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HRSEP: 01-CC-HR-021

FISS: DFO 150

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# HRSEP 2001/02 FINAL REPORT

Project Title: Algard Side Channel - Phase 2

Project Reference Number: #01 - CC -HR -021

Habitat Restoration Contract: # F1528 - FO02 - 0041

## PROPONENT INFORMATION

Organization Name: International Forest Products Ltd., Kingcome Enhanced Forest Division

Contact Name, Title: Warren Warttig, RPBio, Planning Biologist

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Web Page: [www.interfor.com](http://www.interfor.com)

Please list the **partners** in this project and their roles. Include the organizations, governments, funding sources, or volunteer groups that helped get this project started and completed. Roles may include (but are not limited to): letters of support, financial support, volunteer labour, help with acquiring permits, administration, access to landowner property, etc.).

Department of Fisheries and Oceans-OCS-Restoration

International Forest Products Ltd.

Homalco Indian Band

Forest Renewal BC

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01-51

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## PROJECT INFORMATION

### PROJECT PREPARATION

Project Rationale (**Why** was this project important?)

To complete Phase 2 of the Algard Sidechannel off of Orford River

Was a feasibility study or pre-assessment done for this project?    Yes     No

If yes, please describe when and by whom.

DFO-HEB assessment feasibility studies 1999 to determine substrate quality and groundwater table levels  
Fish, Channel, Riparian Assessment and Prescriptions Orford Watershed  
March 1999 (Sinclair, Babakaiff, Thomson and Forrester)

Did you receive DFO input on this project?    Yes     No

Name, Title, and Location of DFO Contacts that helped you with this project:

Russ Doucet, P.Eng. & Mel Sheng, Biologist, DFO-OCS - Nanaimo.

### PROJECT OBJECTIVES (FROM "APPENDIX A" OF YOUR CONTRACT)

**Objective # 1 :** Provide stable rearing habitat for coho

Was it achieved?:    Yes     No

Details:

Phase 2 of the Algard Creek Sidechannel included complexing; creating a mixture of pools, riffles and glides. The pools will supply quality, stable rearing habitat for coho.

**Objective # 2 :** Provide stable spawning habitat for chum, coho, and trout

Was it achieved?:    Yes     No

Details:

Phase 2 of the Algard Creek Sidechannel included complexing; creating a mixture of pools, riffles and glides. The riffle/glide sections will provide stable spawning habitat for chum in the lower sections, and coho and trout in the upper sections.

**Objective # 3 :** Provide cleaner water supply for the existing Orford Spawning channel

Was it achieved?:    Yes     No

Details:

Through an additional \$20,000 grant, the intake for the existing Orford Spawning channel was reworked to supply cleaner water

**Objective # 4 :** Create a channel that will support 5000 coho smolts, and provide stable spawning habitat for 1000 summer-run chum

Was it achieved?: Yes  No

Details:

Total outputs for 2001/02 for the sidechannel was approximately 5,500m<sup>2</sup> over 4 km, bringing the total stream length available to salmonids to approximately 10 km (18,000 m<sup>2</sup>).

At 2 fry/m<sup>2</sup>, the total fry estimate would equal 36,000. At a 10% survival rate to smolt stage, the expected smolt production would equal 3,600. So smolt production was likely over-estimated in the original application.

With 10 km of salmonid access, the estimate for 1000 summer-run chum is likely a conservative one.

## **PROJECT SUMMARY**

Please provide an overview of your project below. If required, you may attach an additional sheet. Your summary should include:

- Methods used to accomplish your completed or partially completed objectives
- Whether the project proceed according to plan, or if you encountered unexpected difficulties
- Whether you ran over or under budget
- Whether the project took longer or less time than projected

(Project Summary)

The DFO restoration group provided biological and engineering technical support for design and construction. Project coordination was through Interfor WRP was provided by Wayne Keddy for Warren Warttig.

