



## Contact Information

# 2025 Upper Columbia Regional Project Pre-Application

\* Pre-applications (SRFB & Monitoring) due March 12, 2025 (COB)

\*Complete SRFB applications due in PRISM April 18, 2025 (COB)

\*Complete Monitoring applications due in PRISM May 1, 2025 (COB)

\*Revised SRFB proposals due in PRISM May 27, 2025 (COB)

\*Final revised SRFB & Monitoring applications due in PRISM June 23, 2025 (noon)

<b>Project Title</b>	Roaring Creek Floodplain Reconnection Project
<b>Sponsor</b>	Cascadia Conservation District
<b>Primary Contact</b>	Mark Ingman
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## Project Summary

**Please provide a description or summary of the proposed project, including project goals. The goal of the project should be to solve identified problems by addressing the root causes. Then clearly state the desired future condition.**

This project will treat and reconnect the lowest 1.2 miles and over 40 acres of Roaring Creek floodplain that is located on Forest Service lands (RM 1.4-2.8). Grazing, timber harvest, uncharacteristic/catastrophic fire (2014, 1988), and historic extirpation of beaver are some of the leading causes of channel incision, floodplain disconnection with the stream, reduced baseflows, and simplification of the stream network. The project design separates the treated areas into three project segments (upper, middle, and lower), each with different treatment methods and goals. By aggrading and recovering the streambed, reconnecting floodplains, raising groundwater tables, increasing structural wood in the channel and system, increasing habitat complexity, and off channel habitat, the project will substantially benefit ESA threatened steelhead for multiple life stages.

**What are the project objectives? Objectives support and refine biological goals, breaking them down into small steps. Objectives are specific, quantifiable actions the project will complete to achieve the stated goal. Each objective should be SMART (Specific, Measurable, Achievable, Relevant, and Time-bound).**

**Note: This exact question is included in the PRISM application. Example format: The project seeks to address [specify limiting factor(s)] for [limiting life stage(s)] by [specific actions proposed] to create an estimated [include specific target metrics, as described below] upon implementation in [estimated year].**

The objective are directly aligned and correspond to the limiting factors for Roaring 03 and 04, respectively, as follows:

1) baseflow (Score 1 red,1 red) , 2) cover-wood (3 yellow,1 red) , 3) off channel/side channel (3 yellow, 1 red), and 4) course substrate (3 yellow both reaches).

As such, using the same numbering as above limiting factors, our project objects will directly 1) benefit baseflows by raising groundwater to approaching the floodplain level and provide an anticipated delay of return to baseflows over 1.4 mile project scale (already measuring pre-project with up and downstream flow gauges per WA Ecology funded QAPP), 2) increase cover-wood through large wood additions in all treated reaches within the project (large scale wood loading), 3) provide new side and off channels through fully aggrading upper and lower reaches that are disconnect from floodplain through a combination of Stage Zero floodplain reset methods and heavy in-stream wood loading methods, and finally, 4) providing multiple flow paths and complexity to sort substrate of multiple sizes/classes (including coarse size) within the newly created, anastomosing stream network.

## Budget Request

Values MAY be duplicative and do not have to equal TOTAL anticipated budget in pre-application.

<b>Anticipated Request - SRFB Riparian Funding</b>	470,000
<b>Tributary Committee - Anticipated or Actual</b>	330000
<b>Anticipated or Actual Other Funding</b>	220,000
<b>Anticipated TOTAL Budget</b>	1,020,000

**Other Funding Source(s), please note if funding is anticipated or actual.**

USFS Roaring Creek Floodplain Enhancement - \$220,000, actual/secured

## Project Location

<b>Briefly describe the location of the project</b>	The project will occur in Roaring Creek starting at RM 1.4 and ending at RM 2.8.
<b>Latitude (decimal degrees)</b>	47.682246
<b>Longitude (decimal degrees)</b>	-120.361772
<b>Project subbasin</b>	Entiat
<b>Entiat Assessment Unit(s)</b>	Roaring Creek

**Does the proposed project span multiple assessment units?**

No

**Reach(es) Name**

Roaring 03, Roaring 04

**Identify the reach(es) priority/ reach ranking. Note: If the project involves work in multiple reaches, select "Multiple" and include details in the text box that will appear below. Please reference the Prioritization Web Map: <https://prioritization.ucsrb.org/>.**

Rank 2

Unranked (not a priority or missing data)

Multiple reaches (provide details below)

### **Please detail the reach-ranking of the reaches below**

Roaring Creek 01-04 are listed as "unranked" on the basis of a FS valley confinement ratio algorithm. This is a error in the algorithm as the valley width is great that 8x bankfull width and there is considerable floodplain in which to do restoration for the greater extent of the 1.4 mile project area. We request a full review and consideration of this project despite is unranked status.

