HRSEP: 98-VI-ST-111

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HRSEP 1998/99 Final Report

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

Proponent Information

Organization Name :	Fisheries and Oceans Canada
Contact Name :	Dick Nagtegaal
Contact Title :	Research Biologist
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Did you receive DFO input on this project? ~~*Yes/No*~~

Name of DFO Contact(s):

Project Information

Project Title	:	Klinaklini Stock Assessment Program
Start Date	:	June 15, 1998
End Date	:	Sept. 31, 1998
Project Rationale (Problem being addressed)		Salmon stock assessment in Klinaklini watershed Establish as indicator stock for Pacific Salmon Treaty rebuilding process

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

In 1997 a feasibility study was conducted and contacts made for the development of the project.

Activity Type

Check all that apply

Inventory & Mapping	X	*Stock Assessment*	X
Public Awareness	X	*Habitat Restoration*	
Stock Enhancement		*Stewardship/Community Planning*	
Other	X	*Specify*	*Determine fishwheel utility as a selective fishery and stock assessment tool*

Project Objectives (from your proposal and/or agreement)

Objective # 1 :	Determine adult salmon spawning population size and distribution, compare with historical estimation techniques, and establish as indicator stock.
Was it achieved?: Yes/No + Details	*Yes. The fishwheel (mainstem), mark-recapture technique, radio-tagging and fish fence (Mussel Cr.) provided comprehensive escapement enumeration, stock identification and biosampling for all species.*
Objective # 2 :	Evaluate fishwheel for assessment purposes and as a selective fishery tool.
Was it achieved? : Yes/No + Details	*Yes. The process is ongoing but from efficiency tests, radio-tagging, examination of selective harvest by species, size, sex and age, the prognosis for the utility of the fishwheel looks very promising.*

Partnerships

List and describe the personnel involved in the project.

Lee Alfred (Alert Bay First Nations)	James Patterson (Malaspina College)
Sandy Johnson (Gilford Island First Nations)	Julian Sturhahn (Research consultant)
Dave Bayley (Campbell R. displaced fisher)	Dave Burton (Field technician)
Darryl Stauffer (Campbell R. displaced fisher)	Ted Carter (DFO research technician)
Rob Chudleigh (Campbell R. displaced fisher)	Dick Nagtegaal (DFO research biologist)
Rick Adams (Campbell R. displaced fisher)	Craig Howes (work experience student)
Dave Key (Pisces Research Corps)	Bill Wasden (Tenakteuk First Nations)
Julie Edwards (Kwakiutl Territorial Fisheries Commission)	Glen Nichol (Tenakteuk First Nations)

# of persons trained 11 *# of volunteers involved* 2
# of persons employed 11 *# of volunteer hours* 30
person-days of employment created 476

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

Relatively speaking yes. We partnered with:

1. Kwakiutl Territorial Fisheries Commission (several First Nations groups) to provide field crew
2. Campbell/Courtenay displaced fishers groups to provide field crew
3. International Forest Products Ltd. (Wahkash Contracting) to provide accomodation, storage and repair provisions and lab facilities
4. Pisces Research Corps to provide engineering expertise (fishwheel)
5. Malaspina College to provide field technician
6. Campbell R. School district to provide secondary work experience student and elementary students for school project
7. Fisheries management (DFO) for comparison with historical escapement enumeration techniques and data

Project Location

Check all that apply

	(Check)	*(Details – name, code or other)*
Water body / System(s)	X	Klinaklini River
Watershed(s)	X	Klinaklini watershed (90-5300)
Marine Statistical Area(s)	X	Statistical area 12-34
Other		

Latitude : $51^0\ 10'$
Longitude : $125^0\ 35'$

UTM Coordinates :

Results/Quantifiable Measures

Species Addressed (Check as many as applicable)

X	Coho	X	Pink
	Chum	X	Chinook
	Sockeye	X	Other

Habitat Addressed (Check as many as applicable)

X	In-channel	X	Off-channel
	Riparian	X	Estuarine/Marine
	Lake	X	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: 450

Other: _____

For Stock Rebuilding Projects:

6,713 Adult counts

 # Adult Salmon Enumerated: ~~X~~

 # Juvenile Salmon Enumerated: X

 # Salmon marked/Tagged or released: X

Other: _____

For Stewardship/Community Planning Projects:

 # Public Presentations/Media Releases: ~~X~~

 # Landowners Contacted: _____

Other: X

For Habitat Restoration Projects:

Fencing: m^2 (fence to bank) and kms protected : _____ _____

Riparian re-planting (# plants/trees and m^2 area): _____ _____

In-channel habitat (m^2 area of section restored) _____

Off-channel habitat (m^2 area created/restored) _____

Estuarine habitat (m^2 area created/restored) _____

Lake habitat (m^2 area created/restored) _____

Fish Access:(m^2 or km of habitat made available) _____

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 project will employ First Nations and displaced fishers as field technicians to collect the information.

