



## 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>	Upper Methow reassessment and design
<b>Sponsor</b>	Cascade Fisheries
<b>Primary Contact</b>	Kristen Kirkby
<b>E-Mail Address</b>	kristen@ccfeg.org

## 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 assessment and design project will fill a regional Tier 1 data gap to resurvey habitat in the Upper Methow, which includes the Methow River miles 61-80, and use existing and new data, including an updated 2D hydraulic model, to inform the development of one or more restoration concepts. Habitat data for the Upper Methow was last surveyed in 2015 and is due for resurvey to maintain the accuracy and utility of UCSRB's Prioritization model and inform new restoration design. The goal of this project is to ensure high-quality data is available to the region and sponsors, and to use these data to develop a conceptual design for restoration in a high-priority reach to improve conditions for all three ESA-listed salmonids.

**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].**

Cascade Fisheries (CF) will complete USFS Level 2 habitat surveys, work with UCSRB to update Reach-based Ecosystem Indicators, and develop an updated 2D hydraulic model from existing green LiDAR (2022) of the channel and LiDAR (2015) of the floodplain. Updated data and model will inform the development of conceptual restoration actions in up to two reaches within the Upper Methow, focused on Methow River Rattlesnake 04, which has a restoration rank of Tier 1, with additional reach focus guided by assessment findings. Concepts will address limiting factors including cover, off-channel and side-channel habitat, and pool quantity and quality, though these may be updated by new habitat data. Survey work will take place in 2026, modeling will begin as soon as funding is in hand, and restoration concept development will begin in summer 2026 and be completed and available for regional review and feedback in early 2027.

## Budget Request

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

**Anticipated Request - SRFB (standard round)** 77000

**Tributary Committee - Anticipated or Actual** 77000

**Anticipated TOTAL Budget** 154000

## Project Location

**Briefly describe the location of the project** Upper Methow, RM 69-80

**Latitude (decimal degrees)** 48.65702

**Longitude (decimal degrees)** -120.53075

**Project subbasin** Methow

**Methow Assessment Unit(s)** Methow River-Rattlesnake Creek

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

**List the additional assessment units directly impacted by this proposal.** Methow River-Fawn

**Reach(es) Name** Methow River- Fawn 06-11; Methow River - Rattlesnake 01-04

**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**

Multiple reaches (provide details below)

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

Tier 1 – Methow River Rattlesnake 03, 04; Methow River Fawn 06, 09-11

Tier 2 – Methow River Rattlesnake 02; Methow River Fawn 07, 08

Tier 3 – Methow River Rattlesnake 01

## Project Information

1. What species will the project benefit?

Spring Chinook

Steelhead

Bull Trout

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

Design, Monitoring or Assessment

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?

Assessment

If applicable, what is the secondary project category?

Design

Is the project eligible for Riparian Funding?

No

## Design and Restoration Proposals

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

Conceptual Design

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)?

Upper Methow Reach Assessment

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

Cover - Wood

Off-Channel - Side-Channels

Pool Quantity & Quality

10. Which life stages will the proposed project address?

Adult Migration

Adult Non-Spawning (Bull Trout)

Subadult Rearing (Bull Trout)

Fry

Holding and Maturation

Smolt Outmigration

Spawning and Incubation

Summer Rearing

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

Habitat surveys and modeling will provide data to update limiting factors, REI, and Prioritization, and enable appropriate restoration actions in Upper Methow reaches, which would benefit nearly all freshwater lifestages of chinook and steelhead and subadult and adult bull trout. The conceptual restoration design included in this project will aim to improve limiting factors previously identified and updated with habitat surveys. These are likely to include cover in the form of wood, connectivity to side-channel and off-channel habitat, and the quality and quantity of pools. Implementation of a restoration design aimed at addressing those limiting factors would improve conditions for adult and juvenile chinook and steelhead, and subadult and adult bull trout.

