**Camano Island State Park Lagoon Reconnection:**

**Feasibility and Preliminary Design**

**WRIA 6 SRFB Proposal**

*Skagit River System Cooperative*

1. **Problem Statement**

**Provide an overview of fish resources, current habitat conditions, site or reach conditions, gaps in knowledge, and other key salmon recovery problem(s) in the watershed that this project is intended to address.**

In the Whidbey Basin of Puget Sound, it is estimated that roughly 80% of the pocket estuary habitat historically used by juvenile Chinook and other salmonids is no longer accessible to these fish (SRSC and WDFW 2005). These small, non-natal coastal lagoons and salt marshes, which are supplied with freshwater via small steams or other sources, exhibit lower salinities and have been shown to confer growth and survivorship advantages to juvenile salmonids relative to adjacent nearshore habitats (Beamer et al. 2005). Within both the Skagit River Delta and the Whidbey Basin nearshore, habitat availability is thought to be one of the greatest factors limiting Chinook production (SRSC and WDFW 2005, Island County 2005, SIRC 2005).

The dramatic reduction of pocket estuary habitat in the Whidbey Basin, coupled with its high habitat value underscores the importance of implementing actions to restore and enhance this habitat type. Such actions feature prominently in the Skagit Chinook Recovery Plan (SRSC and WDFW 2005), the WRIA 6 Multi-Species Salmon Recovery Plan (Island County 2005), and the Stillaguamish Watershed Chinook Recovery Plan (SIRC 2005). Genetic analysis of juvenile Chinook salmon caught on Saratoga Passage beaches indicates that a high proportion of these salmon (51.3%) are from Skagit River origins, with significant use by Stillaguamish and Skykomish populations (McBride and Beamer 2010).

At Camano Island State Park, located along Saratoga Passage on the southwest shoreline of Camano Island, a historic pocket estuarylocated at Lowell Point was once accessible by juvenile salmonids but is now cut off from tidal connectivity by a parking lot and other development, resulting in a loss of 1.77 ha (4.37 acres) of rearing habitat (McBride and Beamer 2010). The site is currently highly altered from its pre-development condition. An access road, two parking lots, and a restroom building are built almost entirely on fill within the former pocket estuary site. A freshwater wetland occupies the space between the road/parking lot and the bluff. A boat ramp crosses a spit near the north end of the Park, near what is though to be the historic lagoon outlet.

While it is readily apparent that a pocket estuary once was present at Lowell Point, the historical record is unclear whether the historic lagoon became closed off because to human activities or whether it became closed off naturally over time. Regardless of the reason for the loss of this habitat, it is quite clear that the tremendous decline in the availability of this habitat type in the Whidbey Basin from historic times underlines the importance of maximizing available opportunities to restore critical habitat for imperiled Chinook salmon and other species. Restoration opportunities at such sites are few and far between, and the combination of site with a wiling landowner that has the potential to reintroduce fish access and tidal processes should not be overlooked. The preliminary assessment (McBride and Beamer 2010) indicates that a pocket estuary at the site will likely be sustainable over time, irregardless of the reason for its loss.

This project is intended to evaluate potential actions and develop preliminary designs for restoring access for juvenile Chinook and other salmonids to pocket estuary habitat at Camano Island State Park in a manner consistent with natural habitat processes as well as the recreational and educational uses of the park envisioned by Washington State Parks staff and citizen user groups (Washington State Parks 2013).

1. **Project Purpose**
	1. **State the project goal(s).**

The primary goals for the Camano Island State Park project are:

1. To sustainably reintroduce natural processes, conditions, functions, and biological responses to the historic pocket estuary at Lowell Point.
2. To provide access to critical estuarine rearing and refuge habitat for ESA-listed juvenile Chinook salmon during the early phases of their oceanward migration.
3. To provide estuarine habitat for other estuarine fish (including other juvenile salmonids) and wildlife (particularly shorebirds).
4. To implement habitat actions in a manner consistent with the long-term planning strategy for the park.
	1. **List the project’s objectives.**
5. To develop and evaluate alternative design concepts for reintroducing tidal inundation and access for juvenile salmonids to the Lowell Point historic pocket estuary. If enhancement activities are found to be feasible given site processes, uses, and constraints, this processes will result in a preliminary project design from which a final project design and permits can be prepared.
6. To continue to engage the public and Washington State Parks staff throughout the feasiblility process and incorporate input where possible.
7. To conduct topographic and hydrologic surveys to support the development and assessment of alternatives.
8. **Project Context**
	1. **Describe the location of the project in the watershed**

The Camano Island State Park project site is a nearshore pocket estuary within the park at Lowell Point, situated at the lower end of a small watershed along the southewest shoreline of Camano Island. The former lagoon and salt marsh proposed for study here is is separated from Saratoga Passage by a beach berm, and is bordered on the upland side by steep forested bluffs. An eroding feeder bluff to the south serves he beaches along the project site via processes of alongshore drift.