DFO staff designated were Doug Poole, bio-technician and Mel Sheng at the DFO-OCS office in Nanaimo. The services of Rik Norgan, DFO-HEB eng.technologist was also provided. The work involved the completion of the sidechannel with outflow/fish entrance from the existing DFO Orford Channel . All material and equipment were barged in and accommodation provided at Orford Hatchery.

Project drawings: DFO dwg# 33-23-22, 33-23-36 thru 42.

Higher than normal water levels postponed the start-up of the project in July. While cost estimates were fairly accurate, the total funding available thru FRBC (\$95k) was not as high as originally estimated (\$120k), therefor an addition \$20k in federal funding was required to complete the intake.

## PROJECT STATUS AND FOLLOW-UP

Please describe the current status of the project. Please comment on the following:

- Whether the project is complete
- Has the problem being addressed been solved? (see "Project Rationale" on page 3)
- Recommendations for future work

The project was completed prior to March 31, 2002. The problems being addressed were adequately solved.

Routine monitoring is advisable each year for the next three years, then every fifth year after that.

## **PROJECT SUMMARY STATISTICS**

The statistics you will provide below help us to determine the specific and overall achievements of the Habitat Restoration and Salmon Enhancement Program. A summary report will be completed in the winter of 2001/2002, and distributed to all previously funded proponents. This report will be available to all interested individuals and organizations.

### PERSONNEL

Total # of persons trained (staff and volunteers):

4

#### STAFF

Number of persons employed: 4

Person-days of employment created: 70

#### VOLUNTEERS

Number of volunteers involved:

Total number of volunteer hours:

### ACTIVITY TYPE

Species Addressed (check all that apply):

Coho   
Pink   
Chum   
Other   
(Specify):

Chinook   
Sockeye   
Steelhead

Trout

Activity type (check all that apply):

Inventory & Mapping (See #2 below)   
Public Awareness (See #3 below)   
Stock Enhancement (See #1 below)   
Other (Specify):

Stock Assessment (See #1 below)   
Habitat Restoration (See #4 below)   
Stewardship/Community Planning (See #3)   
Algard Sidechannel completion

**QUANTIFIABLE RESULTS**

**1. For Stock Assessment and Enhancement Projects:**

N/A

**2. For Mapping & Inventory Projects:**

N/A

**3. For Stewardship/Community Planning and Public Awareness Projects:**

N/A

**4. For Habitat Restoration Projects:**

Habitat Addressed (Check as many as apply):

In-channel	<input type="checkbox"/>	Lake	<input type="checkbox"/>
Off-channel	<input checked="" type="checkbox"/>	Estuarine/Marine	<input type="checkbox"/>
Riparian	<input type="checkbox"/>		
Other (Specify):	<input type="checkbox"/>	Sidechannel	

Fencing:	Stream length protected	metres
	Stream area protected (fence-to-bank width x length along stream):	Square metres
Riparian replanting:	Area replanted	Square metres
	Number of trees/shrubs planted	
In-channel habitat:	Stream area restored	Square metres
<b>Off-channel habitat:</b>	<b>Stream area created</b>	<b>5500 Square metres</b>
Estuarine habitat:	Area created/restored	Square metres
Lake habitat:	Area created/restored	Square metres
Fish Access:	Length of stream made available	metres
	Area of habitat made available (square metres):	Square metres

## PROJECT LOCATION

This information will help us to enter your project into the "Fisheries Project Registry", a joint Federal-Provincial database that summarizes fisheries projects in British Columbia and the Yukon Territory.

