HRSEP: 99-NCC-ST-029

FISS: DFO 614

HRSEP 1999/2000 Final Report

Category (Check one)	X	*RWS*	*(Resource & Watershed Stewardship)*
		HR	*(Habitat Restoration)*
		ST	*(Stock Rebuilding)*
Area (Check One)		*VI*	*(Vancouver Island & South Coast)*
	X	*NCC*	*(North & Central Coasts)*
		FRB	*(Fraser River Basin,*
		YT	*(Yukon Territory)*

Proponent Information

Organization Name :	Tlell Watershed Society
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Contact Title :	Coordinator
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Did you receive DFO input on this project? *Yes*

Name of DFO Contact(s):

Victor Fradette, Fisheries Management Coordinator, Queen Charlotte City
Brian Spilsted, Stock Assessment Biologist, Prince Rupert
Dave Peacock, Stock Assessment Biologist, Prince Rupert
Dave Davies, Community Advisor QCI/Haida Gwaii
Ian Ross, Senior Project Engineer Development Division, Vancouver

Project Information

Project Title	:	**Installation and Operation of the Tlell River Adult Salmon Counting Fence**
Start Date	:	01 April 1999
End Date	:	31 December 1999

Project Rationale
(Problem being addressed)

The Tlell River Adult Salmon Enumeration Project addresses a gap in reliable salmonid escapement information for the Tlell River and other east coast Graham Island stocks. The target species for escapement monitoring is coho salmon, although other salmonids were also enumerated. The Tlell River coho stock accounted for an average of 17.68% of the recorded coho escapements to Haida Gwaii streams between 1953 and 1992. Accurate escapement information is critical to the proper management of the Tlell River coho stock.

Once the adult fence is operating smoothly, further funding will be sought to construct and operate a smolt fence. The information collected from operation of both the smolt and adult fence will eventually allow the Tlell River to be used as an indicator system for east coast Graham Island coho salmon stocks.

Was a feasibility study or pre-assessment done for this project? *No*
If yes, please describe.

Activity Type

Check all that apply

Inventory & Mapping		*Stock Assessment*	*X*
Public Awareness	*X*	*Habitat Restoration*	
Stock Enhancement		*Stewardship/Community Planning*	*X*
Other	*X*	*Specify*	*Education*

Project Objectives (from your proposal and/or agreement)

Objective # 1 :	To complete the construction and installation of an adult salmon counting fence on the Tlell River, Queen Charlotte Islands/Haida Gwaii. Funding provided by HRSEP in 1998/99 was used to construct the steel substructure and aluminum superstructure of this fence.
Was it achieved?: Yes/No + Details	Yes. The substructure and abutments were installed in July, 1999 and the superstructure was installed in late August/early September, 1999.
Objective # 2 :	To operate the adult salmon counting fence throughout the 1999 coho and pink salmon return.
Was it achieved? : Yes/No + Details	Yes although the first few weeks of the pink and coho run were not enumerated. Unforeseen costs encountered during the sill and abutment installation exhausted most of the original fence-operating budget. Further funds were obtained from the HRSEP program and Salmon Unlimited, facilitating fence operation from early September to mid October 1999. The counting period included the latter half of the pink run and majority of the coho salmon run.
Objective # 3 :	To determine the 1999 coho escapement, run timing and duration.
Was it achieved? : Yes/No + Details	Yes. The fence was operated on a staggered schedule with shifts at different times of the day and night from the first week of September to mid-October. Observations from this season of operation indicate that the peak of the coho salmon run occurs in the late September, tapering off to fewer than 10 coho a day in early October. Due to the late start of the project, we were unable determine the peak of the pink salmon run timing.
Objective # 4 :	To use the counting fence as a platform for public education and involvement programs, promoting community involvement and education in fisheries programs and salmon life history.
Was it achieved? : Yes/No + Details	Yes. Volunteers were part of the counting crew whenever possible and the Tlell fence was highlighted for Rivers Day, during which numerous members of the public visited to learn more about salmon in the Tlell River. Further utilization of the fence as an educational platform will be sought through school group participation in the 2000 escapement season.

