Grande Ronde Model Watershed

1114 J Avenue

La Grande, OR

(541)-663-0570

GRMW PROPOSAL APPLICATION - FINAL

Project/Application Title: Lostine River Mile 5.7 Floodplain Enhancement

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Invoice Information (If GRMW is the fiscal agent)

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This proposal is for a RESTORATION type project!

Location/Abstract

General Location	Downstream Extent	Upstream Extent
Latitude: 45.4850240	Latitude: 45.4835330	Latitude: 45.4878230
Longitude: -117.4336564	Longitude: -117.4326020	Longitude: -117.4344880

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 Lostine River Mile (RM) 5.7 project area is located on the Lostine River immediately west of the town of Lostine in Wallowa County, Oregon. The project reach includes approximately 0.5 miles of Lostine River main channel and associated floodplain, which is exclusively on private land located upstream (south) of the Caudle Lane bridge.

Habitat conditions within the project reach have been negatively impacted by floodplain development, levee construction, and bank armoring, which have led to simplified channel conditions and floodplain disconnection over time. Additionally, a steep bluff is located midway along the project reach on river right, has been contributing fine sediment to the river, one of several documented limiting habitat factors to a multitude of fish and other aquatic species present in the Lostine River.

The goals of the project are to improve floodplain and instream habitat conditions for ESA-listed Chinook Salmon (Oncorhynchus tshawytscha), steelhead (Oncorhynchus mykiss), Bull Trout (Salvelinus confluentus), and potentially re-introduced Coho Salmon (Oncorhynchus kisutch) and Pacific Lamprey (Entosphenus tridentatus). Specifically, the project design intends to restore the Lostine River to a more natural condition by constructing a new, multi-threaded channel network in the floodplain, filling portions of the existing main channel, and adding large wood structures and riparian plantings. The manipulation of the sediment dynamics from the existing transport reach to that of a response reach is key to achieving and maintaining sustained change and channel dynamics over time. The proposed design would more closely resemble the historic channel and floodplain, and is expected to improve channel function and aquatic habitat quality.

Project partners include the Grande Ronde Model Watershed (GRMW) and Bonneville Power Administration (BPA).

Stepwise & Atlas

Prospectus submitted and review by Atlas Implementation Team: Yes

Project prospectus title and/or ID# (if applicable): Lostine River Mile 5.7 Floodplain Enhancement

Associated Subwatershed: WLL3

Associated Opportunity: WLL3 - Jones, Locken, Nesemann, et al.

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.

An extensive amount of restoration work has occurred in the Lostine River over the past two decades to amend a suite of issues that have resulted from a lack of natural riverine processes and function, as well as anthropogenic induced impairments. These restoration efforts include but are not limited to, the replacement of several partial fish passage barriers, establishment and continuation of a long-standing minimum flow agreement, irrigation efficiency upgrades, and floodplain reconnection efforts similar to the proposed project. Much of this restoration work was initiated based on compelling fisheries research data collected by ODFW, NPT, and other local natural resource practitioners, such as Chinook salmon redd surveys, juvenile out-migrant trapping, adult radio telemetry tracking, and flow data, among other analyses. These, and other various indicators derived through research, have been instrumental in identifying reach specific areas in need of river restoration and/or enhancement within the Lostine River by providing trends in biological and physical information over time.

In addition to local empirical data, the Wallowa Atlas Restoration Prioritization Process (Atlas) developed by BPA, ranked the lower Lostine River as a Tier 1 subbasin – which is deemed the highest priority for restoration. Within the last decade, Atlas has been implemented in several major basins throughout Oregon, Washington, and Idaho, and now functions as the predominant watershed restoration plan for the NE Oregon region. This in-depth and collaborative tool is used to synthesize critical information such as limiting habitat factors, fish utilization by species and life stage, channel geomorphology, and other factors, to strategically identify and prioritize targeted restoration actions and locations to improve aquatic habitat. The ultimate intent being to increase productivity, abundance, and distribution of Snake River spring/summer Chinook Salmon, Snake River summer steelhead, Pacific Lamprey, and Bull Trout.

Relevant primary Limiting Habitat Factors in the lower Lostine River include: 1) Floodplain Condition, 2) Instream Structural Complexity, 3) Increased Sediment Quantity, 4) Temperature, 5) Decreased Water Quantity, and 6) Riparian Vegetation. Considering these limiting factors, it was determined through Atlas that Channel Reconstruction, Pool Development, Riffle Construction, Levee Modification, Restoration of Floodplain Topography and Vegetation, Perennial and Secondary Side Channel Creation/Reactivation, Floodplain Wetland Enhancement, Riparian Planting, and LWD Placement are all high priority Restoration Actions. These actions will improve adult migration, spawning, incubation/emergence, and summer and winter rearing for Chinook salmon, steelhead, and Pacific Lamprey within the project reach. It is anticipated that recently reintroduced Coho salmon will also benefit from these restoration actions.

