

## **Evaluation Proposal In-Stream**

**Applicants must respond to the following items. The local citizen and technical advisory groups will use the evaluation proposal to evaluate your project. Applicants should contact their lead entity for additional information that may be required.**

*Up to eight pages may be submitted for each project evaluation proposal.*

**(SUBMIT INFORMATION VIA PRISM ATTACHMENT)**

### **1. BACKGROUND**

The Dosewallips River, which is the second largest tributary watershed in Hood Canal, harbors at least eight distinct salmonid stocks including significant populations of three ESA listed species; Puget Sound chinook, Puget Sound steelhead and Hood Canal summer chum. Historical observations of native char by Olympic National Park staff and local residents suggest that the river may be of transient importance to a fourth ESA listed species, Puget Sound bull trout. The size of the watershed combined with its species diversity has led to its description as a “sentinel watershed” of regional significance where habitat and fish populations should be protected and monitored over time.

The proposed project area is located in the lowest reach of the Dosewallips River, in southern Jefferson County. The headwaters of the Dosewallips watershed are protected within Olympic National Park and Olympic National Forest, while the lower river reaches are mostly in private ownership. Dosewallips State Park, at the river mouth and estuary, is the largest block of public land in the lower watershed and a pivotal habitat area for salmon spawning and rearing in the watershed, as well as for non-natal stocks migrating along the Hood Canal shoreline. The Dosewallips estuary supports extensive mudflat, eelgrass, and emergent marsh habitats important to varied fish, wildlife, and shellfish populations. Numerous recent planning efforts have highlighted the Dosewallips as among the most pristine riverine-estuarine systems in Hood Canal, offering one of the best chances for effective salmon habitat protection and recovery (Frissell et al. 2000, WDFW & PNPTC 2000, May and Peterson 2003). As a result, the Hood Canal Coordinating Council has designated the Dosewallips as one of eight Tier 1 watersheds in its Salmon Habitat Recovery Strategy (HCCC 2005), and as critical for delisting chinook salmon and summer chum salmon.

While much of the upper Dosewallips watershed is protected within Olympic National Park, the lower river has suffered significant anthropogenic habitat degradation. The Lower Dosewallips River Reach Analysis completed by the Dosewallips Estuary Restoration Team (DERT) in 2004 identifies four fundamental ecological problems in the lower Dosewallips River and Estuary: 1) loss/isolation of distributary channel habitat, 2) loss/modification of tidal estuarine circulation 3) riparian forest degradation 4) loss/modification of natural channel processes in the mainstem river (Barnard et al. 2004). The report implicates riprap bank protection, lack of large woody debris, and historical dredging practices as the chief culprits contributing to a lack of habitat diversity in the lower river. Moreover, the report concludes that an artificial channel configuration and active progradation of the delta cone has increased the likelihood of a catastrophic channel avulsion in the lower river-distributary channel network, which could have adverse impacts on private property. Wild Fish Conservancy proposes a study of the potential for geomorphic work within the lower reach. This data will be used in the next phase of the

project to understand the effects of bank armament removal and engineered logjam construction, so these projects may be optimally sited and implemented.

## **2. PROBLEM STATEMENT**

Extensive recent and historic anthropogenic habitat modifications in the lowest reach of the Dosewallips River have disrupted or severely truncated geomorphologic and biologic processes resulting in compromised ecosystem function. Washington State Parks and a previous landowner dredged, diked, removed wood from, and armored the banks of the lower half-mile of the Dosewallips River and its estuary, thereby degrading its habitat value for threatened salmon species. In recent years, the Park, its visitors, Washington Dept. of Transportation, and adjacent landowners have continued to remove wood from the channel. As a result of the described channel modifications and drastically-reduced in-channel large woody debris levels, river flows are typically confined to a single mainstem channel, which has led to streambed simplification and aggradation, as well as altered delta progradation patterns. The underlying goal of this proposed project is to reestablish the biologic and geomorphologic processes that create the dynamic suite of habitats and associated biodiversity historically typical of riverine estuaries in Puget Sound.