## **Project Information**

**1. What species will the project benefit?**

Spring Chinook

Steelhead

Summer Chinook

Coho

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

Instream Flow

Instream Habitat (Includes Floodplain & Off-Channel Reconnection)

Riparian Habitat

**Instream Flow: Reporting Code**

Change in water flow

**Instream Habitat: Reporting Code**

Total miles of instream habitat treated

Miles of off-channel stream created or connected

Acres of channel/off-channel connected or added

Number of structures placed in channel

Pools created through channel structure placement

**Riparian Habitat: Reporting Code**

Total riparian miles streambank treated

Total riparian acres treated

4. Does this project already exist in Salmon Recovery Portal or PRISM? No

5. Has this project been submitted previously for funding through the SRFB and/or other process(es)? No

6. What category is the project? Restoration

If applicable, what is the secondary project category? N/A

Is the project eligible for Riparian Funding? Yes

## Design and Restoration Proposals

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)? No

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

Cover - Wood      Flow - Summer Base Flow

Off-Channel - Floodplain      Off-Channel - Side-Channels

Pool Quantity & Quality      Riparian

Riparian - Canopy Cover

10. Which life stages will the proposed project address?

Fry      Spawning and Incubation      Summer Rearing

Winter Rearing

### 11. Freshwater Benefits - Describe how your project will improve survival, capacity and/or distribution for target species at the reach scale?

Habitat quantity (side and off channels, inundated extent, and floodplain habitat area) will be increased.

Habitat quality will also be improved. The predominantly single thread channel will become anabranching (multi-thread) in nature post treatment, and this quality improvement will be significantly increased through installation of large quantities of structural large wood in channel in within the treated floodplain extent. We anticipate relatively fast vegetative response in the widening of the riparian corridor both through active plantings and passive natural recruitment. As a result, edge habitat will be significantly expanded.

Fish: A total of 16 steelhead redds have been documented within the treated project area during surveys conducted in 2008, 2009 and 2011. Modeled peak flows in the planned treated area of the documented redd locations indicate the potential redds have been washed out by peak flows in some years in some

locations. The restoration methods will have the effect of slowing and spreading peak flows, spreading and sorting gravels, that combine to produce reduced flows and expanded spawning opportunities. An additional 13 steelhead redds were documented within Roaring Creek, downstream of the project area during the same survey years (data source: UCSRB). There is a PIT array in Roaring 01 ("RCT").

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

Restoration actions align with natural confinement patterns along of the project reach. Full floodplain treatments are proposed in the unconfined Upper and Lower reach segments. These segments have valley bottoms greater than 8 times the bankfull width and were historically depositional in nature. Through streambed raising, roughness (wood) treatment, and improved groundwater interactions, we anticipate vegetation response and development of multiple threads within 2-4 years.

The middle segment is naturally confined by colluvial and landslide deposits. The restoration approach accordingly targets and seeks to activate pocket floodplain areas with strategic low-tech and landslide-simulating wood treatments. We anticipate localized response in floodplain activation, sediment sorting, and pool development within similar timeframes.

**13. Temporal Effect - How long will it take for the project to achieve its intended response?**

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 level and interval of maintenance will depend upon the reach and its corresponding treatment methods. Overall, the project sponsor has extensive direct experience with low tech process based restoration in the Upper Columbia region. In our discussions with stakeholders we have received feedback that floodplain reset ("stage 0") methods benefit significantly through adaptively managing the desired stream response through low tech process based restoration (personal communication, Paul Powers, USFS). We will be monitoring fish response (separate SRFB proposal), stream response, and riparian establishment and growth through multiple funding sources (WA Ecology -secured; other proposals in progress). The project sponsor has been successful each cycle in applying and receiving state restoration maintenance/stewardship funding through the WSCC Riparian Grant Program (RGP). WSCC RGP can support both riparian maintenance and BDA/Low Tech maintenance. We foresee low tech restoration based adaptive management for 10 years following the implementation, and then less maintenance thereafter. The potential for beaver being a primary actor in ongoing maintenance and restoration is relatively high given the signs of both historical and recent beaver activity in Roaring Creek (above the project area, and within the project area).

