Grande Ronde Model Watershed

1114 J Avenue

La Grande, OR

(541)-663-0570

GRMW PROPOSAL APPLICATION - DRAFT

Project/Application Title: Lookingglass Fish Habitat Restoration

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GRMW Request Amount: 1800000.00

Total Cost Share: 1400000.00

Total Project Cost: 3200000.00

Invoice Information (If GRMW is the fiscal agent)

Mary Estes GRMW Fiscal Manager

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This proposal is for a RESTORATION type project!

Location/Abstract

General Location	Downstream Extent	Upstream Extent
Latitude: 45.7482520	Latitude: 45.7506320	Latitude: 45.7479950
Longitude: -117.8976380	Longitude: -117.8771000	Longitude: -117.9166900

Due to a limitation of the framework tool used to create PDFs, we are unable to display the opportunity map within this document. However, you may still view the opportunity map using the following link:
Opportunity Map Link

The Lookingglass project is located on a 666 acre conservation property acquired by CTUIR and BPA in 2015 for fish and wildlife conservation purposes. The property is located in the UGR1 assessment area of the Grande Ronde Atlas, 13 miles north of Elgin, Oregon. The project encompasses 3 miles of mainstem Lookingglass Creek and over 80 acres of historic floodplain that has been altered by road and bridge construction, channelization, pond construction, livestock grazing and timber harvest. The project area provides important habitat for CTUIR First Foods, including spring-summer Chinook salmon, summer steelhead, bull trout and resident species. The Lookingglass watershed is an important cold water refuge in the Grande Ronde Basin. Habitat limiting factors include: instream and floodplain structure and complexity, side channel and wetland habitat, and riparian condition. Significant opportunity exists to restore floodplain process and function to expand spawning and rearing habitat capacity and quality.

Proposed habitat actions include channel and floodplain grading, large wood and boulder additions, relocation of an existing undersized bridge to improve floodplain and geomorphic process and habitat quality.

Stepwise & Atlas

Prospectus submitted and review by Atlas Implementation Team: Yes

Project prospectus title and/or ID# (if applicable): Lookingglass Fish Habitat Restoration

Associated Subwatershed: UGR-1

Associated Opportunity: UGR-1 - Lookingglass 4.3 - 6.6 (Node)

Problem Statement & Opp Score

The problem statement described the critical/limiting life stages and limiting habitat factors identified in the Atlas for the subwatershed in which this project is located and explain which of these species, life stages and limiting factors will be addressed in this project (how the problems will be addressed should be discussed in the 'Proposed Solution' section). This includes past land use history with respect to the project reach and larger watershed—especially any land use that has led to the current impaired condition.

Degradation of instream and riparian habitat in the Grande Ronde Basin has been the dominant in-Basin cause of salmon and steelhead decline (NPCC, 2004). Land use activities since the early 1800s include beaver trapping, logging, splash damming, grazing, mining, channelization, water withdrawals, road and railroad construction, and urban development. Past activities have degraded aquatic habitat conditions with extensive channel simplification (White et al. 2017, pg. 212-213), loss of large pool habitat (McIntosh, 1994), significant thermal loading, and loss of cold-water refuge (Justice et al. 2017, Ebersole et al. 2003).

Anthropogenic alterations to the floodplain like, road and bridge construction, pond construction, and floodplain structures have impacted project reach and created a stream that is largely confined, high gradient with interspersed floodplain segments, homogonous, plane bed riffle-run channel form that lacks habitat diversity, complexity, and large pools, with altered sediment regime, and fair riparian condition. Spawning habitat is extremely limited in portions and mostly confined to the upper reaches of the project area. Rearing habitat is limited in most areas due to lack of pool habitat, instream complexity, and access to floodplain.

Both spring Chinook and summer steelhead runs in Lookingglass Creek are listed as threatened under the Endangered Species Act as part of the Snake River ESU. Currently, 128.9 miles of perennial streams exist within the Lookingglass Creek drainage, of which approximately 2.5 miles (2%) support spring Chinook spawning and rearing for returning hatchery fish only (Lovatt 2003). Historically, an endemic Lookingglass Creek spring Chinook population spawned and reared in 13.6 miles (11%) of the drainage's streams (Lovatt 2003). Although endemic Lookingglass Spring Chinook were extirpated from the basin, Lookingglass Creek contains critical brood stock genetics for ESA listed Catherine Creek Spring Chinook.

