Family Forest Fish Passage Program: Expanded Evaluation Form

Project Name: Abell Culvert Replacement IAC/SRFB Project #:

Part 1. Background Data Assessment

Attachments:

Barrier Evaluation Form for project site

Maps – (*map scale still under discussion*)

- ③ WAU map displaying other known barriers, fish use, gradient and basin area
- ③ WRIA map displaying other known barriers

Surrogate PI #_____ (attach) PI# _____ (attach if available)

Watershed Information

Basin area: 9339 Acres Amount of habitat which would be made available upstream: approximately 17.5 miles (m)

Has a barrier inventory been conducted in the watershed? X Yes No If yes, list source and date completed:

Last year we inventoried all culverts on Barnaby Creek currently there are three more culverts above

Are there downstream barriers? X Yes No If yes, describe. List source; use separate sheet if necessary.

There is a natural barrier (waterfall) approximately ½ -mile downstream.

Are there upstream barriers? Yes X No If yes, describe. List source; use separate sheet if necessary.

None Known

Has the stream been walked? X Yes No If yes, information source: CCT F&W 1990 Limiting factor survey was done.

There is actually considerable development on Banaby Creek homes and agricultural lands are both present. Small private, Tribal, and Boise Cascade have conducted timber harvest in the area.

Fish Species/Use

Mapped Species: bull trout/Dolly Chinook chum coho cutthroat

pink X resident trout sockeye steelhead

Information source: Native Redband rainbow trout have been located in this stream on Tribal lands and by the Forest Service (Tom Shuda) above the Reservation. Genetic testing was done by CCT and WA State F&W at the University of Idaho's Center for Salmonids at Risk that indicated very little to no hybridization had occurred with the planted coastal rainbow stocks. The DNA testing only used two loci to determine hybridization further testing is planned with additional loci to distinguish if sub-populations exist within the native redband stocks.

Current fish use downstream and upstream from barrier (include source of information):

Below the falls we have Kokanee spawning and rearing habitat use. This has been restricted by water draw-downs in Lake Roosevelt. Below 1281 feet elevation we loose passage to the habitat. Above the falls there are rainbow (redband and coastal) and eastern brook trout. CCT data on file at Fish and Wildlife office.

What species and life history stages might use the habitat made accessible by the project?:

All life history stages may use the habitat made accessible by the project. Except for the lower areas below the falls for Kokanee Barnaby Creek supports all life stages of resident fish.

Provide a qualitative description of habitat that will be made available by barrier correction, if available. Include source of information:

Quantitatively it would open approximately 4.3 miles of spawning and rearing habitat on the Colville Reservation and another 13.2 miles of similar habitat in the National Forest above the Reservation.

Part 2. Site Assessment

Site Information

Date of visit:	Recent precipitation:
Photographs attached of barrier inlet and outfall, upstream habitat, downstream habitat, and road.	
Bankfull width (outside of influence from the culvert):	
Stream flow: Perennial Intermittent Unknown Source of information:	
Flow conditions: low moderate high	Utilities crossing: Yes No Unknown
Road description/condition (mainline, spur road, driveway/access:	
Fish observed on site:	

Upstream Habitat/Channel

Approximate channel slope: _____% (outside of culvert influence)

Dominant substrate: sand (<.20") gravel (.20"–3") cobble (3"-12") boulder (>12") bedrock

Additional upstream information, habitat description, other site conditions or concerns:

Downstream Habitat/Channel

Approximate channel slope:_____% (outside of culvert influence)

Additional downstream information, habitat description, other site conditions or concerns:

Part 3. Correction Alternatives

Alternatives to consider 1,2,3,…..etc….

Example

Alternative 1 – Abandon the spur road and pull the barrier culvert. This would be the least expensive of the options but would eliminate road access to approximately 12 acres on the south side of the property. The landowner is not interested in this.

Alternative 2 – Replace the existing barrier culvert with a round pipe 6 feet in diameter using the no slope option. Actual pipe size would be determined during the design process but based on the stream size and other factors a pipe diameter in this range should meet fish passage requirements.

General recommendation

This project is relatively straightforward. The stream is low gradient, less than 1.5 % throughout the reach. The stream is spring fed flowing year-round and supports a healthy population of coho and sea-run cutthroat. During the design process care should be taken in calculating high fish passage flow to select the proper culvert size and type that meets fish passage criteria. This is a relative large basin area for the size of the stream. During the site visit there was some evidence of high peak flows.

Basic engineering for the site is recommended. This should include a site plan and profile with preliminary culvert alignment, grade, size and shape, water surface profiles, road section, etc.. Stream slope calculations, Manning's equation calculations for low, high flow, 100 year flood for proposed culvert and stream sections should be included.

