Project Completion Report for OWEB Grant 220-8205-18750

Final Completion Summary

The CC-38 project is located on privately owned property along Catherine Creek downstream of Union, Oregon. The property is currently managed as an operating farm and ranch, with much of the historic floodplain being in hay and pasture production. The channel through the project reach is moderately confined with a floodplain width of 67 feet, a sinuosity of 1.19, and a stream gradient of 0.5%.

In August 2017, after many years of discussion and negotiation with the Union SWCD and other natural resource agency partners, the landowner signed a riparian easement agreement based on the conceptual actions defined in the 15% conceptual drawings. This project enhanced aquatic habitat conditions in five pools with large wood placement, promoted riparian plant establishment and survival by reducing stream bank slopes, and decreased mass wasting of stream banks through the placement of large wood complexes.

Background

Aquatic habitat conditions are poor for juvenile salmonids in Catherine Creek within the CC-38 project reach, downstream of Union, Oregon. Data collected by the Bureau of Reclamation for the Catherine Creek Tributary Assessment indicated that large pools (pools greater than 1 meter deep) have declined. Stream survey data
collected in 2010 were compared to data collected by the Bureau of Fish data in 1935 and showed a decrease in the number of large pools from 27 to 5.6. The report indicates that stream channelization and a decrease in the abundance of large wood has led to a decrease in pool formation and maintenance. As an added result, hiding
cover and overall channel complexity is lacking. In similar findings, Favrot and Jonasson (2014) reported that Chinook were found most often in areas associated with small transient wood and described an overall lack of large wood and key wood members.
The landowner has worked diligently in the project reach over the past 30 years to maintain a healthy riparian zone by the elimination of grazing and continual planting efforts. Streamside shade through the project reach is in good condition with the exception of a few locations where bank erosion is occurring and revegetation efforts have failed. Data collected during the summer months of 2018 showed that stream temperature tends to limit optimal juvenile
salmonid growth. The 7-day mean weekly average temperature (MWAT) for the project reach from 2018 had a maximum of 20°C with an average MWAT of 18°C through the summer months.
In addition to poor habitat conditions, instream flow is limited in Catherine Creek through the project reach. Starting with diversion at the State Ditch located upstream of Union, seven other diversions reduce flows through this reach by as much as 76% during an average summer discharge. Despite the reduced instream flow, the project site has
been documented as a stronghold for overwintering Chinook. In a recent survey (Fall 2017), Natural Systems Design, Inc. conducted an AEM survey over approximately 722 meters immediately above the project site and found 1,052 Chinook, 318 steelhead and 107 mountain white fish. This is a good

indicator that even though this
reach is flow limited Chinook and steelhead are rearing in significant numbers throughout the year in the project area.

The following specific limiting factors for the project reach were identified through the Atlas assessment process.
1.1. Habitat Quantity: Anthropogenic Barriers
4.1. Riparian Condition: Riparian Vegetation
4.2. Riparian Condition: LWD Recruitment
5.1. Peripheral and Transitional Habitats: Side Channel and Wetland Conditions
5.2. Peripheral and Transitional Habitats: Floodplain Condition
6.1. Channel Structure and Form: Bed and Channel Form
6.2. Channel Structure and Form: Instream Structural Complexity
7.2. Sediment Conditions: Increased Sediment Quantity
8.1. Water Quality: Temperature
9.2. Water Quantity: Decreased Water Quantity

Work Done

This project addressed one of the largest deficiencies in the lower reaches of Catherine Creek, the lack of functioning large wood. Project construction increased the number of key members of large wood per mile by almost 500%. The project added large wood to four existing pools and greatly enhanced cover and flow diversity. In
addition, the project created one large pool that mimics the existing pool upstream to provide excellent habitat for both summer and winter. The completed project stabilized the banks in two locations by adding logs with rootwads. This will decrease sedimentation and provide low velocity refuge. The completed project construction for CC-38 positively impacted salmon, steelhead, and bull trout by greatly improving their habitat throughout the project reach. The project enhanced four existing pools with the addition of large wood and created a fifth large pool at a tortuous meander bend with a large engineered wood structure. The project improved sediment routing through the project reach increasing bar formation. This will increase the hyporheic exchange and create cold water refugia. In addition, the project design will have water quality benefits by decreasing the supply of fine sediment into the stream. Two floodplain benches were created to improve floodplain connectivity and aid in riparian vegetation establishment. The site had 850 willow stakes planted during construction. An additional 310 one gallon trees and shrubs were planted in the fall as well as 372 plug species. 0.23 acers of riparian habitat was reseeded with a native seed mix and 3 acers upland disturbed during construction was reseeded with an upland non irrigated pasture mix.