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

Upper Reach (naturally unconfined, high incision): The upper reach is naturally unconfined (valley bottom >8x channel width) but incised 4-6 feet from its historical floodplain level. This reach has proposed Stage 0 (streambed) raising restoration techniques. The lower end of this reach will include a transitional roughened channel meet grade with the middle reach.

Middle Reach (partially confined with localized "pocket" floodplains): The middle reach is naturally confined by hillslope and colluvial deposits. These deposits create localized floodplain pockets that have mixed to low connectivity. The proposed restoration actions will include low-tech structures to create localized complexity and connectivity in areas where riparian disturbance is undesirable. Restoration actions will also include landslide-simulating logjams to activate floodplain areas where equipment access is feasible.

Lower Reach (moderate-high incision): The lower reach has similar attributes to the upper reach, with a naturally wide valley bottom and high incision. The proposed restoration actions include Stage 0 (stream-bed raising) approaches to connect floodplains, reduce stream power, improve groundwater interactions, and promote riparian regrowth.

**17. If the project is eligible and applying for Riparian Funding, does the project have in-stream components? If so, briefly describe those components, how they support riparian plant survival and/or natural regeneration, and why they are necessary for the success of the riparian habitat elements of the project.**

Yes, the project is eligible for Riparian Funding. The in-stream components will raise the bed grade to a full floodplain reset (Stage 0) level in the upper and lower reaches where this method is appropriate and most needed. This means aggrading stream bed incision that is as much as 6 feet below the floodplain in its current and unrestored state. Stage Zero and large wood additions will significantly raise groundwater levels, delay the annual return to baseflows, that will invariably rewet the floodplain for robust riparian growth and establishment in which a response is expected in the 2-4 year time interval. The project will benefit riparian vegetation both passively through raising groundwater levels, but also actively through a riparian planting plan encompassing the upper, middle, and lower reaches.

## Assessment Proposals

## Protection Proposals

## Monitoring Proposals

## Project Risk and Economic Benefits

1. What is the landownership? Forest Service

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

### Please explain

The landowner is the original project implementer and co-funder of the project and the Forest Service has partnered with Cascadia CD to implement the project. Cascadia CD has received an award from the Forest Service to implement the design and the construction (partial construction award as match). The Forest Service is reviewing all design milestones of the project and co-leading permitting for the project with Cascadia CD. The Roaring Creek Floodplain Enhancement project is named as part of the USFS Mad Roaring Mills Landscape Restoration NEPA of 2018, finalized in 2023.

**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**

The Forest Service has provided match funding for the design, and partial funding for construction. The Forest Service is reviewing the 30%, 60% and final design stages. There is Forest Service gate and primitive road that leads to the project area. The design team has been in conversation with the Forest Service about widening at least one part of the road in order to transport large quantities of wood to the staging areas.

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

There is relatively low/infrequent use of Roaring Creek and the primitive roadway is mostly out of the floodplain and unaffected by the restoration methods. There is some occasional dispersed camping points in the treated area that were unpermitted and may be better displaced than encouraged. It is a relatively low recreational use adjacent and along the stream. Additionally, this project was part of the MRM NEPA that was finalized in 2023. The project sponsor organizes the Entiat Watershed Planning Unit

and utilizes this and other venues to present project updates and receive feedback.

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

Cascadia CD will have the responsibility of managing the project for at least 10 years, which is the same duration we require as a district for all projects. The current and future landowners will remain the Forest Service. The Forest Service provides input at each design stage as well as funding for both design and construction (funding serving as match). The design project is on the Forest Services work plan for 2025. Cascadia CD looks forward to continuing its partnership with the Forest Service to complete the design, implement, and continue ongoing maintenance.

**6. Are other projects being proposed immediately upstream or downstream of worksite?**

No

**7. Please describe the risk of failure associated with this project.**

This project benefits from utilizing process based restoration at the full floodplain scale. In this way, it is utilizing natural processes coupled with engineering design and modeling. We have collected input from multiple agencies and stakeholders before and during the design process and we continue to take in feedback at every consequent design milestone. We have collected considerable field and remote sensing data, reviewed existing datasets and records, and consulted with outside experts who have experience with the same type of full floodplain projects (P. Powers, R. Flitcroft, and others, predominantly versed in full floodplain/stage 0 projects). We have intentionally focused on such risk factors as 1) grade control at the downstream location, 2) water rights – confirmed downstream users are in fact now groundwater users, 3) geophysical subsurface transects, 4) streamflow gauges upstream and downstream of treated project area, 5) limiting impacts to wetlands and sensitive species, and other leading risk considerations. The project sponsor is part of a CRM, which leverages our pooled resources among staff, community relationships, low tech processed based program, Wenatchee-Entiat Beaver Project, and other capabilities for all of our projects. This creates a level of redundancy and a depth of resources.

