COQUITLAM RIVER
HABITAT REHABILITATION PROJECT
2005

Project Number	**05.Co.01**
Approved	**March 11 2005**
Approved Funding	**$84,700**
Total Project Value	**$ 139,131.00**

Prepared By
North Fraser Salmon Assistance Society

Prepared With Financial Support of
BC Hydro Bridge Coastal
Fish and Wildlife Restoration Program

Executive Summary

The goal of the Coquitlam River Habitat Rehabilitation Project was to undertake works resulting from an adaptive management and effectiveness monitoring process. The objective was to ensure public and wildlife safety and project effectiveness over time by monitoring and maintaining existing habitat rehabilitation projects.

The Colony Farm, River Springs Oxbow Lake and Archery Pond Projects were designed to address specific fish and wildlife presence or abundance limiting factors, as identified in the *Bridge-Coastal Fish & Wildlife Restoration Program (BCRP), Volume 2 Coquitlam River (Buntzen Lake) Watershed Chapter 8 Revised Jan 06/03.*

Their maintenance was undertaken successfully. Excavating fine sediment deposits from their intakes, refurbishing the spawning gravel and increasing rearing habitat improved and increased project productivity.

The bioengineered slope stabilization on Falacea Creek was not undertaken, as the preliminary site assessment indicated a fully assessed and heavily engineered response is needed.

The sediment-monitoring plan is underway and will provide data to the broader community to inform this watershed projects and plans.

This project works in concert with other BCRP co-funded projects within the watershed to rehabilitate habitat for “best use” and increase biodiversity to improve watershed function. This was accomplished by achieving the project objectives which work to mitigate the effects of habitat loss and reduced biological productivity due to impacts from inundations, flow regime changes, urban encroachment, dyking and linier develop that has fragmented and altered habitat in the Coquitlam River watershed.

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1.00 Introduction

1.1 Background

In 1903 a dam was constructed on the Coquitlam River to produce hydroelectricity and to supply water for industrial and domestic use. Since the construction of this first dam and subsequent reconstruction projects in 1914 and 1985 impacts to watershed function, fish, wildlife and riparian biodiversity have been identified.

Presence or abundance limiting factors are articulated in the *Bridge-Coastal Fish & Wildlife Restoration Program, Volume 2 Coquitlam River (Buntzen Lake) Watershed:*

Factors Limiting Fish Diversity and Production

1. Blocked access to historic habitats: Anadromous stocks have been excluded from Coquitlam Lake for 86 years.
2. Loss of habitat: Former spawning, rearing and overwintering areas are permanently lost or seasonally reduced due to dam footprint, reservoir flooding, flow diversions, or operating flows; or from non-hydro sources.
3. Reduced downstream habitat capability: Habitats below Coquitlam Dam are altered by reduced wood recruitment.
4. Reduced biological productivity: Coquitlam and Buntzen lakes have been affected long-term by large reservoir drawdown regimes and in the former, loss of historic salmon carcasses.
5. Reduced tributary access: Reduced fish access between reservoir and tributary habitat due to large drawdown regimes.
6. Reduced mainstem access: Reduced access for fish using mainstem channel diminished by the diversion.
7. Diversions: The diversion has reduced flows to the downstream Coquitlam channel and increased flows into Buntzen Lake; these altered flows have affected wetted channel area, seasonal temperatures, sediment flushing, and aquatic productivity in the respective systems.

Factors Limiting Wildlife Diversity and Productivity

1. Habitat Changes: Altered flow regime has changed riverine and riparian habitats. Potential effects on wildlife include changes to habitat quality and quantity for tailed frogs, water shrews, harlequins and dippers.
2. Loss of Habitat: Loss of side channel habitat downstream of diversions. Lack of riparian vegetation in drawdown zones; effects on ungulates, furbearers, small mammals and several species of passerines including some neo-tropical migrants. Potential effects include availability of habitat for amphibians, water shrews, other small mammals, and their predators, browse for ungulates and breeding habitat for some species of neo-tropical migrants.
3. Reduced Productivity: Lack of riparian vegetation in drawdown zones; effects on ungulates, furbearers, small mammals and several species of passerines including some neo-tropical migrants.
4. Wildlife Migration: Impediments to wildlife movement (especially large mammals) caused by structures, reservoirs and diversions.

