Planning and Combination (Planning and Acquisition) Project Proposal

Project Number	15-1166
Project Name	Skagit Floodplain Side Channel Connectivity Design
Sponsor	Skagit Fisheries Enhancement Group

List all related projects previously funded or reviewed by RCO:

Project # or Name	Status	Status of Prior Phase Deliverables and Relationship to Current Proposal?
None	Choose a status	Not applicable
	Choose a status	
	Choose a status	

If previous project was not funded, describe how the current proposal differs from the original.

1. **Project Location.**

The **Skagit Floodplain Side Channel Connectivity Design project** focuses on ~~undersized culverts located on gravel roads~~two sites within the floodplain of the Skagit River between Day Creek (RM 35 and Marblemount RM 86). Each of the culverts affects a side channel of the Skagit River. Specific named side channels associated with each site are as follows:

- ~~East~~ Day Creek Slough – Flows to Day Creek thence Skagit River with inflow from Skagit River approximately ½ mile east of crossing site.
- ~~Alterra Estates – Flows to House Slough thence Skagit River; inflow from House Creek and overflow from Skagit River.~~
- Cedar Grove/Ovenell Slough – Flows to Skagit River about ¼ mile west of culvert; inflow from unnamed tributary, plus seeps and springs along the base of the terrace.
- ~~O'Brien Slough – Flows to Skagit River about 300-feet downstream of road. Fed by inflow from O'Brien Creek and a series of floodplain overflow channels.~~

2. **Brief Project Summary.**

SFEG has located a number of culverts located on side channels and sloughs within the Skagit River Floodplain that provide off-channel rearing habitat for juvenile Chinook, steelhead and other species. ~~All of these culverts are undersized~~Both sites are barriers according to WDFW Fish Passage Criteria, and ~~all~~ both impair both up and downstream migration of juvenile fish as well as natural flow and sediment transport pathways. SFEG is requesting funding to develop designs for two of the sites that will upgrade or remove these crossing structures in order to restore floodplain rearing habitat. This is Phase 1 – Design only of a 2 Phase process for repairing these barriers.

3. **Problems Statement.**

Describe the problem including the source and scale. Since the 1990's, SFEG has been working with local private and conservation landowners to restore floodplain habitats. During the course of those efforts we have identified a number of small gravel roads that cross off-channel habitats in the Skagit River floodplain via undersized culverts. Some of these barriers had previously been identified in a culvert inventory of the Skagit basin completed in 1999, and summarized in a report produced in 2003 (Smith and Waldo 2004~~);~~). ~~however,~~At that time, little or no data were available on the sites. ~~Several others were unmapped. None~~ Neither of these culverts is located on a major tributary, and thus ~~none~~ neither were identified as high priority barriers in the 2004 assessment report. However, ~~all~~ both are undersized according to current WDFW regulations, and thus impair floodplain connectivity and disrupt natural hydrologic processes; in particular each site is a particularly vulnerable to blockage by beaver dams. ~~Several are also partial to complete barriers to up and downstream fish passage. All~~Both are located in floodplain areas that are undeveloped, forested and generally protected from future development.

Floodplain habitats associated with the Skagit River provide critical freshwater rearing habitat for juvenile salmonids. Side channels are formed as the mainstem river migrates back and forth across the floodplain. When the river abandons part of its channel that area slowly fills with sediment, but continues to transmit flow both via groundwater along the former channel bed, and during floods when water in the mainstem is high enough to reoccupy the old river corridor. Small tributary streams flowing off the valley sideslopes also frequently intersect then flow along these old river channels before joining the mainstem. All of these factors mean that habitats associated with such channels are relatively stable in terms of sediment transport and temperature, lower velocity and often less turbid than the mainstem, and highly complex with a mix of habitat types. As such they are extremely important habitat for juvenile Chinook, steelhead and other salmon species.