The purpose of this section is to provide the sponsor some guidance on the intended fix. Most small forest landowner projects should be relatively straightforward – however each site is different.

Rough cost estimate*:

Culvert Replacement – Alternative #2

Permitting/Oversight:	$ 5,000
Engineering:	$ 3,000
Materials:	$ 8,000
Construction:	$ 5,000
Total	**$21,000**

* This estimate is provided as a rough approximation of project costs; actual costs will vary depending on specifications identified during project design.

Part 4. Purpose of Form

The purpose of this form is to provide additional information on high priority barriers for the Family Forest Fish Passage Cost-share Program. It is the intent of the program to provide state dollars to replace those barriers causing the greatest harm to public resources and at the same time provide a systematic method for landowners to meet their obligations under the Forest and Fish Agreement. A core group called the Fish Passage Team made up of staff from DNR, WDFW and IAC will compile the expanded application information and provide a prioritized list of project for DNR's use.

Following are definitions, descriptions, and standards for data to be included in the Expanded Barrier Evaluation Form (EBEF). This form has six sections which describe attachments, watershed information, fish species and use, site information, and upstream and downstream channel conditions.

Part 1. Background Data Assessment

This portion of the EBEF is to be completed in the office using available information. It will be used to make an initial assessment of the potential benefit of correcting the barrier based primarily on the number of fish species using the stream, and the amount of habitat which would be made accessible.

Attachments

- *Initial Barrier Evaluation Form* – This is the completed form previously submitted for the site.
- *Maps* – The Fish Passage Team will coordinate the development of a standard site map along with a larger scale watershed map.
- *Surrogate PI #* - This is the map-based Priority Index calculated for this project based on the EBEF data.
- *PI #* - A Priority Index should be provided if one is available.

Watershed Information

- *Basin area* - This is the area upstream from the project which is drained by this tributary.
- *Barrier inventory* – This indicates whether a barrier inventory has been conducted in the area.
- *Known Upstream and Downstream Barriers* - The purpose of this section is to provide documentation on the known upstream and downstream barriers. If barriers are present, indicate whether they are partial or total, if known. Discuss whether they are scheduled for correction, and if so, in what time frame. List the source of information.

Fish Species/Use:

- *Mapped species* – Check the box next to the species that are documented as utilizing the habitat. Include source of information.
- *Current fish use* – Describe any other available information regarding fish use upstream and downstream from the barrier; include information source.
- *Potential fish use* – Describe to the extent known which fish species and life stages would be expected to use the habitat made accessible by the project.
- *Qualitative habitat description* – Describe habitat quality upstream from the project to the extent known, and include information source.

Part 2. Site Assessment

This portion of the EBEF will be completed for those projects which are determined to be of potential high benefit to fish resources based on the information provided in Part 1. The completed EBEF will be used to develop a prioritized list of projects to be presented to DNR for potential funding.

Site Information

- *Date of observation* – This is the date of the field visit.
- *Photographs* – The Fish Passage Team in coordination with local staff will photo document the site. Standard photos will include the barrier outfall and inlet, upstream habitat, downstream habitat, and road. Pictures should be clearly labeled describing what the photo is showing, and include scale.
- *Recent precipitation* – Describe recent weather events which may affect observed stream flow.
- *Bankfull width* - For the purpose of culvert design, the channel bed width is defined as the width of the bankfull channel. The bankfull channel is defined as the stage at which water just begins to overflow into the active flood plain. Bankfull width then requires a floodplain or a bench that is not present in many channels. In those cases, bankfull channel is determined by features that do not depend on a flood plain similar to those used in the description of active channel and ordinary high water (generally the lowest point at which perennial vegetation grows on the streambank).
- *Stream flow* – Provide a general assessment from local knowledge as to whether the stream flow at the site is perennial or intermittent and note whether it is spring fed.
- Flow conditions – *This refers to the flow observed on the day of the visit.*
- *Road description/condition* – Provide a brief description of the road surface, use, condition, etc..
- *Fish observed on site* – Note any species and life stage of fish observed on site at the time of the field visit. This is a visual check of the stream.

Upstream Habitat:

- *Approximate channel slope* – This is measured outside of the culvert influence.
- *Streambed material* - Identify the size and type of bed material present. Categorize it as: fines, sand, gravel, cobbles, boulders, bedrock etc..
- *Additional information* – Provide any additional upstream information that may be important to the project.

Downstream Habitat:

- *Approximate channel slope* - This is measured outside of the culvert influence.
- *Additional information* – Provide any additional downstream information that may be important to the project.