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

The Roaring Creek Floodplain Reconnection project is included in the “Mad Roaring Mills Landscape Project” as one primary component sites of the public NEPA process (See “Objective 3 – restore floodplain connection” <https://www.fs.usda.gov/project/okawen/?project=59963>). The NEPA was finalized in July of 2023. We continue to provide landowner outreach about this award through direct engagement with local landowners as well as through public venues such as the Entiat Watershed Planning Unit, a quarterly public meeting facilitated by Cascadia Conservation District. There has been past and recent outreach with downstream landowners on Roaring Creek regarding restoration activities.

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

The project will result in funds being invested into the local economy in the form of subcontracts, payroll, materials, supplies, fuel. The project sponsor is mindful of sourcing materials locally and regionally whenever possible. The Entiat watershed is an important recreation location in North Central Washington. The reconnection of over a mile of floodplain along Roaring Creek will not only benefit threatened steelhead and other native fish, but it will benefit wildlife on a watershed scale. This benefits extend to hikers, birders, and many other forms of recreation. Water scarcity is a real concern going forward and the slowing of water leaving Roaring Creek benefits the watershed at every location downstream in terms of the availability of water resources. While we do not have a calculation of dollars spent, we do feel that our ratio of dollars spent per distance and area restored is perhaps the best ratio of dollars invested for linear stream and acres restored (\$1M for 1.4 miles and over 40 acres)!

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

Cascadia CD is part of a coordinated resource management (CRM) team with Cascade Fisheries and Trout Unlimited. Trout Unlimited initiated several BDAs with the Forest Service on Roaring Creek to arrest several

head cuts for fish passage. In 2023 Cascadia CD assisted Trout Unlimited in installed several beaver dam repairs upstream of the project area. Recently Cascadia CD and Cascade Fisheries and collaborated on project development of other sites on Roaring Creek. Cascadia CD will undoubtedly utilize the CRM for assistance during all phases of implementation (such as Low Tech PBR components), maintenance, and monitoring.

The US Forest Service has been developing the Roaring Creek Floodplain Reconnection project since around 2018 that coincides with the Mad Roaring Mills Landscape Project (NEPA). The Forest Service received funding for landscape scale projects and awarded Cascadia CD funding for design and implementation of the project. The Forest Service team includes fisheries biologists, hydrologist, botanist, archeologist, and the ranger. We have also consulted with member of the USFS Pacific Northwest Research Station. Concurrent to the Forest Service's award, the WA Department of Ecology provided funding for design and monitoring of the Roaring Creek Reconnection Project. The WA Ecology has reviewed and approved streamflow monitoring of the project, which includes streamflow measurements above and below the project site. Our consultant design team includes Lichen Land and Water as principal, Nick Legg PG and Dominique Shore (geomorphologist), Gabe Williams, PE, Resource Specialists Inc. as lead engineer, Lauren Zatkos, Wetland Scientist, W2R, and AJ Jones, PE, ESCM, Wolf Water Resources. The consultant design team has extensive experience with full floodplain restoration projects in the Pacific Northwest to include full floodplain and Stage 0 restoration. The project sponsor, Mark Ingman has a MS in Water Resources and over ten years of experience in natural resources project management. Cascadia CD also has its own archeologists on staff for cultural resources inventories.

## **Optional Section - Preparation for PRISM (SRFB applications only)**

The following questions are identical to the questions RCO requires in the PRISM application for SRFB projects. If desired, sponsors can complete associated questions early and copy responses into PRISM during the "Complete Application" phase due on April 18, 2025.

\*please note, this section is not applicable for Monitoring proposals

**Do you want to review and/or pre-populate PRISM questions?**

No

## **Supporting Documents**

[Upper Columbia Process Guide 2025](#)

[SRFB Manual 18 \(2025\)](#)

[RCO Application Resources \(2025\)](#)