

## Project #10-1365, Stillwater Floodplain Restoration - Construction

Submitted by Micah Wait on 03/14/2014

Accepted by Elizabeth Butler on 03/28/2014

### CONTACTS

**Primary Sponsor:** Wild Fish Conservancy

**Project Contact:** Micah Wait  
micah@wildfishconservancy.org

**Lead Entity:** Snohomish County LE

**Billing Contact:** Terri Shell  
terri@wildfishconservancy.org

**Managing Agency:** Rec. and Conserv. Office

**RCO Grant Manager:** Elizabeth Butler  
elizabeth.butler@rco.wa.gov

### DESCRIPTION OF THE COMPLETED PROJECT

**Project Start Date:** 10/07/2010

**FundingEnd Date:** 03/15/2014

**RCO Closure Date:**

This project resulted in the restoration of 2,100 feet of shoreline in the Stillwater reach of the Snoqualmie River. Project actions included the removal of 2,100 ft of bank revetments, and the restoration of shoreline edge habitat with woody debris installations and native plantings. Flood fencing was also installed along a low bank section of the shoreline.

### SITE LOCATION

**General Area of Project:** Stillwater Wildlife Unit of the Snoqualmie Wildlife Area along Snoqualmie River

**Waterbodies:**

**Cong District:** 08  
**Cong District 2012:** 01  
**County:** King  
**HUC:** Snoqualmie  
**Leg District:** 45  
**Leg District 2012:** 05  
**Salmon Recov Reg 05:** Puget Sound  
**Section:** 09  
**Township/Range:** T25NR07E  
**WAU:** Cherry



**Sponsor Clarifications:**

Sponsor verified the above information is correct and complete.

## PROJECT NARRATIVE

The Stillwater Floodplain Restoration project was a salmon habitat restoration project constructed by Wild Fish Conservancy in August and September of 2013. The project was located in the Stillwater Reach of the Snoqualmie River on public lands stewarded by WDFW and an adjacent private farm. The goal of the Stillwater Floodplain Restoration project was to enhance the geomorphic and biological processes that create and maintain a dynamic mosaic of floodplain habitats in Snoqualmie River Valley Bottom. Habitat-forming fluvial processes in this reach of the Snoqualmie have been impaired by bank hardening, a lack of stable large woody debris, and reduced riparian forest cover. The restoration objective of this project was to restore natural sedimentation processes in the reach through the removal of 2100' of bank revetment.

For complete project details, please see the full engineering plan set attached to the file. The project occurred on two properties, the WDFW owned Stillwater Wildlife Unit, and a neighboring farm to the south of the Wildlife Unit. The project site was accessed via an existing farm road that was extended down an overgrown roadbed and onto the dike road, which ran the length of the revetment facility from the farm to the Wildlife Unit. Excavators were used to clear vegetation that had grown on top of the revetment facility including mature cottonwood trees, which were salvaged and used for the flood fencing installation. Once the project footprint had been cleared, excavators were used to dig out the area of the revetment cap structure, which was located at the upstream end of the project. The revetment cap structure extended the existing facility by curving into the floodplain away from the river, and will prevent damage to the remaining facility by deflecting erosive energy downstream during high water events. Existing bank materials in the area where the revetment cap was constructed were hauled off site. The revetment cap structure was built by filling in the excavated area with the large rock material hauled off of the face of the main revetment facility. Material hauled off site from the upper end of the project (private land) consisted of "pit-run" quality gravels, sand and cobbles that were likely hauled on to site during construction of the revetment facility. An examination of historic aerial photographs for the site indicates that at the upper end of the facility the revetment was built out into existing river-bed with fill material placed behind the revetment. Downstream, there was no indication of fill materials being placed behind the facility.

The revetment removal was constructed to the specifications as developed in the plan sets with two primary modifications: 1) the flood fencing was consolidated into one area instead of multiple locations, and 2) material behind the revetment rock was not removed to match the floodplain ground level north of where the access road meet the revetment facility.