* 1. **List the fish resources present at the site and targeted by this project.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Species | Life History Present (egg, juvenile, adult) | Current Population Trend (decline, stable, rising) | ESA Coverage (Y/N) | Life History Target (egg, juvenile, adult) |
| Chinook salmon | No access to historic marsh | Depressed but Stable (ESRP 2007, NOAA 2008) | Y | Juvenile |
| Coho salmon | No access to historic marsh | Decline (ESRP 2007) | N | Juvenile |
| Pink salmon | No access to historic marsh | Decline (ESRP 2007) | N | Juvenile |
| Chum salmon | No access to historic marsh | Stable (ESRP 2007) | N | Juvenile |
| Sockeye salmon | No access to historic marsh | Decline to Stable (ESRP 2007) | N | Juvenile |
| Steelhead | No access to historic marsh | Decline (PSP 2010) | Y | Adult |
| Bull Trout | No access to historic marsh | Likely Decline (PSP 2010) | Y | Adult, Juvenile |
| Surf smelt | No access to historic marsh | Unknown (likely Decline) (ESRP 2007) | N | Adult, Juvenile |

* 1. **Discuss how this project fits within your regional recovery plan and local lead entity’s strategy to restore or protect salmonid habitat in the watershed**

Camano Island State Park falls within Geographic Area 2 of the WRIA 6 Multi-Species Salmon Recovery Plan (SRP, Island County 2005). This area is the second highest priority for salmon habitat restoration and protection within Island County. The pocket estuary habitat type historically found at the site, and which will be restored by the completed project, is rated a high priority habitat by in SRP, and Chinook salmon are the primary target species. Additionally, pocket estuaries, because they have been shown to confer growth and survivorship advantages for juvenile salmon over adjacent nearshore habitat, are also high priority habitats in the Skagit River Chinook Recovery Plan (SRSC and WDFW 2005) and the Stillaguamish Watershed Chinook Recovery Plan (SIRC 2005). Genetic analysis of juvenile Chinook salmon caught on Saratoga Passage beaches indicates that a high proportion of these salmon (51.3%) are from Skagit River origins, with significant use by Stillaguamish and Skykomish populations (McBride and Beamer 2010).

This project addresses explicit goals and objectives of the WRIA 6 SRP. Completed restoration at the site fulfills Goal 1, Objective 3 of the plan: to restore critical habitats (Island County 2005). Additionally, because the project is located within a high-use public park, unique opportunities exist to provide educational experiences to Park visitors. The restoration design will capitalize on these opportunities with educational signage and coordination with Parks education programs. This not only helps to further the mission of Washington State Parks, but also addresses the Community Education goals and objectives of the SRP (Goal 3, Objectives 1 and 2), by helping to connect visitors to the relationship between nearshore habitat and Puget Sound salmon recovery (Island County 2005).

* 1. **Explain why it is important to do this project now instead of at a later date.** *Consider its sequence relative to other needs in the watershed and the current level and imminence of risk to habitat in your discussion.*

This project was previously submitted in slightly different form by SRSC, and was recommended by the WRIA 6 Salmon TAG and Island County WRAC for funding. However, intense public interest and concern over the project and its perceived impact to recreation led State Parks and SRSC to withdraw the application from consideration in favor of a detailed, State Parks-led, long-term planning process (Washington State Parks 2013). This process involved planning for the future of Camano Island State Park as a whole, but the potential for a salmon habitat enhancement project was explicitly considered. Citizen input was solicited via public meetings and written comments at multiple points in the process.

The results of the yearlong planning process is a final recommendations report (Washington State Parks 2013) in which support for a feasibility assessment of developing estuary features at Lowell Point to support salmon habitat restoration. These recommendations were approved by the Washington State Parks Commision at its November 2013 meeting (Washington State Parks 2013a). As such, we wish to capitalize on this momentum and maintain both public and instutional understanding of the project and its goals and objectives. Washington State Parks Commissioners, the agency leadership, and Camano Island State Park staff are supportive of moving forward with a detailed feasibility assessment (see attached letter from Washington State Parks). Completing restoration in a highly visible public space such as Camano Island State Park will not only benefit salmon directly, but will also help shape public perception of salmon habitat restoration within the nearshore of Island, Skagit, and Snohomish Counties. Continued input from an engaged and informed public will be critical to the success of this project as well as future salmon habitat projects in Puget Sound.