A. List the fish resources present at the site and targeted by your project.

Species	Life History Present (egg, juvenile, adult)	Current Population Trend (decline, stable, rising)	Endangered Species Act Coverage (Y/N)
Chinook	juvenile	Decline	Y
Steelhead	juvenile	Decline	Y
Bull trout	juvenile	Decline	Y
Coho	juvenile	Decline	N
Chum	Adult, juvenile	Stable	N
Searun Cutthroat	Adult, juvenile	Stable	N

B. Describe the limiting factors, and limiting life stages (by fish species) that your project expects to address.

The project will ensure unimpeded access into and out of two key side channel rearing areas in the middle Skagit River during the winter and late spring when juvenile fish are utilizing these side channels for winter rearing. Juvenile steelhead, and some stocks of Chinook overwinter in the Skagit system. During this time juvenile fish often enter off-channel habitats to find food, escape high flow velocities in the mainstem, and avoid turbid water. Young of the year Chinook may also enter such areas to rest and feed as they move downstream during the spring and early summer. Recent work has shown that freshwater rearing habitat is one of the primary limiting factors for juvenile Chinook.

4. **Project Goals and Objectives.**

A. **What are your project's goals**?

The Project goal is to improve and increase access to Tier 1 Chinook and steelhead juvenile rearing habitat by removing barrier culverts and restoring natural rates and pathways of water and sediment movement through off-channel habitats.

B. **What are your project's objectives**?

- Review and update existing designs for the East Fork Day Creek site.
- Work with WDFW to develop conceptual designs and determine a preferred alternative for the Cedar Grove-Ovenell Slough site.
- Submit preliminary designs for both sites to SRFB for review and approval.
- Develop final designs, engineer's estimates of cost and bid specifications for ~~at least 5 (and as many as 7) undersized culverts that are located on off-channel habitats associated with the Skagit River Floodplain.~~both sites
- ~~Complete and s~~Submit permit applications for ~~all~~ both projects.

The Skagit Conservation District developed a preliminary design for the East Fork Day Creek site in 2006 when the northern parcel was owned by a different landowner. SFEG will review these plans with current landowners to ensure that they meet existing and future access needs and easement requirements.

The Cedar Grove site is located within a Skagit County Road ROW and accesses land owned by WDFW. SFEG and WDFW are currently working through WDFWs Restoration Pathway process. The WDFW property was originally purchased with RCO funding and thus recreational access is required. The design that moves forward must meet those access requirements. Alternatively, if deemed cost-effective WDFW and SFEG could decide to repay RCO funds that were originally used to purchase the property in order to achieve full restoration.

In both cases preliminary designs will be submitted to the SRFB for approval prior to moving forward with final designs.

C. **What are the assumptions and constraints that could impact whether you achieve your objectives?**

Based on discussions with affected landowners we assume that at least some level of access is needed at each of the twose sites over the next several decades. Specific access needs (i.e. pedestrian versus vehicle; seasonal versus year-round, minimum loading, etc.) will be determined as part of the preliminary design process. ~~During the design~~As part of that process we will strive to make sure that all sites are reviewed for existing and possible future access needs. ~~, and that any infrastructure added is designed to facilitate future removal and re-use should access needs change in a manner that negates the ongoing need for roads and stream crossings.~~The goal will be to remove as much of the blocking fill/infrastructure as possible at each site while ensuring that landowners can retain necessary access.

We also assume that funds for these projects would be available from the SRFB or other grant organization to complete construction work once designs have been completed. ~~At least two of the landowners in question have indicated that they would be willing and able to providing matching funds to support construction.~~ SFEG is ~~also~~ committed to working with landowners ~~preparing grant applications~~ to obtain matching funds in the amount of 15% of the total cost of each project. Complete designs will be most helpful for leveraging funds from other grant sources.

Our cost proposal assumes that a cultural resources assessment will be required for each site. We expect that the assessments will be relatively simple, requiring minimal field work since all sites are currently active road crossings.

~~None~~ Neither of the sites currently serves permanent residences, and no bank armoring or fill outside of the current road prism will be allowed in any of the designs, and thus we assume that permitting can be completed via WDFWs streamlined process and that no county or federal permits will be required.

5. **Project Details.**

A. **Provide a narrative description of your proposed project.**

The proposed project represents Phase 1 of a 2 Phase project aimed at improving natural floodplain connectivity and fish passage. Phase 1 will involve evaluating habitat, meeting with landowners to assess access needs, and contracting with a professional engineer(s) to complete project designs and initiate permitting. Designs produced in Phase 1 will be consistent with Manual 18 requirements and will provide a sound basis for developing cost estimates that can be used to support funding applications for Phase 2. In Phase 2 we will complete culvert replacement work at each site.

