



# Kennedy Watershed Restoration Project 2005 Compendium



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## Objectives

The objectives of the Kennedy Watershed Restoration Project (1994-present) are to restore the hydrological, biological, riparian and ecological functions of creeks and terrestrial areas in the Kennedy Flats Area that have been negatively impacted by historical logging practices.

## Forest Region / MOE Region

Coast Forest Region, South Island District / Vancouver Island, Region 1.

## Author(s)

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## Proponents

Central Westcoast Forest Society  
Pacific Rim National Park Reserve  
International Forest Products Ltd.

## Watershed/Streams

Kennedy Flats - Watershed No.249  
Kootowis Creek, Staghorn Creek  
Lostshoe Creek, Twin Rivers, Sandhill Creek

## Introduction

Kennedy Flats is located on the west coast of Vancouver Island between Tofino and Ucluelet, and has a total area of 129 km<sup>2</sup>. The area is characterized by low-gradient streams with meandering channels and broad floodplains. Historic harvesting and salvaging practices have negatively impacted many streams in the Kennedy Flats area. Large volumes of wood waste in these

low-gradient streams have led to the development of debris jams. These jams block fish access and cause large scale winter flooding and habitat loss. Historical records (including First Nations traditional ecological knowledge (TEK)) indicate the presence of coho, chum, chinook, sockeye, and pink salmon, as well as steelhead, cutthroat trout and rainbow trout within these systems.

## Assessments and Prescriptions

Level 1 and level 2 inventories were conducted on the watersheds in 1995 and 1996 (Clough, 1996). In-stream work began in 1994, and was initially funded by the Community Salmon Enhancement Restoration Fund. The initial work was assessed for effectiveness and the results were used to modify the following years' work plan where necessary.

## Restoration Work

In-stream work for the 2005 project season was conducted from June 29<sup>th</sup> to Aug 5<sup>th</sup> (6 weeks). Twelve workers were hired for a total of 256.5 person days (Figure 1).



Figure 1. 2005 restoration crew.

Most restoration work focused on a section of Lost Shoe Creek within Pacific Rim National Park Reserve which had been badly eroded by high flows in January of 2005 (Figure 2). Non-embedded small woody debris (SWD) was removed and placed in debris piles located above the high water mark. Existing large woody debris (LWD) was re-positioned and anchored. Additional LWD and ballast rocks were flown into several sites by helicopter and used to create in-stream structures designed to provide cover and scour (Figure 3).



**Figure 2.** Site LS2-1 before restoration.



**Figure 3.** Site LS2-1 after restoration.

Spawning gravel was hand placed at ten sites along Kootowis, Staghorn and Lost Shoe creeks, and two rock weirs were built. Work was also undertaken on Kootowis and Sandhill Creeks.

### Cost Summary

Wages	\$62,582.22
Machinery and materials	\$56,913.39
Biologists/contractors	\$25,780.49
<b>Total</b>	<b>\$145,276.10</b>

### Outputs

A total of 822 m of creek was restored in 2005, and almost 1000 m was maintained. Crew members removed 483 m<sup>3</sup> of small woody debris from the streams. They positioned 227 pieces of LWD, 57 ballast rocks, and 50 root-wads and cabled them into place using approximately 780 m of cable. The crew also installed 70m<sup>3</sup> of spawning gravel, creating 651 m<sup>2</sup> of new spawning habitat. Brushing maintenance was completed on five hectares of streamside forest, removing willow and releasing planted conifers. In addition, a hung culvert was replaced at a road crossing on Sandhill Creek, providing fish access to 600 m of stream habitat above the crossing.

Stream Segment	Restoration Activity	Restoration Length (m)	No. LWD anchored
Staghorn S2	Maintenance	50	2
Lost Shoe S1	Maintenance	500	9
Twin Rivers	Maintenance	444	0
Lost Shoe S2	In-stream	222	210
Lost Shoe, Kootowis, Staghorn	Spawning gravel	90	-
Kootowis	Riparian	1000	-
Sandhill	Access	600	6

### UTM (NAD83) Coordinates

Lostshoe Cr. - Zone 10 306959E 5431131N  
 Kootowis Cr.- Zone 10 301010E 5441122N  
 Staghorn Cr. -Zone 10 310134E 5440866N

### Watershed Code

Kootowis Creek - 930-300800  
 Lostshoe Creek - 930-260600  
 Staghorn Creek - 930-306400-11900

### Monitoring Results

Routine monitoring of the previous year's work sites was conducted. Monitoring assessments evaluate whether in-stream structures are meeting physical and biological performance objectives, and whether any maintenance is required (Koning et al., 1997). Based on assessment results, we completed maintenance work on three sites during the first week of the field

season. Work included SWD removal, and re-positioning and re-cabling of LWD that had moved over the winter season. Fry density assessments were completed during late September.

### **Proposed Work**

The 2006 work plan will aim to restore the functionality of project creeks in their entirety by continuing with un-worked reaches in the above systems. The Kennedy Flats Restoration Plan (Warttig *et al.*, 2001) provides overall planning direction for the project.

### **For further information, contact:**

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