	<u>Name(s) or Code from the "BC Watershed Atlas"</u>				
Creek(s), stream(s), or river(s) where project took place:	Orford River: 900-391500 Algard Creek (alias East Fork Creek): 900-391500-05500				
Name of local watershed:	Orford River in Bute Inlet. Waterbody Identifier: 00000TOBA, Type S				
Major Drainage (check one):	<input type="checkbox"/> Fraser River <input type="checkbox"/> Mackenzie River <input type="checkbox"/> Columbia River <input type="checkbox"/> Skeena River <input type="checkbox"/> Nass River <input type="checkbox"/> Stikine River <input type="checkbox"/> Taku River <input type="checkbox"/> Yukon River <input checked="" type="checkbox"/> Other/Marine				
Marine Statistical Area or Sub-Area:	Area 13				
Nearest Community:	Orford River Native Reservation. The towns of Powell River and Campbell River are both approximately 30 km away				
Other geographic information to help us locate your project:	Algard Creek is a tributary of Orford River. The mouth of Orford River is on the east side of Bute Inlet, approximately half way up. Bute Inlet is located on the west Coast of BC approximately 25km north east of Campbell River				
Latitude:	50° 35'	Longitude:	124° 52'		
UTM Coordinates:	Grid Zone: 10	Easting:	368226	Northing:	5606537

## SUPPORTING DOCUMENTATION

You may attach additional documentation to illustrate your project's results. (optional)

Documentation Attached (Check as many as applicable)

Maps   
Photos   
Data report

Brochure   
News clippings   
Other

# FINANCIAL SUMMARY

## HRSEP FUNDING SUMMARY

Since your HRSEP project began, you have provided interim financial statements and project updates with your invoices to receive installments of your funding. One final financial statement that summarizes all spending of HRSEP money is required for your final payment. Please enclose your financial statement and final invoice with this summary report.

Total received from HRSEP to date:	\$16,600
Date:	September 5, 2001
Total HRSEP money spent and reported on financial statement form (please attach statement):	\$83,000
Total received from HRSEP after final invoice is paid:	\$83,000

## HRSEP FUNDING DETAILS

Please enclose an HRSEP standard financial statement. These are available by mail or e-mail upon request from Elizabeth Leboe at (604) 666-8515.

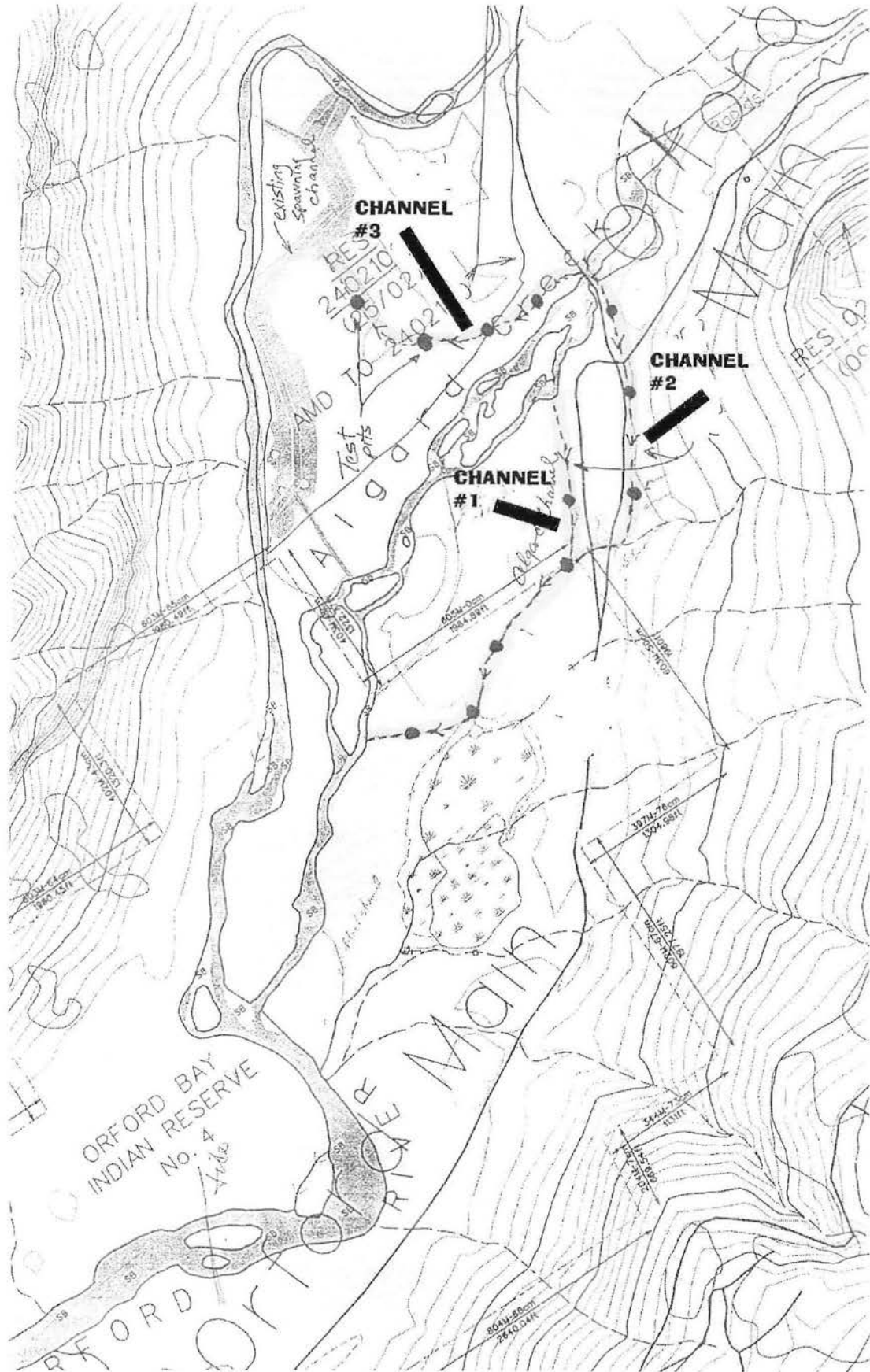
It is not necessary to forward copies of individual receipts and invoices. As per the terms of your Habitat Restoration Contract, please retain these in your files for a minimum period of three years, as DFO reserves the right to audit all HRSEP projects.

