

Machmell River Restoration

Objectives

The fish habitat rehabilitation objectives for the reported project were to improve access of migratory fish to areas with superior habitat, to increase habitat complexity, and to prevent further habitat degradation.

FRBC Region/ MELP Region/ MOF Region

Pacific/ Cariboo/ Mid Coast

Author

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Proponent

Western Forest Products Limited

Watershed

Machmell and Sheemahant Rivers

Location

Owikeno Lake is located at the tip of Rivers inlet, approximately 80km south of Bella Coola. The water body is at the base of the western slope of the Coast Mountains. Machmell River enters Owikeno Lake just West of the First Narrows, near Machmell Logging camp. Sheemahant River enters the lake near the Second Narrows, at the Sheemahant Logging Camp.

Introduction

The watersheds of Machmell and Sheemahant Rivers have been subject to timber harvesting. At several locations old log box type culverts have failed and or have been partially blocked by beaver activity and debris, thus impeding or preventing fish migration, including anadromous salmonids, to areas with high value fish habitat.

Assessments and Prescriptions

Overview and Level 1 FHAP assessments were completed on the Machmell, Neechanz, and Sheemahant watersheds by Judy Hillaby Consulting and Madrone Consulting in 1998. Level 2 FHAP and site specific prescription concerning the fifteen Moderate to High rated

restoration sites were prepared by AGRA Earth and Environmental in 1999. The later company identified, and developed prescriptions for, six sites in the Sheemahant and Machmell watersheds. Three sites were addressed during the 1999 restoration activities. Restoration activities were conducted following AGRA's prescriptions.

Past Rehabilitation Work

None.

Rehabilitation Work

The following rehabilitation activities were performed between August 15 and 27th, 1999.

Site MM07, replacement of a culvert structure and construction of two rock weirs to maintain adequate water depth in the culvert and the pool upstream of the road crossing. An existing upstream pool was complexed with LWD and enlarged. A sediment control structure was built at the outfall of the road ditch. Bank disturbance from implementation was addressed with seeding.

Site SM14, replacement of wooden box culvert.

Site SM26A, replacement of wooden box culvert, erosion scarp was excavated to approximately 6% and armoured, banks along upstream pool were armoured with rip rap, mixed see was spread on the exposed portions of the banks to encourage revegetation and limit runoff erosion.

Site SM26B, box culvert was replaced, and stream banks around the culvert were armoured.

Cost Summary

Total Cost of rehabilitation works totalled \$65,000.

Outputs

- Access to 380 linear meters of habitat was improved.

- 120m² of juvenile salmonid summer rearing habitat were created.

Production Estimates

There is no baseline production data or estimates for the restored sites. However, Koning and Keeley (1997) reported 1.8 and 1.5 fold increases in fish density for 0+ coho and steelhead respectively at sites subject to restoration activities.

In the instance of site MM07, the combined effect of improved access and ameliorated habitat could lead to significant increase of the anadromous and resident salmonid populations.

It is assumed that the upgrading of the culvert at site SM14 will aid in maintaining the integrity of approximately 100m of stream habitat in the stream and approximately 100 m of habitat in the recipient side channel of the Sheemahant River.

Restoration work at Sites 26 A and B will improve access to a large wetland, which has superior coho rearing habitat.

Proposed Work

Three more restoration sites, SM04, SM08 and Machmell lower dyke should be evaluated for future work.

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Figure 1: Site MM 07 – view of culvert, retaining weirs and the resulting pools.



Figure 2: Site MM07 – view of excavated pool with LWD positioned at approximately 40° angle.

