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	Measuring Life-Stage Specific Survival and Life-History Diversity of Juvenile Steelhead within the Wenatchee River Basin
Sponsor	Washington Department of Fish and Wildlife
Primary Contact	Josh Williams
E-Mail Address	josh.williams@dfw.wa.gov

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 monitoring project proposes to address multiple regional Teir 1 data gaps (i.e. MaDMC 1.4, 1.5, 2.13 and 2.25) by supplementing ongoing juvenile steelhead Passive Integrated Transponder (PIT) tagging efforts within the Wenatchee River basin. The current tagging level is insufficient for management needs and the outcomes of this monitoring project will improve understanding of how observed juvenile life-history strategies affect survival and timing of juvenile emigrants and returning adult natural-origin steelhead to better inform management actions. It will also improve our understanding of life-history diversity, juvenile rearing location, and help provide much needed data for newly developed life-cycle models. Current efforts yield approximately 2,000 juvenile steelhead PIT tagged annually in the Wenatchee Basin. This effort would increase the total number of juvenile steelhead PIT tagged upstream of juvenile trapping and PIT tag antenna monitoring locations to 10,000 annually for three years.

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].

This project seeks to address the tier 1 data gap 2.25, juvenile fish use in reservoirs for steelhead, by drastically increasing the number of tagged fish in the Wenatchee Basin. Historic monitoring efforts (juvenile steelhead PIT tagged at smolt traps and redetections at instream PIT antenna arrays) have been insufficient for management needs. The newly install Lower Wenatchee PIT barge has proven its ability to detect PIT tagged juvenile salmonids far surpasses instream PIT arrays across a wider range in flows. We will take advantage of a newly created multistate capture-mark-recapture/resight model to estimate movement and survival rates that has recently been successfully applied to PIT tagged juvenile spring Chinook within the Wenatchee basin. This will also help address tier 1 data gap 1.4 and 1.5, effects of different life-history strategies and factors affecting out-migration timing of juveniles. This monitoring project also proposes to better represent the entire Wenatchee basin population by sampling unmonitored areas. This will benefit assessments throughout all life-stages (i.e., smolt-to-adult returns, adult run composition, etc.) and allow a better understanding of juvenile steelhead life-history strategies exhibited in the upper Columbia basin. This will help answer tier 1 data gap 2.13.

Budget Request

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

Anticipated Request - Monitoring Grant Funding	$297,891
Anticipated or Actual Other Funding	$31,700
Anticipated TOTAL Budget	$297,891

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

Washington Department of Fish and Wildlife - $8,700/annually for Operations Research Specialist and Fish Biologist 4 staff time; Actual
Comparative Survival Study - $23,000/annually for PIT tags; Anticipated

Total cost share is expected to be $32,000

Project Location

Briefly describe the location of the project	The project will occur throughout the mainstem Wenatchee River and throughout several tributaries (Peshastin creek, Nason creek, Chiwawa river).
Latitude (decimal degrees)	47.555793°
Longitude (decimal degrees)	-120.594582°
Project subbasin	Wenatchee
Wenatchee Assessment Unit(s)	Lower Peshastin Creek

Does the proposed project span multiple assessment units?	Yes
List the additional assessment units directly impacted by this proposal.	Wenatchee River - Tumwater Canyon, Lower Nason Creek, Lower Chiwawa River, Middle Chiwawa River, Upper Chiwawa River
Reach(es) Name	Lower Peshastin Creek 1-4; Wenatchee River - Tumwater 1-4, Nason Creek Lower 1-14, Lower Chiwawa River 1 upstream to Chiwawa River Upper 5
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

The Lower Peshastin creek reach ranking varies from 1-3
Wenatchee River Tumwater reach ranking varies from 1-2
Lower Nason Creek reach ranking varies from 1-3
The Chiwawa river reach ranking varies from 1-3.

Project Information

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

This monitoring effort would drastically improve our understanding of emigration timing and survival of juvenile steelhead out of the Wenatchee Basin. By having more accurate and precise estimates, managers would better understand factors affecting timing of juvenile emigration and the life-histories exhibited by all juveniles versus just the ones able to return successfully as adults. Managers need to better understand juvenile productivity and the complexity of life-histories exhibited to ensure our management actions are benefiting the population to the greatest amount possible and this population has the greatest chance of recovery.