Partnerships

List and describe the personnel involved in the project.

Installation: A total of 7 local people were employed in the installation of the fish fence. This figure does not include local equipment contractors.

Operations: A total of 9 local people were employed during the enumeration of the fish fence. Four of these were trained in Swift Water Rescue Training. In addition approximately 20 volunteers were involved in the counting of fish.

# of persons trained	*4*	*# of volunteers involved*	*20*
# of persons employed	*16*	*# of volunteer hours*	*400*
person-days of employment created	*219*		

Is the local community involved in this project? List and describe the partnerships involved.

The Tlell Watershed Society is a community based watershed stewardship organization located in Tlell. During the course of this project, partnerships were established with the Haida Fisheries Program and the Hecate Straight Stream Keepers. As well, the Tlell Watershed Society is a "Stream Keepers" organization with support from the DFO North Coast Stock Assessment Branch, the Fisheries Manager for the Queen Charlotte Islands and the local Community Advisor.

Project Location

Complete as fully as possible.

	(Details – name, code or other)
Water body / System(s)	Tlell River
Watershed(s)	940-057000
Nearest Community	Tlell, B.C.
Other Geographic Information	Marine Statistical Area 2E

Latitude/Longitude _____ *UTM Coordinates* _____

Results/Quantifiable Measures

Species Addressed (Check as many as applicable)

X	Coho	X	Pink
	Chum		Chinook
	Sockeye		Other

Habitat Addressed (Check as many as applicable)

	In-channel		Off-channel
	Riparian		Estuarine/Marine
	Lake		Other

For Mapping & Inventory Projects:
Was your data collected according to the DFO-HEB Info Mgmt. guidelines? (ref. Brad Mason) Yes/No
If yes, was it submitted in digital format? _____

Linear metres of area mapped: _____
Other: Yes – Inventory of 1999 coho salmon escapement

For Stock Rebuilding Projects:
 # Adult Salmon Enumerated: _____
 # Juvenile Salmon Enumerated: _____
 # Salmon marked/Tagged or released: _____
Other: _____

For Stewardship/Community Planning Projects:
 # Public Presentations/Media Releases: _____
 # Landowners Contacted: _____
Other: _____

For Habitat Restoration Projects:

Fencing:	*Stream length protected*	_____	*km*
	Stream area (fence to bank) protected	_____	*sq. meters*
Riparian replanting:	*Area replanted*	_____	*sq. meters*
	# trees/plants	_____	
In-channel habitat:	*Stream area restored*	_____	*sq. meters*
Off-channel habitat:	*Stream area created/restored*	_____	*sq. meters*
Estuarine habitat:	*Area created/restored*	_____	*sq. meters*
Lake habitat:	*Area created/restored*	_____	*sq. meters*
Fish Access:	*Length of stream made available*	_____	*km*
	Area of habitat made available	_____	*sq. meters*

Other: _____

Project Description

Please enter a general project description below. Please include an overview of the methods and techniques used. If required, you may attach an additional sheet.

The installation and operation of the Tlell River Fish Counting Fence was an extension of the fence construction project funded by the HRSEP in the 1998/99 fiscal year.

This project consisted of three phases:

1. Installation of the fence sill and abutments,
2. Installation of the fence aluminum superstructure, fence panels and walkways, and
3. Operation of the counting fence throughout most of the 1999 coho and pink salmon escapement season.

Installation of the fence sill and abutments was conducted between July ?? and ??, 1999. The installation was completed using the following steps:

1. Installation of a coffer dam to isolate construction activities and resulting suspended sediment from the river flow,
2. Excavation of sill or abutment location, accurate sill or abutment section placement and back-filling of the installed sill or abutment section, and
3. Site clean-up and coffer dam relocation.