BC Hydro's Bridge Coastal Restoration Program acknowledges these limiting factors or indirect impacts and provides funding support to proponents that undertake works that mitigate the direct and indirect impacts of the dam and its operational effects.
The Strategic Plan Section 6, Volume 1 (2000) prioritizes these works:

1. Continue to undertake cost-effective measures to reduce ongoing impacts on fish and wildlife.
2. Conserve the remaining important habitats within the watershed.
3. Maintain or restore, where feasible, natural processes affecting habitat formation.
4. Replace or construct new habitat where it will directly contribute to fish and wildlife diversity and production in the watershed.
5. Provide support for re-introduction of fish and wildlife, and for artificially supplementing production where necessary.
6. Identify performance indicators, monitor and evaluate project results, and re-adjust restoration strategies and methods based on lessons learned.

1.2 Adaptive Management And Effectiveness Monitoring

The Coquitlam River Habitat Rehabilitation Project 2005 undertook works identified by an adaptive management and effectiveness monitoring process.

The process monitors rehabilitation works in the watershed that address fish and wildlife presence or abundance limiting factors, as identified in the Bridge-Coastal Fish & Wildlife Restoration Program Volume 2 Coquitlam River (Buntzen Lake) Watershed.

Effectiveness monitoring and project maintenance are essential in creating cumulative benefits to the fish and wildlife in the watershed and addressing limiting factors identified in the BCRP reports. This important process also protects the original significant financial investment in the projects.

Four sites were prioritized for 2005:

- Falacea Creek headwaters
- Archery Pond
- River Springs Oxbow Lake and Spawning Channel
- Colony Farm Sheep Paddock Slough

2.0 Goals and Objectives

The goal of the Coquitlam River Habitat Rehabilitation Project 2005 was to increase watershed productivity by ensuring existing rehabilitation projects are effective. A secondary goal was to ensure public and wildlife safety at these project sites.

The objective of the Coquitlam River Habitat Rehabilitation Project 2005 was to undertake recommended works identified by an adaptive management and effectiveness monitoring process.

The process identified the need for:

- Slope stabilization in Falacea Creek headwaters
- Water quality monitoring to measure sediment discharge into aquatic fish habitat
- Archery Pond flow maintenance and additional spawning habitat
- River Springs Oxbow Lake and Spawning Channel flow maintenance, water quality improvements and additional spawning habitat
- Sheep Paddock Slough vegetation and wildlife monitoring, vegetation maintenance and densification
- Sheep Paddock Phase II project development and design

3.0 Study Area

Table 1 Study Area Description

Location	Coquitlam River Watershed Coquitlam BC
Watershed Code	100-024500-00000-00000-000-000-000-000-000-000
Map References	Geodata BC TRIM Map 92G.026 Natural Resources Canada NTS 92G/2
UTM Co-ordinates	Zone 10 5459724mN, 516564mE NAD 27
Construction Drawings	Oxbow: DFO Projects doc. Coquitlam River River Springs Sub Division Oxbow Lake April 2005 Archery Pond: Not Required Colony Farm: Included with 04.Co.04 Falacea Creek: To be Developed
Land Ownership	Oxbow: River Springs Strata Association Archery Pond: City of Coquitlam Colony Farm: GVRD, Colony Farm Regional Park Falacea Creek: BC Crown Lands
Land Use	Oxbow: Residential, medium density Archery Pond Municipal Park Colony Farm: Regional Park, BC Hydro Right of Way Canadian Pacific Railway Right of Way Falacea Creek Adjacent to Operating Aggregate Mine
First Nations Traditional Territory	Kwikwetlem First Nation Primary Territory

The study areas are all located within the Coquitlam River watershed downstream of the BC Hydro owned and operated impound dam (Figure 1 Map Study Area, Coquitlam Watershed). Colony Farm Project is located approximately 2400 metres upstream of the Fraser River confluence (Figure 5 Orthophoto Colony Farm Study Area). The Oxbow Project is located approximately 9000m upstream of the Fraser River confluence (Figure 4 Orthophoto River Springs Oxbow Lake Study Area). The Archery Pond Project is about 13000m upstream of the Fraser River confluence (Figure 3 Archery Pond Study Area) and Falacea Creek is approximately 14500m upstream of the Fraser River confluence (Figure 2 Orthophoto Falacea Creek Study Area).