B. **Provide a scope of work.**

The Scope of work for Phase 1 will include the following elements:

Complete expanded barrier evaluation forms: SFEG staff will walk each side channel upstream and downstream of the culvert to document habitat conditions. This information will be used to complete an Expanded Barrier Evaluation Form for each site.

Retain professional engineers to complete design work. SFEG will select an engineering firm to complete design work for each project from our small engineering projects roster. The roster consists of engineering firms who have been pre-qualified to ~~complete designs for~~work on small culvert replacement projects. SFEGs goal is to complete preliminary designs quickly so that we are able to apply for Phase 2 funding by February 2016. Because of the relatively quick turn around time we expect to work with ~~2-3~~a single ~~separate~~ engineering firm~~s~~ on both projects. Assuming early action PSAR funds are available the firm will be required to complete preliminary design review/development by November.

All design products will be consistent with Manual 18 requirements, and will consist of preliminary designs that are suitable for permit applications and grant applications. SFEGs project manager and consulting engineer will meet with landowners and WDFW to review preliminary designs. Preliminary designs will be submitted to the SRFB for review and approval prior to submitting permit applications. Final designs will be produced after approval by the SRFB and WDFW and will be the primary deliverable for this project. Final designs will include an engineer's estimate of cost and bid specification package.

C. **Explain how you determined your cost estimates**.

SFEG has prepared a detailed budget estimate using the SRFB Cost estimate spreadsheet. Design costs were based on past experience and consultation with a professional engineer. SFEG has completed design and construction of 9 similar culvert replacement projects over the past 5 years.

D. **How have lessons learned from completed projects or monitoring studies informed your project?**

SFEG has completed a number of similar culvert replacement projects over the past five years. Lessons learned from those projects are as follows:

- Replacement of barriers within the floodplain requires structures that can withstand inundation and scour during Skagit River floods. Proper engineering design, including geotechnical analysis, is key. Bridge load limits may be more a function of soil properties than of structural materials in floodplain areas.
- Project sponsors need to work closely with landowners to identify future access needs. If crossings are used only seasonally, or if owners have future plans to haul building materials or timber in (or out) this should be considered early in the design process so that the new crossing structure can be constructed in the most cost effective configuration practical while still being adequate for both current and expected future use levels.

- In many cases bridges are both more cost-effective and easier to construct with less environmental disturbance than large culverts, even on small streams.

6. **If your project includes an assessment or inventory:**

   A. Describe any previous or ongoing assessment or inventory work in your project's geographic area and how this project will build upon, rather than duplicate, the completed work.

   Not Applicable

7. **If your project includes developing a design:**

   A. **Will your project be designed by a licensed professional engineer?**
   Yes

      i. **If not, please describe the qualifications of your design team**.

8. **Will you apply for permits as part of this project's scope?**
   Yes

   A. If not, please explain why and when you will submit permits.

9. **If your project includes a fish passage or screening design**:

   A. Has your project received a Priority Index (PI) or Screening Priority Index (SPI) number? If so, provide the PI or SPI number and describe how it was generated.

   None of the projects have received a PI or SPI. We have completed preliminary BEF for each site and have uploaded them in PRISM.

   B. **For fish passage design projects:**

      i. **If you are proposing a culvert or ach, will you use stream simulation, no slop, hydrologic, or other design method?**

      Selection of the solution that is most appropriate at each site will be left to the engineer of record. However, SFEGs policy is to use stream simulation wherever possible.

      ii. Describe the amount and quality of habitat made accessible if the barrier is corrected.

      The project would improve access to 3.23 miles of floodplain channels, and 60 acres of surrounding floodplain wetlands. It would also restore natural hydrology and sediment transport processes to 1.18 miles of channel downstream of the barriers.

iii. List additional upstream or downstream fish passage barriers, if any.

There are no known barriers upstream of any of these sites within the Skagit river floodplain.

10. **Context within the Local Recovery Plan**.

A. **Discuss how this project fits within your regional recovery plan and/or local lead entity's strategy to restore or protect salmonid habitat**

The Skagit Chinook Recovery Plan (2005) identifies lack of freshwater rearing areas in floodplains as a key factor that currently limits population sizes of Chinook salmon in the Skagit River basin. As a result mainstem river, floodplain, and tributaries within the floodplains of the Skagit and Sauk Rivers from Sedro Woolley upstream to Marblemount that provide rearing habitat for multiple Chinook populations are considered a Tier 1 Target Area under the Skagit Watershed Councils ~~2010~~ 2015 Strategic Approach. The proposed project focuses on restoring access to, and geomorphic processes within these critical habitat areas.

