



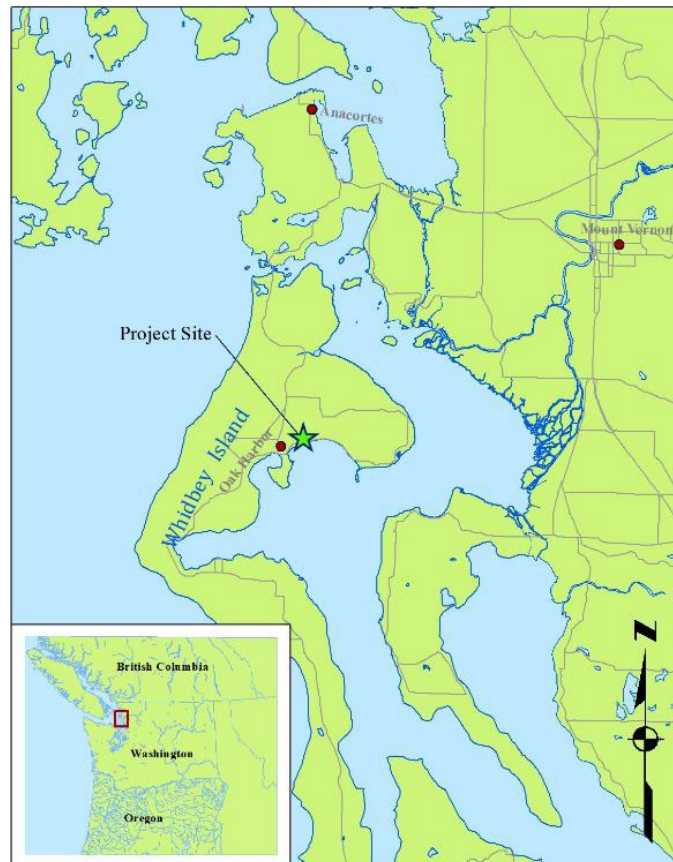
## **Crescent Harbor Creek Restoration Project Stewardship Plan**

Skagit River System Cooperative

SRFP Project Number: 18-1366

April 4, 2023

The purpose of this plan is to provide a foundation by which the Skagit River System Cooperative (SRSC) manages a habitat restoration project funded via the Washington State Recreation and Conservation Office Salmon Recovery Funding Board (SRFB) project #18-1366. This project is located along Crescent Creek on property owned by the United States Navy, the Naval Air Station Whidbey Island (NASWI), in Island County. This plan summarizes the restoration actions taken as part of project #18-1366 and identifies future management objectives along this reach.



**Figure 1. Project Location Map**

## **Project Purpose**

The overall goal for the Lower Crescent Harbor Creek Restoration project was to sustainably restore natural stream and floodplain processes, conditions, functions, and biological responses by restoring a natural stream corridor to a historically diked and straightened section of stream.

In accomplishing our goal, we will be contributing to the following recovery targets:

- Restore riparian and surrounding scrub-shrub wetland habitats.
- Restore non-natal stream channel rearing capacity and freshwater nearshore inputs for ESA-listed juvenile Chinook salmon during the early phases of their oceanward migration.
- Restore channel spawning habitat capacity for adult coho salmon.
- Restore estuarine and wetland habitat conditions for other native fish and wildlife species.
- Improve water quality conditions within lower Crescent Harbor Creek and the Crescent Harbor Salt Marsh, a 206-acre SRFB- and ESRP-funded estuary restoration site located at the mouth of Crescent Creek.

Project objectives for restoration at the site extend from the project goals and included:

- Constructed 316 LF of new channel to allow connection to an existing culvert at the upstream end of the project site.
- Regraded 1,104 LF of the historic channel and floodplain alignment in places where it has been filled or the grading was altered from the original configuration to increase habitat area, improve water quality, decrease velocity, and improve connectivity to the downstream salt marsh restoration site.
- Constructed a 40' roughened channel just downstream of the existing Crescent Harbor Road crossing to reduce scour potential.
- Constructed a series of 13 riffles and pools to mimic a channel established via natural processes.
- Installed log scissor weirs above pools to increase likelihood that constructed pools will maintain depth.
- Installed rootwads and logs along the length of the restored channel to increase habitat diversity and complexity.
- Restored native riparian forest and scrub-shrub wetland vegetation on 4.0 acres to support riparian functions and detrital food chains for juvenile salmonids and marsh birds.

### **Project Description**

For this project, 1,398 LF of sinuous stream channel was restored along Crescent Harbor Creek's historic alignment. The channel included 12 pools with associated log scissor weirs and log constrictions to help maintain them, as well as other LWM placements to increase habitat complexity. A total of 68 log structures were installed. Approximately 4.0 acres of riparian habitat were planted with 2,200 native tree and shrub species along the margins of the restored channel, and the previous ditched alignment was filled, replanted, and covered with slash. Post-project monitoring completed by SRSC has shown use by juvenile Chinook, chum, and coho salmon throughout the entire length of the restored channel in numbers greater than the 5 years of pre-project monitoring combined.