The three habitat rehabilitation project sites are within the floodplain of the Coquitlam River and historically provided productive side channel, intertidal, slough, open-water, flowing aquatic habitats as well as multilayered transitional serial staged terrestrial habitat. These projects work towards mitigating the loss or impact resulting from the industrial use of the river by BC Hydro's operations.

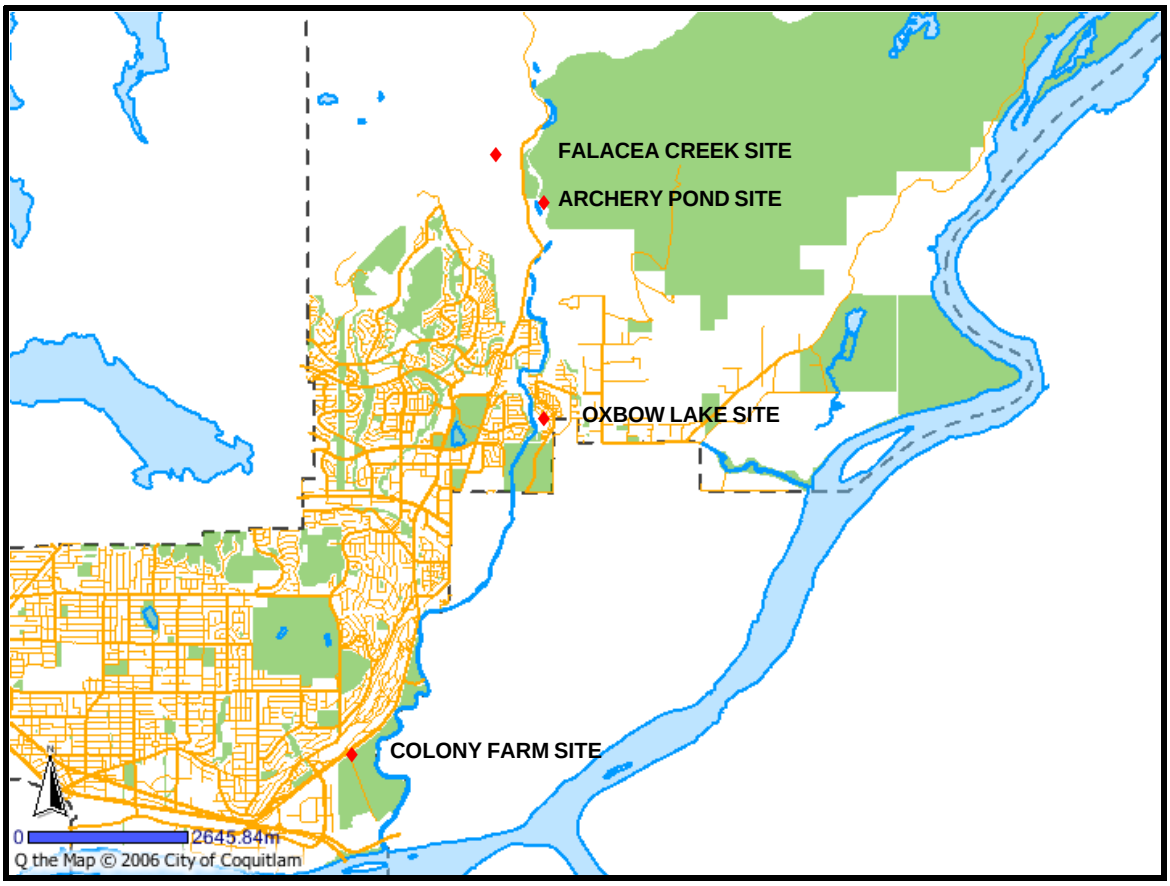

Figure 1 Map Study Area, Coquitlam Watershed

Presently the Colony Farm, Oxbow and Archery Pond sites provide opportunity for passive recreation and are used by adjacent residents as well as regional destination-park users. These sites provide prime habitat for a broad range of fish and wildlife and thus allow for excellent wildlife viewing.