Flood fencing was consolidated into the lowest area along the river bank, which is the area where it is expected to be the most effective for capturing LWD and creating off channel habitat. This resulted in fewer disturbances of existing mature vegetation and will likely result in better habitat outcomes for the site

The original plans called for all earthen material behind the revetment facility to be removed down to the general elevation of the floodplain behind the facility. Due to the uneven elevations along the bank and in the floodplain this meant that in some areas the plans called for no material to be removed, while other areas would have 100's of yards of material to remove (see the Cross-Section sheets in the Engineering Plan set for further detail). The majority of the areas with fill behind the revetment were located on the private farm, with little fill material being evident in the Wildlife Area. Material was removed according to the plan set south of the access road junction with the facility and in the area of the access road junction, where the differences in elevation were the greatest. However north of the access road junction, earthen material behind the revetment that was higher than the floodplain behind it was not removed. This is due to issues that occurred onsite with the project subcontractor. During project construction WFC was made aware that Wetlands Creation, the sub contractor hired to haul spoils from the site, was taking material to a non-permitted wetland site. All hauling was immediately ceased once this was discovered, and the violations were reported to the State and County.

We do not expect this change from the plan set to have any effect of the project outcomes, as the material that was left onsite consisted mostly of silts, sand, and gravel, which this reach of the river is quite capable of mobilizing.

## AMENDMENTS

#	Type	Applied Date	Description
4	Time Extension	12/23/2013	The project period of 10/07/2010 to 12/31/2013 is extended to allow the contracting party until 03/15/2014 to complete the project.
2	Cost Change	08/30/2013	The project agreement is amended to a) increase the award amount by \$65,100 of 2013-15 PSAR funding to total a SRFB award amount of \$546,100; b) decrease the match amount by \$86,814 of sponsor match to total \$118,000 (17.77%) because sponsor was unable to secure additional grant funds, and c) expand the scope to remove an additional 1,100 feet of bank revetment bringing the total length of bank protection removal to 2,100 feet.
3	Time Extension	08/22/2013	The project period of 10/07/2010 to 10/31/2013 is extended to allow the contracting party until 12/31/2013 to complete the project.
1	Time Extension	11/19/2012	The project period of 10/07/2010 to 12/31/2012 is extended to allow the contracting party until 10/31/2013 to complete the project.

## OVERALL PROJECT COSTS

Funding Formula:	Requested		Original		Final	
Puget Sound Acq. & Restoration:	\$0.00	(0%)	\$240,248.00	(35%)	\$305,348.00	(46%)
Salmon Federal Projects:	\$0.00	(0%)	\$240,752.00	(35%)	\$237,848.44	(36%)
Salmon State Projects:	\$481,000.00	(70%)	\$0.00	(0%)	\$0.00	(0%)
Sponsor Match:	\$204,814.00	(30%)	\$204,814.00	(30%)	\$117,372.61	(18%)
<b>Total:</b>	<b>\$685,814.00</b>	<b>(100%)</b>	<b>\$685,814.00</b>	<b>(100%)</b>	<b>\$660,569.05</b>	<b>(100%)</b>
<b>Paid To Date:</b>	\$543,196.44				<b>Last Released Billing:</b> 04/03/2014	
<b>Remaining RCO Funds:</b>	\$0.00				<b>Pending Billing:</b> No	
<b>Advance Balance:</b>	\$0.00		<b>Match Bank:</b>	\$1,731.52	<b>Number of Billings:</b> 24	
<b>Admin Limit:</b>	\$0.00		<b>Admin Spent:</b>	\$0.00		
<b>A&amp;E Limit:</b>	\$152,439.01	30.00%	<b>A&amp;E Spent:</b>	\$123,579.13	18.70%	

Billed Cost Summary:	Original Agreement	Expended	Non-Reimbursable	Total Billed
Restoration				
Construction	\$510,846.15	\$458,120.61	\$80,600.83	\$538,721.44
A&E	\$153,253.85	\$85,075.83	\$38,503.30	\$123,579.13
Restoration Total	\$664,100.00	\$543,196.44	\$119,104.13	\$662,300.57
Total	\$664,100.00	\$543,196.44	\$119,104.13	\$662,300.57

