Lewis River Aquatic Fund Projects (SA 7.5.3.2)
Project Closeout Report

Project Title:	**Lewis River Hydroelectric Project** **Mud Creek Enhancement**
Project Approved By:	Aquatic Coordination Committee April 2008
Original Project Sponsor:	Cowlitz Indian Tribe
Project Funding	$43,500
Project Description (work completed):	In response to the compromised integrity of Mud Creek as refuge and over-wintering habitat for juvenile salmonids, the Cowlitz Indian Tribe placed 7 ELJ at the confluence of Mud Creek and the Lewis River. The structures also sit at a point where it can influence a large off-channel area. These structures were designed to catch and hold sediments flowing out of Mud Creek, hardening highly erodible portions of the recently deposited sediments. Secondly, these materials increase refugia function of the habitat and allow juvenile and mature salmonids using the creek and off-channel to have more hiding opportunities to escape from predators. In summary, our project enhances the creek mouth and the off-channel, in order to accelerate the natural restoration processes already at work. Each of the 7 ELJ consists of a several tree boles with attached full rootwad. These ELJ materials are conifers. Each set of boles is attached to several 15' quick-drive pilings to anchor them in place. Pilings are there to provide lateral stability. Anchoring is intended to prevent ELJ from floating out of position during Lewis River flooding events. The interior spaces of each ELJ were filled with smaller trees and shrubs claimed from the project site to create a gallery of interstitial pockets where juvenile salmonids could find refuge and predator escape. The project was completed in October of 2008 during low water times. Construction was done over a five day period. Boles and pilings were obtained from the area, which were transported to the site by the contractor. Brush was gathered from areas adjacent to the project site. This activity was directed by the landowner.
Workforce: o **Personnel (by craft)**	• Nathan Reynolds (Ecologist, Cowlitz Indian Tribe) • Rudy Salakory (Biologist, Cowlitz Indian Tribe)

o **Contractors:**	• David Morgan (Landowner) • Tony Meyer (Contractor, LCFEG) • Mike Watters (Contractor, construction, transportation)
Schedule Summary:	Planned Completion Date: Low-water 2008 Actual Completion Date: October 6, 2008
Problems Encountered:	• None
Things that went well:	• Access to the site was excellent • Landowner cooperation and in-kind work • Pilings and ELJ components went in without complications • Immediate response by fish within the week
Work Not Completed:	• Small woody structures not built on Mud Creek itself. Mud Creek displayed sufficient wood load from the previous winter rains and spring runoff; project shifted out from the creek, to the confluence of the creek with the mainstem Lewis River
Lessons Learned:	• Consumer response to available refugia, shade, and complexity was rapid • Taller structures would have increased natural wood recruitment at the site in following high-water events
*** Attachments (Photo Documentation):**	• •

*(Per National Marine Fisheries Service's Biological Opinion for Relicensing of the Lewis River Hydroelectric Projects):

Identify process or methodology the project will include and provide photo documentation of habitat conditions at the project site **before, during, and after** project completion.

a. Include general views and close-ups showing details of the project and project area, including pre- and post-construction.
b. Label each photo with date, time, project name, photographer's name, and documentation of the subject activity.

Landowner David Morgan standing in front of the area where the structures will be placed (Photo: Shannon Wills)

Wood debris being staged during low water times on site (Photo: Tony Meyer)

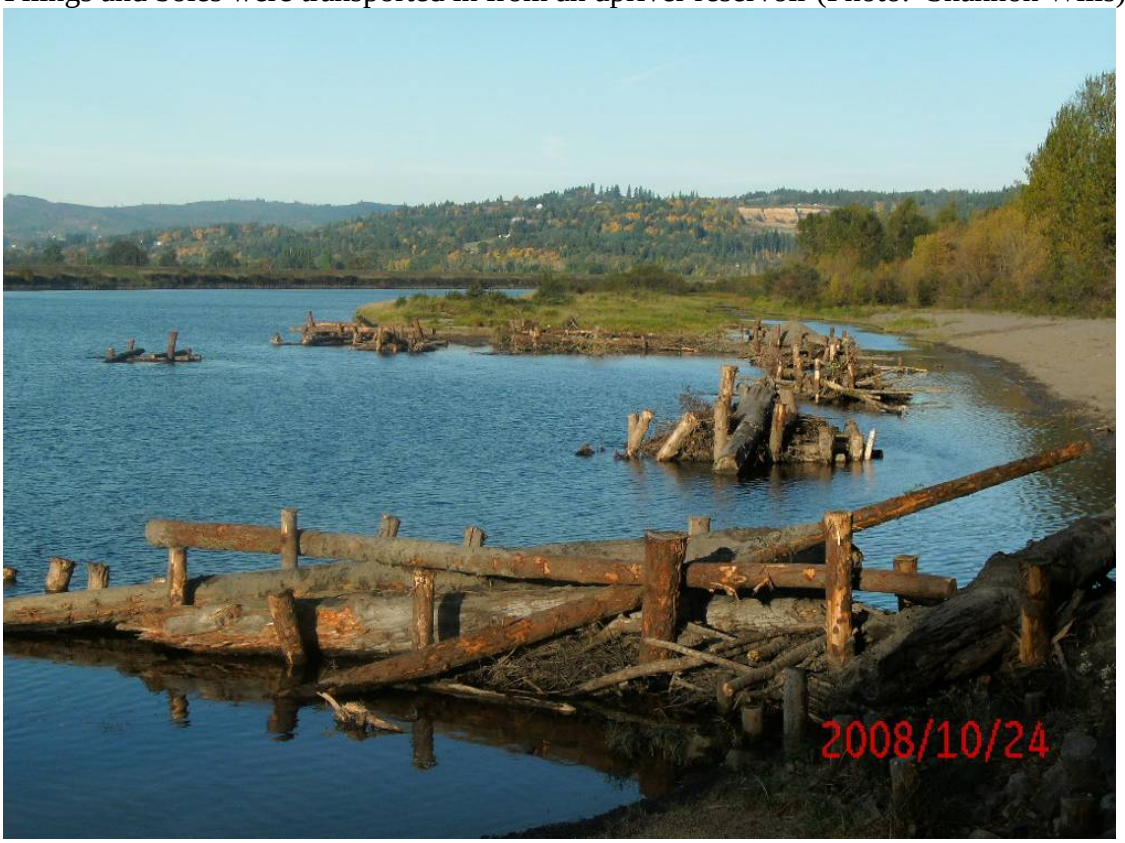
Pilings being staged (Photo: Shannon Wills)

Brush and debris being collected on-site for use in the ELJ (Photo: Shannon Wills)

Pilings in place, and debris within the pilings, the boles are ready to be put into place. Land based equipment was used on this project because of the ease of access. (Photo: Tony Meyer)


Holes were drilled into the pilings and structures to bolt and anchor each ELJ in place in order to prevent ELJ from floating out during high-water events. (Photo: Tony Meyer)

Pilings and boles were transported in from an upriver reservoir (Photo: Shannon Wills)



All seven completed ELJ at high tide during the end of the low-water season. (Photo: Tony Meyer [Oct 24 2008])

View from the east of the area before construction (Photo: Nathan Reynolds [April 2007])