

# eckm@yakamafish-...

## Twisp Horseshoe Habitat...

Submission Date  
February 19, 2021 13:23

*Project Title	Twisp Horseshoe Habitat Enhancement Project
*Sponsor	Yakama Nation
*Primary Contact	Madeleine Eckmann
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*Anticipated Request - SRFB	200000
*Anticipated Request - Tributary Committee	100000
*Anticipated Other Funding	300000
*Anticipated TOTAL Budget	600000
*Other Funding Source(s)	Bonneville Power Association Fish Accord Funding
*Briefly describe the location of the project	RM 11.1 to RM 12.1
*Latitude (decimal degrees)	48.3653986
*Longitude (decimal degrees)	120.3160086
*Project subbasin	Methow
*Methow Assessment Unit(s)	Lower Twisp River
*Reach(es) Name	Lower Twisp River
1. *In one or two sentences, what do you propose to do?	This project is a 3,500 foot long restoration action that seeks to address the top priority ecological concerns in the Lower Twisp River Assessment unit by increasing instream structural complexity, reconnecting side channels, increasing floodplain connectivity, and by restoring habitat forming processes that will benefit salmon stocks in the long term. This primary project component will include extensive strategic placement of large wood accumulations by heavy lift helicopters and heavy tracked equipment in an area of the Twisp River with substantial

groundwater connectivity which will provide year-round rearing habitat with thermal refuge for juvenile salmonids; promote floodplain inundation; and restore hydraulic complexity for ESA listed salmonids.

2. \*What species will the project benefit?

Spring Chinook

Steelhead

3. \*Select the project's objectives and the associated tracking metrics

Instream Habitat (Includes Floodplain & Off-Channel Reconnection)

Instream Habitat: Reporting Code

Acres of channel/off-channel connected or added

Miles of off-channel stream created

Miles of instream habitat treated

4. \*Does this project or any of its phases (e.g., design) already exist in Salmon Recovery Portal or PRISM?

Yes

5. \*Has this project been submitted previously for funding through the SRFB and/or Targeted process(es)?

No

6. \*What category is the project?

Restoration

7. \*What project phase(s) are proposed for completion?

Construction

8. Is your project within a completed (or soon-to-be completed) Reach Assessment or other type of assessment (e.g., Rapid Site Assessment, other)?

Middle Twisp River Reach Assessment

9. \*Which limiting factors does the project propose to address?

Cover - Wood

Off-Channel - Floodplain

Off-Channel - Side-Channels

Percent Fines/Embeddedness

Pool Quantity & Quality

Pools - Deep Pools

10. \*Which life stages will the proposed project address?

Adult Migration

Fry

Holding and Maturation

Spawning and Incubation

Summer Rearing

Winter Rearing

11. \*Freshwater Benefits -

To what extent will your project improve survival, capacity and/or distribution for target species at the project scale?

The installation of nine large wood structures in the mainstem river will provide immediate benefits for rearing juveniles seeking hydraulic refuge during high flows. The installed wood structures will facilitate hydraulic complexities and encourage sediment sorting to enhance steelhead and spring Chinook spawning.

Increased scouring flows through two high-flow channels (1,500 and 300 feet in length) will encourage perennial connection in a location with substantial groundwater connectivity.

12. \*Temporal Effect - Briefly describe how and to what extent the project would promote natural stream/watershed process consistent with reach-scale geomorphology?

The project is located in an area of the Twisp River that was historically very wide and anabranching as can be seen in the groundwater filled oxbows present on the floodplain. Human influences including the installation of levees, agricultural/logging practices, and manual removal of instream wood have resulted in increased concentrated flow vectors in historically unconstrained reaches which has increased downcutting, and decreased wood recruitment/retention. This project will emulate and restart geomorphological processes driving wood and gravel recruitment and retention to improve spawning and rearing habitats in the Twisp River.

13. Temporal Effect - How long will it take for the benefits of the project to be realized?

1-10 years

14. Temporal Effect - How long will the restoration action and its benefits persist?

50+ years

15. Temporal Effect - What level and/or interval of maintenance is anticipated? What is the plan for any anticipated maintenance?

The project is designed to be self maintaining. Once construction is completed, the Yakama Nation will implement a revegetation plan. This will include live plantings of willows and cottonwoods in the constructed large wood structures and Douglas-Fir and pines on in the riparian areas that we expect will mature as the dynamicity of the site is reduced. Any plantings will be watered (as necessary) and monitored for weed control for five years following construction. In addition, the Yakama Nation will conduct intensive monitoring for project stability and vegetation for ten years following project completion. A monitoring report will be produced annually for the first five years during this timeframe.

16. Methods - Briefly describe the potential (for design) or proposed restoration methods and how they will achieve project objectives.

Install eight large wood structures to promote sediment recruitment and pool formation. Install three large wood structures to promote split flow conditions and improve floodplain and side channel habitats.

1. \*What is the landownership?

Forest Service and Private

2. \*Have you secured landowner participation in or acceptance for this project?