Overview:

Considerable interest has been focussed towards the chinook stocks in the Strait of Georgia due to the perceived decline of these stocks and their importance to the local fisheries. In 1985, a chinook rebuilding plan was initiated through the Pacific Salmon Treaty between the United States and Canada, that required both parties to stop the decline in escapements to naturally-spawning chinook stocks and attain escapement goals in selected lower Strait of Georgia chinook indicator stocks (Cowichan, Nanaimo, Squamish) and upper Strait of Georgia indicator stocks (Klinaklini, Kakweiken, Nimpkish, Wakeman, and Kingcome). Restoration of Pacific chinook salmon stocks to historical levels is one of the primary objectives of the Dept. of Fisheries and Oceans long term management plan. To that end, various "key streams" were also chosen for study (Robertson, Quinsam/Campbell, Kitsumkalem, Harrison, Big Qualicum) in order to represent the overall status of chinook bearing streams along the B. C. coast. These selected streams provide ongoing information to fisheries managers with respect to accurate estimates of escapement as well as estimates of the relative contribution of hatchery and naturally-reared production to these stocks.

DFO Fishery Officers have conducted spawner enumeration on the lower Klinaklini watershed (including Mussel Cr.) using overflights and stream walks since 1949. In recent years however, limited assessment has been done. Since the Klinaklini is glacial, the numbers of spawners were estimated from overflights of a few key clear water indicator sites on Mussel, Icy, Dice, and Jump Cr. tributaries. The Klinaklini system supports all five salmonids, steelhead and trout populations. It is believed that there are three chinook runs to the Klinaklini system based on migration timing.

In 1981, The Dept. of Fisheries and Oceans considered implementation of enhancement facilities, on selected watercourses in Knight Inlet, to increase salmonid production. Enhancement plans included a pink spawning channel at Glendale Creek, a chum/pink spawning channel on the Ahnuhati River, a chinook and coho satellite hatchery on Mussel Creek, juvenile chinook and coho outplanting to the Ahnuhati and Klinaklini Rivers, and coho outplanting to Tom Browne and Glendale Creeks. The DFO commissioned Aquatic Resources Ltd. in 1981 and E.V.S. Consultants in 1983 to conduct spawning studies and collect baseline information for pink, chum, sockeye, coho and chinook from these watercourses. Physical data, including water temperature, relative level and quality, population biological characteristics, and spawning habitat biophysical characteristics were also collected. Preliminary surveys of juvenile salmonid habitat utilization and evaluations of potential rearing area were completed on all study watercourses.

A pilot enhancement facility on Mussel Cr. was built and in 1985 chinook and coho broodstock were collected. Approximately 265,000 chinook eggs were incubated of which 63% were released as coded-wire tagged fry and 24% as 4-5 g tagged smolts. For various reasons the facility was dismantled the following year. A total of five coded-wire tagged chinook were recovered from 1987-1989, three from Alaskan fisheries and two from northern sport and troll fisheries.

Objectives of this study include:

1. estimate total chinook escapement and spawner distribution,
2. collect biological data for this stock, and
3. record environmental information.
4. evaluate the suitability of using a fishwheel to index the abundance and timing of chinook returns to the Klinaklini system.
5. evaluate use of fishwheel as a selective fishery tool

Methodology:

1. A fishwheel will be installed in the mainstem Klinaklini to enumerate and biologically sample all salmon, radio tag chinook and coho, mark chinook and coho as part of mark-recapture population estimate technique, record fishwheel operational and efficiency data, and collect environmental data.
2. A fence will be installed on Mussel Creek to enumerate all salmon and record tagged/untagged fish. Environmental data will also be collected.
3. Survey all tributaries of the Klinaklini watershed to track radio tagged fish and determine spawner distribution.
4. Map creeks/tributaries to Klinaklini R. to develop spawner distribution profile.
5. Conduct overflight assessment in conjunction with Fishery Officers to establish comparison of present assessment techniques to those used in the past.

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*

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 / Personal Costs	$	31,000.00	33,000.00	Wages, safety gear and training,
Transport / Equipment	$	24,000.00	26,000.00	Barging gear, gear installation, boat/vehicle operation, bio-sampling equipment,
Office / Overhead	$	4,500.00	4,500.00	Record keeping, accounting,
Other Costs	$	500.00	15,000.00	Telemetry equipment, gear maintenance, flight costs, accomodation, meals
Total Received from HRSEP	$		60,000.00	

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 $	15,000.00	Contribution from D. Nagtegaal and T. Carter (DFO) for project design and overall supervision. Contribution from Interfor for sampling and storage facilities at the logging camp at Knight Inlet.