**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?**

This project will update and refine our understanding of the factors currently limiting the production of our ESA-listed fishes in reaches in the Upper Methow, a critical step to informing effective restoration and protection actions. Conceptual design aimed to address these factors in at least one high-priority reach will improve existing conditions in the near term (e.g. through the placement of wood jams for cover and the removal of push-up levees for floodplain access) and enable natural habitat forming processes to continue to increase complexity over the longer term (e.g. through increased lateral channel migration, pool development, and floodplain connectivity from wood jams). Jams would be designed to catch wood moving through the system, sustaining and increasing benefits over time.

**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?**

10-50 years

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

Not applicable. Maintenance and adaptive management would come into play after implementation of a project from a design. Habitat surveys will need to be redone in another decade.

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

The restoration design concepts will be informed by several layers of relevant data, including the existing Upper Columbia Reach Assessment Project Opportunities, updated habitat data and Reach-Based Ecosystem Indicators, the Methow Thermal Refugia Restoration Assessment, and landowner willingness outreach. Concepts will address identified habitat limiting factors and attempt to address these through restoration of natural process where possible. This may include areas of push-up levee removal; placement of wood jams to create immediate cover and encourage near-term and long-term channel complexity, pool development, channel migration, floodplain engagement, and wood sourcing; and riparian planting where appropriate.

## Assessment Proposals

**7. What type of assessment are you proposing?**

Habitat assessment of instream habitat in the Upper Methow

**8. Is the assessment identified on the MaDMC monitoring and data gaps list?**

Yes

**9. Describe how the assessment fills a regional priority and where that priority is identified.**

This data gap was identified by the Upper Columbia Monitoring and Data Management Committee and approved by the Regional Technical Team. The data gap is: Reach Assessment for Methow River Fawn 06-11, Methow River Rattlesnake 01-06 (Tier 1). The RTT provided additional feedback on this data gap to qualify that only an updated habitat survey and updated hydraulic model (rather than a complete reach assessment) may be appropriate if they capture any major geomorphic changes in the reach, which we believe is the case.

**10. Methods - What methods will you use in your assessment and how will they achieve your stated objective(s)?**

Cascade Fisheries will use USFS level 2 habitat surveys, which have been widely used in the region by CF and other entities. Data from these surveys will inform Reach-based Ecosystem Indicators to use to update the regional Prioritization model and to update habitat limiting factors. A 2D hydraulic model will also be developed from existing LiDAR data from 2022 (green LiDAR in the channel) and 2015 (floodplain), an update from the 2006 LiDAR data used in the original Reach Assessment. Finally, at least one restoration concept will be developed from updated data. CF is interested in exploring this in Methow River - Rattlesnake 04, but updated data will drive the location of concept development.

**11. Will a design result from the project?**

**12. If yes, what level of design (e.g. conceptual, preliminary, final)? What proportion of your budget will support design?** Conceptual

**13. Briefly describe why SRFB funds are necessary, rather than other sources of funding.**

SRFB funding is appropriate for this project as it meets an identified regional data gap and allows for two years of funding in support of both an assessment and a design. Cascade Fisheries is requesting 50% of the funding from a second source, either the Tributary Committees or the Priest Rapids Coordinating Committee.

## Protection Proposals

## Monitoring Proposals

## Project Risk and Economic Benefits

**1. What is the landownership?** USFS and private

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

**Please explain**

CF has been working with the USFS and has that agency's support for habitat surveys and the development of restoration design. Private landowner access permission will not be required for habitat surveys, but landowner outreach would occur during the project if a project area with private landowners is selected for conceptual design for restoration.

**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**

None known. This may change with the selection of a project area.

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

A conceptual design developed on private land will necessitate outreach to and collaboration with upstream and downstream landowners, a good opportunity for education, outreach, and engagement.

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

None with this phase of the project. Implementation would be a later step.

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

Don't know

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

None with this phase of the project, CF has extensive experience completing habitat surveys and working with contractors to develop hydraulic models and conceptual designs.

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

Landowner outreach would occur during the project if a project area with private landowners is selected for conceptual design for restoration. CF will also send out informational flyers prior to surveys to explain our methods and goals and elicit landowner engagement.

