

Chelan River Fishery Forum Riparian Feasibility Investigation

Request for Proposal

August 10, 2014

The Chelan River Fishery Forum (CRFF) requests proposals for a Riparian Feasibility Investigation (RFI) for the upper Chelan River (Reach 1). The CRFF needs technical assistance to assess the following aspects of the potential for establishing riparian vegetation in Reach 1 of the Chelan River:

1. Based on existing conditions, what native riparian species are capable of growing in Reach 1 without irrigation?
2. How many linear feet of river bank and at what density would the river bank need to be planted in order to initiate riparian corridor development?
3. What are site potential heights for each of the riparian species that could be established in Reach 1? What densities could be expected?
4. A desired goal is to have a native plant species mix, including tall trees, to provide shade, leaf litter, high flow velocity refugia, and, for trees, some eventually falling into the river to provide instream large wood habitat. What species are recommended to achieve this goal?
5. Are there certain reaches within Reach 1 that would not be suitable for establishment of a riparian corridor by planting?

Background

Reach 1 of the Chelan River begins immediately below the Lake Chelan Hydroelectric Project (Project) Dam in Chelan Washington, and extends downstream for approximately 2.29 miles (Figures 1- 3). The bed of this relatively low gradient (1%) section is primarily composed of large cobbles and small boulders, with gravels generally limited to the margins of the river channel (Figure 4). This reach of the Chelan River is moderately confined by hill slopes composed of glacial moraine deposits. These deposits, where they are not armored with rip rap, are easily erodible, and during high flows could represent a substantial source of sand and gravel to the river channel. Most of the fine bed materials are flushed out of the river during annual spill events.

The Project received a new license in 2006. Prior to that, all flow was diverted out of the river for most of the year, with the exception of spill flows during the time period of June through August to control Lake Chelan elevation. Spill flows averaged between 3,000 cfs and 4,000 cfs, with maximum flows in excess of 15,000 cfs on occasions. As a condition of the new license, the Chelan River began receiving a minimum instream flow of 80 cfs throughout the year. However, spring spill flows may still attain 6,000 cfs or higher.

Streamside vegetation is scarce along this reach of the river, and is mainly present as patches of cottonwoods and alders and isolated conifer stands. The upper reaches of this channel are relatively wide, with average channel widths between 100 and 140 ft. The channel becomes narrower in the middle of Reach 1. The channel becomes considerably wider in the lower most reach, spreading into multiple channels. This braided section harbors the most significant stands of riparian vegetation, with a fairly well developed riparian corridor along portions of the center and right channel braids (Figure 3).

The Lake Chelan Settlement Agreement (SA) was developed during the relicensing process for the Project. One component of the SA was to create the Chelan River Fishery Forum (CRFF) to assist Chelan PUD in implementing the terms and conditions of the SA. The CRFF is comprised of state and federal fisheries management agencies, Tribes, and non-governmental representatives that are signatories to the SA.

The State of Washington Department of Ecology 401 Water Quality Certification for the Lake Chelan Hydroelectric Project (FERC No. 637) includes a requirement to conduct a "...study to determine the geomorphic influences on water temperatures in the Chelan River in order to address temperature, velocity, depth, and substrate to determine the best methods to achieve the biological objectives for cutthroat trout." The Biological Objective in the Chelan River for cutthroat trout is a population of 200 fish of various ages. Additionally, the Clarifications Required per Pollution Control Hearings Board (PCHB) Order dated April 21, 2004 (Confederated Tribes v. Ecology, PCHB No. 03-075), Section X. E. requires that "A riparian feasibility study must be conducted by Chelan PUD to better characterize the opportunities for the establishment of riparian vegetation on the banks of the Chelan River." The Riparian Feasibility Investigation is being conducted in conjunction with hydraulic and temperature modeling for the Chelan River to determine site potentials for shade that could influence future water temperatures.

Please prepare a proposal that responds to the following criteria:

1. Identify staff who will be conducting the investigation, including resumes showing education and experience
2. Provide experience in conducting Riparian Feasibility Investigations and project examples
3. Provide a proposed methodology that includes the following elements:
 - a. a detailed description of the methods to be used for investigation;
 - b. elements considered in the analysis, such as:
 - i. Chelan River hydraulic conditions and flows
 - ii. Chelan River stream channel morphology
 - iii. Existing and probable future stream geomorphic activities
 - iv. rainfall
 - v. water temperature
 - vi. site potential shade
 - vii. other recommended elements
 - c. recommendations to answer the 5 questions posed in the introduction of this RFP
4. Prepare a Scope, Schedule, and Budget to conduct the investigation, including a site visit and meeting with the CRFF

Figure 1. Upper part of Chelan River Reach 1.



Figure 2. Middle section of Chelan River Reach 1.



Figure 3. Lower section of Chelan River Reach 1.



Figure 4. Photographs of typical areas within Chelan River Reach 1.