These steps were repeated three times in order to install the two steel abutments and two steel sill substructure. Sedimented water within the coffe dam was continually pumped out into a settling pond throughout in-stream installation. Once the substructure was installed, a wooden deck was fastened onto the steel substructure. The construction was completed by a crew of five local people under the technical supervision of Mr. Sam McNeil (HEB Engineering Support). Following in-stream activities, the crew worked for an additional week cleaning up the site and completing the wooden decking on the abutments.

In late August, volunteer crews installed the aluminum A-frames and walkways with assistance from the local Community Advisor and his assistants.

In the first week of September, the fence panels were installed and the fish counts started. Counting crews consisted of a minimum of two people for safety reasons and worked in 4 to 6 hour-long shifts. Shifts were staggered to allow counts to be conducted at different times of the day and at different points of the tidal exchange.

The first season of operation was very successful with over 5000 adult coho counted through the fence in the 1999 escapement season, including over 2700 coho salmon in one 24-hour period! A detailed summary of the fish counting results is appended to this report.

Follow-up & Monitoring

Please describe the current status of the project. Has the problem being addressed been solved? (see "project rationale") What are the ongoing issues in the area and your recommendations for future work.

The installation and operation of the Tlell River Fish Counting Fence in 1999 was a continuation of the fence construction project funded by the HRSEP in the 1998/99 fiscal year. In 1998, the fence site was selected in consultation with DFO advisors and then surveyed by Sam McNeil of the DFO. Ian Ross (DFO Engineer) provided the fence design. The fence components were fabricated prior to March 31st, 1999. The substructure, including the fence sill and abutments, was installed by the end of July 1999. Installation of the aluminum superstructure, walkways and panels was completed by the first week of September. Operation of the counting fence commenced immediately following installation of the panels and concluded on October 15th, 1999.

During the course of operations, several modifications necessary to improve the safety, accuracy and efficiency of the fence and surrounding site were identified. These modifications include:

- Fabrication of floating panels to increase the overall height of the fence during high flow periods,
- Construction of a fence panel puller i.e. A-frame structure with attached winch,
- Construction of a moveable counting plate to account for different water levels,
- Installation of an electrical power drop at the fence site,
- Installation of a rope boom upstream of the fence site, and
- Construction of an on-site storage shed.

An application to HRSEP was made in January 2000 to make the above modifications and to operated the counting fence for the 2000 pink and coho salmon escapement season. Operational funding will be sought for the fence for an additional 6 years (up to the year 2006) in order to have escapement counts for at least 2 coho salmon run cycles. At the end of 2006, fence operations will be evaluated and extension of the current lease for fence operations may be sought.

Supporting Documentation

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

Documentation Attached (Check as many as applicable)

____	*Maps*	____	*Brochure*
___X___	*Photos**	____	*News clippings*
___X___	*Data report*	____	*Other*

**Copies of photos will be sent in the mail.*

Financial Summary

Please specify project costs according to the following categories for the total budget received from HRSEP. *You may also attach further financial statements in other formats, as produced by your group's financial systems. It is not necessary to forward copies of individual receipts and invoices. As per the terms of our Agreement, please retain these in your files for a minimum period of three years, as DFO reserves the right to audit all HRSEP projects.*

		Projected Amount	***Actual Amount***	*Details*	
Wages / Personnel Costs	*$*	26,875.00	21,063.28	Labour TWS Coordinator	$18,267.91 $2,795.37
Transport / Equipment	*$*	29,000.00	45,441.93	Installation Operations	$43,784.72 $ 1,657.21
Office / Overhead	*$*	500.00	900.33	Advertising Office	$765.74 $134.59
Other Costs	*$*	900.00	1,874.65	Swift Water Training Permits Ministry of Finance Hydro	$1,380.00 $ 132.00 $ 278.00 $ 50.00
Total Received from HRSEP	*$*		54, 981.46*		

*** The TWS Received an additional $ 3,777.66 to cover the unexpected operational expenses**

Final Total Received from HRSEP	*$*	58,759.12

Contributions to the total budget may be from other agencies or in-kind contributions from your own organization, please specify:

	Amount	*Details*
Other Contributors to Total Project $	5,000.00	QCI Salmon Unlimited Society to pay for the additional operation expenses of the fish
	5,000.00	DFO (Local Community Advisor) to pay for the additional operation expenses of the fish fence.
	39,750.00	See Next Page

$\Sigma =$ 49,750.

