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Lead Entity:	Upper Columbia Salmon Recovery Board
Project Number:	14-1739
Project Name:	Upper Peshastin Migration Barrier Design
Project Sponsor:	Chelan County NRD
Grant Manager:	Mark Duboiski

		Date	Status	
Draft Application		5/21/14	Reviewed	
Review/Site Visit				
Post Application		9/22/14	POC	
Final				
Early Application Status Option				
REVIEWED	SRFB Review Panel has reviewed and			
	provided comments.			
Post-Application & Final Status Options				
NMI	Need More Information			
POC	Project of Concern			
CONDITIONED	SRFB Review Panel has applied			
	conditions			
CLEAR	Project has been reviewed by SRFB			
	Review Panel and is okay to			
	continue in funding process			

PROJECT SUMMARY

Currently, a 1000' reach of Peshastin Creek, (RM 10.4-10.6) is believed to be limiting access to spawning habitat upstream. Spawning distribution and timing data, as well as field observations, suggest that a landslide above the Ruby Creek confluence may be acting as a barrier at low flows, thus inhibiting access to high quality spawning areas and delaying the spawn timing of fish that eventually access habitat above the slide by over 40 days. The upper Peshastin Creek and tributaries above this reach provide diverse habitat types and substantial low gradient spawning habitat. Road building, in particular the construction of US 97 in 1956 has altered the river corridor through channel straightening, levee construction, bank armoring, vegetation clearing and large wood removal. Road construction throughout the watershed has contributed to a 70% potential increase in drainage network resulting in increased peak flows and reduced summer low flows. These problems have been exacerbated in this reach by the failure of the slope above the reach on USFS road 7312 (The Ruby Slide), and WSDOT repairs to this stretch of US 97. The resulting channel is severely constricted between vertical gabion baskets and the toe of a 16 acre slide path. Spawning surveys conducted by WDFW throughout the Wenatchee basin from 2004 - 2010 demonstrate steelhead spawning in Peshastin Creek contributes significantly to the basin as a whole. In 2010, Peshastin Creek had 12.2% of the steelhead redds in the Wenatchee subbasin. The majority of the spawning is distributed in the lower Peshastin between RM 3 to 6.5. In the upper Peshastin steelhead show a pattern of concentrated spawning between Ingalls and Ruby Creek with dispersed spawning beyond the project site and in Tronsen Creek.

DRAFT APPLICATION REVIEW AND SITE VISIT - REVIEW PANEL COMMENTS

Date: 5/21/14

Panel Member(s) Name: O'Neal and Cramer



Early Project Status: 🛛 Reviewed

Project Site Visit? Xes

1. Recommended improvements to make this a technically sound project according to the SRFB's criteria. This project identifies an excellent design approach in terms of identifiying fish use before project design, integrating that fish use information into the design specifications, and then proposing to evaluate the use of the project with respect to fish use after implementation. This overall approach is a model that provides a potential for direct linkage between the project action and benefits to fish directly.

No

2. Missing Pre-application information.

A PI score would be helpful in evaluating the level of priority of this project. Can the following information be provided to calculate the PI and evaluate the level of priority for this passage project?

- Proportion of passage improvement
- Annual adult equivalent production potential
- Habitat gain
- Mobility (how geographically mobile are the stocks)
- Species condition (species status)
- Cost of project

More detail should be added to the budget (i.e. if WDFW staff are being engaged to assess fish use before and after the project, or for the design, where is this in the budget?)

3. Comments/Questions:

During the site visit, a large scale unstable slope above and upstream of the project area was observed. The potential to have ongoing issues with additional material falling into the stream is high. What is the approach to prevent future loss of passage at the site from additional material falling into the stream? Has WSDOT's staff studied this slide and if so, describe the data gaps this project will address.

Local gradient downstream of the project area is also very steep. Can you confirm that this is the most downstream barrier that needs to be addressed?

Peshastin Creek is identified as having some of the highest juvenile densities in the Wenatchee basin. Please provide information on fish densities in Peshastin Creek and identify the localized densities downstream of the project area. According to statewide monitoring, pre- project fish densities below barriers are one of the best indicators of the potential for increasing fish use above fish passage barriers.