Final Opportunity Score (Atlas opportunity score)

28.0

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
Oregon DSL - Removal/Fill	None	None
NMFS/USFWS - Section 7 ESA	None	None
Federal, State & Tribal - Section 106 Cultural	None	None
Oregon DEQ - 401 Certification	None	None
ACOE - 404 Permit	None	None

Restoration Actions

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

Restoration Action	Justification
2. Channel Reconstruction	
3. Pool Development	
4. Riffle Construction	
7. Levee Modification: Removal, Setback, Breach	
9. Restoration of Floodplain Topography and Vegetation	
11. Perennial Side Channel	
12. Secondary (non-perrenial) Channel	
18. Riparian Buffer Strip, Planting	
27. LWD Placement	
28. Modification or Removal of Bank Armoring	
29. Restore banklines with LWD - Bioengineering	Only at the location of the large eroded bank, river right.

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 overall goal of the project is to improve floodplain and instream habitat conditions for ESA-listed Chinook Salmon, steelhead, Bull Trout, and potentially re-introduced Coho Salmon and Pacific Lamprey. This project will implement habitat protection and enhancement measures to improve the following primary limiting factors for Spring Chinook salmon and summer steelhead in the Lostine River: stream complexity, excess sediment, water temperature and baseflow conditions, riparian vegetation, and floodplain connection.

This project will involve main channel filling, channel network development, floodplain grading, and riparian vegetation establishment in order to rebalance a variety of river processes and increase ecosystem function within the project reach, including enhancing critical instream habitat for ESA listed fish species.

The project design intends to restore the Lostine River to a more natural condition by constructing a new, multi-threaded channel network in the floodplain. Portions of the existing main channel will be filled, large wood structures added, pool and riffle habitats constructed, and riparian plantings installed or enhanced. The removal of riprap and portions of the levee will reduce lateral confinement and allow water to more readily inundate the floodplain, recharging the water table and enriching wetland and riparian plant communities. Key to achieving and sustaining this change in form is manipulation of the sediment dynamics from that of primarily transport to response or exchange. The proposed design would more closely resemble the type of channel and floodplain that would have existed here historically, and is expected to improve channel function and aquatic habitat quality.

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?
Connected floodplain area (% Increase)	32982.0	55847.0	88829.0	20% Increase	Beechie et al. 2017	Yes
Large pool frequency/km (Pools/km)	14.0	22.0	36.0	>= 10/km	McIntosh et al. 2000	Yes
Large wood frequency bankfull (Pieces/100m)	19.2	13.5	32.7	20 Pieces/100m	Moore et al. 2017	N/A
Side channel length (Meters)	0.0	730.0	730.0	N/A	Beechie et al. 2017	Yes

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.

All selected Objectives correlate to high priority Restoration Actions (with the exception of the #29) that have been identified for this Opportunity Polygon through the Wallowa Atlas. The Objectives selected include indicators of which there is recently collected data, either by the design engineer in the design development process, or through pre-project AEM surveys. The associated Restoration Actions are related to in-stream habitat enhancement and/or floodplain reconnection, which again, have been identified as high priorities for this reach for a variety of species and life stages.

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.

Some of the indicators do not have defined target conditions (e.g., Side Channel Length) due to unavailability of data.

Large Pool Frequency (pools/km) is also slightly difficult to capture solely utilizing the Action Taken number, since it is anticipated that large pools will evlove/develop overtime largely in association with large wood structure placement. In this case, the Restored Condition will likley be even better than it is defined here "on paper".

Additional Objectives: This block includes any additional objectives not captured in the objectives table. Objectives should be specific, measureable, achievable, relevant, and time-bound.

Project objectives to achieve the goal to be implemented by 2024 include the following:

1) Enhance stream hydraulic and habitat complexity and set the project reach on a trajectory to maintain this complexity over time through creation of approximately 2,600 feet of co-dominant main river channel, installation of 42 large wood structures with one or more whole trees, and creation of 14 pools in the main stem Lostine River.

2) Increase floodplain connectivity within the project reach through excavation of approximately 2,400 feet of secondary channels, installation of 39 large wood structures with one or more whole trees, and creation of 8 pools within the floodplain.