## OTHER CONTRIBUTORS

Contributions to the project's total budget may have been from other agencies or in-kind contributions from your own organization; please provide basic details below. Please estimate in-kind donations if not known exactly:

<u>Funding Source Details</u>	<u>Amount of funding (please note if funding is 'in-kind')</u>
<b>Interfor, FRBC funding</b>	<b>\$95,106.59</b>
<b>Interfor, In-Kind</b>	<b>\$10,000      In-Kind</b>
<b>DFO, Supervisor &amp; Design Funding, In-Kind</b>	<b>\$ 30,000      In-Kind</b>
<b>HRSEP (additional funding to complete intake)</b>	<b>\$20,000</b>

*\$ 155,106.59*



## Orford Channel Watershed Restoration Project ISSR, Phase 2 2001/02 Compendium Report

### Objectives

The Orford channel fish habitat restoration project (2000 to present) is designed to increase productivity and survival of spawner and overwintering juvenile salmonids by developing stable spawning habitat and off channel rearing habitat and stable LWD cover structures in the channel. This report covers Phase 2 of the fish habitat restoration.

**FRBC Region / MELP Region**  
Pacific / Vancouver Island

**Author(s)**  
Mel Sheng (FOC) Wayne Keddy (Interfor, KEFD)

### Proponent and Partners

- Homalco First Nations, DFO and Interfor

### Funding Sources 2001

- FRBC WRP - International Forest Products Ltd.  
\$95,107
- International Forest Products Ltd. – in kind  
\$10,000
- Fisheries and Oceans Canada – in kind  
\$30,000
- Habitat Restoration and Salmon Enhancement Program (HRSEP)  
\$83,000  
\$20,000

Total \$238,107

### Watershed / Stream

Orford River  
Algard (Clear) Creek

### Location & Description

Algard Creek is located on the Mainland approximately 30 km northeast of Campbell R. B.C. It flows into Orford River approximately 5 kilometers above the mouth to Bute Inlet.