Yes

\*Please explain

This project is being developed in coordination with the US Forest Service and is being analyzed under the currently proposed Twisp Restoration NEPA project (expected decision,

Fall 2021). Private landowners have been involved with the project development during the six years of project development.

3. Describe any land owner requirements (e.g., design elements, right-of-ways, access agreements, liability waivers, etc.) and if/how they could affect the project

On the private lands there are Methow Conservancy easements limiting development and heavy equipment operation in the floodplain. This project is proposing to deliver the wood to each of the proposed log jams with a helicopter to minimize impacts to the riparian areas, which also helps minimize heavy equipment operation in the floodplain. Recent discussions with the Methow Conservancy have indicated support for salmon habitat restoration, and suggest we will be able to complete the project and post implementation stewardship plan without violating any of their easements.

4. Will the project raise potential concerns for interest groups (e.g., recreational users) or the community at large (including upstream/downstream/ adjacent landowners)?

The Yakama Nation has developed very positive relationships with the private landowners in the project area and downstream of the project area over the course of the last six years, after completing four different restoration projects (on privately owned land) in the two miles of river downstream of the proposed Horseshoe project area. We have continued to reach out to these private landowners regarding this proposed Horseshoe project, and received good support for the project moving forward in 2021. We will continue private landowner coordination with the project landowners and adjacent landowners, but we do not anticipate substantial issues moving forward.

Furthermore, the habitat restoration component of the Twisp River Restoration NEPA currently being assessed by the Forest Service seems well supported by the community at large.

In 2017, the Yakama Nation conducted a recreational river user assessment which included outreach to the recreation community who generally supported salmon habitat restoration. Additional outreach to recreational river users, specific to this project, is planned in the future but since we've highly considered recreational user impacts in the project design, we are confident the project will be supported by the recreational user community.

As we have in the past, we will be reaching out to Aero Methow Rescue to discuss any potential concerns they have regarding the safety of the proposed structures. However, since safety has been a prominent consideration in the development of this project, we do not expect any concerns.

5. Who will have the responsibility to manage and maintain the project? What is the responsibility of current or future landowners?

The project is designed to be self maintaining. Once construction is completed, the Yakama Nation will implement a revegetation plan. This will include live plantings of willows and cottonwoods in the constructed large wood structures and coniferous trees and shrubs in the riparian area that we expect will mature over time. Any plantings will be watered (as necessary) and monitored for weed control for five years following construction using an on-call contract managed by the Yakama Nation. In addition, the Yakama Nation will conduct intensive monitoring for project stability and vegetation for ten years following project completion. A monitoring report will be produced annually for the first five years during this timeframe. Any adaptive management or modification during this timeframe will be the responsibility of the Yakama Nation.

6. Please describe the risk of failure associated with this project.

All of the large wood structures in this planset were engineered, including stability calculations, to ensure stability up to a 100-yr flood event. This 100-yr flood calculation was a conservative estimate considering climate change flow predictions. Furthermore, as the structures accrue additional wood and ballast they are likely to become more resilient over time. Ultimately, our designs are set up to use future high flow events to further improve habitat conditions in the reach by encouraging pool scour, sediment sorting, and side channel activation. These large jams (~40 to 70 feet wide) are heavily anchored with pilings, substantial alluvium ballasting, and imported slash quantities to prevent piping of the alluvium in large flow events.

7. Is there any public outreach planned during and/or after implementation? Does the project build community support for salmon recovery efforts?

No outreach is planned during or after implementation. However, due to the substantial outreach we have completed to date and the additional outreach we have planned prior to implementation, we are confident this project will be an excellent model for salmon habitat restoration in the community.

The three projects we have completed in the two miles of river downstream of the proposed Horseshoe project have been very well received by private landowners. In the recent years following implementation of the previous projects, many of the private landowners we have worked with have helped us advocate (to the USFS) for the implementation of this proposed project and are eager to see it implemented. Similar to these previously completed projects, we expect the Horseshoe project will continue to build support for similar salmon recovery efforts.

8. Does the project represent an opportunity for economic benefit? How much benefit does the project create for the dollars invested?

This project will help restore wild steelhead runs in the Methow, and contribute towards re-opening the recreational steelhead fishery which is a large economic boost for the local economy. In addition, the overall project will improve the scenic corridor of the river.

Construction and vegetation maintenance contractors local to the Upper Columbia are often hired through the competitive hiring process because their reduced mobilization costs allow them to submit competitive bids. This will also return some of the investment from this project back into the local economy.

9. Describe any partnerships, their experience, and types of contributions supporting the project.

The project engineers, Interfluve, working with the Yakama Nation have designed and implemented over a dozen restoration projects in the Methow Valley, in the last ten years. Overall, the concepts proposed in the Horseshoe project, constructing large jams to promote floodplain inundation, encourage split flow conditions and create cover habitat, is analogous to the approach taken in these previous projects. In addition to the vast array of experience from previous projects, this design team has spent nearly six years refining the shape, size and placement of these proposed large wood structures based on the observed hydrology and geomorphology at the site and within the Twisp River.