Changes from Proposed

One stream bank revetment structure was removed from the project construction. The structure was removed after a contractor was secured and funding was insufficient to cover the cost of construction. In addition, during the period between securing funding and actual construction the bank the structure

would protect had vegetated naturally and engineers felt the need for the structure was no longer warranted.

Public Awareness or Education

The project will be featured in the Union SWCD 2022-2023 Annual Report and Newsletter and has been viewed by many residents of the Grande Ronde valley.

Lessons Learned

Project permitting cost and changes to requirements present challenges for small scale projects to be completed within a timely manner and may impact the potential for implementation in the future.

Recommendations

We had no specific recommendations to improve implementation.

Aquatic Habitat

The project design used the Habitat guide as well as local assessments of limiting factors to create a project that specifically targeted site specific conditions that limit ESA listed species growth and survival.

Special Conditions

1. First Payment: Map
Provided prior to completion of the final grant agreement.

2. First Payment: Photo Points
Provided prior to completion of the final grant agreement.

3. Post-Implementation Status Reporting: Effectiveness Monitoring
Post implementation Status reporting will be conducted and submitted to OWEB prior to predetermined dates.

4. First Payment: Federally Negotiated Indirect Cost Rate
Provided prior to completion of the final grant agreement.

Funding Sources

Source	Indentifier	Cash	InKind Type	Inkind
Grande Ronde Model WS Foundation		$0.00	Labor	$1,800.00
Landowner		$0.00	Labor	$5,000.00
OWEB	220-8205-18750	$182,690.00		$0.00
Union SWCD		$0.00	Labor	$9,796.00
Union SWCD		$0.00	Labor	$8,449.00
US Fish and Wildlife Service		$27,910.00		$0.00

Totals

OWEB Amount	Non OWEB Cash	Inkind Total	Non OWEB Amount	OWEB Match	Total Project Cost
$182,690.00	$27,910.00	$25,045.00	$52,955.00	29.0%	$235,645.00

* This grant agreement has a special condition that alters the match funding requirement; to read the requirement see Exhibit B of the grant agreement.

Uploaded Files

Image Type	File Name	Description
Federal Lobbying Certificate	Fed Lobbying Cert_CC38 Construction_113022.pdf	Lobbying Cert.
Project Designs	Catherine Cr. RM 38 Final Design and Implementation Plan 2021-01-15.pdf	Final Design
Photo Point	Photo pt. 5 Upper Pool Structure After October 18, 2022.JPG	Upper Pool Structure

Photo Point	Photo pt. 5 Upper Pool Structure Before July 7, 2022.JPG	Upper Pool Structure
Photo Point	Photo pt 4 Lower Pool Structure After October 18, 2022.JPG	Lower Pool Structure
Photo Point	Photo pt. 4 Lower Pool Structure Before July 7, 2022.JPG	Lower Pool Structure
Photo Point	Photo pt.3 3 Log Structures (Upstream) After October 18, 2022.JPG	Upstream 3 Log Structures
Photo Point	Photo pt.3 3 Log Structures (Upstream) June 14, 2022.JPG	Upstream 3 Log Structures
Photo Point	Photo pt. 2 3 Log Structures After October 18, 2022.JPG	Downstream 3 Log Structures
Photo Point	Photo pt.2 3 Log Structures (Downstream) Before June 14, 2022.JPG	Downstream 3 Log Structures
Photo Point	Photo pt.1 Revetment Structure After October 18, 2022.JPG	Revetment structure
Photo Point	Photo pt. 1 Revetment Structure Before June 14, 2022.JPG	Revetment structure
Exhibit B	18750_Conditions.pdf	