The majority of the Orford watershed is Crown Land, with a small portion of designated "Indian Reserve" at the estuary. Algard Creek is a 3<sup>rd</sup> order stream draining an area of approximately 92 km<sup>2</sup>. Orford River is a 4<sup>th</sup> order stream with a drainage area of approximately 435 km<sup>2</sup>.

### Introduction

The limiting factor for the area was determined to be overwintering habitat. Despite ongoing enhancement efforts by the Homalco Band, returning salmonid counts have been low. A two-phase restoration plan was compiled. Restoration works commenced in the year 2000 (phase 1) and were completed in 2001 (phase 2).

### Assessments and Prescriptions

The design drawings for the side channel habitat restoration were supplied by Fisheries and Oceans Canada (Mel Sheng, Russ Doucet).

### Restoration Work Summary

Based on previous information on fish distribution and habitat conditions, a multi-year restoration plan was implemented for Orford/Algard Creek in 2000. In the second year of in stream work (2001), a total of 2 off-channel habitats were constructed in Reach 1A and R2 of Algard and Orford River, respectively. An estimated 350 m<sup>2</sup> of off-channel habitat was created during the 1999-2001 construction period. LWD, spawning platforms, ponds and a groundwater channel was constructed. Locations of restoration projects to date are shown on the attached drawing.

The Phase 2 restoration work was conducted between August 21, 2001 and March 15, 2002.

DFO reviewed the completed projects and determined works both in 2000 and 2001 to be of high quality and consistent with overall objectives to increase fish habitat complexity and protective cover.

### Outputs

In 2001 the following construction related activities were undertaken within Reach 1A of Algard Creek and R2 of Orford River:

- Approximately 1.6 km's of channel was completed. This included the excavator placement of hauled LWD and boulders, which covers 30% of the wetted habitat, construction of pool habitat and construction of spawning platforms at the outlet of pools.
- Installation of a 18" dia. low water intake (#2) at the Algard Bridge Crossing This provides up to 10 cfs of discharge.
- Relocation of the 24" dia. intake (#1) from above the Algard Bridge Crossing to below the #2

intake. Shifting bedload and resultant obstruction of this intake prompted relocation to below the bridge where flow is concentrated and the streambed is more stable.

- Construction of a groundwater channel with 2 fingers that exit into a natural unnamed stream.
- Connection of the constructed channel to the existing DFO spawning channel and creation of spawning platforms in the top 100 meters.
- A dike was constructed in the top of the existing DFO channel to create a settling basin for Orford surface water.
- Prior to completion of restoration works, exposed excavation sites including tote roads were deactivated and grass-seeded to minimize erosion.

### Production Estimates

Fish production estimates are based upon existing biostandards for similarly restored fish habitat.

Restoration year	Species & life stage	Annual production
2001	Coho smolts	20,870
	Steelhead smolts	90

### Proposed Work

The following fish habitat restoration activities are proposed for the 2002 fiscal year:

- Continued monitoring of physical & biological performance of restoration sites.
- Upgrading of the low and high level intakes
- Assessment of the incubation survival
- Assessment of the smolt production in the channels
- Extension of the groundwater channel.

### For Further Information, Please Contact:

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 Nanaimo, B.C. V9T 4B7  
 Tel: 250-756-7016  
 Email: [shengm@pac.dfo-mpo.gc.ca](mailto:shengm@pac.dfo-mpo.gc.ca)

### References

Design Drawing # 33-23-37,33-23-38 and 33-23-39, by Russ Doucet and Mel Sheng, Fisheries and Oceans Canada, Habitat and Enhancement Branch

HRSEP Application 2001/02, Algarid Sidechannel Phase 2

### UTM (NAD83) Coordinates

Zone: 10  
 Northing: 5606537  
 Easting: 368226

### Watershed Code

Orford River - RMP/EEV watershed unit #397  
 Algarid Creek – RAD stream code 900-391500.



photo 1- Channel's Low and High Level Intakes



photo 2- LWD and Boulder Clusters in Channel

