



Alpine Lakes Optimization, Modernization and Automation

More information available at: <http://www.co.chelan.wa.us/natural-resources/>

PROJECT DESCRIPTION

Seven reservoirs located within the Alpine Lakes Wilderness Area are currently used to augment water supply for Icicle and Peshastin Irrigation Districts (IPID) and the US Fish and Wildlife Service Leavenworth National Fish Hatchery: Upper and Lower Snow, Nada, Colchuck, Eightmile, Klonauqua, and Square Lake. Valves on the reservoir outlets are operated manually to release stored water and are accessed by hiking in or by helicopter; therefore, the valve openings are set infrequently and the discharge from the reservoir releases are not optimized to meet water demands.

The purpose of this project is to manage release from these reservoirs based on water levels and changing conditions in a way that would optimize the water supply in the basin and be coordinated among all users. Instead of lakes augmenting water supply on a rotational basis (one per year), all lakes would be utilized annually, creating additional instream flow benefits. The controls at these reservoirs would be upgraded and improved with automation, so release rates could be changed frequently with remote operations and fine-tuned as needed. The estimated project costs of study and construction is \$680,000, with an estimated instream flow benefit of 30 cfs.

TIMELINE TO IMPLEMENT

2015	Study
2016	Pilot storage releases and data collection
2016-2018	Design and Environmental Review
2018	Construction

PROJECT BENEFITS

- Instream flow benefits are estimated at 30 cfs, and 5,465 ac-ft over 92 days.
- Improves LNFH management by providing more operational flexibility in water use.
- Improve agricultural reliability and operational flexibility during drought year operations

GUIDING PRINCIPLES

- Improves instream flow
- Enhances Icicle Creek habitat and passage
- Supports a sustainable LNFH
- Improves agricultural reliability

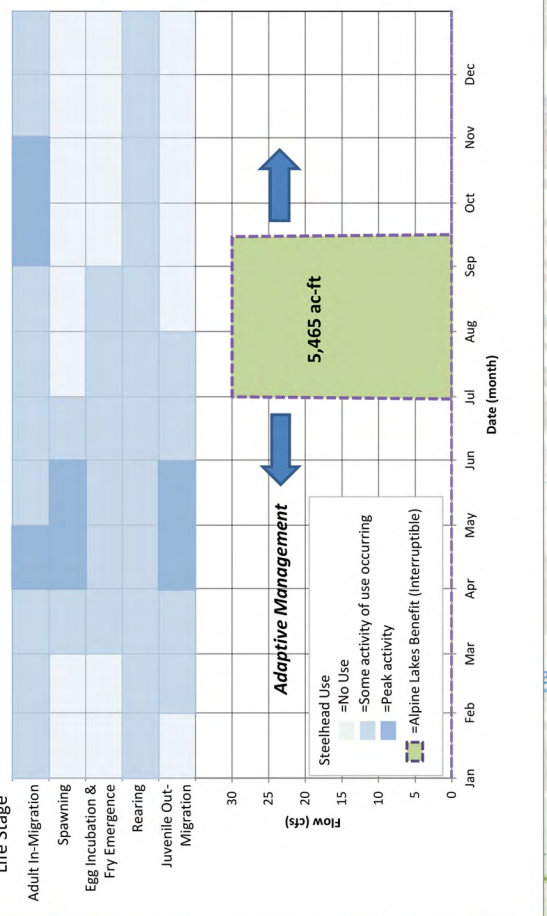
POTENTIAL ISSUES/DATA GAPS

- Working in Wilderness with remote access
- Coordinating consistency in study, operation, and design between LNFH-managed and IPID-managed Alpine Lake, including coordination with Bureau of Reclamation radio transmission study.
- Need for long-term management plan
- Data gaps include refined stage-storage information and additional hydrologic and geologic review.

EXISTING AND ONGOING STUDIES

- Alpine Lakes Optimization and Automation Appraisal Study, 2015, Aspect Consulting/Anchor QEA
- Alpine Lakes Optimization Feasibility Study, ongoing, Chelan County
- Preliminary Draft, Needs and Alternatives Analysis, Icicle Creek Sub-Basin Storage Study, 2007 Anchor Environmental, LLC
- Water Storage Report - Wenatchee Watershed, 2011, Anchor QEA LLC
- Feasibility Study Eightmile Lake Storage Restoration, ongoing, Chelan County
- Eightmile Lake Restoration and Expansion Appraisal Study, 2015, Anchor QEA/Aspect Consulting

Project Benefit Hydrograph and Steelhead use within the Wenatchee Basin



- Point of Diversion
- Point of Return
- Stream Gage
- Instream Flow Benefit (Interruptible)
- Adaptive management

Water Supply Availability:
 Guaranteed - water rights are permanently placed in the State Trust Program under RCW 90.42.080
 Firm - water rights that are described as "non-permanent conveyances" under RCW 90.42.080
 Interruptible - water rights that are subject to interruption during drought years