* 1. **If any part or phase of this project has previously been reviewed or funded by the SRFB, please fill in the table below.**

|  |  |  |
| --- | --- | --- |
| **Project # or Name** | **Status** | **Status of prior phase deliverables and relationship to current proposal?**  |
| 11-1300 | * Completed
* In Process
* Not Funded\*
 | The previously proposed project was withdrawn from consideration by SRSC (see Section 3D above).  |

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

1. **Project Description**
	1. **Provide a detailed description of the proposed project and how it will address the problem described above**.

This project is intended to assess feasibility and produce preliminary designs to reintroduce tidal inundation and fish access to the former pocket estuary at Lowell Point. Our feasibility assessment will consider the following:

1. Potential to re-establish access and beneficial habitat conditions for juvenile Chinook and other salmonids to the former pocket estuary.
2. An engineering assessment of the long-term self-sustainability of an outlet channel near the location of the existing boat launch, including evaluation of maintenance requirements and the potential to reduce the need for current ongoing maintenance of the boat launch through project design.
3. Impacts of the project to current recreational uses of the Lowell Point portion of the park and and an exploration of ways to enhance and improve park facilities for these puposes.
4. Impacts to onsite cultural resources and exisiting site infrastructure (buildings, roads, utilities, etc).
5. Public outreach at regular intervals to solicit input on project planning considerations and preliminary design alternatives.

Thoughout the process, we will coordinate closely with Washington State Parks staff and will support the feasibility assessment with topographic, habitat, and hydrologic surveys, along with cultural resources and infrastructure inventories. The process will result in the development of preliminary alternatives for channel configuration and outlet location, taking into account fish access, channel sustainability and stability, continued boat launch and parking access, recreational and educational opportunities, and other factors such as infrastructure and construction costs and efficiencies.

Public outreach will be critical to the success of this project, so SRSC will work with Washington State Parks staff early in the project to develop and implement an outreach plan to inform and educate the public about restoration goals and plans at the site. Stakeholder meetings will be held to allow incorporation of input and feedback from user groups and individuals into project design.

* 1. **Clearly list and describe all products that will be produced (i.e., project deliverables).**

Deliverables for the project will include a report with analysis of key feasibility criteria, presentation and discussion of preliminary design alternatives, and, should the project be deemed feasible, selection of a preferred altnerative, cost estimates, and a suggested roadmap for next steps, including final design, permitting, construction, and monitoring.

* 1. **If the project will occur in phases or is part of a larger recovery strategy, describe the goal of the overall strategy, explain individual sequencing steps and which steps are included in this application.**

This project will not occur in phases.

* 1. **If your proposal includes an assessment or inventory (NOTE: project may extend across a wide area and cover multiple properties):**

This project does not include an assessment or inventory. However, this project was identiried as part of a previous assessment, which is described below.

* + 1. **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 completed work.**

This project was identified as part of an assessment of restoration potential for pocket estuary sites along the Saratoga passage. Potential fish use, historic conditions, site constraints, and self-sustainability of the restored sites were considered, and the Camano Island State Park site was selected as having the highest restoration potential.

* + 1. **Describe how the assessment or inventory addresses the stages and elements in Guidance on Watershed Assessment for Salmon (Joint Natural Resources Cabinet, May 2001,** [www.digitalarchives.wa.gov/governorlocke/gsro/watershed/watershed.pdf](http://www.digitalarchives.wa.gov/governorlocke/gsro/watershed/watershed.pdf)**).**

The assessment focused on current and potential future habitat conditions at 96 different pocket estuary sites and evaluated which processes could be worked with to enable restoration. Salmon fish use data for similar sites was used to estimate potential salmon responses to restoration actions, thus allowing evaluation of the benefits of restoration at each site.

* 1. **If your proposal includes developing a design:**
		1. **Will the project design be developed by a licensed professional engineer?**

A licensed coastal engineer will be contracted to provide engineering analysis for the area of the potential outlet channel, and will evaluate self sustainability and impact to boat launch and other site uses. The engineer may also consult on potential design alternatives for the lagoon and other locations within the project site.

* + 1. **For final design projects, if you do not intend to apply for permits as part of this project’s scope of work, please explain why and when permit applications will be submitted.**

This is not a final design project.

* + 1. **Has Washington Department of Natural Resources confirmed that your project is or is not on state-owned aquatic lands?**

This project does not take place on state-owned aquatic lands.

* + 1. **For design projects intending to provide no match, verify you meet ALL of the following eligibility criteria.**

N/A

* 1. **If your proposal includes a fish passage or screening design:**
		1. **Has the 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:**

N/A

* + 1. **For fish passage design projects:**
			1. **If a culvert or arch is proposed, will it employ a stream simulation, no slope, hydraulic, or other design?**

No culvert or arch is proposed.

