



Water Infrastructure Project Grant Application Form

Proposals are due October 31, 2005

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| Project Name: Alpine Lakes Optimization | |
| Sponsor Information/Contact: Mike Kaputa, Director Chelan County Natural Resource Department 316 Washington St, Suite 401 Wenatchee, WA 98801 (509) 667-6533 | Location: Icicle Creek Subbasin <hr/> County: Chelan <hr/> WRIA: 45 <hr/> Drainage: Icicle Creek (Wenatchee) |

X Map attached (*optional*)

1) Description of project:

The Alpine Lakes are located in the Icicle Creek subbasin and are used to augment water supply for Icicle and Peshastin Irrigation Districts and US Fish and Wildlife Service (USFWS). The lakes are Klonauqua, Square, Colchuck, Snow, Eight Mile and Nada lakes. The lakes are located in the Alpine Lakes Wilderness Area with no access roads. Valves on the lakes are operated manually and are accessed by hiking in or by helicopter; therefore, the valve openings are set infrequently and the discharge from the lakes doesn't always match demand for water.

The purpose of this project is to determine the yield of the lakes, determine if the water supply for the lakes can be increased or more efficiently used and determine the methods and equipment that would be needed to optimize the water supply from the lakes.

a) Project Features:

The work would include installing instrumentation at the lakes to monitor water levels and discharge from the lakes throughout the year. A hydrologic model of the lakes will be prepared and the water level and discharge data would be used to calibrate the model. The hydrologic model would be used to estimate the seasonal and annual runoff into the lakes for a range of conditions including average, dry and wet years under current and future climatic conditions. The potential for increasing water storage at the lakes will also be assessed.

A study of the feasibility of remotely operating the outlets from the lakes will be prepared. The study will determine the equipment needed to retrofit or replace the existing outlet gates to allow motorized operation from the irrigation district office. The equipment may include low-voltage motors run off of batteries that are recharged by solar panels. Communication may be via satellite link or radio. The construction and annual costs of retrofitting and operating the gates will be estimated.

b) Project Funding

Total cost: \$250,000

Minus other funding sources: - \$0.00

State funds needed: = \$250,000

Can funding be utilized before June 30, 2007? X Yes No

c) Project Schedule:

Project will commence January 1, 2006 and be completed by March, 2007.

d) Water Right Certificate # :

| Name of Source | Purpose | Type of Permit | Permit No. | Date of Issue | Date of Record | Maximum Volume (acre-ft) | Maximum Discharge (cfs) |
|-----------------------------|-------------------------|----------------|-----------------------|---------------|----------------|--------------------------|-------------------------|
| Klonaqua Lake | Irrigation | Appropriation | 827 | 08/02/26 | 08/21/39 | 2500* | 25.00 |
| Eight Mile Lake | Irrigation | Appropriation | 828 | 08/02/26 | 08/21/39 | 2500* | 25.00 |
| Colchuck Lake | Irrigation | Appropriation | 829 | 08/02/26 | 08/21/39 | 2500* | 25.00 |
| Square Lake and Tributaries | Storage for Irrigation, | Reservoir | R4- *01924ACCWRIS | 08/02/26 | 11/25/53 | 2000 | ---- |
| | Irrigation | Appropriation | 2842 | 08/02/26 | 11/25/53 | ---- | 10.00 |
| Snow Lakes | Storage for Irrigation | Reservoir | R4-*02752CWRIS | 10/29/29 | 04/30/41 | 1000 | ---- |
| Snow, Nada Lakes | Storage for Fisheries | Reservoir | R4- *05672ABBCWRIS | 03/24/42 | 06/18/42 | 16,000 | ---- |

**Volumes and water rights classifications are listed in a Superior Court Decree dated October 28, 1929 regarding determination of rights to use waters of Icicle Creek and its tributaries.*

2) Project benefits (conflict addressed by project):

The benefit of the project would be an increase in yield or more efficient use of water supplied from the lakes. The remote operation would allow the irrigation districts and USFWS to match more closely their water supply to demand. The result could be an extension of the time that water is supplied from the lakes, or increase in volume of water supplied during water short periods in August through September. An extension of time that water is withdrawn would improve the reliability of water supply, especially for the Peshastin Irrigation District. An increase in the volume of water supplied to the USFWS during August through September would increase instream flow in Icicle Creek and the Wenatchee River. The hydrologic model will determine the yield of the lakes providing important information on the refill capacity of the lakes and the amount that they can be drawn down in most years under current and future climatic conditions.

3) Status of project (information, agreements and approvals both obtained and pending):

The lakes are currently operated by the Icicle Irrigation District and Peshastin Irrigation District (Klonaqua, Square, Colchuck, Eight Mile Lakes) and USFWS (Snow, Nada Lakes). The USFWS has conducted some hydrological monitoring as part of their water management plan. This assessment would build on the work completed for Snow and Nada Lakes and would utilize that information to assess changes in management. This would be a new project for the rest of the lakes

operated by irrigation districts, but would provide the opportunity for all lakes to be assessed together in a comprehensive look at the Icicle subwatershed. Both Irrigation Districts and USFWS are supportive of this grant application and the project.

4) Project context (consistency with or linkage to plans; regional and local support):

The Wenatchee Watershed Plan will be completed in April 2006. The planning unit is supported by a wide range of stakeholders from within the local communities as well as from regional and statewide entities. A major focus of the plan will be projecting future water needs and identifying strategies to meet those needs for both instream (fish habitat and water quality) and out-of-stream (water supply) uses. The plan will identify a broad range of water resource management options, including storage projects designed to meet a variety of needs in the most critical areas. Currently, the Water Quantity Subcommittee of the Wenatchee Planning Unit is completing a Multi-Purpose Water Storage Assessment, which will be finished in early 2006. The results of this assessment will be a narrowed down list of water storage alternatives to be included in the watershed plan. This project has been identified as a high priority that requires further information and analysis to be implemented. The Icicle Creek subwatershed, and the areas downstream that are affected by its water management, has been identified as a critical area in the watershed planning process (through the Wenatchee Instream Flow Study, TMDL Study and Watershed Assessment) for meeting all of the needs it serves. Water from Icicle Creek benefits endangered and threatened species, provides irrigation for many orchards in the Wenatchee watershed and provides for growing municipal and domestic uses. Icicle Creek is also listed on the state's 303(d) list of impaired waters for temperature, pH and dissolved oxygen.