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)

Project Title	Assessing the Past to Inform the Future: A Comparative Study of Long-Term Effectiveness at Legacy vs. Contemporary Restoration Projects for Adaptive Management
Sponsor	Chelan County Natural Resources
Primary Contact	Matt Holland
E-Mail Address	matt.holland@co.chelan.wa.us

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 is a monitoring project focused on assessing the long-term effectiveness of various restoration projects of different designs. The goal is to provide data for a synthesis report by the Upper Columbia Salmon Recovery Board to inform and support adaptive management.

Our proposed work involves collecting monitoring data at both recently restored and older restoration sites, as well as at control reaches, to quantify restoration effectiveness. This monitoring will focus on the following aspects:

- Fish density of target species (Chinook and steelhead).

- Food availability for these species through macroinvertebrate surveys.

- Habitat quality and availability for these species. For older projects, this will represent both historical (as available from project or older monitoring reports) and current habitat conditions.

Additionally, this monitoring effort will address the following data gaps as defined by the Upper Columbia

Regional Technical Team:

- 3.1. Effectiveness of habitat projects incorporating spatial and temporal influences on results and at the appropriate scale; Tier 1

- 2.12. Habitat requirements and limiting factors by life stage; Tier 1

- 3.3. Certain project types are missing robust effectiveness monitoring (e.g., nutrients, floodplain, off-channel, riparian, beaver reintroduction, BDAs); Tier 2

- 2.5. Fish use, survival and growth in intermittent reaches; Tier 2

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].

Our project objectives are:

1) Quantify the effectiveness of different restoration designs over time regarding fish density of target species. Sampling data will include mark-recapture data of salmonid fry and parr and presence absence of other species and life stages.

2) Quantify the effectiveness of different restoration designs over time regarding food availability. Monitoring data will include invertebrate drift sampling and gut content.

3) Identify limiting factors, habitat quality and availability, and temporal efficacy of different restoration designs to inform adaptive management. Sampling parameters will be environmental parameters, including flow, depth and temperature, as well as substrate cover and shade.

Budget Request

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

Anticipated TOTAL Budget $293,760

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

Pacific Northwest Research Station (USFS), Actual
Chelan County Natural Resource Department, Actual

Project Location

Briefly describe the location of the project The project will occur at multiple recent and older restoration sites in the Wenatchee and Entiat subbasins that will be identified in collaboration with the Upper Columbia Salmon Recovery Board and other collaborators.

Latitude (decimal degrees) 47.824146

Longitude (decimal degrees) -120.422398

Project subbasin Entiat

Entiat Assessment Unit(s)	Entiat River-Potato Creek
Does the proposed project span multiple assessment units?	Yes
List the additional assessment units directly impacted by this proposal.	Sites TBD and would include restoration sites in many AU's
Reach(es) Name	Multiple Reaches
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/.	Multiple reaches (provide details below)

Please detail the reach-ranking of the reaches below

Prospective sites will likely be distributed throughout many AU's and reaches throughout the both the Wenatchee and Entiat sub-basins

Project Information

1. What species will the project benefit?	Spring Chinook, Steelhead, Summer Chinook
2. Select the project's objectives and the associated tracking metrics	Design, Monitoring or Assessment Instream Habitat (Includes Floodplain & Off-Channel Reconnection)
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?	Monitoring
If applicable, what is the secondary project category?	N/A
Is the project eligible for Riparian Funding?	No

Design and Restoration Proposals

Assessment Proposals

Protection Proposals

Monitoring Proposals

7. Does this project address a Tier 1 data gap in the MaDMC Regional Data Gaps List?

Yes

8. To what extent does your project address a regional data gap?

The proposed project addresses the following Tier 1 data gaps:

- 3.1. Effectiveness of habitat projects incorporating spatial and temporal influences on results and at the appropriate scale; Tier 1

- 2.12. Habitat requirements and limiting factors by life stage; Tier 1

9. What is the scale of inference?

Reach Scale

10. Purpose - How will the monitoring complement, enhance, or leverage ongoing monitoring efforts?

This monitoring enhances ongoing monitoring efforts in the two subbasins by increasing the scale and scope of projects being evaluated. By comparing multiple reaches that represent legacy and current restoration, we will not only leverage past monitoring data and analyses but add new ways of looking at both new and old data. This will more thoroughly inform efforts to formulate Adaptive Management strategies with respect to restoration in the Upper Columbia Region and beyond.

