

Icicle Strategy

Revitalizing Icicle Creek - Increasing Water Supply

ICICLE WORK GROUP

JULY 2019

The Icicle Creek Subbasin

Icicle Creek is a major tributary to the Wenatchee River in Chelan County. Flows from Icicle Creek support a range of demands from domestic water supply and agricultural irrigation to habitat for fish. Taken together, these demands on the watershed are often greater than the water supply needed to meet them.

In December 2012, the Icicle Work Group (IWG) was formed to find collaborative solutions to chronic water supply problems in the subbasin. The IWG is made up of a diverse set of stakeholders representing local, state and federal agencies, tribes, irrigation and agriculture and environmental organizations.

Since its inception, the IWG considered dozens of projects and project-combinations that could collectively meet the goals of the workgroup. In January 2019 a Programmatic Environmental Impact Statement (PEIS) was published that selected a suite of projects as the preferred alternative to achieve these goals.

The Icicle Creek Water Resource Management Strategy will more than double instream flows for fish while also increasing water available for domestic and agricultural uses.

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.

Adequate Streamflow
(Dry Year Goal = 60 cfs,
Average Year Goal = 100-250 cfs)

**Sustainable Leavenworth
National Fish Hatchery**
(52 cfs diverse reliable sources)

**Improve
Agricultural
Reliability**

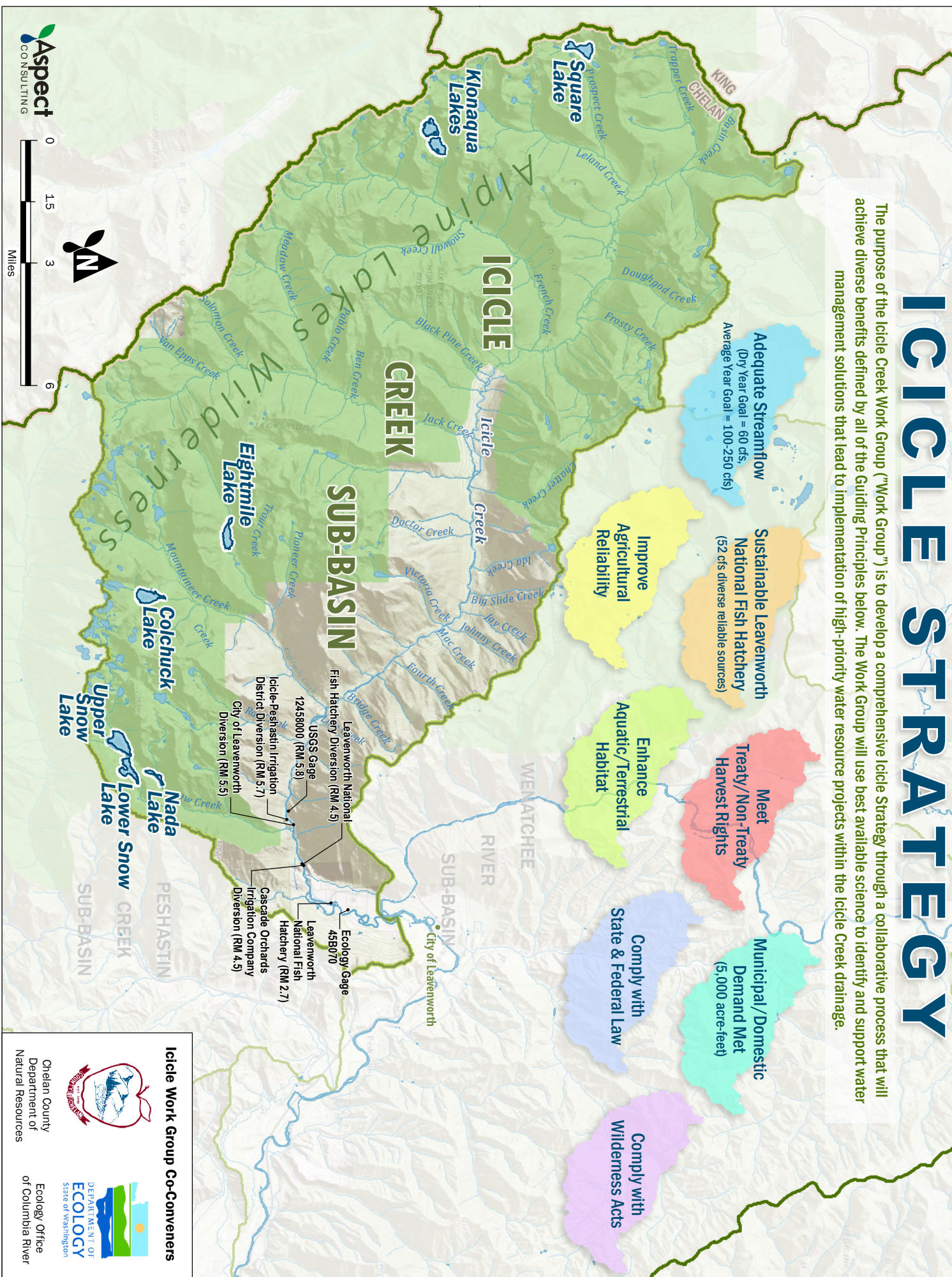
**Enhance
Aquatic/Terrestrial
Habitat**

**Meet
Treaty/Non-Treaty
Harvest Rights**

**Municipal/Domestic
Demand Met**
(5,000 acre-feet)

**Comply with
State & Federal Law**

**Comply with
Wilderness Acts**



Aspect
CONSULTING

0 1.5 3 6
Miles



Icicle Work Group Co-Conveners

Chelan County
Department of
Natural Resources

Ecology Office
of Columbia River

BENEFICIARY



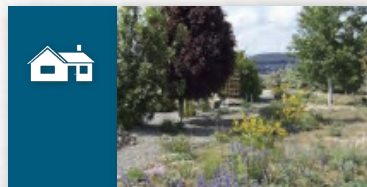
Alpine Lakes Reservoirs Optimization, Modernization, and Automation modernizes and automates the outlet and gate infrastructure at seven Alpine Lakes within the Icicle Creek Subbasin. The intent is to improve management and releases of stored water based on changing conditions to meet the Subbasin's needs. It increases streamflow for fish and improves reliability and operation of stored water for agricultural use and the Leavenworth National Fish Hatchery. **Early Action Items: 2019 - Snow Lake Valve Replacement; 2021-2022 - Alpine Lakes Automation*



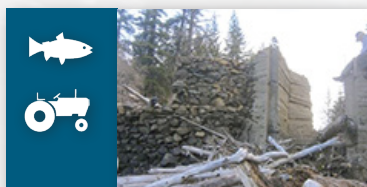
Icicle-Peshastin Irrigation District (IPID) Irrigation Efficiencies explores options to improve irrigation delivery and on-farm efficiencies. Projects may include canal piping or lining and on-farm efficiency upgrades, which would improve drought resiliency and reliability to district users. This project also benefits fish by increasing streamflow. **Early Action Item: 2019-2021 - IPID Conservation Savings (7 cfs to date)*



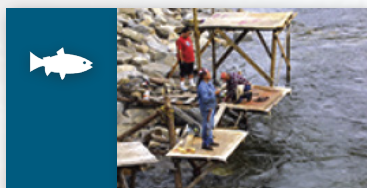
Cascade Orchards Irrigation Company (COIC) Irrigation Efficiencies and Pump Exchange proposes to change COIC's point of diversion from its existing location at RM 4.5 on Icicle Creek to a location downstream near the Wenatchee River's confluence with Icicle Creek, and implement other water saving measures, such as piping the delivery system. This project improves irrigation water reliability and benefits fish by increasing streamflow.