Final Opportunity Score (Atlas opportunity score)

1.0

Permits

All permits associated with the project are listed below along with a date of acquisition and date of expiration.

Permit Name	Date Acquired	Expiration Date
ODEQ 401 Water Quality Cert	None	None
USACE 404	None	None
ODSL Removal Fill	None	None
ODFW Fish Passage	None	None
Section 106 Compliance	None	None
BPA HIP	None	None

Restoration Actions

Below is a list of all restoration actions applicable to this project.

Restoration Action	Justification
2. Channel Reconstruction	Lookingglass Creek has been simplified and disconnected from the floodplain, entrenched to bedrock in several locations, and alluvium coarsened. Current channel form is single thread morphology in much of the project area. Channel reconstruction in key areas will allow Lookingglass Creek to interact with its floodplain and expand total fish habitat area.
4. Riffle Construction	Riffle construction in the project area will allow the channel elevation in key areas to check water and promote floodplain inundation.
3. Pool Development	Lack of pools is identified as a limiting factor in this BSR. Large wood installation, channel and floodplain grading provide stream roughness that promotes an anastomosing channel network, increase stream length, and increase the number of pools per mile.
7. Levee Modification: Removal, Setback, Breach	Removing levees, along with channel and floodplain grading in the project area allows Lookingglass Creek to interact with its floodplain.
8. Remove - Relocate Floodplain Infrastructure	Removing floodplain infrastructure allows for floodplain connectivity and expansion of fish habitat.
9. Restoration of Floodplain Topography and Vegetation	Topographic variability in the floodplain promotes colonization of native riparian and wetland plant species.
10. Floodplain Construction	Lookingglass currently has limited access to its floodplain. Floodplain and channel grading promote channel evolution and inundation.
11. Perennial Side Channel	Cutting low flow channels into the floodplain surface will allow fish to migrate throughout the project reach while the project is evolving post construction.
13. Floodplain Pond - Wetland	Channel and floodplain grading will promote inundation and the expansion of wetland characteristics in the floodplain.
15. Hyporheic Off-Channel Habitat (Groundwater)	Channel and floodplain grading will promote inundation and hyporheic exchange.
19. Thinning or removal of understory	trees on the property will be utilized for fish habitat features. Thinning prescriptions will be applied using Tribal Forest Health standards.
26. Boulder Placement	Boulders will be placed to enhance instream habitat.
35. Road Decomissionsing or abandonment	Valley bottom road will be relocated to expand floodplain habitat.

Proposed Solution

The proposed solution states the project goals and articulates the expected outcomes of the project. It explains how the restorations actions selected will address the problems stated in the problem statement.

The long-term vision (CTUIR's River Vision) for the Project is restored hydrologic and geomorphic processes and function. The primary objectives of the Project include: floodplain reconnection, restoration of channel morphology, enhanced instream habitat structure and complexity, restoration of diverse and resilient native riparian and wetland plant communities. Project actions are designed to target the five CTUIR River Vision Touchstones:

- Connectivity: Lateral floodplain connectivity will be increased via a network of flowpaths. Vertical connectivity via hyporheic flowpaths will benefit from deposition of mobile gravels that form dynamic bars and increased planform complexity and elevated water tables throughout the floodplain.

- Geomorphology: Reduced unit stream power will increase the retention of incoming sediment and organics. Natural sediment sorting and deposition will encourage channel migration and dynamism.
- Hydrology and Water Quality: Elevated groundwater tables and increased hyporheic connectivity will increase temperature diversity, lower overall temperatures via increased riparian growth, and increase natural water quality treatment and metabolism in the subsurface.
- Riparian Condition: Reestablished channel dynamism (bar formation and channel migration) will increase suitable surfaces for recruitment of willows and cottonwoods. Elevated water tables will give cottonwood and willow an advantage. Increased beaver activity will increase vegetation diversity.
- Aquatic Biota: Increased spawning area via increased gravel deposition and retention. Increased primary productivity with retention of organic material. Increased cover and habitat complexity from a naturally dynamic channel with abundant wood and wood recruitment.