* + - 1. **Describe the amount and quality of habitat made accessible if the barrier is corrected.**

Up to 4.4 acres of high quality pocket estuary habitat will be made available for juvenile Chinook and other salmon should the project be constructed.

* + - 1. **Identify if there are additional fish passage barriers downstream or upstream of this project.**
	1. **Describe other approaches and design alternatives that were considered to achieve the project’s objectives and why the proposed alternative was selected.**

This project is intended to produce preliminary design alternatives. A total of 96 potential pocket estuary sites were considered during the assessmentthat was used to select this project site. For feasibility work at Camano Island State Park, several preliminary design alternatives will be developed. Input from stakeholders and parks staff will be incorporated throughout the process.

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

SRSC staff involved includes SRSC Director of Restoration Steve Hinton and Restoration Ecologists Eric Mickelson and Nora Kammer. Hinton, Mickelson, and Kammer are biologists and experts in restoration project management, implementation, logistics, and contracting. They have extensive experience in dike removal/setback, culvert replacement, bridge installation, and excavation for habitat restoration, and each have 5-20 years of experience in restoration ecology in the Pacific Northwest. Subcontractors have not yet been identified. Engineering will be sub-contracted on a competitive bid process open to qualified firms.

Similar SRFB-funded projects implemented by SRSC include:

* Crescent Harbor Salt Marsh Restoration (Partner: US Navy)
* Wiley Slough/Deepwater Slough/Milltown Island Delta Restoration (Partner: WDFW)
* Turners Bay Salt Marsh Restoration (Partner: Skagit County)
	1. **Explain how the project’s cost estimates were determined.**

Cost estimates were prepared based on experience managing similar projects.

* 1. **List Project Partners and their role and contribution to the project.**

*Washington State Parks*: In-kind match. Planning and design consultation, stakeholder outreach, cultural resources investigation.

* 1. **List all landowner names***.*

Washington State Parks and Recreation Commission

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A signed Landowner Acknowledgement Form is included with our application.

* 1. **Contingency Planning: State any constraints, uncertainties, possible problems, delays, or additional expenses that may hinder completion of the project. Explain how you will address these issues as they arise and their likely impact on the project.**

A key uncertainty is the long-term sustainability of the outlet channel. Issues of sedimentation, erosion, and scour were analyzed during a preliminary site assessment (McBride and Beamer 2010), but the final configuration of the channel will have some bearing, thereby a more detailed investigation is warranted. Low maintenance costs and high long term sustainability must be maximized while protecting infrastructure associated with the boat launch. A key constraint that must be accounted for during the design process is uninterrupted access to the boat launch and associated parking during construction. Limited interruption to other park facilities is acceptable to Parks staff. An additional constraint may be the impact of the project on current human uses of the site. Stakeholder input will be an important part of the feasibility process in this respect.

If the project is constructed, overall project success will be quantified through monitoring using the following measures, which stem directly from the project goals and objectives listed in Part 1 of this document. Success can be quantified in terms of:

1. The proportion of the restored sites that are restored to daily tidal inundation.
2. The proportion of the restored sites that is seasonally accessible by juvenile Chinook and other native fish species.
3. The proportions of the restored sites that are occupied by native tidal marsh vegetation.
4. The degree to which invasive exotic vegetation is excluded from the restored sites.
5. Persistence and self-sustainability of blind tidal channel habitat for juvenile salmon.
6. Seasonal occupation of the restored marshes by marsh bird species.
7. Time series trends that show persistence and self-sustainability in measures 1 though 5.

Adaptive management is based on project monitoring, without which it is impossible to manage adaptively (Thom 2000). Data collected via the monitoring program will be used to inform objective decision making about unforeseen occurrences.

* 1. **List and describe the major tasks and schedule you will use to complete the project. (Planning projects should typically be completed within two years of funding approval).**
	2. **March 2015**- Stakeholder/public kickoff meeting to present goals and objectives, solicit concerns, and outline timeline of tasks.
	3. **March-July 2015-** Survey of site topography, cultural resources, utilities, and infrastructure.

This task will include a total station survey of site topography, a utility locate, GPS mapping of utilities, buildings, and site infrastructure, and a cultural resources investigation. All survey work other than cultural resources and the utility locate will be conducted by SRSC staff. The cultural resources investigation will be conducted by Washington State Parks staff.

* 1. **June-August 2015-** Engineering analysis for outlet channel, etc. Development of preliminary design alternatives.
	2. **August 2015-** Present alternatives to Parks staff and stakeholders.
	3. **August-September 2015-** Design revision and selection of preferred alternative.
	4. **October-November 2015-** Public presentation of preferred preliminary design and next steps.
	5. **October-November 2015-** Approval of preferred alternative by Parks Commission.
	6. **November-December 2015-** Final report preparation and distribution.