11. Methods - Briefly describe the methods and how they are appropriate to the monitoring question

Our proposed work involves collecting monitoring data at both recently restored and older restoration sites, as well as at control reaches, to quantify restoration effectiveness. This monitoring will focus on the following aspects:

- Fish density of target species (Chinook and steelhead).

- Food availability for these species through macroinvertebrate surveys.

- Habitat quality and availability for these species. For older projects, this will represent both historical and current habitat conditions.

These monitoring metrics have been established by project partners to monitor restoration efficacy in restored floodplains of different design types and at engineered log jams in the Wenatchee and Entiat subbasins.

Habitat data will be measured in the field primarily using depth, current velocity, substrate, temperature and available cover. In reaches where there is overlap between these measurements and additional historical geomorphic data, we will use these as the basis of comparison and quantification of habitat status and trend across the various restoration categories.

Macroinvertebrate sampling will primarily consist of benthic samples in order to identify habitat-scale productivity. Where possible, drifting macroinvertebrates, meiofauna, and fish gut contents will be sampled as well. Fish distribution and habitat selection will be sampled using a combination of snorkeling and snorkel-herding capture methods. Habitat variables such as depth, current velocity, substrate and structural cover will be measured at each habitat unit where fish sampling is conducted.

12. Describe how the data (raw and processed), results, and other information will be disseminated and accessed once the project is complete

Monitoring data will be managed by project partners Hinchinbrook, Inc. and the Pacific Northwest Research Station (USDA Forest Service). Additionally, processed monitoring results will be shared through conferences, reports, and publications.

13. Briefly explain how this project will address one or more of the identified strategic priorities in Manual 18M (survival bottlenecks, limiting factors, or project effectiveness).

The data collected will help to address identified strategic priorities in Manual 18M by directly addressing the following monitoring objectives:

1) Assess survival bottlenecks: Monitoring of recently installed and older restoration projects should identify bottlenecks of different restoration designs and how they are affected by restoration over time.

2) Identify limiting factors: The response variables studied in the proposed monitoring project were identified as limiting factors before restoration and targeted by different restoration measures and designs. Evaluating these factors will quantify restoration efficacy of different restoration designs over time.

3) Implement restoration and monitoring: The proposed monitoring project aims to inform adaptive management about effective ways to implement and design restoration measures.

4) Communicate results: Monitoring results will be presented at conferences, in publications, and reports. Furthermore, results will be shared with UCSRB for consideration within their Adaptive Management Synthesis reporting.

Project Risk and Economic Benefits

1. What is the landownership? Mixed ownership, CDLT/USFS and others

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

Please explain

The exact restoration sites have not been identified yet. When identifying sampling reaches, we will ensure to have access via public land or in accordance with landowners. Few to no sites are likely to occur on private land. Most land is federally owned or owned by the Chelan-Douglas Land Trust. Where landowner permission has been necessary, we have had long-term agreements with landowners for access to the river for monitoring purposes.

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

N/A

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

N/A

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

Monitoring and associated data will be maintained by the project partners Hinchinbrook, Inc., and the Pacific Northwest Research Station (USDA Forest Service).

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

No

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

Weather events that lead to abnormally high flows may disrupt field sampling. The Wenatchee and Entiat sub-basins are also prone to wildfires that may preclude the ability to conduct field sampling safely and may be followed by debris flows that affect the condition of the study area.

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

Monitoring results are shared in public forums regularly and have strong potential to lead to greater community support for restoration projects. “Watershed Planning Units” exist for both sub-basins and these forums are focused on community participation.

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

Monitoring projects are not generally intended to result in economic benefit. Results of this project are directly tied to the adaptive management process, which should lead to better stewardship of natural resources, which can be economically beneficial.