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

This project will require and support habitat survey technicians and contractors, and, if a design is moved forward to implementation, there will be substantial economic benefit to local contractors and suppliers.

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

USFS and USBR are both supportive of this project and would like to provide assistance when more certainty makes that a possibility. CF will be working with Rio Applied Science and Engineering on hydraulic modeling and restoration concept development, and this shop has substantial experience working on design to restore natural processes and improve habitat conditions in the Upper Methow, including two SRFB-funded designs and one SRFB-funded construction project.

## **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?**

Yes

**1. Problem Statement: What are the problems your project seeks to address? Include the source and scale of each problem. Describe the site, reach, and watershed conditions. Describe how those conditions impact salmon populations. Include current and historical factors important to understand the problems.**

Valley-floor timber harvest and log drives in the upper Methow have left a legacy of diminished flood moderation, shade, temperature moderation, sources of large wood material, and high flow refuge. These effects were further amplified by removal of large wood jams and channel substrate, as well as channel straightening after the 1948 and 1972 floods. Floodplain development led to the construction of levees

(riprap and pushup), which have reduced frequency and extent of floodplain connectivity, channel migration, and the number of off-channel features, and led to channel simplification and reduced riparian vegetation (USBR 2008, YN 2015. Floodplain disconnection is not just a historical issue, as modifications to levee and riprap structures have continued to impair this reach in recent years (J. Sunderland, personal communication).

The Upper Methow provides spawning, rearing, and overwintering habitat for spring chinook and summer steelhead and feeding migrating and overwintering habitat for bull trout. The 2017 Biological Strategy identifies the Upper Methow assessment unit as the highest priority for both restoration and protection in the Methow subbasin.

Habitat surveys were conducted in 2015 and are now due for a resurvey to ensure that restoration practitioners, including Cascade Fisheries, have up-to-date data, REIs, and limiting factors from which to design effective restoration projects in this reach. Habitat surveys will update regional prioritization metrics and, along with an updated 2D hydraulic model based on 2022 and 2015 LiDAR, will inform the development of at least one conceptual design in the Upper Methow. Later phases to complete and implement the design will improve habitat conditions for all three ESA-listed fish species.

## **2. Describe the limiting factors, and/or ecological concerns, and limiting life stages (by fish species) that your project expects to address.**

This assessment would cover two assessment units, Methow River – Rattlesnake Creek (RM 67-80) and Methow River – Fawn Creek (RM61-67).

The Upper Columbia Salmon Recovery Board's Prioritization model designates Methow River – Rattlesnake Creek as a medium priority for spring chinook summer and winter rearing, and steelhead spawning, fry colonization, and summer and winter rearing. This reach is a low priority for spring chinook adult migration, holding, spawning, fry colonization, and smolt emigration; and steelhead adult migration. This AU is tier 1 for restoration for spring chinook and tier 2 for restoration for steelhead and bull trout.

Methow River – Fawn Creek is designated medium priority for spring chinook spawning, fry colonization, summer and winter rearing; steelhead fry colonization, summer and winter rearing; and bull trout adult non-spawning. It's a low priority for spring chinook adult migration, holding, smolt emigration; steelhead adult migration, spawning, smolt emigration; and bull trout adult migration, subadult rearing. This AU is tier 1 for restoration for spring chinook and steelhead, and tier 2 for restoration for bull trout.

The 2017 Biological Strategy identifies the Upper Methow assessment unit as the highest priority for both restoration and protection in the Methow subbasin. Ecological Concerns include (top 5):

1. Water Quantity (Decreased Water Quantity)
2. Channel Structure and Form (Bed and Channel Form)
3. Peripheral and Transitional Habitats (Side channel and Wetland Habitat Conditions)
4. Channel Structure and Form (Instream Structural Complexity)
5. Riparian Condition (Riparian Condition)

Limiting factors vary across reaches within the project area, but nearly all reaches consistently have limiting factors of cover – wood, floodplain connectivity, off-channel and side-channel habitat, and riparian-related limiting factors. Most reaches also have a limiting factor of pool quantity and quality.