The well-mapped and maintained hiking trails bring people to the project sites for bird watching of resident and migratory songbirds, raptors and waterfowl. Over 156 bird species have been documented by the Burke Mountain Naturalists and are confirmed during Audubon's Annual Christmas Bird Count.

Butterfly and wildlife photographers are also common.

The increased aquatic productivity from ongoing intensive habitat rehabilitation by government, industry and community allowed for limited a recreation retention fishery on the river in 2005.

A dog-on-leash policy at the Colony Farm project reduces intrusions into sensitive habitat, increasing the potential for long-term success of this project. Increased dog off leash impacts to habitat and wildlife at the other sites has been noted.

Figure 2 Orthophoto Falacea Creek Study Area

Figure 3 Archery Pond Study Area

Figure 4 Orthophoto River Springs Oxbow Lake Study Area

Figure 5 Orthophoto Colony Farm Study Area

4.0 Methods

The methods utilized in the habitat rehabilitation projects were standard excavation and infrastructure retrofit procedures and best management practices, aligned with the FOC/DFOs new Operational Statement - Routing Maintenance Dredging Measures to Protect Fish and Fish Habitat when doing routine maintenance, dredging or operating machinery in or about fish habitat.

Work commenced in late May and was completed in early September.

Kwikwetlem and Katzie First Nation members were employed in the project as archeological observers, site interpreters of traditional knowledge and general laborers.

Headwater Management Limited was contracted to provide excavation services for these projects. They were selected based on their competitive quote, previous experience with fisheries related habitat projects and range and availability of appropriate heavy machinery.

Three different sized track excavators were used including a Takeuchi mini-excavator, a Hitachi EX 80 and a John Deere 225. A rubber–tired loader was used for moving materials on site. A crane truck was used for delivery of concrete lock blocks. Tandem-axle gravel trucks with ponies were used for transport of spawning gravel

Six of the eight load of spawning gravel were in-kind from a fisheries project on the Mamquam Blind Project in Squamish. This reduced the concern that the gravel mining process may have damaged the actual habitat being rehabilitated.

DFO, volunteer stewards and North Fraser Salmon Assistance Society will undertake post construction monitoring. Habitat utilization by fish, mammals, birds, reptiles and amphibians will be monitored. Planting survival will continue to be monitored.

Internet, site signage, project tours and public meeting were all utilized as communication opportunities.

Colony Farm Sheep Paddock Project Vegetation and Effectiveness Monitoring

- Anchoring of instream large woody debris
- (Figure 15 Colony Farm Anchoring Large Woody Debris (DFO Photo))
- Replacement and additional planting and seeding of riparian zone
  (Figure 13 Colony Farm Vegetation Monitoring, Replanting and Installation of Beaver Fencing (DFO Photo)
  Figure 14 Colony Farm Habitat Monitoring – Reptile)
- Beaver fencing of riparian zone

Archery Pond Off-Channel Habitat Maintenance and Upgrade

- Excavation of silt/sand deposition at head of rearing pond
- Excavation of gravel deposition at upstream end of intake side channel to increase water supply to project during low summer flow period
- Rip- rap armoring of diversion weir at lower spawning/rearing channel
- Excavation of gravel deposition at head of lower side channel to create an additional 300 m^2 of permanently wetted spawning/rearing habitat
- Transport and placement of excavated gravel at rearing pond outlet to create an additional 30 m^2 of spawning habitat