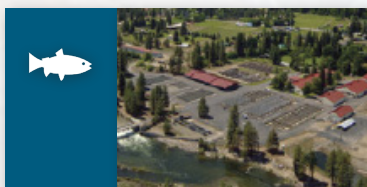
Domestic Conservation Efficiencies focuses on conservation projects in the City of Leavenworth and Chelan County and implements municipal and rural water efficiency projects such as a lawn reduction program, leak detection and repair, meter installation, and water use conservation. This project would improve domestic supply.



Eightmile Lake Storage Restoration rebuilds the Eightmile Lake dam to restore usable storage to the historical and permitted high water storage elevation. This would increase streamflow for fish, meet domestic water needs, and improve reliability and drought resiliency for agricultural users. Additional water for the City of Leavenworth would be preferentially pursued on the Wenatchee River to reduce impacts to Icicle Creek. **Early Action Item: 2020-2021 - Eightmile Restoration*



Tribal and Non-Tribal Fisheries ensures that projects and actions taken do not have negative effects on tribal fishery activity in the Icicle Creek Subbasin. It monitors fishery effectiveness and implements actions for improvement, while protecting Tribal Treaty and federally protected harvest rights and non-tribal harvest.



Leavenworth National Fish Hatchery (LNFH) Improvements focuses on projects to reduce surface water use and improve access to groundwater. These projects may include onsite reuse, an effluent pump back, and wellfield enhancements for year-round benefits. It would also increase streamflow for fish and improve access to reliable water for the hatchery's operations. These projects also improve water quality in Icicle Creek. **Early Action Item: 2020 - LNFH Reuse Pilot*

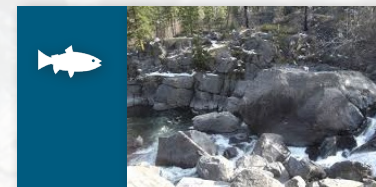
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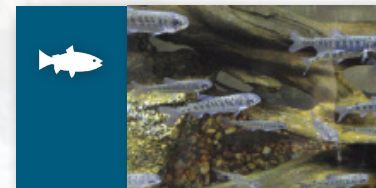
Habitat Protection and Enhancement identifies and implements stream restoration and protection projects such as riparian plantings, engineered log jams, and conservation easements to improve stream habitat and ecosystem health.



Instream Flow Rule Amendment modifies the instream flow rule's interim domestic reservation of 0.1 cfs to a final level of 0.5 cfs. This helps meet domestic water needs through 2050. As described in Chapter 173-545 WAC, the rule amendment requires instream flow and habitat restoration.



Fish Passage improves passage by assessing and removing barriers, so fish have better access to healthy habitats. This could include improved operation at Structure 2 and modification of channel morphology at the Boulder Field. Improved passage will increase the amount of habitat fish can access within the subbasin. **Early Action Item: 2020-2021 - Boulder Field Passage*



Fish Screening upgrades fish screens on diversions to meet current standards. This will bring the major diverters on Icicle Creek into compliance with Washington State and federal screening requirements. These upgrades reduce fish mortality. **Early Action Item: 2019-2020 - Fish Screening IPID and Leavenworth*



Water Markets creates an Icicle Water Market and seeds it with an initial 1,000 acre-feet of water for agriculture use in the Icicle Creek Subbasin and Wenatchee River Basins during shortages.