9. What is the scale of inference?

Population Scale

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

This funding proposal seeks to improve juvenile steelhead monitoring efforts within the Wenatchee Basin. Current efforts yield approximately 2,000 juvenile steelhead PIT tagged annually in the Wenatchee Basin. This effort would increase the total number of juvenile steelhead PIT tagged upstream of juvenile trapping and PIT tag antenna monitoring locations to 10,000 annually for three years. It would also expand the spatial representation of tributaries within the Wenatchee Basin. By drastically increasing the number of PIT tagged juvenile steelhead we will be able to better calculate life-stage specific survival of different juvenile steelhead life-history strategies emigrating from the Wenatchee basin. Estimates of movement and survival for all life-stages, along with life-stage specific age and size structure will elucidate important life-history pathways and inform future management. This monitoring project will take advantage of a newly created multistate capture-mark-recapture/resight model to estimate movement and survival rates that has recently been successfully applied to PIT tagged juvenile spring Chinook within the Wenatchee basin.

Additionally, the proposed work will benefit ongoing monitoring efforts within the Wenatchee basin currently funded by local Public Utility Districts, the Bonneville Power Administration, and the Bureau of Reclamation by increasing the number of PIT tagged juvenile steelhead that may be utilized within their respective monitoring plans or study designs.

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

For this effort, we request $297,891 in funding for a 3-year study to PIT tag juvenile steelhead within the Wenatchee basin. Each year, a team of three field staff will sample four locations in the Wenatchee Basin (Peshastin creek, Nason creek, Chiwawa river and the mainstem Wenatchee river) during the months of July, August, and September. They will have a target to deploy 2,000 PIT tags in each of the reaches for an additional 8,000 PIT tags deployed in juvenile steelhead each year. We seek 3-years of funding to ensure we sample across a complete brood year. This funding will cover all costs of the proposed study (personnel, equipment, and overhead), along with scale analysis.

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

Our team has established relationships and collaborations with regional partners that will facilitate communication of results and their utility in recovery and management actions. We regularly present finding at professional conferences (i.e. Upper Columbia Salmon Recovery Conference and Washington-British Columbia Chapter of the American Fisheries Society) and communicate directly to local associates in Wenatchee, as well as regional salmon recovery partners working throughout the Columbia River basin. The same would be done here.

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).

By drastically increasing the number of PIT tagged juvenile steelhead we will be able to better calculate life-stage specific survival of different juvenile steelhead life-history strategies emigrating from the Wenatchee basin. Estimates of movement and survival for all life-stages, along with life-stage specific age and size structure will elucidate important life-history pathways and limiting factors. These will all aide future management.

Project Risk and Economic Benefits

1. What is the landownership? We would only sample on public lands

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

Please explain

It will be public land.

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

NA

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

No

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

NA

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

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

No

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

No

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

None

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)

State of Washington
DEPARTMENT OF FISH AND WILDLIFE
Wenatchee Research Office
3515 State Highway 97A
Wenatchee, WA 98801
(509) 664-3148

Date: 28 February 2025
To: Ariel Edwards, Lead Entity Coordinator, Upper Columbia Salmon Recovery Board
From: Josh Williams, Fisheries Biologist, WA Dept. of Fish and Wildlife
Subject: WDFW Letter of Intent for SRFB Monitoring Funds - Juvenile Steelhead PIT Tagging

Dear Ariel,

My name is Josh Williams and I am a Fisheries Biologist with the Washington Department of Fish and Wildlife in their Fish Science Division. Over the last 10 years I have safely and effectively lead efforts to monitor and evaluate impacts of hatchery programs on naturally produced salmonids in the Wenatchee Basin. As part of this effort, I have been leading juvenile fish monitoring efforts via rotary screw traps, backpack electrofishing and minnow traps.