Habitat surveys will update Reach-based Ecosystem Indicators to either support or modify these limiting factors and so inform effective restoration projects. Cascade Fisheries will look at developing a restoration concept in Rattlesnake 04, a tier-1 restoration reach, to address limiting factors including cover-wood, pool quantity and quality, off-channel and side-channel habitat, and various riparian factors. Other reaches will also be considered after habitat surveys are complete and a new hydraulic model is developed.

**3. What are the project goals? The goal of the project should be to solve identified problems by addressing the root causes. Then clearly state the desired and future condition. Include which species and life stages will benefit from the outcome, and the time of year the benefits will be realized.**

This assessment and design project will fill a regional Tier 1 data gap to resurvey habitat data in the Upper Methow, which includes Methow River miles 61-80, and use existing and new data to inform the development of one or more restoration concepts. Habitat data for the Upper Methow was last surveyed in 2015 and is due for resurvey to maintain the accuracy and utility of UCSRB's Prioritization model and inform new restoration design. The goal of this project is to ensure high-quality data is available to the region and use these data, along with an updated 2D hydraulic model, to develop a conceptual design for restoration in a high-priority reach to improve conditions for all three ESA-listed salmonids.

**4. What are the project objectives? Objectives support and refine biological goals, breaking them down into smaller 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).**

Cascade Fisheries will complete USFS Level 2 habitat surveys, work with UCSRB to update Reach-based Ecosystem Indicators, and develop an updated 2D hydraulic model from existing LiDAR data. Updated data and model will inform the development of conceptual restoration actions in up to two reaches within the Upper Methow, focused on Methow River Rattlesnake 04, which has a restoration rank of Tier 1. Concepts will address limiting factors including cover, off-channel and side-channel habitat, and pool quantity and quality, though these may be updated by new habitat data. Survey work will take place in 2026, modeling will begin as soon as funding is in hand, and restoration concept development will begin in summer 2026 and be completed and available for regional review and feedback in early 2027.

**5. Scope of work and deliverables. Provide a detailed description of each project task/element. With each task/element, identify who will be responsible for each, what the deliverables will be, and the schedule for completion.**

1. Resurvey in-channel habitat. CF will complete USFS level 2 surveys to capture habitat conditions and develop applicable Reach-based Ecosystem Indicators from data. These data will be shared with UCSRB to update the Prioritization model and available to any sponsors or other entities. Surveys will take place in 2026.

2. Develop 2D hydraulic model for the Upper Methow. Rio Applied Science and Engineering (Rio ASE) will stitch together 2022 green LiDAR and 2015 LiDAR (wider floodplain coverage than the green LiDAR) and develop a 2D hydraulic model for the reach. The Upper Methow Reach Assessment (UMRA) used data from 2006. This will be completed in 2026.

3. Restoration concept development. CF will work with Rio ASE to look at existing project ideas from UMRA along with updated habitat data, REIs, 2D hydraulic modeling, the Methow Thermal Refugia Restoration Assessment, and other relevant sources to develop at least one restoration concept for a reach within the Upper Methow. CF will focus on Methow River Rattlesnake 04 (RM75-77) but will also look downstream to reaches such as Methow River – Rattlesnake 01 (RM 69-7) and/or other reaches that rise to the top with updated data. This work will take place in late 2026 into 2027.

4. Landowner willingness assessment. CF will undertake outreach to private landowners for any concept areas including private lands. This will occur in 2026 and 2027.

**6. What are the assumptions and physical constraints that could impact whether you achieve your objectives? Assumptions and constraints are external conditions that are not under the direct control of the project, but directly impact the outcome of the project. These may include ecological and geomorphic factors, land use constraints, public acceptance of the project, delays, or other factors. How will you address these issues if they arise?**

Concepts cannot be developed until data and modeling are updated. If these actions were delayed, so too would be design. Only unforeseen events such as fire closures or other similar issues would limit this work. Landowner outreach will provide information on project feasibility for subsequent phases of design, and may limit project elements. One project area is USFS-owned, which has already stated general support

for restoration design development, and CF has extensive experience working with private landowners to enable projects.