Information of Chinook use of freshwater habitats in the Skagit system is still being developed (Beamer et al. 2010). Early data suggest that stream type Chinook preferentially utilize floodplain channels during the winter (Lowery et al. 2013). Juvenile steelhead and sub-adult bull trout exhibit a more generalist pattern of habitat use year round, but both are found in floodplain channels during the winter (Lowery et al. 2013). The availability of freshwater rearing habitat has been identified as a limiting factor for these species, and thus projects that improve the connectivity and restore geomorphic processes within such habitats are important for recover of these species.

Beamer, E., J.P. Shannahan, K.Wolf, E. Lowrey, D. Pflug, 2010. FRESHWATER HABITAT REARING PREFERENCES FOR STREAM TYPE JUVENILE CHINOOK SALMON (Oncorhynchus tshawytscha) AND STEELHEAD (O.mykiss) IN THE SKAGIT RIVER BASIN: PHASE 1 STUDY REPORT. Unpublished Project report, Skagit System Cooperative, LaConner, WA. available online at: http://www.skagitcoop.org/index.php/documents/

~~Beechie, T. and M. Raines, 2010. Skagit Watershed Council Year 2010 Strategic Approach. Skagit Watershed Council, Mount Vernon, WA. 15 p. Available online at: http://www.skagitwatershed.org/uploads/council_docs/pdf/SWC_Strategic_Approach_2010.pdf~~

Skagit Watershed Council, 2015. Skagit Watershed Council Year 2015 Strategic Approach. Adopted March 5 2015. Skagit Watershed Council, Mount Vernon, WA. 18 p. Available online at: http://www.skagitwatershed.org/resources/documents-archives/

Lowery, E.D., J.N. Thompson, J.P. Shannahan, E. Connor, D. Pflug, B. Donahue, C. Torgerson, D. Beauchamp. 2013. Seasonal Distribution and Habitat Associations of Salmonids with Extended Juvenile Freshwater Rearing in Different Precipitation Zones of the Skagit River, WA

B. **Explain why it is important to do this project now instead of later.**

The Skagit Watershed Council's ~~2010~~ 2015 Strategic Approach for meeting the goals of the Skagit Chinook Recovery Plan focuses on juvenile Chinook salmon rearing. The Tier 1 target areas identified in the Strategic Plan include river floodplains that provide rearing habitats

for juveniles of multiple Chinook salmon populations. These areas currently constrain Chinook salmon recovery, and therefore have among the highest potential benefit to Skagit wild Chinook salmon. The 2005 Recovery plan states that the Skagit basin has lost approximately 37% of the historic side channel habitat that provided critical rearing and refuge functions in the floodplain. Removing barriers from intact natural habitats is the fastest and most cost-effective means of restoring the function and habitat value associated with such areas.

~~An argument could be made that the preferred approach would be to completely remove roads and associated infrastructure from the floodplain. However at present at these sites access is required to private property, or in the case of the Cedar Grove/Ovenell Slough site, to support the recreational use for which the site was purchased. Delaying treatment of these sites until all private property has been purchased for conservation uses, or until the WDFW-owned site has been formally converted to a use that does not require access is not likely to occur for decades, if ever. Upgrading the crossing structures now will pay off with immediate habitat improvements. In addition, since the barriers included in this proposal are all located on property that is currently owned by a conservation organization (SLT) or public agency (SCL, Skagit County), if ownership changes do occur sooner than anticipated structures could be removed and re-used for similar projects in other locations.~~

C. **If your project is a part of a larger overall project or strategy, describe the goal of the overall strategy, explain individual sequencing steps, and which of these steps is included in this application for funding.**

This project will be completed in Phases, with completion of Design and Permitting as Phase 1. Completing the project in two phases has several advantages. First, completing the design process will substantially improve the accuracy of our construction cost estimates. This should alleviate the need to come back with unanticipated contract amendments or requests for cost increases. Second, completing "shovel-ready" plans will allow SFEG to more easily leverage matching funds from other grant sources. Privately owned s~~S~~ites downstream of the Baker River would be anticipated to rank highly for funding as part of PSE's Aquatic and Riparian Habitat Protection, Restoration and Enhancement Program. Other possible grant sources that require plans up-front include the USFWS National Fish Passage Program, or WDFW's ALEA program. SFEG anticipates applying to one or more of these grant programs to provide a substantial amount of matching funds for construction, thereby extending the amount of future SRFB that is available for other projects.