WDFW intends to submit a monitoring funding proposal to the SRFB as part of the 2025 grant round. This funding proposal seeks to improve juvenile steelhead monitoring efforts within the Wenatchee Basin. Current efforts yield approximately 2,000 juvenile steelhead PIT tagged annually in the Wenatchee Basin. This effort would increase the total number of juvenile steelhead PIT tagged upstream of juvenile trapping and PIT tag antenna monitoring locations to 10,000 annually for three years. It would also expand the spatial representation of tributaries within the Wenatchee Basin. This proposal addresses multiple regional tier 1 data gaps associated with survival, productivity, life-history diversity, life-cycle modeling, and juvenile rearing locations (i.e. MaDMC 1.4, 1.5, 2.12, and 2.25). Additionally, the proposed work will benefit ongoing monitoring efforts within the Wenatchee Basin currently funded by local Public Utility Districts, the Bonneville Power Administration, and the Bureau of Reclamation by increasing the number of PIT tagged juvenile steelhead that may be utilized within their respective monitoring plans or study designs.

For this effort, we request $297,891 in funding for a 3-year study to PIT tag juvenile steelhead within the Wenatchee basin. Each year, a team of three field staff will sample four locations in the Wenatchee Basin (Peshastin creek, Nason creek, Chiwawa river and the mainstem Wenatchee river) during the months of July, August, and September. This funding will cover all costs of the proposed study (personnel, equipment, and overhead), along with scale analysis.

By drastically increasing the number of PIT tagged juvenile steelhead we will be able to better calculate life-stage specific survival of different juvenile steelhead life-history strategies emigrating from the Wenatchee basin. Estimates of movement and survival for all life-stages, along with life-stage specific age and size structure will elucidate important life-history pathways and inform future management. This monitoring project will take advantage of a newly created multistate capture-mark-recapture/resight model to estimate movement and survival rates that has recently been successfully applied to PIT tagged juvenile spring Chinook within the Wenatchee basin. Importantly, this monitoring project proposes to better represent the entire Wenatchee basin population by sampling unmonitored areas and also significantly increasing the number of total tagged steelhead across the entire basin. This will benefit assessments throughout all life-stages (i.e., smolt-to-adult returns, adult run composition, etc.) and allow a better understanding of juvenile steelhead life-history strategies exhibited in the upper Columbia basin.

These efforts will provide more precise estimates of growth, juvenile emigration timing, adult return timing, movement, and important validation of scale derived age estimates. Comparison of natural- and hatchery-origin estimates of survival and movement both within-basin and out-of-basin (i.e. juvenile and adult survival through the Columbia River) will inform limiting life stages, hatchery evaluation and adaptive management practices. Additional PIT-tagged steelhead will bolster the work currently being funded by the Bonneville Power Administration's Comparative Survival Study to estimate within- basin and out-of-basin life-stage specific survival and smolt-to-adult return rates. This project will leverage existing efforts to capture and PIT tag juvenile fish with the extensive network of existing PIT tag detection sites within the Wenatchee basin (including the newly installed Wenatchee River barge) and the Columbia River corridor. Finally, recently developed Wenatchee River and Columbia River survival models will also be able to utilize the data from this monitoring project to estimate life-stage specific survival.

WDFW recognizes the importance of addressing these data gaps and has previously secured funding from other sources to procure all PIT tags necessary for marking juvenile steelhead, the gear needed to sample and collect the juvenile steelhead, and to operate the lower Wenatchee PIT barge. This project would be able to further leverage ongoing projects to gain efficiencies for data analysis (survival modeling, movement, and life-history analysis) after the project is complete. For this project, we are only seeking funding to execute the field component of juvenile steelhead capture and PIT tagging requirement of this monitoring project.

As a biologist of the Wenatchee WDFW team, this project will draw from the wealth of local and institutional knowledge our staff have for the Wenatchee basin and of related projects in the region. Our team has established relationships and collaborations with regional partners that will facilitate communication of results and their utility in recovery and management actions. We regularly present finding at professional conferences (i.e. Upper Columbia Salmon Recovery Conference and Washington-British Columbia Chapter of the American Fisheries Society) and communicate directly to local associates in Wenatchee, as well as regional salmon recovery partners working throughout the Columbia River basin.

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*