## **7. How have lessons learned from completed projects or monitoring studies informed this projects?**

CF has a solid background of experience working on a diversity of projects from assessment and design through construction, including relevant project types such as extensive habitat surveys, side channel connection and enhancement, large wood installation, and riparian plantings. The YN reach assessment and other related documents will provide a foundation for the project, and CF's data collection will ensure appropriate design elements. Rio ASE also has worked extensively in the Upper Methow with both modeling and design.

## **8. Describe the alternatives considered and why the preferred was chosen.**

CF met with the Regional Technical Team to ensure an appropriate approach for this data gap and heard support for our intent to complete Level 2 surveys with additional hydraulic modeling and data review. If additional substantive changes are observed on the landscape that are not captured by habitat surveys or modeling, CF will work to appropriately document these changes. The UMRA provides a solid foundation for this project to update habitat data and use these to develop restoration concepts.

## **9. How were stakeholders consulted in the development of this project? Identify the stakeholders, their concerns or feedback, and how the concerns were addressed.**

CF met with project partners including the USFS, the USBR, and the RTT during the development of this project. Federal partners stated support for the project and promised technical and other support when they're able to provide these resources. The RTT provided feedback on the approach and supported level 2 habitat surveys and updated hydraulic modeling with the condition that CF looks to identify any substantive changes to the reach that would not be captured by these methods and address these.

## **10. Does your project address or accommodate the anticipated effects of climate change? How will your project be climate resilient given future conditions? How will your project increase species and habitat adaptability?**

NorWeST models suggest that the Upper Methow will continue to be a stronghold for cold water in the Upper Columbia in the coming decades. Mean August stream temperatures are projected to maintain under 16deg C for all of the reaches in the Upper Methow. Beechie and others (2013) found that restoring floodplain connectivity was one of the activities most likely to increase habitat diversity and population resilience to climate change. Re-establishing lateral connectivity can store flood waters, provide thermal and velocity refugia, and may increase the length of hyporheic flow paths, cooling downstream temperatures. Conceptual design will look at project elements such as these, as well as reviewing the Methow Thermal Refugia Restoration Assessment and considering methods to protect and enhance existing cold water patches.

This project does not include implementation but is a necessary step on the way to implementation of restoration. Project design that focuses on increasing instream, riparian, and floodplain habitat diversity will enable future work to provide a broader range of conditions for multiple life stages of salmonids in support of increased resiliency as waters warm and patterns in the hydrograph shift. Project elements such as wood structures would provide immediate benefits through cover and will support the development of habitat heterogeneity over time. Levee removal would also restore some of the natural physical processes that can create habitat diversity over time.

Beechie T, H Imaki, J Greene, A Wade, H Wu, G Pess, P Roni, J Kimball, J Stanford, P Kiffney, and N Mantua. Restoring Salmon Habitat for a Changing Climate. 2013. River Research and Applications 29:8.

## **11. Describe the sponsor's experience managing this type of project. Describe other projects where the sponsors has successfully used a similar approach.**

Kristen Kirkby, project manager, has over a decade of experience in fisheries ecology and 9 years of experience managing small and large restoration and design projects including side channel and creek restoration and enhancement, habitat surveys, barrier assessments and replacements, and riparian restoration. Kristen is supported in all aspects of project management by CF's experienced team. Jason Lundgren, the Director of CF, has over a decade of project management experience in salmon recovery

including assessments, design, and construction projects. CF has implemented USFS level 2 surveys extensively throughout the Upper Columbia, effectively and efficiently sharing data with UCSRB to update Prioritization, and providing these data to interested partners, as well. CF and Rio ASE have also used worked with the UMRA and other existing data to develop a restoration project in the Upper Methow that's currently in the final phases of design and fully funded through the SRFB and Tributary Committees for implementation in 2026.

**12. Will veterans (including the veterans conservation corps) be involved in the project? If yes, please describe.**

No

## Supporting Documents

[Upper Columbia Process Guide 2025](#)

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

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