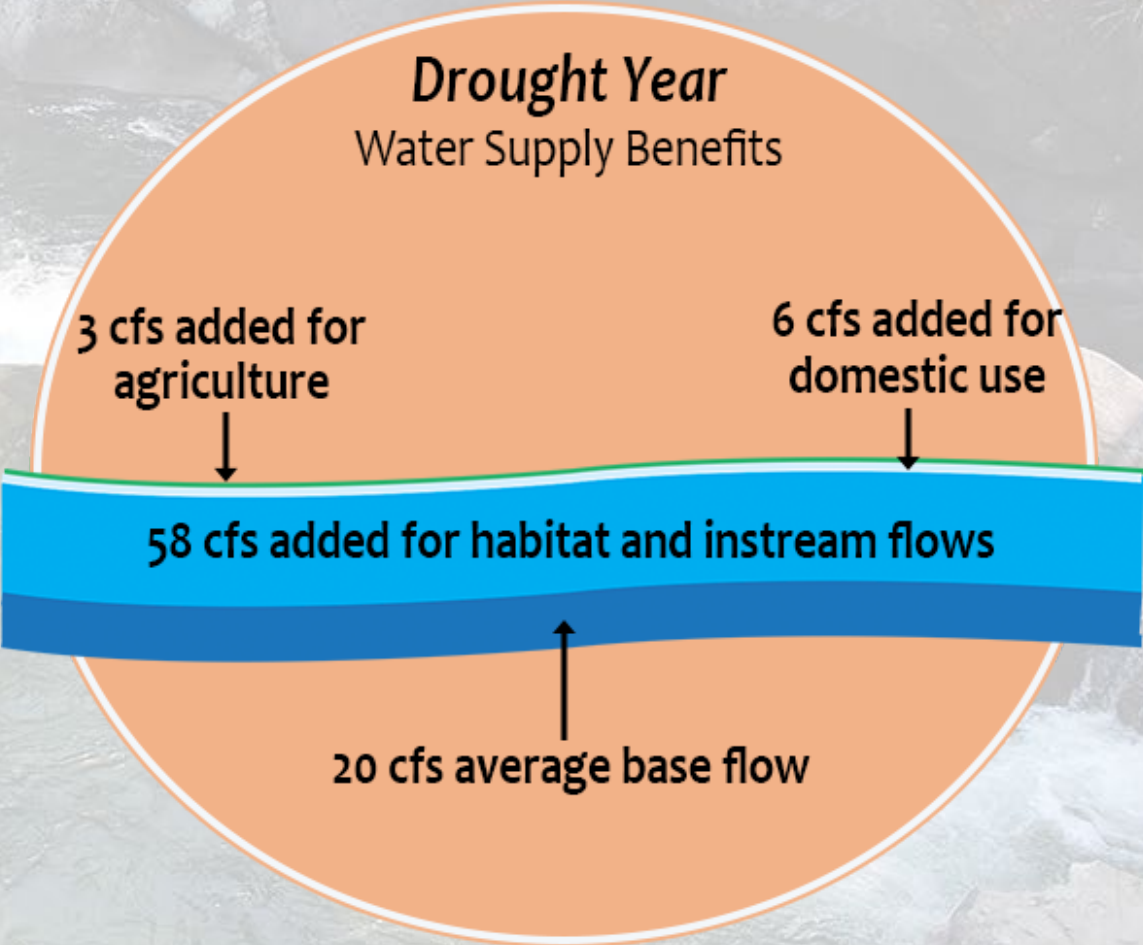
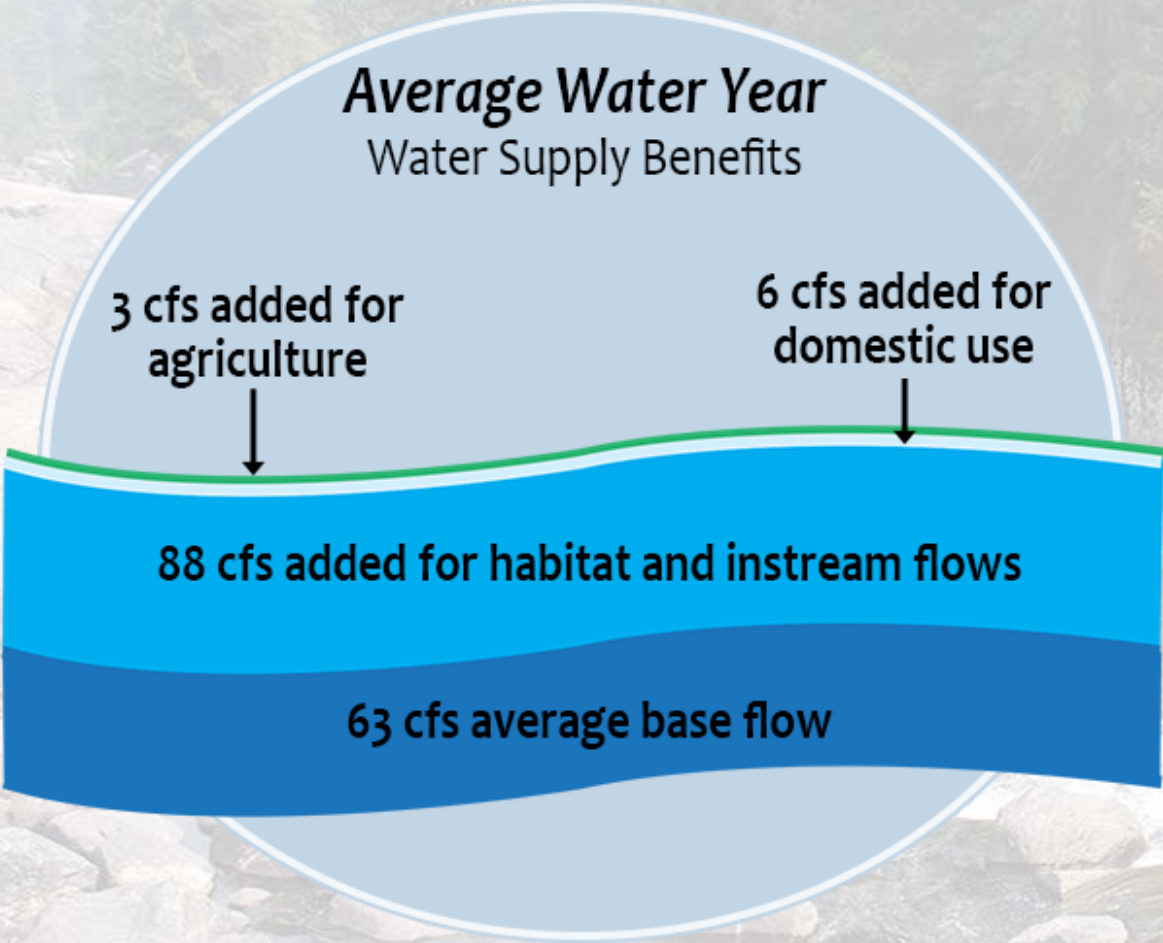
Guiding Principles for the Icicle Strategy