River Springs Oxbow Lake and Spawning Channel Habitat Rehabilitation

- Installation of new intake screen and diversion weir
- Excavation and re-grading of two 12" pipes to increase water supply to project during low summer flows
  (Figure 10 River Springs Oxbow Lake Intake Pipe Regarding and Realignment)
  (Figure 11 River Springs Oxbow Lake Intake Pipe Realignment (DFO Photo))
- Excavation of sand/silt deposition in settling pond
- Excavation of gravel from above Oxbow Lake outlet culverts to prevent gravel deposition in culverts
- Excavation of gravel from above Oxbow Lake outlet to stabilize lake level
- Excavation of Oxbow Lake outlet channel below culverts (increase from 1m wide to 3 m wide by 50 m long and 0.75 m deeper)
- Back-filled outlet channel with 75 m^3 (0.5 m deep) of natural river gravel (combination of locally purchased and imported river gravel from Squamish) creating an additional 150 m^2 of spawning habitat
- Excavation of collapsed and undersized culverts at channel outlet where it flows under recreational vehicle parking lot access road
- Replacement with two, 1m diameter, smooth-walled plastic culverts complete with concrete lock-block head-walls
  (Figure 9 River Springs Oxbow Lake Outfall Pipe Replacement and Lock Blocks)
- Added 40 m^3 of imported spawning gravel to two gravel depleted reaches in lower Oxbow project to create an additional 80 m^2 of spawning habitat
  (Figure 6 River Springs Oxbow Lake Spawning Channel Before Rebuild)
  (Figure 7 River Springs Oxbow Lake Spawning Channel During Rebuild)
  (Figure 8 River Springs Oxbow Lake Spawning Channel After Rebuild)
- Riparian area planting along new outlet spawning channel
  (Figure 12 River Springs Oxbow Lake Riparian Planting)
- Fabrication and installation of irrigation system for riparian plants

Figure 6 River Springs Oxbow Lake Spawning Channel Before Rebuild

Figure 7 River Springs Oxbow Lake Spawning Channel During Rebuild

Figure 8 River Springs Oxbow Lake Spawning Channel After Rebuild

Figure 9 River Springs Oxbow Lake Outfall Pipe Replacement and Lock Blocks

Figure 10 River Springs Oxbow Lake Intake Pipe Regrading

Figure 11 River Springs Oxbow Lake Intake Pipe Realignment (DFO Photo)

Figure 12 River Springs Oxbow Lake Riparian Planting

Figure 13 Colony Farm Vegetation and Habitat Monitoring, Replanting and Installation of Beaver Fencing (DFO Photo)

Figure 14 Colony Farm Habitat Monitoring – Before Reptile

Figure 15 Colony Farm Anchoring Large Woody Debris (DFO Photo)

5.0 Results

Archery Pond, constructed in the early 1990's required work to reverse loss of effectiveness resulting from the impact of regular flood events that had reduced the habitat quality:

- Reposition large woody debris (LWD) moved during floods
- Remove fine sediment deposits restricting flow at intake
- Reposition migrating spawning gravel back into spawning reach

River Springs Oxbow Lake and Spawning Channel, constructed in 1994 required the following work to increase its productivity and reduce risk:

- Replace outfall culverts with larger diameter to allow for natural gravel migration
- Increase outfall capacity to prevent flooding from habitat rehabilitation works
- Remove fine sediment deposits restricting flow at intake
- Increase amount and quality of spawning and rearing habitat

The upgrades to the Archery and Oxbow habitat restoration projects have created an additional 560 m^2 of spawning habitat. Using provincial bio-standards of 250 fry/m^2 of spawning habitat, this will produce an additional 140,000 salmonid fry annually.

Improvements to the water supplies of both projects, particularly during low summer flows, will also increase and stabilize their wetted rearing areas and coho smolt productive capacities. The rearing area of Archery is 3,300 m^2 and Oxbow is 17,300 m^2 (20,600 m^2 in total). Using provincial bio-standards of 0.5 coho smolts/m^2 of rearing habitat, these projects will produce an estimated 10,300 coho smolts annually.

Colony Farm Sheep Paddock Slough, constructed in 2004, ongoing contractual monitoring of fish and wildlife utilization as well as revegetation success indicated a need for the following to ensure its objectives are realized:

- Vegetation densification and alien plant species removal
- Beaver impact management
- Monitoring results to inform Phase II planning and project development

Falacea Creek Slope Stabilization and Sedimentation Monitoring were also identified as projects with significant potential outcomes. The project proponent and FOC staff undertook a preliminary slope stabilization assessment of Falacea Creek during July.

Within the first 500 m upstream of Pipeline Road, a deeply incised ravine with numerous slumps and actively eroding areas was encountered. Exposed fine/clay surfaces were evident throughout. Falacea Creek is just upstream of the gravel mine sites. This watershed may be impacted by these operations.