In-Kind Contributions for the Installation and Operation of the Tlell River Adult Salmon Counting Fence

Details	# Units	Unit	Unit cost	Subtotals	Totals
In-kind contributions for 1999 fish fence planning and installation					
DFO personnel	15	person days	$400.00	$ 6,000.00	$ 14,450.00
MoELP Habitat Technician	2	person days	$400.00	$ 800.00	
TWS Directors and Volunteers	15	person days	$150.00	$ 2,250.00	
MTE Inc. Fisheries Biologists	12	person days	$400.00	$ 4,800.00	
MTE Inc. office supplies and field equipment	8	days	$25.00	$ 200.00	
MTE Inc. electrofisher rental	2	days	$50.00	$ 100.00	
MTE Inc. fence storage off-season			space rental	$ 300.00	
In-kind contributions for 1999 fish fence operation					
DFO Biologist	5	person days	$400.00	$ 2,000.00	$ 25,300.00
TWS Directors and Volunteers	85	person days	$175.00	$ 14,875.00	
MTE Inc. Fisheries Biologists	20	person days	$400.00	$ 8,000.00	
MTE Inc. office supplies and field equipment	85	days	$5.00	$ 425.00	

VALUE OF IN-KIND CONTRIBUTIONS **$ 39,750.00**

Preliminary Summary from the 1999 operations of the Tlell River fish counting fence
Dates of operation: 11 September to 13 October 1999

species	# fish downstream	# fish upstream	net # of fish upstream
coho salmon	162	5266	**5104**
coho jacks	43	1586	**1543** 8,303
pink salmon	631	2287	**1656**

The Tlell River fence commenced operations on September 11th, 1999, following one moderately high water event immediately prior to completion of fence superstructure installation. Relatively low numbers of salmon passed through the fence site for the first 3 weeks of operation, presumably due to little precipitation and low flow conditions. During this time, Pink salmon were the most prevalent, loitering back and forth across the fence plate. Coho salmon were noted intermittently with some days seeing about 100 coho and other days, less than 10.

On September 23rd, the water level in the Lower Tlell River began to rise, responding to heavy rain which had started 2 days prior. Over 6 hours of rising water in the afternoon, 2747 coho were counted moving upstream through the fence. By the last hour of this period, 151 coho were counted through. During the evening shift, only 8 coho were counted upstream and at midnight, counting operations had to be ceased due to increasing water levels. The water level topped the fence overnight and counting did not resume for 2 days, following removal of logs and debris.

From the end of September through to mid-October, water levels remained relatively low with one other fence-topping flood event prior to removal of the majority of fence panels on October 15th, 1999. Up to 100 coho per day were noted *swimming* upstream during this period, but there were no more numbers as spectacular as those of September 23rd.

From mid-October through to late November, regular precipitation maintained relatively high water levels. All remaining fence panels were removed using the Pallant Creek panel puller in early November. Low water in late December facilitated removal of the A-frames and all walkway components on December 31st, 1999.

The coho salmon counts, including the coho jacks, are likely to represent the majority of the coho salmon escapement for 1999. Some coho are expected to have moved upstream in the first flood in early September; however, the trend in numbers throughout the counting period indicates that we counted the peak of the coho run. Fish would have been missed during the second flood and coho are expected to trickle in through the late fall and early winter months.

The pink salmon count is a relative indicator of abundance since pinks naturally spawn both upstream and downstream of the fence site and they also move into the river starting in mid-August. Much of the pink run may have been missed in August when the fence was not in operation.