3) Create conditions that will lead to improved riparian vegetation establishment through installation of ~5,000 1-gallon potted woody plants, 1,300 10-inch plugs, and seeding/mulching throughout 9.5 acres of the riparian and uplands.

4) Create conditions that mitigate excessive heat input during baseflow conditions through flow interception and floodplain inundation by placement of 41 floodplain wood structures, and 1,460 LF of willow trenches.

5) Rebuild 4-stranded wire wildlife-friendly fence in adherence with Conservation Reserve Enhancement Program
(CREP) requirements.

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

One key restoration activity to abate adverse effects from climate change is floodplain reconnection. The ability to store water in the form of hyporheic connection will allow for cooler water to enter the system benefiting the ecosystem, specifically ESA listed and cool water dependent species. As stated by ISAB (2011-4), “[I]t is important to consider the diversity, spatial array, and connectivity of habitats for conserving and restoring the diversity of movement patterns and life histories in this age of climate change.

The Lostine River Mile 5.7 Floodplain and Side Channel Enhancement Project was designed to accommodate and dissipate velocities at the peak of a 100-year flow event in anticipation of increased frequency and intensity of flows of focal and migrating aquatic species. A multi-threaded channel will allow for this dissipation of energy as well as keeping multiple flow paths and hyporheic connection.

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

The majority landowner on the west side of the river is enrolled in CREP. The project sponsor is currently working with FSA staff to ensure the fence is rebuilt to their specifications in a way that is best for the newly reconnected floodplain while also avoiding any violations to the CREP agreement.

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.

There are a number of sensitive bird and amphibian species that may be present within the project reach based on their “modeled habitat” available in the Department of Fish & Wildlife interactive map linked above. These species include, but are not limited to Columbia Spotted Frog, Western Toad, Lewis’s Woodpecker, Loggerhead Shrike, and Long-billed Curlew. This project will be thoroughly vetted through programmatic consultation with USFWS and NMFS, and reviewed by a variety of state and federal permitting agencies. If any sensitive species are identified during these review processes as having a high likelihood of occupancy within the project footprint, the project sponsor will take necessary action (e.g., surveys, monitoring, etc.) to minimize any potential impacts.

Is this a phased project?

No

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

None

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
Connected floodplain area	GRMW (Drone imagery)	Remote sensing	Annually during high flows (typically June)	Yes, any data collected can be made available to Atlas partners and can be shared in the preferred format.
Large pool frequency/km	NPT (M&E)	AEM	Unknown due to cessation in AEM program	Yes, any data collected can be made available to Atlas partners and can be shared in the preferred format.
Side channel length	GRMW (Drone imagery)	Remote sensing	Annually during high flows (typically June)	Yes, any data collected can be made available to Atlas partners and can be shared in the preferred format.
Large wood frequency	NPT (M&E)	AEM	Unknown due to cessation in AEM program	Yes, any data collected can be made available to Atlas partners and can be shared in the preferred format.

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
John and Verlerie Nesemann	Open File in Web Browser	Yes	John was amenable to 80% designs and signed the Cooperative Agreement during our meeting.
Joseph and Anna Pierri	None	Yes	The project sponsor and engineer went over 80% designs with Anna and she was amenable to all changes. We also left a copy of the Cooperative Agreement for her and Joe to review and sign.
Stephen Young	None	None	
William Hunter	None	Yes	Mr. Hunter was hospitalized at the time we met with and briefed neighboring land owners on 80% design. A copy of the 80% designs and Cooperative Agreement were left for review by his son, who Mr. Hunter asked be his representative.
Larry and Deborah Yarborough	None	Yes	The Yarboroughs have been briefed on the 80% designs and are so far amenable to the plan. We left a copy of the Cooperative Agreement with them to review for signature.

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
Fence Construction	Sept. 1, 2024	Sept. 30, 2024
Seeding, Mulching & Planting	Oct. 1, 2024	Nov. 30, 2025
Site Restoration & Demobilization	Aug. 31, 2024	Sept. 30, 2024
Erosion Control, Isolation & Water Management	June 1, 2024	Aug. 31, 2024
Main Channel Excavation/Grading, Fill & Wood Placement	July 15, 2024	Aug. 15, 2024
Floodplain Excavation/Grading & Wood Placement	June 1, 2024	Aug. 31, 2024
Equipment mobilization & material staging	May 1, 2024	May 31, 2024
Rock haul	May 1, 2024	May 31, 2024
Large wood harvest & haul	May 1, 2024	May 31, 2024