Please determine the potential for liability at the site if work is done below the unstable slope and further slide activity occurs. Consultation with a WSDOT Geologist is recommended to determine the potential for liability.

4. Staff Comments:

EARLY APPLICATION REVIEW AND SITE VISIT - LEAD ENTITY AND PROJECT SPONSOR RESPONSES



Directions: By the final application due date, applicants must revise their project proposals using "track changes" and update their PRISM applications and attachments, as needed, to respond to the review panel comments. In addition, please fill out the section at the end of the project proposal which asks how you responded to the review panel's comments.



Special Note: To help speed the local and SRFB Review Panel evaluation process, if for any reason throughout the application review process you update your project proposal based on SRFB Review Panel comments please update your project proposal using WORD "track changes" and re-attach your proposal in PRISM. This step will save time and focus the reviewer on the changes.

POST APPLICATION – REVIEW PANEL COMMENTS

Date: 9/21/2014

Review Panel Member(s) Name: Review Panel

Application Project Status: POC

1. If the project is a POC, identify the SRFB criteria used to determine the status of the project:

#3. The project is dependent on other key conditions or processes being addressed first.

#6. The project may be in the wrong sequence with other habitat protection, assessments, or restoration actions in the watershed.

#5. The project does not account for the conditions or processes in the watershed.

2. If the project is a POC, what changes would make this a technically sound project according to the SRFB's criteria? The review panel has concerns with the risk of the slide destroying any fish passage improvements. A geotechnical evaluation by a licensed geologist/geotechnical engineer should be a task in the development of this project.

The panel recommends a geotechnical evaluation be performed prior to initiating survey, hydraulic model development and the geomorphic reach assessment. In addition, the review panel has concerns with the geographic scale of this project. A broader strategic approach is needed to address anthropogenic (e.g. highway, infrastructure) and natural (e.g. slides) impacts to the upper Peshastin River and to identify and prioritize restoration actions that will result in the greatest habitat gain. This project needs to be rescoped and submitted in a future SRFB grant round.

In 2012 the Chelan County Natural Resource Department developed a SRFB proposal <u>The Upper Peshastin</u> <u>Creek Tributary Assessment</u> with Wild Fish Conservancy to develop a broader strategic approach to address anthropogenic impacts to the Upper Peshastin Creek and prioritize restoration actions. The local reviewing committee, Upper Columbia Regional Technical Team was "skeptical regarding what this level of assessment would provide for this watershed." Scoring for this proposal was low and it was not funded. We were encouraged to come back to the SRFB round with specific projects for this reach.



Based on comments from SRFB Panel, the Project Desrcription as outlined in the Final Proposal (4.A.) has been modified to address SRFB criteria $#3,6_7$ and 5 listed above (see below). This change in the sequencing of the steps will initially focus on the existing WSDOT information regarding the site and slide conditions and the geologic assessment of the slide. The existing project task to evaluate the slide by a licensed geologist will be highlighted and the budget increased (see below). After these two steps have been completed, the sponsor will provide the results of the geologic assessment of the slide for Panel review and approval before proceeding with the next step in the design process.

4.Project Description

A. Provide a detailed description of the proposed project and how it will address the problem described above.

The project will assess existing geologic conditions of the Ruby Slide, existing fish passage conditions to determine what is the limiting factor(s) for passage past this reach, develop conceptual designs for project alternatives to address limiting factor(s) and coordinate with stakeholders (WDFW, WSDOT and USFS) to evaluate and select a preferred alternative conceptual design.

Passage Assessment

The sponsor will contract with a consulting engineer and licensed geololgist/geomorphologist with local experience assessing passage and hydrologic/geologic conditions in this area to complete an assessment of fish passage in this reach. The study design approach to this project will be similar to that used on Icicle Creek by Waterfall Engineering:

Step 1: Conduct background information search with WSDOT and USFS to determine the extent of geologic assessment work conducted in the reach (sponsor has met with USFS Hydrologist and WSDOT employees, but no existing geologic assessment has been completed).