Objectives

The table below quantifies the appropriate indicators this project will include. Each indicator has a measured current condition, an action taken, a restored condition (post-restoration), a set target condition, and justification/citation explaining why the action will work. Each indicator also includes whether or not the objective will be monitored.

Indicator	Current Condition	Action Taken	Restored Condition	Target Condition	Citation	Monitored?
Quantity of accessible fish habitat	26.0	34.0	60.0	N/A		None
Large wood frequency bankfull (Pieces/100m)	3.61	19.85	23.5	20 Pieces/100m		None
Large pool frequency/km (Pools/km)	2.55	18.45	21.0	>= 10/km		None
Connected floodplain area (% Increase)	26.0	34.0	60.0	20% Increase		None

Reporting Requirements: In addition to the objectives outlined above, sponsors who receive funding through GRMW understand they will be required to resubmit the indicators/objectives table and budget after implementation to verify that work was completed as proposed and on budget. If there were any deviations from the proposed actions or budget they will be asked to explain those deviations at that time. If they plan to submit a completion report to BPA or a similar organization, they may include this table as a part of the completion report to meet this requirement. Please note that if they wish to recreate this table in their own document that it must include "proposed" and "actual" columns to accurately reflect the work completed.

Objectives Narrative

Objective Narrative: This block explains why the objectives selected are relevant to this project and why/how the actions selected in the Restoration Actions section should result in the restored condition proposed.

Lookingglass Creek on the project area has been impacted by historic anthropogenic alterations including channelization, floodplain leveling, floodplain infrastructure, pond construction, grazing, logging, and road construction. Existing condition includes highly altered channel and floodplain morphology (high gradient, single thread) with over-coarsened sediment and lack of habitat diversity. Pool habitat, velocity refuge and structural habitat diversity are core habitat limiting factors. Altered hydrogeomorphic processes limited development and maintenance of high-quality spawning and rearing habitat and riparian and wetland condition. Potential exists in the approximate 3 mile project reach for significant habitat uplift and fishery resource productivity.

Traditional in-stream restoration approaches have often focused on localized channel improvements; however, they can fail to address limitations in hydrologic connectivity. In contrast, valley resets allow for overbank flow across a reconnected valley floor. This will maximize the spatial and temporal availability of habitat for juvenile Chinook salmon by facilitating dynamic flow regimes, side channel formation, and groundwater-surface water interaction. In the project area, this approach is particularly suited to the lower reaches where historical incision and confinement have disconnected the stream from its floodplain and reduced the availability of zero velocity habitats. In its current condition Lookingglass Creek provides approximately 26 acres of accessible open water habitat for spawning and juvenile rearing at the 10 year flow recurrence interval. The restored condition aims to increase the total accessible habitat to 60 acres.

Floodplain grading not only increases the wetted channel area and frequency of floodplain inundation but also allows for the natural recruitment of wood, sediment, and organic material, key drivers of habitat complexity. Floodplain and channel grading will increase the amount of accessible floodplain by 34 acres (current conditions 26 acres), a net increase of 130%.

Traditionally, habitat metrics are reported based on the bankfull channel. Valley reset metrics can be reported in a variety of manners. Because the restored condition is a mostly flattened floodplain with added roughness features, it can take several season to develop the desired restoration outcome. This can affect reporting the post project condition. However, based on engineered plans and wood quantities, the post project metrics can be quantified by acre or converted to stream length.

Presently, the project reach contains 3.61 pieces of large wood per 100 meters (>15cm diameter, 3m length) in the bankfull channel. Restoration actions include large wood complexity with 2,200 pieces of small and large wood throughout the project area. Planned wood loading is estimated at 36.7 pieces per acre (approximately 50 pieces per 100 meters). Large pool density will increase from 2.55 pools per km to 21 pools per KM.

The post project condition is designed to be dynamic in nature. As the project develops overtime, it is expected that more large pools will develop as the projects planform adjusts to floodplain roughness features.

Implementation of these project features will result in the spatial and temporal expansion of habitat for juvenile rearing and adult spawing.

Explain Target Condition: This block explains why any of the restored conditions of any objectives selected do not meet the target condition. If all restored conditions meet the corresponding target condition, then this field will appear blank.

All restored conditions planned will help meet the target condition.

Additional Objectives: This block includes any additional objectives not captured in the objectives table.