11. **Project Proponents and Partners.**

A. **Describe your experience managing this type of project**.

The Skagit Fisheries Enhancement Group is one of 14 Regional Fisheries Enhancement Groups in Washington State. We have been managing and implementing restoration projects in the Skagit basin since 1990. Our project manager for this project will be Sue

Madsen. Ms. Madsen joined Skagit Fisheries Enhancement Group in 2009. Prior to joining SFEG she worked as a consulting geomorphologist for R2 Resource Consultants. Ms. Madsen has over 15 years of experience in managing large assessment and restoration projects. Her experience as a consultant provides the insight and expertise needed to effectively manage contracts and consultants retained to complete the proposed project.

Since joining SFEG Ms. Madsen has overseen design and construction of ten culvert replacement projects. Project budgets ranged from $80,000 to $257,000. She has worked with 4 different engineering forms, and coordinated projects serving from 2 to 18 landowners. Sue is well versed in state and federal contracting requirements, small public works contract management, and construction management.

B. **List all landowner names**.

East Day Creek Slough site: Tony Becarra, Skagit Land Trust
~~**Alterra Estates Site**: Skagit Land Trust~~
Cedar Grove/Ovenell Slough: Skagit County, WDFW
~~**O'Brien Slough:** Seattle City Light~~

C. **List project partners and their roles and contributions to the project**.

SFEG will work with all Landowners to develop plans as Part of Phase 1. In Phase 2 landowners are expected to become formal partners, assisting with the project by providing match (in-kind donations of monetary support.

D. **Stakeholder Outreach**.

SFEG has contacted all parties who own the land on which these barriers are located and received permission to include the sites in this project proposal. Landowners are generally supportive, however there is still work that needs to be done to ensure that the solutions address future access concerns. Those are discussed below on a site by site basis. There are no known safety concerns associated with the project.

Cedar Grove/Ovenell Slough – the land accessed by this road was purchased by WDFW for fishing access with grant funding from NPS LWCF and RCO bonds. Access to the site will need to be maintained in conformance with this use. SFEG has begun discussions with WDFW about access needs for the site, and will continue to work through WDFW's formal "Restoration Pathway" process to determine access constraints and needs. We have also contacted the Cedar Grove Maintenance Co. to begin a dialog with neighbors who would be affected by construction.

East Day Creek Slough – this site is located partially on land owned by the Skagit Land Trust, and partially on land owned by a private landowner. The road crossing this site is

used by five private landowners as well as SLT to access property north of the slough. All access is via an easement across the private ownership north of the slough. SFEG will review existing preliminary designs with landowners to ensure that they meet existing and potential future legal access needs. Designs will be updated as needed, and submitted to the SRFB for review and approval prior to applying for permits and completing final designs.

~~**Alterra Estates Cedar Grove/Ovenell Slough** – the land accessed by this road includes 7 privately owned properties that are currently used for recreation. The Skagit Land Trust has been acquiring lands in the area, and would be interested in obtaining these seven parcels in the future. However, a number of the landowners have been contacted and indicated that they are not interested in selling to the Land Trust at this time. SFEG has contacted each of these owners and will work with the neighborhood to determine the minimum acceptable future access needs~~.

~~**O'Brien Slough** the land accessed by this road includes 5 privately owned properties that are currently used for recreation. Seattle City Light has been acquiring lands in the area, and would be interested in obtaining these five parcels in the future. However, all of these landowners have been contacted and indicated that they are not interested in selling to Seattle City Light at this time. SFEG has contacted each of these owners and will work with the neighborhood to determine the minimum acceptable future access needs.~~

Supplemental Questions

None relevant

Comments

Use this section to respond to the comments you will receive after your initial site visits and after you submit your final application.

Response to Site Visit Comments

SRFB Technical Reviewer Comments

The review panel recognizes the likely benefits and efficiencies in packaging projects together that have similar issues and functions. However, for this project proposal, some of the likely highly effective project elements are being detracted from by the less promising project sites. Each of the four project sites need to stand alone on its own merits in terms of benefit and certainty. The project approach would benefit from a prioritization of culverts such that they are addressed strategically rather than opportunistically. This effort could be implemented by a combination of forces (e.g. SFEG and SWC).