Designs

Level of Current Designs:

80%

Alternatives Analysis:

Three primary alternatives developed, which included aspects of main channel fill, large wood structure placement, channel network development, floodplain grading, and riparian buffer establishment, which all varied in scope as far as upstream and downstream extent, main channel fill, and lateral expanse of channel development into the floodplain. The initial alternative that was selected was based on a lack of access/consent to work on the downstream river left landowner's property, therefore the alternative with the smallest footprint and least amount of side channel network development and floodplain grading was chosen. Overtime, with a change in downstream property land ownership, the project sponsor was able to gain consent to extend the project further downstream, resulting in a more natural side channel tie-in to the main channel of the Lostine River. This final selected alternative, which was approved by all affected landowners, has a footprint similar to the originally preferred alternative which encompasses more main channel and floodplain.

Additional Comments:

The original plan set is >45 MB, therefore it was broken out into multilpe parts. The remaining parts are uploaded under the Additional Files tab.

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.

We appreciate GRMW staff's responsiveness and availability as we worked through learning how to populate the new online application. Hopefully any areas of remaining uncertainty will be more clearly defined by the next application round.

Some suggestions for future grant rounds:

- Indicate which narrative boxes/fields must be populated in order for the content entered under a given tab to be "saved"

- Indicate the maximum # of digits allowed after the decimal in the coordinates fields within the Location tab

- Since there are opportunities to upload documents throughout the application, and the Additional Files tab allows for even more various uploads, it would be helpful to include a succinct list of required uploads for both design and implementation grant applications - perhaps detail this in a "Final Checklist" tab

- It might be helpful to provide examples of what you would like to see for captions on photos in the Media tab

Thank you for the opportunity to provide feedback in an effort to enhance this proposal. We look forward to seeing it evolve overtime.

Budget

Download Budget File: Open File in Web Browser

Budget Narrative: This block explains the budget and any unusual line items or costs.

Due to higher than average materials and fuel costs we feel an added contingency of 15% would help eusure the project is funded well enough to implement within the proposed timelines. Additionally, many recent and partner cost estimates from the Grande Ronde Basin were utilized in determining costs.

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)
OWEB - Plant Stewardship	$3,500	No	Cash	
OWEB - Status Reporting	$2,800	No	Cash	
NPT	$48,000	Yes	In Kind	

Uploaded Photos

By providing pictures the following photos to GRMW the applicant agrees to have their pictures displayed on the GRMW website (grmw.org) and social media accounts.

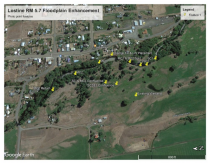

Photo Point Map.png

Secondary-Main Channel SC & MC2 Confluence.JPG

Secondary Channels SC2 & SC3 Inlets.JPG

Secondary Channel SC2 & SC3 Confluence.JPG

Secondary Channel SC1 Inlet.JPG

Main Channel Split.JPG

Main Channel MC2.JPG

Main Channel MC2 Return.JPG

Main Channel MC1, Looking Upstream.JPG

Looking East Over Existing Wetland.JPG

Channel Fill & LW Placement.JPG

Additional Files

File Name (Click to Download)	Description
Open File in Web Browser	Hydraulic Modeling - Bankfull (Q2) Velocity_3
Open File in Web Browser	Hydraulic Modeling - Bankfull (Q2) Velocity_2
Open File in Web Browser	Hydraulic Modeling - Bankfull (Q2) Velocity_1
Open File in Web Browser	Hydraulic Modeling - Bankfull (Q2) Depth_3
Open File in Web Browser	Hydraulic Modeling - Bankfull (Q2) Depth_2
Open File in Web Browser	Hydraulic Modeling - Bankfull (Q2) Depth_1
Open File in Web Browser	HIP Comments - 30 pct
Open File in Web Browser	Design Plan Set: Wood Details and Planting Plan, Sheets 29-34
Open File in Web Browser	Design Plan Set: Secondary Channel Profiles, Sheets 24-28
Open File in Web Browser	Design Plan Set: Main Channel Profiles, Sheets 17-23
Open File in Web Browser	Design Plan Set: Proposed Conditions, Sheets 12-16

Signature

Signature	Accepted Terms	Draft Signed	Final Signed	Date Signed
Kathryn Frenyea, Nez Perce Tribe	Yes	Yes	Yes	Nov. 8, 2022

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.

Kathryn Frenyea, Nez Perce Tribe
Applicant Digital Signature

Nov. 8, 2022
Date Signed (Most Recent)