Step 2: Conduct a geologic assessment of the slide by a licensed geologist. The geologic assessment of the Slide will include an overview of site history, existing geologic mapping, and potential for future events.

Step 3: Provide the results of the geologic assessment for review to the SRFB Panel. Based on assessment and Panel feedback make a decision whether or not to continue on to Step 4 or stop the design process.

Step <u>14</u>: Identify species of fish, size range and migration timing (work with WDFW).

Step <u>25</u>: During high flows in May, 2015 project benchmarks will be established along the project reach. Water surface elevations and velocities will be measured where access can be gained to the site. The target flow will be around 1000 cfs.



Step <u>36</u>: During low flows in September (~30 cfs), complete a topographic survey of the site to a level which will allow the development of a hydraulic model to assess fish passage at high flow. Also, make a low flow passage assessment based on individual falls, drop height, plunge pool depth and turbulence. At this same time a geomorphic assessment will be made of the reach and a geologic assessment of the Slide will include an overview of site history, existing geologic mapping, and potential for future events.

Step 47: Develop a hydraulic model which can provide velocities and depth within identified fish passage corridors. The type and extent of hydraulic model is not known at this time but will likely be HEC RAS or River 2D.

Step <u>58</u>: Return to the site at a medium flow (100 to 200 cfs) to verify and complete model calibration. The USGS gage site will be used to target this flow range. Water surface elevations and velocities will be measured.

Step 69: Using the fish species identified, low flow measurements and data from the hydraulic model make calculations for fish passability and compare to observed data of fish in the area upstream and downstream.

Step 7<u>10</u>: Results from the passage assessment, geomorphic assessment and stakeholder input will then be used to develop conceptual designs and cost estimates to improve fish passage through the reach.

Step <u>811</u>: The sponsor will work with the stakeholders and design engineer to develop a preferred alternative conceptual design for this site. Due to the site constraints, the preferred alternative discussions will include issues associated with long-term maintenance at this site and WSDOT role in final design and construction phases. In addition to WSDOT having a role in developing final designs and implementation, USFS will also have a role in concepts related to stabilization of the Slide if applicable. A range of stabilization techniques have been employed on landslides, including bioengineering techniques developed by Chris Hoag (the sponsor has used extensive bioengineering techniques to stabilize landslides in West Seattle in 2001 and other sites as well). The sponsor would be happy to hire Mr. Hoag do design a stabilization plan if stakeholders agree it is warranted and if funding is available.

Item	<u>Cost/unit</u>
Peshastin Barrier Design	
Review data/stakeholder meetings	<u>11,000</u>
Survey and hydraulic model	<u>10000</u>



Geotech Eval of slide/Geomorphic reach assessment	<u>13600</u>
Identify alternatives	<u>6000</u>
Final report	<u>6400</u>
Preferred alternative conceptual design	<u>6,000</u>
Meetings, Presentations, Response to Comments	<u>3500</u>
CCNRD Administration	<u>18000</u>
TOTAL	<u>\$74,500</u>

3. If the project is Conditioned, the following language will be added to the project agreement:

- 4. How could this project be further improved?
- 5. Other comments:

POST APPLICATION - LEAD ENTITY AND PROJECT SPONSOR RESPONSES

Directions: All projects will be reviewed at the September 22-25 review panel meeting. A status will be assigned to each project by October 4, 2014. **By October 15**, applicants of projects assigned a status of Project of Concern, Conditioned, or Need More Information, must update their project proposals. Please "accept" all current track changes in the project proposal so you are starting with a clean proposal. Then please turn track changes back on when you make new changes. This step will save time and focus the reviewers on the changes.

In addition, please fill out the section at the end of the project proposal which asks how you responded to the review panel's comments.



FINAL REVIEW PANEL COMMENTS

Date:

Panel Member(s) Name:

Final Project Status: Choose an item.

- 1. If the project is a POC, please identify the SRFB criteria used to determine the status of the project:
- 2. If the project is Conditioned, the following language will be added to the project agreement:
- 3. Other comments: