

### PROJECT: 18-1366 REST, CRESCENT HARBOR CREEK RESTORATION Sponsor: Skagit River Sys Cooperative Program: Salmon State Projects Status: Active

Project Start Date: 07/01/2019 Agreement End Date: 12/31/2022

Final Report Status: Accepted 03/20/2023

### Description

#### PROJECT AGREEMENT DESCRIPTION

Complete final design and permitting leading to construction for restoration of 1,400 feet of Crescent Harbor Creek between Crescent Harbor Road and the estuary. This projec advances the previously SRFB-funded design phase (RCO #13-1112). The restoration will reestablish meanders, pools and other stream complexity that was lost when the stream was ditched and straightened decades ago. The restoration will reconnect the channel downstream of Crescent Harbor Road to the adjacent floodplain, and will add more than 4 feet of length to the current ditched 1,000 foot channel by returning the channel to its historic alignment. A roughened channel approximately 40ft long will be utilized downstream the culvert under Crescent Harbor Road to prevent scour erosion at high velocities and enable fish passage upstream. Project will ultimately benefit ESA-listed Chinook salmon and steelhead trout, along with coho, pink and chum salmon.

#### FINAL 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 scisso 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. 4.0 acres of ripar habitat were planted with native vegetation along the margins of the restored channel, and the previous ditched alignment was filled, replanted, and covered with slash. Post-pro 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.

### Narrative

The goal of the Crescent Harbor Creek is to sustainably restore natural stream and floodplain processes, conditions, functions, and biological responses by restoring a natural stream corridor the diked and ditched lower reach of the creek. To do this, we excavated a sinuous channel that followed a relict channel apparent on the landscape between th West Crescent Harbor Road culvert crossing and the historic creek mouth at the Crescent Harbor Salt Marsh. This lengthened the channel's lower reach by roughly 40%, which reduced gradient and flow velocities. Additionally, we constructed 12 pools, placed streambed gravel, and installed 68 wood structures to provide habitat diversity and cover in w had been a relatively featureless and straight section

of channel. Near the culvert crossing at the upstream end of the project, we constructed a roughened channel to help minimize scour below the culvert outlet. Along the stream margins, we planted 4.0 acres of riparian habitat with 2,200 native tree and shrub species. As these mature, they will provide shade to instream habitat and will help to support t natural food webs important for stream productivity.

This project was funded by the Pacific Salmon Commission Southern Fund, by the Washington State Salmon Recovery Funding Board, and by the United States Navy. Engineering and design work was completed by Paul Tappel, PE from Fisheries Engineers, Inc. The project final report is attached in PRISM, and includes design documents a as-built plans. Staff from SRSC provided project management, grant management, permitting, contracting, survey, construction oversight, planting, and monitoring for the proje with support from NASWI staff. Construction was completed from September to October 2021 by Tiger Construction, Ltd, with archaeological monitoring provided throughout by Equinox Research and Consulting International. As-built surveys were completed by SRSC staff in an ongoing fashion as sections were constructed. The as-built drawings are attached as Appendix B to the final report and show the locations of the following construction actions:

- 1. Cleared haul routes for equipment access.
- 2. Constructed 12 pools with associated log scissor weirs and log constrictions to help maintain them.
- 3. Placed various other large woody debris pieces along the length of the channel.
- 4. Constructed a roughened channel below the West Crescent Harbor Road culvert crossing.
- 5. Filled the ditched reach of Crescent Harbor Creek following redirection of flows into the new channel.
- 6. Filled other remnant agricultural ditches within the project site.
- 7. Elevated the existing parking area for the site using excess excavated materials and surfaced with crushed rock.
- 8. Graded remaining excess excavated materials into a designated upland fill site.
- 9. Seeded areas disturbed by construction activities with native grasses.
- 10. Planted 4.0 acres with 2,200 native tree and shrub species.

The project was completed on-schedule and on-budget, with construction work taking place in late summer-fall 2021. For the most, part, work proceeded smoothly, though the permit process proceeded much more slowly than anticipated, which delayed the start of construction by almost two months. This resulted in a scramble to complete channel w before the rainy season weather rendered the site impassable to heavy equipment. We appreciate the flexibility and persistence of Tiger Construction in completing the work or time despite these challenges. This project restored channel length and habitat complexity to 1,398 LF of the lower reach of Crescent Harbor Creek and improved habitat condit within the broader Crescent Harbor Salt Marsh complex. Post-project monitoring has shown immediate use of the restored site by juvenile salmon. We expect habitat complexit increase over time as vegetation and other site features mature.

### Worksites

Worksite #1: Lower Crescent Harbor Creek

Worksite Address (Optional) Street Address City Oak Harbor State, Zip WA 98278

### **Worksite Details**

#### Worksite #1: Lower Crescent Harbor Creek

Worksite Name Lower Crescent Harbor Creek

#### WORKSITE DESCRIPTION

The lower Crescent Harbor Creek worksite is located on Naval Air Station Whidbey Island, and is owned by the United States Navy. The site consists of a diked and straightened stream channel that is bordered by pastureland to the west and riparian scrub-shrub habitat to the east. The stream provides freshwater inputs to the Cresce Harbor Salt Marsh, a 206 acre pocket estuary restoration site. We are proposing to restore the creek to it's historic alignment to improve floodplain connectivity and fish access.

#### Geographic Coordinates

From mapped point:	Latitude	48.306397	Longitude	-122.620050
For Directions:	Latitude	48.307511	Longitude	-122.619351

#### SITE ACCESS DIRECTIONS

From SR20 heading south toward Oak Harbor, take a slight left on NE Regatta Road, and then another slight left onto Torpedo Road after a short distance. At the stop sig turn left onto W Crescent Harbor Road. After about 0.5 miles, cross Crescent Harbor Creek and turn into the gravel parking lot on the right. Note that Navy permission is required to access this site.

### **Properties**

Worksite #	Worksite Name	Property Name	Sponsor Verified	RCO Verified	RCO Verified Map
1	Lower Crescent Harbor Creek	US Navy: P43358	$\checkmark$	$\checkmark$	N/A

### **Restoration Metrics**

Current Agreement	Final

Worksite: Lower Crescent Harbor Creek (#1)

Targeted salmonid ESU/DPS (A.23)	No Salmon ESU or Steelhead DPS	No Salmon ESU or Steelhead DPS
	<ul> <li>Chinook Salmon-Puget Sound ESU</li> </ul>	<ul> <li>Chinook Salmon-Puget Sound ESU</li> </ul>
	Chinook Salmon- unidentified ESU	Chinook Salmon- unidentified ESU
	Chum Salmon-Puget Sound/Strait of Georgia ESU	<ul> <li>Chum Salmon-Puget Sound/Strait of Georgia ESU</li> </ul>
	Chum Salmon-unidentified ESU	Chum Salmon-unidentified ESU
	<ul> <li>Coho Salmon-Puget Sound/Strait of Georgia ESU</li> </ul>	<ul> <li>Coho Salmon-Puget Sound/Strait of Georgia ESU</li> </ul>
	Coho Salmon-unidentified ESU	Coho Salmon-unidentified ESU
	Pink Salmon-Odd year ESU	Pink Salmon-Odd year ESU
	Pink Salmon-unidentified ESU	Pink Salmon-unidentified ESU
	Steelhead-Puget Sound DPS	Steelhead-Puget Sound DPS
	Steelhead/Trout- unidentified DPS	Steelhead/Trout- unidentified DPS
Targeted species (non-ESU species)	None Unknown Brook Trout Brown Trout Bull Trout ✓ Cutthroat Forage Fish Kokanee Lamprey Rainbow Searun Cutthroat	NoneUnknownBrook TroutBrown TroutBull Trout✓CutthroatForage FishKokaneeLampreyRainbowSearun Cutthroat
Miles of Stream and/or Shoreline Treated or Protected (C.0.b)	0.28	0.30
Project Identified In a Plan or Watershed Assessment (C.0.c)	EDAW, PWA, and cbec. 2008. Naval Air Station Whidbey Island P-8A Multi-Mission Aircraft Introduction: Wetland Mitigation Feasibility Report. Sacramento, CA.	Not Collected at Closure
Priority in Recovery Plan	Feasibility study for wetland and stream channel habitat restoration as part of a mitigation feasibility study for a Navy airfield expansion project. The lower Crescent Harbor Creek project is no longer required as a mitigation site. Even so, the Navy remains interested in pursuing restoration at the site, and the mitigation feasibility study represents a solid basis on which to develop a restoration design.	Not Collected at Closure
Type Of Monitoring (C.0.d.1)	<ul> <li>Implementation Monitoring None</li> </ul>	✓ Implementation Monitoring None Note: As-built monitoring was
		included as part of the final rej attached in PRISM.
Monitoring Location (C.0.d.2)	No monitoring completed Downstream ✓ Onsite	<ul><li>No monitoring completed</li><li>Downstream</li><li>✓ Onsite</li></ul>

Upslope

Upslope

Upstream

Upstream

	Instream	Habitat	Pro	ject
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instream Habitat Project		
Total Miles Of Instream Habitat Treated (C.4.b)	0.30	0.30
Channel reconfiguration and connectivity (C.4.c.1)		
Total cost for Channel reconfiguration and connectivity	\$219,480	Not Collected at Closure
Type of change to channel configuration and connectivity (C.4.c.2)	<ul> <li>Channel Bed Restored</li> <li>Creation of Instream Pools</li> <li>Creation/Connection to Off-Channel Habitat Levee removal/Alteration</li> <li>Meanders Added None</li> </ul>	<ul> <li>Channel Bed Restored</li> <li>Creation of Instream Pools</li> <li>Creation/Connection to Off-Channel Habitat</li> <li>Levee removal/Alteration</li> <li>Meanders Added</li> <li>None</li> </ul>
Miles of Stream Treated for channel reconfiguration and connectivity (C.4.c.3)	0	C
Miles of Off-Channel Stream Created or Connected (C.4.c.4)	0.30	0.30
Acres Of Channel/Off-Channel Connected Or Added (C.4.c.5)	1.3	1.3
Instream Pools Created/Added (C.4.c.6)	13	12
Channel structure placement (C.4.d.1)		
Total cost for Channel structure placement	\$13,320	Not Collected at Closure
Material Used For Channel Structure (C.4.d.2)	<ul> <li>Deflectors/Barbs</li> <li>Flood Fencing</li> <li>Gabions</li> <li>Individual Logs (Anchored)</li> <li>✓ Individual Logs (Unanchored)</li> <li>Logs Fastened Together (Logjam)</li> <li>None</li> <li>Other Engineered</li> <li>Structures</li> <li>Rocks/Boulders (Fastened</li> <li>Or Anchored)</li> <li>Rocks/Boulders (Unanchored)</li> <li>✓ Stumps With Roots Attached (Rootwads)</li> <li>✓ Weirs</li> </ul>	<ul> <li>Deflectors/Barbs</li> <li>Flood Fencing</li> <li>Gabions</li> <li>Individual Logs</li> <li>(Anchored)</li> <li>✓ Individual Logs</li> <li>(Unanchored)</li> <li>✓ Logs Fastened Together</li> <li>(Logjam)</li> <li>None</li> <li>Other Engineered</li> <li>Structures</li> <li>Rocks/Boulders (Fastened</li> <li>Or Anchored)</li> <li>✓ Stumps With Roots</li> <li>Attached (Rootwads)</li> <li>✓ Weirs</li> <li>Note: Log weirs and</li> <li>rootwads/logs were installed.</li> <li>Wood pieces were embedded</li> </ul>
Miles of Stream Treated for channel structure placement (C.4.d.3)	0.30	0.30
Pools Created through channel structure placement (C.4.d.5)	13	12
Number of structures placed in channel (C.4.d.7)	74	68
Spawning gravel placement (C.4.f.1)		
Total cost for Spawning gravel placement	\$31,200	Not Collected at Closure
Miles of Stream Treated with spawning gravel placement (C.4.f.2)	0.30	0.30
Cubic Yards of spawning gravel placed (C.4.f.3)	578	650
Riparian Habitat Project		
otal Riparian Miles Streambank Treated (C.5.b.1)	0.60	0.60
otal Riparian Acres Treated (C.5.b.2)	2.0	4.0

Total cost for Planting		\$3,000	Not Collected at Closure
Species Of Plants planted in riparian (C.5.c.2)	Alnus rubra Salix lucida Cornus sericea Rosa nutkana Salix sitchensis		Alnus rubra Salix lucida Cornus sericea Rosa nutkana Salix sitchensis
Acres Planted in riparian (C.5.c.3)		2.0	4.0
Miles of streambank planted (C.5.c.4)		0.60	0.60
Average Riparian Width		65	65

### **Cultural Resources**

Planting (C.5.c.1)

### Cultural resources

Cultural resource work completed	Collected at Closure	Acres excavated	Number 0
		Hours of monitoring required	40
		Number of structures documented	
Total cost for Cultural resources	\$5,000	Not Collected	at Closure
Acres surveyed for cultural resources	2.00		2.00

#### Permits

Obtain permits	
Total cost to Obtain permits	\$30,000
Number of permits required for implementation of project	

### **Architectural & Engineering**

Architectural & Engineering (A&E)		
Total cost for Architectural & Engineering (A&E)	\$61,000	Not Collected at Closure
Did A&E costs exceed billed amount (Yes/No)	Collected at Closure	No
Agency Indirect Costs		
Agency Indirect		
Total cost for Agency Indirect	\$82,583	Not Collected at Closure

Not Collected at Closure

5

# **Overall Metrics**

	Current Agreement	Final
Completion Date		
Projected date of completion	12/31/2020	12/31/2022
Broject Goole		
Project Goals		
Goals, purpose, and expected benefits (A.17)	To improve fish passage through a culvert and restore downstream channel complexity, thus increasing habitat access and improving instream habitat quality for salmon.	The goal of this project was to restore approximately 1,4000 l of stream channel to a natural sinuous alignment for the purp of increasing habitat quantity a quality for juvenile Chinook and other salmonids.

# **Restoration Costs**

		Date of Proposed	Last Released Billing 01/03/2 Final
Worksite: Lower Crescent Harbor Creek	x (#1)		
	SPLIT OUT FINAL TOTAL BELOW	\$445,583	\$445,583
Instream Habitat Costs (C.4.a)		\$264,000	\$296,156
Riparian Habitat Costs (C.5.a)		\$3,000	\$3,809
Cultural Resource Costs		\$5,000	\$28,950
Permits Costs		\$30,000	\$15,350
Architectural & Engineering Costs		\$61,000	\$72,134
Agency Indirect Costs		\$82,583	\$29,184
	Difference		\$0

# **Billed Summary**

				Date of Lasi	Released Billing 01/03/20
Projec		greement		Totals To Date	
Category	RCO	Total	Expended	Non Reimbursable	Total Bille
Restoration					
Construction	301,093.32	371,283.00	313,589.82	59,858.82	373,448.6
AA&E	77,489.68	74,300.00	64,993.18	7,141.18	72,134.3
Restoration Total	378,583.00	445,583.00	378,583.00	67,000.00	445,583.0
Total	378,583.00	445,583.00	378,583.00	67,000.00	445,583.0