Objectives should be specific, measureable, achievable, relevant, and time-bound.

n/a

Climate Change Concerns: This block explains considerations made regarding how this proposed work may address climate change concerns.

Climate change is perhaps the greatest threat to Tribal First Foods and other ways of life integral to the cultural, spiritual, and community of the Tribes, specifically viability and access to salmon, steelhead, and other native fish populations given the already degraded status of watershed and floodplain health. Grande Ronde Basin habitat and fishery resources have been affected by severely degraded habitat and an altered thermal regime exacerbated by loss and alteration of floodplains, channel morphology, groundwater recharge, wetlands, and riparian vegetation. Human-caused CO_2 emissions have contributed to a summer warming trend in Pacific Northwest streams of approximately 0.14–0.27 °C per decade between 1976 and 2015. These warming trends are expected to contribute to range contraction and decreased capacity of salmonids in the basin. Climate change is expected to alter snowpack and availability of low flow water resources, as well as increase pathways for invasive species which can have adverse effects on habitat. Climate modeling predicts that by 2070–2099 stream temperatures will increase between 2 and 6 °C across most of the Columbia River Basin. Restoring floodplain connectivity, restoring streamflow regimes, and re-aggrading incised channels are most likely to ameliorate streamflow and temperature changes associated with climate change, thereby increasing salmonid habitat diversity and population resilience. Additionally, reconnecting and/or creating side-channels, removing and/or setting back levees, and re-meandering straightened channels can buffer peak flow increases by storing floodwater and reducing flood peaks and can increase the availability of velocity and thermal refugia. Levee removal and increases in channel planform complexity can also increase the length of hyporheic flow paths through floodplains, which buffers fluctuations in stream temperature.

Previous Work: This block describes any previous work implemented in this reach and how this project connects to or builds upon those previous efforts.

No habitat restoration has been implemented in the project area. However there has been long standing research, monitoring, and evaluation by CTUIR and basin partners.

Other Species: If there any other sensitive or listed species, aquatic or terrestrial, impacted by this project, this block lists them and explains how they might be impacted by this project.

n/a

Is this a phased project?

No

If this is a phased project, can this phase be a standalone project?

Yes

Monitoring

This table shows all objectives specified for monitoring. It explains who will be performing this montitoring, how it will be implemented, how long it will take place for, whether or not it will be shared or available to Atlas partners, and how that data will be shared/made available.

Monitoring Indicator	Monitor	Protocol	Time Monitored (yrs)	Availability/Sharing
Vegetation Monitoring	CTUIR	Photo Monitoring	Indefinitely	Yes
Channel Formation	CTUIR	Photo Monitoring	Indefinitely	Yes
Spawning	CTUIR	Spawning Ground Surveys	Indefinitely	Yes
Juvenile Fish Abundance	CTUIR	Mark and recapture	Indefinitely	Yes

Landowner Engagement

The following table is applicable to projects which take place on private property. It lists the relavant landowners involved in the project, the landowner agreement, whether or not neighboring landowners have been contacted, and whether or not there were any issues identified (resolved or unresolved) concerning the landowner.

Landowner	File (Click to Download)	Neighbors Contacted?	issues
The Confederated Tribes of the Umatilla Indian Reservation	None	Yes	

Timeline

Will this project be completed within 2 years if awarded funding? Projects that will be completed in the first year of the contract in-water work window will be given funding priority over out-year projects (applies to restoration projects only).

Yes

Project Elements

The table below identifies the major work elements of this project, when the work for each element is proposed to begin, and when that work is expected to end.

Project Element	Proposed Start Date	Proposed End Date
Wood Harvest	March 2, 2026	March 31, 2026
Mobilization	April 6, 2026	April 10, 2026
Work area isolation (Bridges)	April 13, 2026	April 17, 2026
Bridge Construction and upgrades	April 20, 2026	May 28, 2027
De-Construct Upper Bridge	June 1, 2026	June 5, 2026
Floodplain Cutting and stockpiling (Lower Reach)	June 1, 2026	July 3, 2026
Work Area Isolation	July 1, 2026	July 10, 2026
Floodplain Cut (Upper Reach)	July 10, 2026	July 24, 2026
Wood Additions (upper Reach)	July 20, 2026	Aug. 15, 2026
Work Area Isolation (Upper Reach)	July 1, 2026	July 10, 2026
Floodplain Cutting (Lower Reach)	April 5, 2027	May 28, 2027
Construction Bypass	June 21, 2027	June 30, 2027
Activate Bypass (Phased)	July 1, 2027	Aug. 15, 2027
Channel Fill (Lower Reach)	July 1, 2027	Aug. 15, 2027
Floodplain Wood Additions	July 1, 2027	Aug. 15, 2027
Activate New Floodplain	July 15, 2027	Aug. 15, 2027
Site Cleanup	Sept. 1, 2027	Sept. 30, 2027