Project Cost Metrics:	Original Agreement	Final
PCSRF Federal Funds:		\$237,848.44
State Funds:		\$305,348.00
Other Federal Funding:		
Pending Billing - RCO Share Approved:		
Retainage - RCO amount retained:		\$0.00
Amount of other monetary funding:	\$110,056.00	\$117,905.00
Project identifier for the other monetary funding:	N/A	N/A
Source of other monetary funding:	King Conservation District, \$50,000, Other sources not yet determined	2012 King County CWM grant to Ducks Unlimited for \$67,000 and a 2010 King Conservation District grant for \$50,000
Value of Donated Unpaid Labor (Volunteers):	\$0.00	\$0.00
Source of Donated Un-paid labor contributions:	None	none
Number of hours volunteers contributed to the project:		0
Describe how the value of the volunteers was determined:		NA
Value of Donated Paid Labor:	\$0.00	\$1,200.00
Source of Donated Paid Contributions:		Sea Level Bulkhead Builders
Value of Other In-Kind Contributions:	\$0.00	\$0.00
Source of Other In-Kind Contributions:		NA
Description of other In-Kind contributions:	None	NA

**PROJECT METRICS**

	<b>Original Agreement</b>	<b>Final</b>
<b>Completion Date</b>		
Projected date of completion:	12/31/2012	03/14/2014
<b>Project Goals</b>		
Goals, purpose, and expected benefits:		This project restored 2100 feet of shoreline in the Stillwater Reach of the Snoqualmie River through the removal of shoreline armoring and riparian planting.

## WORKSITE #1: Stillwater Wildlife Unit

**Worksite Description:** We will be working on the outside edge of Chinook Bend, within the Stillwater Wildlife Unit of the Snoqualmie Wildlife Area.

**Driving Directions:** From Duvall drive south on highway 203, just before the Stillwater intersection, there is a parking access to the Unit on the right hand side of the road.

**Coordinates for Worksite Directions - Latitude:** 0.00      **Longitude:** 0.00

**Sponsor Clarifications:**

The worksite also included a private farm parcel to the south of the Wildlife Unit.

## WORKSITE #1 COSTS

Worksite Billed Cost:	Estimated	Expended	Non-Reimbursable	Total Billed
A&E	\$25,590.00	\$85,075.83	\$38,503.30	\$123,579.13
Construction	\$660,224.00	\$458,120.61	\$80,600.83	\$538,721.44
Worksite Total	\$685,814.00	\$543,196.44	\$119,104.13	\$662,300.57

Worksite Costs by Category:	Original Agreement	Final
Estuarine / Nearshore Funding:	\$628,224.00	
Instream Habitat Funding:		\$461,896.00
Riparian Habitat Funding:		\$51,826.00
Cultural resource funding:		\$5,000.00
Permits Funding:		\$20,000.00
Architectural & Engineering Funding:		\$123,579.13

## WORKSITE #1 METRICS

	Original Agreement	Final
Targeted salmonid ESU/DPS:	Chinook Salmon-Puget Sound ESU, Chum Salmon-Puget Sound/Strait of Georgia ESU, Coho Salmon-Puget Sound/Strait of Georgia ESU, Pink Salmon-Odd year ESU, Sockeye Salmon-unidentified ESU, Steelhead-Puget Sound DPS	Chinook Salmon-Puget Sound ESU, Coho Salmon-Puget Sound/Strait of Georgia ESU, Pink Salmon-Odd year ESU, Steelhead-Puget Sound DPS
Targeted species (non-ESU species):		Bull Trout, Cutthroat
Miles Of Stream Treated/Protected:	0.20	0.40
Project Identified In a Plan or Watershed Assessment:	The project ID in the 2010 Snohomish Basin 3-year Work Plan update is 07 – MPR – 302.  Snohomish Basin Salmon Recovery Forum. Snohomish River Basin Salmon Conservation Plan , Snohomish County, WA, 2005.  Snohomish Basin Salmonid Recovery Technical Committee. Ecological Analysis for Salmonid Conservation. Snohomish County, WA. 2005.  Wild Fish Conservancy. Stillwater Wildlife Unit Feasibility Analysis. Duvall, WA. 2010.  King County and Wild Fish Conservancy. Snoqualmie River Reach Cha	The project ID in the 2010 Snohomish Basin 3-year Work Plan update is 07 – MPR – 302.  Snohomish Basin Salmon Recovery Forum. Snohomish River Basin Salmon Conservation Plan , Snohomish County, WA, 2005.
Type Of Monitoring:	Implementation Monitoring	Implementation Monitoring

Monitoring Location:

Downstream, Onsite

Downstream, Onsite

*This project will be part of a larger monitoring effort by the Snohomish River Basin, which is currently drafting its Monitoring and Adaptive Management Plan. The Plan will include monitoring for implementation, project effectiveness, status and trends, and validation of plan hypotheses and assumptions. As such, the Monitoring Plan will ultimately determine if the basin is on track to delisting the two Chinook populations, bull trout char and steelhead. This wider context will be key to how projects such as Stillwater will advance the state of knowledge of the fish and their use of the Basin.*

**Estuarine / Nearshore Project**

Total Amount Of Estuarine / Nearshore Acres Treated: 0.0

**Dike Or berm modification / removal**

Total cost for Dike Or berm modification / removal:

Miles Of Dikes Removed: 0.19

Acres of Habitat Made Available To Salmonids through dike or berm modification/removal: 0.0

*With the removal of the levee, the river will be allowed to migrate into the Stillwater Wildlife area; however, the project may not provide immediate access to side-channel habitat, because older oxbows are not merely cut off by the levee. Over time, the river may occupy other parts of the floodplain behind the levee.*

**Instream Habitat Project**

Total Miles Of Instream Habitat Treated: 0.40

**Channel reconfiguration and connectivity**

Type of change to channel configuration and connectivity: Creation/Connection to Off-Channel Habitat, Levee removal/Alteration

Miles of Stream Treated for channel reconfiguration and connectivity: 0.40

Miles of Off-Channel Stream Created: 0.00

Acres Of Channel/Off-Channel Connected Or Added: 0.2

Instream Pools Created/Added: 0

**Channel structure placement**

Material Used For Channel Structure: Flood Fencing

Miles of Stream Treated for channel structure placement: 0.40

Acres Of Streambed Treated for channel structure placement: 0.0

Pools Created through channel structure placement: 0

Yards Of Average Stream-Width At Mid-Point Of Worksite: 30

Number of structures placed in channel: 35

**Riparian Habitat Project**

Total Riparian Miles Streambank Treated: 0.40

Total Riparian Acres Treated: 2.5

**Planting**

Species Of Plants planted in riparian:

Picea sitchensis  
Thuja plicata  
Tsuga heterophylla  
Acer macrophyllum  
Populus trichocarpa  
Alnus Rubra  
Salix lucida ssp. lasiandra  
Cornus sericea  
Salix scouleriana  
Symphoricarpus albus  
Acer circinatum

Acres Planted in riparian:

2.5

**Cultural Resources**

**Cultural resources**

Cultural resource work completed : Acres excavated:

0

Cultural resource work completed : Hours of monitoring required:

0

Cultural resource work completed : Number of structures documented:

0

Total cost for Cultural resources:

Acres surveyed for cultural resources:

5.00

0.00

**Permits**

**Obtain permits**

Total cost for Obtain permits:

Number of permits required for implementation of project:

8

**Architectural & Engineering**

**Architectural & Engineering (A&E)**

Did A&E costs exceed billed amount (Yes/No):

No

**PROPERTY DESCRIPTION (Gaisford O'Hanley)**

Activity: Restoration

**Control & Tenure:**

Instrument Type: Landowner Agreement

Timing: Proposed

Term Length: Fixed # of years # yrs: 10

Expiration Date:

Landowner Type: Private

Note:

**Parcel Numbers:**

County	Parcel Number	Note
King		

**Sponsor Clarifications:**

Sponsor verified the above information is correct and complete.

The worksite was accessed through the Gaisford O'Hanley property, additionally 1100' of bank revetement was removed from the Gaisford O'Hanley property.

**Sponsor Clarifications:**

## PROPERTY DESCRIPTION (Stillwater Wildlife Unit)

Activity: Restoration

### Control & Tenure:

Instrument Type: Landowner Agreement

Timing: Existing

Term Length: Fixed # of years # yrs: 10

Expiration Date:

Landowner Type: State

Note:

### Sponsor Clarifications:

Sponsor verified the above information is correct and complete.

Work was conducted on an additional property, a private farm to the south of the Stillwater Wildlife Unit. Construction access to the site was through the farm property.

### Sponsor Clarifications:

## SPONSOR CERTIFICATION

- I certify that this project has been completed in accordance with the project agreement.
- I certify that, to the best of my knowledge, the information in the Final Report is true and correct.

Submitted by Micah Wait on 03/14/2014