We appreciate the on-site discussion and input from the group regarding culvert prioritization work. SFEG believes that current information on the location and physical attributes of potential barrier culverts is needed, both in the floodplain as well as in areas that have been recently upgraded to Tier 2 status as part of SWC's 2015 Strategy. SFEG intends to work with SWC to develop a future proposal that will:

- Update the existing Skagit Watershed culvert database to show work that has been accomplished to date throughout WRIA's 3 and 4 by all partners & funding sources.
- Identify culverts in key areas (i.e. large floodplains and new Tier 2 tributary areas) where no data are currently available to assess whether or not culverts are indeed fish barriers.
- Complete surveys of culverts with "unknown" status in these key watersheds.

We see this as a stepwise process, and hope to develop a study plan and kick off the basic mapping portion of the work later this year, utilizing capacity building funds (if available) and submitting an application for matching funds as part of the PSE SA 505 restoration planning process. Completing these initial phases of the work in late 2015-early 2016 will set the stage for a future SRFB grant application that would focus on completion of field surveys and prioritization.

In the meantime we believe that the two projects we are requesting design funds for at this time would both result in significant benefits to juvenile Chinook salmon and steelhead.

There is a concern that upgrading culverts at a site, particularly at O'Brien Slough and Alterra, will create an incentive for the recreational lots that are served by the road to get developed, ensuring that the road will need to stay in place for the long term. Additionally, for sites like Alterra, the installation of crossings in a diffuse floodplain/wetland area may not have a solution that is feasible from both an engineering and natural process restoration perspective. There should also be consideration of the technical standards for restoring floodplain processes, since WDFW's design guidance for road crossings are not adequate to address some of these floodplain wetland settings. Projects such as Cedar Grove and Day Creek Slough would likely rank high in the evaluation process and prioritization, while O'Brien and Alterra would likely not.

SFEG is dropping the O'Brien Slough and Alterra Estates sites from this application for the reasons articulated above and by the local Technical Review panel.

Skagit Technical Review Committee Critical comments:

- **The diversity of sites led to a diversity of discrete comments on each, but the possibility that weaker aspects of the whole or of lesser sites (e.g. O'Brien) would bring down the chance to act at more compelling locations (e.g. Cedar Grove) was an overarching concern for the complete proposal.**

SFEG is dropping the O'Brien Slough and Alterra Estates sites from this application for the reasons articulated above and by the SRFB Technical Reviewers.

- **The whole proposal needs more of an iterative design strategy that could serve to improve the success of each discrete project. A relevant example of this type of approach is offered in WDFW's Water Crossing Design Guidelines Appendix D, referred to as the hierarchy of benefits. Concern about jumping to engineering before this occurs.**

The current proposal has been revised to concentrate on developing designs that would remove or upgrade fish passage barriers at two sites. SFEG has completed many culvert replacement projects over the past decade, and find them to generally be straight-forward projects that do not require substantial modeling, alternative assessment or engineering feasibility evaluation. We believe that the design approach we are proposing – i.e. work with landowners to identify appropriate solutions, develop preliminary designs and cost estimates for approval by the SRFB and WDFW, and complete final designs is consistent with the process referenced above.

Expanding the project scope into a multi-phase process is possible, but would delay repair of these barriers by at least 2 years. The "phased" timeline assumes that Phase 1 –Preliminary design would be completed in time to apply for design funds in 2016. Application for/Award of Design funds by Dec 2016 would lead to completion of final designs by Dec 2017. Application for/Award of Construction funds in 2018 would lead to construction in 2019 assuming no permit delays. SFEG believes that undertaking a fairly straight forward design process in a single grant application that explicitly includes approval by SRFB of individual design stages as contractual milestones is a reasonable path forward for this project.

- **What are the biological benefits in each place versus the costs? Sponsor agreed in the field that better site assessment would be valuable, though no existing resources to do so.**

Correcting barriers that block up and downstream fish passage at these two sites will restore unimpeded access and sediment/hydrology in 7656 linear feet (approximately 4.2 acres) of off-channel habitat. Our "rough" cost estimated for correction of these barriers (based on past projects) is $200,000 per site. Such habitats are known to be used by juvenile Chinook salmon, steelhead trout and other species for rearing, particularly during the winter. We have no site-specific information on fish use or habitat at these sites.