- 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

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 planned at river mile 1.0 in 2022
- Upcoming Projects may include riparian planting, side channel restoration, engineered log jams



Boulder Field Fish Passage



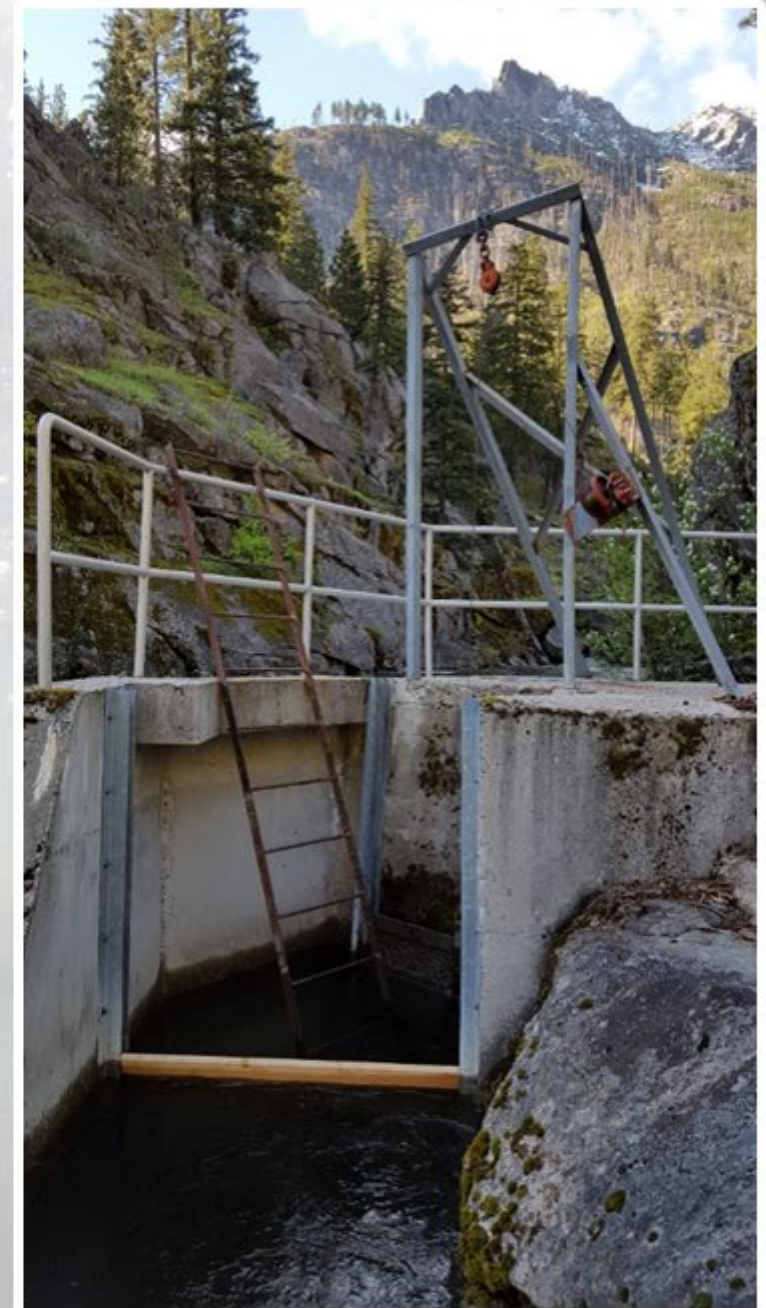
- Replace ~ 1600 feet of City of Leavenworth Mainline
- Upgrade fish screen facilities for COL
- Construct step-pool passage channel and channel adjustment

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 begins late-summer 2021



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



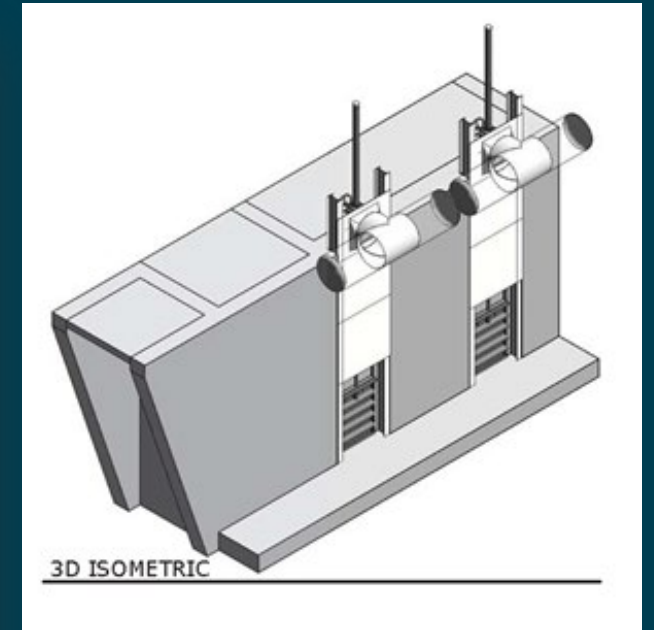
Pilot Circular Tanks



- 4 circular tanks being 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%



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



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 2022-2023
- 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 for 2.6 miles; 3.5 cfs below new diversion during September low-flow period



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 preparing an 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, reflecting the sky and surrounding greenery. The river is bordered by lush vegetation, including tall grasses and shrubs. In the background, a dense forest of evergreen trees covers a hillside under a clear blue sky. The overall atmosphere is peaceful and natural.

Accomplishments, Challenges + Next Steps

Questions?