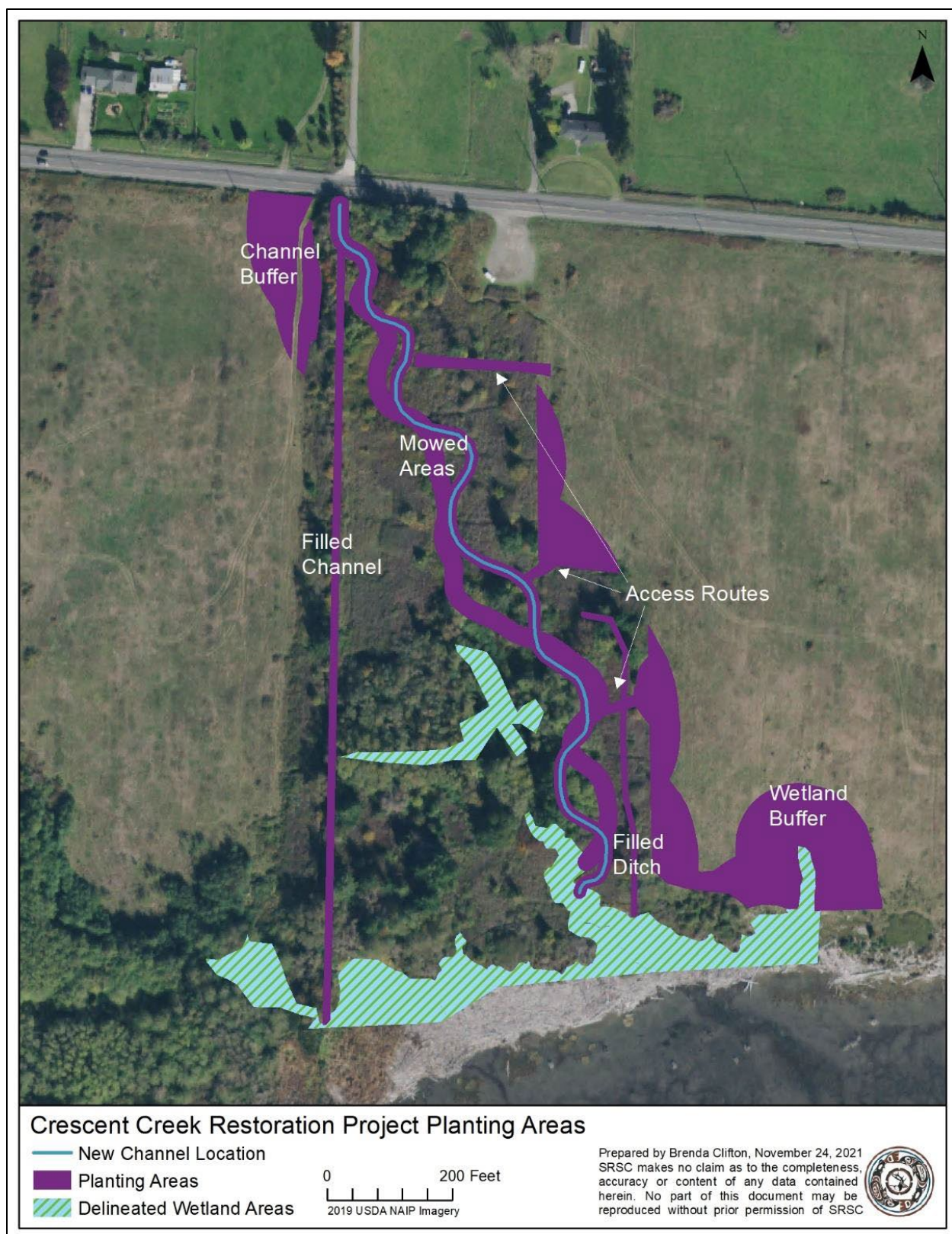


Figure 2. Channel construction and planting restoration actions

As property owner and a primary project partner, the US Navy has demonstrated commitment to restoring salmon habitat at Crescent Harbor Creek as well as at the 206-acre Crescent Harbor Salt Marsh project downstream, which was completed in 2009 using SRFB, Navy, and ESRP funds. The site has been managed for decades as a natural area, and this will continue into the future. For the 2023 SRFB round, SRSC has proposed a project to study the feasibility of continuing restoration work on a Whidbey Camano Land Trust-owned property upstream of the 18-366 restoration site.

### **Monitoring and Maintenance Responsibilities**

Using Navy funding, SRSC has completed one season of post-restoration monitoring for utilization of the restored channel by juvenile salmon. Electrofishing surveys have shown juvenile Chinook, chum, and coho salmon use throughout the entire restored reach (Henrichs and Lemoine 2022). A second season of monitoring is currently underway. Additionally, using the same funding, SRSC crews are recording data about stream temperature, vegetation canopy cover, and plant survival that can be used over time to monitor the effectiveness of riparian plantings along the stream margins in increasing shade and reducing stream temperatures. Finally, SRSC has been mowing around tree and shrub plantings to help encourage growth and survival. SRSC is currently seeking funding from the SRFB for an additional three years of vegetation maintenance. If funding allows, this work will be continued in future years.

### **Planned effectiveness monitoring**

If funding allows, additional fish and vegetation monitoring using similar methods to those described above, will help to document restoration effectiveness over time as the site evolves. In particular, plantings installed as part of this project will take some time to reach heights sufficient to provide shade cover to the stream channel, so a longer monitoring period is warranted. Additionally, little is known about upstream migration distances by juvenile salmon in non-natal streams, or about the potential spawning activity within the restored reach and upstream reaches, so additional monitoring will be beneficial.