## **3. PROJECT OBJECTIVES**

- 1) The creation of a spatially explicit model of the potential for geomorphic work within the project reach.
- 2) The creation of new distributary habitat in the estuarine delta.
- 3) The creation of additional floodplain side channels in the lower river
- 4) The improvement of riparian habitat in the lower river and estuary.
- 5) Reduction of the threat of catastrophic channel avulsion resulting in private property damage

## **4. PROJECT APPROACH**

- a. The project is slated to take place in the lowest reach of the Dosewallips River encompassing the interface between riverine freshwater and estuarine saltwater habitats. The Dosewallips estuary is a delta-type estuary, as opposed to a drowned river valley-type estuary, common in the Puget Sound. The lower river and estuary, are used extensively for spawning by ESA listed Hood Canal summer chum, fall chum and pink salmon, and for juvenile rearing and adult resting by ESA listed Puget Sound chinook, ESA listed Puget Sound steelhead, coho, resident rainbow, cutthroat, and several other native fish species.
- b. The proposed suite of actions have been developed, reviewed, and ranked by several interdisciplinary teams of habitat biologists, fish biologists, harvest managers, engineers, geologists, and policy makers during the WRIA 16 Salmon Habitat Limiting Factors Analysis, the lead entity recovery strategy development, chinook and summer chum salmon recovery planning efforts, and development of the 3 year work program for salmon recovery in Hood Canal. Multiple stakeholders including the co-managers,

regional fisheries enhancement groups, consultants and lead entity staff have conducted an EDT analysis of proposed habitat actions in the Mid-Hood Canal chinook population and are also completing another EDT analysis for summer chum salmon. One conclusion of the EDT analysis for chinook was that the larger the scale of the actions capable of being implemented the larger the improvements modeled for the VSP parameters of abundance, productivity, and capacity.

- c. N/A.
- d. In the proposed project, a geomorphological reach analysis will determine the extent of habitat gains that can be achieved through the removal of bank armoring within the estuarine floodplain of the lower river. The analysis will use airborne hyperspectral imagery combined with ground-truthing using Acoustic Doppler velocity-Profiling (ADP) to construct a spatially explicit model of the potential for geomorphic work within the lower river floodplain and delta (Lorang et al. 2005). This model will be used to further target restoration actions such as the placement and scale of engineered log jams and the removal of riprap. The analysis will allow these restoration actions to occur in areas which will have been quantitatively identified as having the greatest potential for desired results such as increased channel complexity and dynamicity.

It is anticipated that these actions will restore processes such as sediment transport and deposition, cut-and-fill alluviation, channel avulsion (distributary channel formation), nutrient transport and storage, tidal inundation, and lateral channel migration. These geomorphologic processes are essential to maintaining ecosystem health because they ensure lateral, vertical and longitudinal connections in the flow of water and materials through the floodplain. In allowing the river to reestablish dynamic habitat forming and maintenance processes, the project will facilitate increases in both the quality and capacity of the lower Dosewallips and its estuary as habitat for salmonids, as well as ensure a reduced need for future invasive restoration actions.

- e. Project cost estimates were determined using previous estimates for similar projects conducted by the Wild Fish Conservancy.
- f. Very few viable alternatives exist which have the potential to accomplish the objectives of this project. Although bank armoring is present outside of the proposed project area, private land ownership and the threat of downstream flooding in the town of Brinnon would prevent removing it. The combination of State Park ownership and a non-threat of flooding make the project area an ideal location. Furthermore the location of the State Park at the river mouth provides the added benefit of allowing project activities to simultaneously improve marine and riverine habitats. Lastly, the choice of the Dosewallips River for this project offers more potential for affecting the recovery of depleted salmon stocks than other locations because of the size of the watershed and the relatively intact condition of much of the basin.
- g. Project partners include the Dosewallips Estuary Restoration Team (DERT), which was formed in 2003-2004 with local stakeholders to direct restoration activities in the lower Dosewallips watershed. DERT members include: Port Gamble S'Klallam Tribe, Wild Fish Conservancy, Hood Canal Salmon Enhancement Group, USFWS, Washington State Parks, WDFW, Hood Canal Coordinating Council (HCCC), U.S. Forest Service, and area property owners.