# **Sponsor Match**

	Proposed	Final
Project Funding		
Federal Funds		
State Funds (A.11)	\$378,583.00	\$363,439.68
Retainage - RCO amount retained	Collected at Closure	\$15,143.32

# **Match Details**

Match Category	Match Type		Proposed	I	Final	
Other Monetary Funding	Grant - Local				Unable to tie Bili Proposed match. corrections as nee correc	led match t Please ma ded, or lea ct.
Amount			N/A		5	\$67,000.00
Funding Organization					Pacific Salmon Con	nmission
Grant Program					Crescent Harbor Cr Restoration	reek
Other Monetary Funding	Grant - Local				Unable to tie Bill Proposed match. corrections as nee correc	led match t Please ma ded, or lea ot.
Amount			N/A			
Funding Organization						
Grant Program						
Donated Unpaid Labor	Donated General Labor					
Amount			\$6	67,000.00		\$0.00
Funding Organization						
Number of Hours			Collected at C	Closure		
Valuation Method			Collected at C	Closure	RCO Standard I	_abor Rate
		Project Funding Total	\$378,583.00	84.96 %	\$378,583.00	84.96 %
		Sponsor Match Total	\$67,000.00	15.04 %	\$67,000.00	15.04 %
		Project Total	\$445,583.00	100.00 %	\$445,583.00	100.00 %

Total Billed

Difference

\$445,583.00

\$0.00

### Attachments

PHOTOS (JPG, GIF) Photos (JPG, GIF)

PROJECT DOCUMENTS AND PHOTOS Project Documents and Photos						
File Type	Attach Date	Attachment Type	Title	Person	File Name, Number Associations	
No att	achments	match filter criteria				

# **Certify & Submit**

Status History			
Report Status	Date	User	Note
Accepted	03/20/2023	Bridget Kaminski	Great project. Looking forward to the upper reach project. Thank you.
Submitted	03/14/2023	Eric Mickelson	Thank you!
Draft	01/26/2023	Eric Mickelson	

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### PROJECT: 18-1366 REST, CRESCENT HARBOR CREEK RESTORATION <u>Sponsor: Skagit River Sys Cooperative</u> Program: Salmon State Projects Status: Active Project Start Date: 07/01/2019 Agreement End Date: 12/31/2022

#### PROPERTY: US Navy: P43358 (1: Lower Crescent Harbor Creek)

**Control and Tenure** 

### **Property Basics**

#### Acquisition √Restoration

### **Property Location**

Property Name Property Address (optional) City	US Navy: P43358	Property Description	The lower Crescent Harbor Creek worksite is located on Naval Air Station Whidbey Island, and is owned by the United States Navy. The site consists of a diked and straightened stream channel that is bordered by pastureland to the west and riparian scrub-s
State	Zip	Associated Worksite	Lower Crescent Harbor Creek (#1)

#### Landowner

Landowner Name	United States Navy	Instrument Type	Landowner Agreement
Address	3730 North Charles Porter Avenue	Timing	Proposed
(optional) City	Oak Harbor	Term Type	Perpetuity
State	WA <b>Zip</b> 98278-5000	# Yrs	
Landowner Type	Federal	Expiration Date	

#### **Parcel Numbers**

	County Name No parcels	Parcel Number	Mapped	Notes (optional)		
Rec	Recording Numbers					
	Instrument Type No recordings	Recording Number	Notes	S		
Spo	Sponsor Clarification					

✓ The above information is correct and complete

### **RCO Notes**

✓ Property data verified by RCO Staff

### Property Report: US Navy: P43358 (Worksite #1: Lower Crescent Harbor Creek)

### Attachments

PHOTOS (JPG, GIF) Photos (JPG, GIF)

## PROJECT DOCUMENTS AND PHOTOS

Project Documents and Photos
File Attach

 Type
 Date
 Attachment Type

 No attachments match filter criteria

Title

Person

File Name, Number Associations

Shared