- **Provide further analysis of the various design constraints at each site. Please address questions of landowner needs, the willingness of landowners to participate or support projects, and the potential longevity of ownership at the different sites.**

An expanded discussion of known design constraints of the two sites that we are planning to keep in this proposal is provided below.

Cedar Grove

- Lands accessed by this site are largely in conservation ownership; however there are small portions of private ownership and community open space present also. Private landowners contacted to date prefer to maintain pedestrian access. We have NOT had the opportunity to interact with the entire community, but anticipate doing so as part of the design process.
- The State-owned property was purchased by WDFW using RCO-funds. Moving forward with design at this site under the current ownership status REQUIRES access.
- If funding is awarded we can develop conceptual designs/cost estimates and determine if the preferred restoration path would be to repay RCO funds used for the original purchase. Assuming that were acceptable to other landowner's complete removal could be selected as the preferred option.
- Skagit County owns the access. If a drivable or pedestrian structure is selected for final design engineering and construction MUST meet County standards.
- The structure is located within the floodway and designs must consider flood flows

East Day Creek Slough

- Provides access to 6 parcels north of slough. Driving access for private landowners must be maintained
- Southern landowner MUST approve/agree to design; may require shifting road or assisting with fence building to ensure permission. We would anticipate this cost would be incidental to cost of construction (i.e. <10%)
- Structure will be inundated during flooding and must be designed for such conditions.
- SFEG cannot predict landowner longevity or decisions regarding personal property; however, all landowners in the area have been contacted by SLT in the past decade about their willingness to sell and all have declined.

- **The diversity of sites results in uncertainty about current budget.**

We have dropped two sites, and consulted engineers from our small projects on-call roster regarding engineering costs for the Cedar Grove and Upper Day Creek Slough sites. SFEG follows State purchasing guidelines for A&E Services, and thus we do NOT select Engineering assistance based on cost. However, because of this initial informal consultation we feel confident that our proposed costs are reasonable.

- **All sites have distinct difficult, complex issues, which makes evaluation of the proposal problematic. Commenters asked: Should a more comprehensive assessment of the sites replace the design aspects? How do these culverts fit in the big picture of Skagit off-channel habitats, such as the proximity to river and their fish use? How can the SWC Technical Work Group or related monitoring concepts support a more thorough analysis of side channel barriers? Maybe that assessment is more vital than a working on a wide array of designs? Possibly consider a demonstration project at one site with high ecological benefits.**

See our response to the SRFB Technical review panel comments above.

- **If proposal proceeds as is, it would likely require TWG review at various design milestones.**

SFEG provides the SRFB with preliminary designs for review/approval for every project prior to moving on to the final design Phase, as per our grant contract requirements. We are happy to provide the TWG with copies of those materials as.

Cedar Grove

- **The access issue needs to be resolved (e.g. pedestrian only, an overlook, an exploration of repaying RCO funds).**
- **The proposal should seek a maximum removal of existing fill while meeting access and cost constraints.**

We are currently working through the "Restoration Pathway" with WDFW, including discussing the access issue. In general we find that it is often easier to resolve such questions when some preliminary engineering work is available to guide those discussions (e.g. conceptual designs and cost-estimates). Those issues will be resolved, and as per contractual obligations must meet SRFB standards before moving to final design.

Alterra

- **A plan for long-term ownership issues here should be addressed (including contacting SLT about rights of first refusal). This includes addressing the issue of improving the Alterra Rd and making the site more attractive to the owners of the inholdings.**

A broader assessment of culvert replacement/relocation or other options for road placement as part of the design criteria should be included in the final proposal, because of the impounding role of the road fill in addition to the limitations of the undersized, inadequate or buried pipes

SFEG has dropped the Alterra site from this proposal.

O'Brien

- **Ownership and access issues (such as fire services) should be resolved.**
- **Seen as weakest component of proposal.**

SFEG has dropped the O'Brien Slough site from this proposal. Further investigation confirmed that the road ROW is actually a separate parcel owned by the CAREFREE ACRES RECREATION & MANAGEMENT ASSOCIATION. We have encouraged those landowners to apply for funding through the FFFPP program.

Response to Post-Application Comments

Please describe how you've responded to the review panel's post-application comments. *We recommend that you list each of the review panel's comments and questions and identify how you have responded. You also may use this space to respond directly to their comments.*