- h. Washington State Parks
- i. The hypothesis behind our restoration actions in the Dosewallips Estuary is that restoring biotic and geomorphic processes in the project area will result in an increase in the capacity of the habitat to support wild salmon. We will test this hypothesis by examining the topographic, bathymetric, and vegetative response to our restoration actions.

Project proponents have already conducted extensive baseline mapping of the current configuration and wood loading of the Dosewallips Estuary. The data generated for the reach analysis- detailed topographic and bathymetric surveys of the project reach, will provide additional baseline data of unparalleled detail. As a part of post-project monitoring, the reach will be resurveyed using LIDAR, 5-10 years post project, generating a detailed analysis of the geomorphic response to restoration actions. Project partners will use this spatially explicit, quantifiable, geomorphic change analysis to generate peer reviewed papers that will serve to advance our understanding of fluvial deltaic nearshore ecosystems.

As a part of the first two phases of the Dosewallips Estuary Restoration Project, the Wild Fish Conservancy has conducted extensive fish use monitoring in a number of habitats in the Dosewallips estuary. This monitoring, when coupled with the geomorphic change analysis will allow for a basic calculation of the gains in fish habitat capacity as a response to restoration actions.

- j. This Project will be managed by Micah Wait and Ted Labbe of the Wild Fish Conservancy. Wait and Labbe have been extensively involved in the previous planning and execution phases of the project, and will continue to work with the DERT to refine project goals and outcomes. The Wild Fish Conservancy will hire Mark Lorange and Jack Hauer of the Flathead Lake Biological Station as consultants to oversee the geomorphic modeling aspects of the project. Subcontractors for the construction phases of the project will be selected through a formal bid process.
- k. Without the proposed restoration activities, the lower Dosewallips and its estuary would likely continue to have reduced function as salmonid habitat. The biotic and geomorphic habitat forming processes which this project will address would likely remain mostly unchanged, thus contributing to the limitation of ESA listed summer chum and chinook recovery. Through process-based restoration, this project will increase dynamism and resilience of the Dosewallips lower watershed and estuary ensuring greater habitat complexity and connectivity and spurring salmonid recovery.

## **5. TASKS AND TIME SCHEDULE**

Wild Fish Conservancy staff will manage the day to day operations of the project. The Wild Fish Conservancy is a non-profit conservation ecology organization with 18 years of experience in on the ground habitat research and restoration. Wild Fish Conservancy staff have successfully managed numerous large scale restoration projects including the first two phases of the Dosewallips Estuary Restoration Project. The Wild Fish Conservancy has successfully completed over 30 restoration projects since our inception in 1989. Additionally WFC has a reputation as a science driven organization, putting ecosystem process at the forefront of our restoration strategies. Currently the Wild Fish Conservancy is managing 9 active SRFB grants through the IAC, with none of them delinquent.

For a full description of Wild Fish Conservancy projects please see [www.wildfishconservancy.org](http://www.wildfishconservancy.org). The Wild Fish Conservancy formerly operated under the name Washington Trout.

Date	Task
January- November 2008	Data Collection for Geomorphological Reach Analysis
June- December 2008	Data Analysis for Geomorphological Reach Analysis
February- May 2008	Physical Restoration Project Design
Fall 2007	Permitting
Summer 2008	Construction
Through 2018	Post-Project Monitoring

## 6. CONSTRAINTS AND UNCERTAINTIES

This project presents few constraints and uncertainties because it will take place entirely on Washington State Parks land and has been approved by the corresponding agency management officials. One uncertainty involves the movement of campsites within the State Park to accommodate river channel migration that is anticipated following restoration actions. This issue is not likely to present any large problems however, because the State Park has stated its willingness to engage in the relocation process and has not voiced any concerns. Another uncertainty is how the public will respond to the State Park closure during the period of construction, and to the subsequent changes in the river and landscape. It is anticipated that the reception will primarily be a positive one because public outreach efforts will connect the activities with improved habitat for fish and wildlife; a goal that garners support from many State Park visitors.