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

For recent (past 3 years) monitoring in the Upper Columbia, Chelan County has partnered with Hinchinbrook, Inc., and the Pacific Northwest Research Station (USDA Forest Service). These partners have two decades of experience conducting monitoring and research in the mainstem Entiat River and several years of experience in collecting monitoring data in the Wenatchee sub-basin. Most recently, they have monitored different floodplain restoration designs and engineered log jams in the mainstem and have experience with all types of restoration projects in the region.

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)

To: Monitoring Grants Manager, Washington State Recreation and Conservation Office

From: Matt Holland, Chelan County Natural Resource Department (Project Sponsor)

Date: March 12, 2025

We submit this letter of intent to submit a proposal for consideration for the RCO's monitoring program in the 2025 grant round. Our proposed project, titled "*Assessing the Past to Inform the Future: A Comparative Study of Long-Term Effectiveness in Legacy vs. Contemporary Restoration Projects for Adaptive Management*" is designed to complement the adaptive management effort initiated by the Upper Columbia Salmon Recovery Board (UCSRB). The goal is to provide an updated understanding of salmon recovery progress in the context of the several restoration projects that have been implemented over the past decade and a half in the Upper Columbia region.

This proposal adds a monitoring component focused on collecting data from both recently restored and older restoration sites, implemented by different agencies and project collaborators. Restoration sites will be chosen in collaboration with the UCSRB to inform their planned synthesis report that aims to identify the most effective types of restoration actions. We propose to quantify the effectiveness of various restoration designs over time (e.g. instream habitat, floodplain reconnection) and identify areas for improvement to better prioritize future actions.

The following types of data will be collected at restoration sites in different sub-basins of the Upper Columbia River:

- Environmental parameters (temperature, flow, depth)
- Macroinvertebrates (food web monitoring)
- Salmonid habitat quality and quantity (substrate, cover, shade)
- Presence/absence of restoration target species (Chinook, steelhead)
- Density data of juvenile salmonids on the reach scale

The data collected will help to address the following monitoring objectives of this study:

1. Assess survival bottlenecks: Monitoring of recently installed and older restoration projects should identify bottlenecks of different restoration designs and how they are affected by restoration over time.

2. Identify limiting factors: The response variables studied in the proposed monitoring project were identified as limiting factors before restoration and targeted by different restoration measures and designs. Evaluating these factors will quantify restoration efficacy of different restoration designs over time.

3. Implement restoration and monitoring: The proposed monitoring project aims to inform adaptive management about effective ways to implement and design restoration measures.

4. Communicate results: Monitoring results will be presented at conferences, in publications, and reports. Furthermore, results will be shared with UCSRB for consideration within their Adaptive Management Synthesis reporting.

The habitat, environmental, macroinvertebrate, and fish monitoring proposed here would address the following data gaps as defined by the Upper Columbia Regional Technical Team:

- **3.1.** Effectiveness of habitat projects incorporating spatial and temporal influences on results and at the appropriate scale; **Tier 1**

- **2.12.** Habitat requirements and limiting factors by life stage; **Tier 1**

- **3.3.** Certain project types are missing robust effectiveness monitoring (e.g., nutrients, floodplain, off-channel, riparian, beaver reintroduction, BDAs); **Tier 2**

- **2.5.** Fish use, survival and growth in intermittent reaches; **Tier 2**

We believe that this approach will enhance our understanding of long-term restoration outcomes and support more effective adaptive management strategies. Thank you for your consideration.