Designs

Level of Current Designs:

80%

Alternatives Analysis:

The primary alternatives for Lookingglass Creek were developed to evaluate the level of floodplain enhancement based on target wetted inundation area, and different options related to the road, structure, and bridge removal. The alternatives ranged from the most impact and greatest inundation area and were scaled down to the lowest impact and least amount of floodplain enhancement.

The following general restoration alternatives were considered to address project goals and objectives:

- Alternative 1 – Full valley restoration
  - Remove bridge and portion of the road that is within the low floodplain.
  - Remove the abandoned structure adjacent to the river.
  - Cut high banks and berms, use the material to fill the upstream channel in discrete locations to promote flow across the floodplain.
  - Remove pond berms and floodplain terraces and use material to fill the channel to the Geomorphic Grade Line (GGL).
  - Construct large wood habitat structures to improve channel complexity.
  - Place wood habitat structures (WHS) and habitat wood throughout the floodplain.
  - Revegetated floodplain with native riparian and wetland vegetation.
  - Estimated reconnection of 82 acres.
- Alternative 2 –
  - Remove the bridge and road, but leave the abandoned structure in place.
  - Cut high banks and berms, use the material to fill the upstream channel in discrete locations to promote flow across the floodplain.
  - Remove pond berms and floodplain terraces and use material to partially fill incised channel reaches.
  - Construct large wood habitat structures to improve channel complexity.
  - Place wood habitat structures (WHS) and habitat wood throughout the floodplain.
  - Revegetate floodplain with native riparian and wetland vegetation.
  - Estimated reconnection of 77 acres.
- Alternative 3 –
  - No impact to the bridge, road, or abandoned structure.
  - Cut high banks and berms, use the material to fill the upstream channel in discrete locations to promote flow across the floodplain.
  - Remove pond berms and floodplain terraces and use material to partially fill incised channel reaches.
  - Construct large wood habitat structures to improve channel complexity.
  - Place wood habitat structures (WHS) and habitat wood throughout the floodplain.
  - Revegetate floodplain with native riparian and wetland vegetation.
  - Estimated reconnection of 72 acres.

The preferred alternative involves the following strategies and restoration actions:

• Preferred Alternative –
o Remove and relocate the bridge and access road to be out of the floodplain.
o Demo and remove the abandoned structure adjacent to the river and concrete pad.

Additional Comments:

Designs File:

Download Designs File: Open File in Web Browser

Feedback

The section below indicates feedback for this online proposal process. Comments are greatly valued and will be read and internalized by staff upon submission. Comments will be used to guide the refinement of this format to something simple, clean, intuitive, and useful. We (GRMW) express special thanks to our partners for taking the time to fill out this section.

n/a

Budget

Download Budget File: Open File in Web Browser

Cost Share

The table below outlines all cost share included for this project including: the organization/source of the cost share, the amount of the cost share (in dollars), whether or not the funds have been secured, whether the funding is cash or in kind, and the reference or contract number if available.

Organization/Cost Share Source	Amount ($)	Secured?	Cash/In Kind?	Reference/Contract # (If Available)
CTUIR	$1,400,000	Yes	Cash	

Additional Files

File Name (Click to Download)	Description
Open File in Web Browser	

Signature

Signature	Accepted Terms	Draft Signed	Final Signed	Date Signed
Deric Carson	Yes	Yes	No	Oct. 10, 2025

The signature below affirms everything the applicant has entered into this document is true and accurate to the best of their knowledge and that they agree to stipulations previously outlined in this application such as the sharing of media and reporting requirements should the project be approved by the GRMW Board of Directors.

Deric Carson
Applicant Digital Signature

Oct. 10, 2025
Date Signed (Most Recent)