Matt Holland, Project Sponsor

Chelan County Natural Resource Department

2025 SRFB Monitoring Program
Letter of Intent Form

Project Name:	Assessing the Past to Inform the Future: A Comparative Study of Long-Term Effectiveness at Legacy vs. Contemporary Restoration Projects for Adaptive Management
Project Sponsor:	Chelan County Natural Resources Department
Funding Request:	$293,760
Sponsor Contact Info: *Include email and cell number*	Matt Holland; matt.holland@co.chelan.wa.us ; (509)679-0085
Key Partners:	Pacific Northwest Research Station (USFS); Hinchinbrook Inc.
Has the project been vetted and endorsed by the regional organization (Y/N)?	Yes
Brief Project Description:	This is a monitoring project focused on assessing the long-term effectiveness of various restoration projects of different designs. The goal is to provide data that can be used as part of a synthesis report by the Upper Columbia Salmon Recovery Board to inform and support adaptive management. Our proposed work involves collecting monitoring data at both recently restored and older restoration sites, as well as at control reaches, to quantify restoration effectiveness. This monitoring will focus on the following aspects: • Fish density of target species (Chinook and steelhead). • Food availability for these species through macroinvertebrate surveys. • Habitat quality and availability for these species. For older projects, this will represent both historical (as available from project or older monitoring reports) and current habitat conditions.
Data collection and analysis:	Our proposed work involves collecting monitoring data at both recently restored and older restoration sites, as well as at control reaches, to quantify restoration effectiveness. This monitoring will focus on the following aspects: • Fish density of target species (Chinook and steelhead). • Food availability for these species through macroinvertebrate surveys. • Habitat quality and availability for these species. For older projects, this will represent both historical and current habitat conditions. These monitoring metrics have been established by project partners to monitor restoration efficacy in restored floodplains of different design types and at engineered log jams in the Wenatchee and Entiat subbasins. Habitat data will be measured in the field primarily using depth, current velocity, substrate, temperature and available cover. In reaches where there is overlap between these measurements and additional historical geomorphic data, we will use these as the basis of comparison and quantification of habitat status and trend across the various restoration categories. Macroinvertebrate sampling will primarily consist of benthic samples in order to identify habitat-scale productivity. Where possible, drifting macroinvertebrates, meiofauna, and fish gut contents will be sampled as well. Fish distribution and habitat selection will be sampled using a combination of snorkeling and snorkel-herding capture methods. Habitat variables such as depth, current velocity, substrate and structural cover will be measured at each habitat unit where fish sampling is conducted. Monitoring data will be managed by project partners Hinchinbrook, Inc. and the Pacific Northwest Research Station (USDA Forest Service). Additionally, processed monitoring results will be shared through conferences, reports, and publications.

How does the project inform regional information needs or data gaps and where are those identified in a regional research, monitoring, or evaluation plan **(if not, then provide a separate statement of endorsement from the regional organization which explains why this is a regional priority)**	This monitoring enhances ongoing monitoring efforts in the two subbasins by increasing the scale and scope of projects being evaluated. By comparing multiple reaches that represent legacy and current restoration, we will not only leverage past monitoring data and analyses but add new ways of looking at both new and old data. This will more thoroughly inform efforts to formulate Adaptive Management strategies with respect to restoration in the Upper Columbia Region and beyond. Specific data gaps addressed by this project are outlined below.
Monitoring priorities from the Upper Columbia MaDMC data gaps list this project will address:	The habitat, environmental, macroinvertebrate, and fish monitoring proposed here would address the following data gaps as defined by the Upper Columbia Regional Technical Team: • **3.1.** Effectiveness of habitat projects incorporating spatial and temporal influences on results and at the appropriate scale; **Tier 1** • **2.12.** Habitat requirements and limiting factors by life stage; **Tier 1** • **3.3.** Certain project types are missing robust effectiveness monitoring (e.g., nutrients, floodplain, off-channel, riparian, beaver reintroduction, BDAs); **Tier 2** • **2.5.** Fish use, survival and growth in intermittent reaches; **Tier 2**
How will this project address one or more of the 2025 SRFB strategic priorities below: • **Survival Bottlenecks** • **Limiting Factors** • **Effectiveness**	The data collected will help to address the following monitoring objectives of this study: 1. Assess survival bottlenecks: Monitoring of recently installed and older restoration projects should identify bottlenecks of different restoration designs and how they are affected by restoration over time. 2. Identify limiting factors: The response variables studied in the proposed monitoring project were identified as limiting factors before restoration and targeted by different restoration measures and designs. Evaluating these factors will quantify restoration efficacy of different restoration designs over time. 3. Implement restoration and monitoring: The proposed monitoring project aims to inform adaptive management about effective ways to implement and design restoration measures. 4. Communicate results: Monitoring results will be presented at conferences, in publications, and reports. Furthermore, results will be shared with UCSRB for consideration within their Adaptive Management Synthesis reporting.
How does this project align with the Action Agenda for Puget Sound? (Puget Sound Projects Only)	*NA*