Bioengineering of Falacea Creek to reduce extreme siltation events such as the gully wall failure in 2004 that has resulted in chronic inputs of fine textured marine clay sediments into fish habitat were not undertaken. It was determined that bio-stabilization of this area was not feasible and any attempt to mitigate siltation from this area was beyond the scope of this project.

Two interpretative signs were installed at River Springs (Appendix III).

Kwikwetlem First Nations members did not find archeological evidence.

6.0 Discussion

This project was a success and demonstrated the value of conducting ongoing maintenance to ensure effectiveness of the habitat projects, reduce liability and risk, and protect the investment by the community in these and other and habitat rehabilitation projects. This will lead to addition projects being undertaken in the watershed.

The bioengineered slope stabilization of upper Falacea creek was not completed as the in-depth reconnaissance indicates a fully assessed and heavily engineered response is needed.

The turbidity data logged were received at the end of the project and the random sampling monitoring plan, volunteer training on use and calibration and the data analysis and integration are currently being developed. However, the access trails to the photo points and monitoring sites have been cut and two well attended stewardship meetings on the need and value have been held. There are a dozen volunteers have committed from this process.

Highly visible and well-publicized projects increase the level of public awareness of the need for these works and the need of their support for them. The mid-subdivision location of the River Spring Project and the urban destination of the other projects, coupled with interpretative signage, increase environmental literacy in the neighborhood and results in an increased stewardship ethic.

Site signage at River springs (Appendix III) will increase environmental literacy and will promote a sense of ownership and stewardship ethic in private strata development.

Project gravel, six of eight loads, was imported from a DFO project in Squamish. This avoided the use of locally obtained gravel potentially linked to loss of watershed productivity.

The contribution of Kwikwetlem First Nation member's traditional and local knowledge to projects in the watershed provides an opportunity to build relationships and to improve projects based on traditional and historic knowledge.

7.0 Recommendations

We recommend sharing long-term monitoring results, with adaptive management triggers, with other restoration teams. Monitoring will not only make it possible to create a habitat rehabilitation template for use in other projects but the innovative techniques used in the Colony Farm Sheep Paddock Project 2004 can be duplicated where appropriate if its success is documented.

Increased dog off leash impacts to habitat and wildlife throughout urbanized areas is becoming problematic and is polarizing some communities. It is recommended that habitat damage surveys be conducted to inform and support trail by train policy development.

Additional habitat will need to be enhanced or created and there is a shrinking amount of public land to undertake these works on. We recommend that the BCRP program seeks or supports opportunities to work closely with all landowners, including governments, to secure sensitive lands prior to sale for future habitat works.

8.0 Acknowledgments

Financial contributions for this project were received from:

BC Hydro Bridge Coastal Fish and Wildlife Restoration Program

Financial and in-kind support and sharing of local and traditional knowledge was gratefully received from:

Fisheries and Oceans Canada, OHEB, Resource Restoration

City of Coquitlam

Kwikwetlem First Nation

Katzie First Nation

River Springs Strata Association

North Fraser Salmon Assistance Project.

9.0 References

Bridge-Coastal Fish & Wildlife Restoration Program, Volume 2 Coquitlam River (Buntzen Lake) Watershed Chapter 8 Revised Jan 06/03
http://www.bchydro.com/bcrp/strategic_plan.html
(accessed March 31 2005)

Bridge Coastal Restoration Program Strategic Plan Section 6, Volume 1 (2000)
http://www.bchydro.com/bcrp/strategic_plan/strategic_plan.pdf
(accessed March 31 2005)

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City of Coquitlam
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- Randy Evans Drainage 604 927 3000

Appendix I

Financial Statement

Bridge Coast Fish and Wildlife Restoration Program
Coquitlam River Habitat Rehabilitation Project

Financial Statement Project Number 05.Co.01
North Fraser Salmon Assistance Society
Incorporated Under Society's Act March 24 1999

	BUDGET		ACTUAL	
	BCRP	**OTHER**	**BCRP**	**OTHER**
INCOME, Total Income by Source				
Fisheries and Oceans Canada		27,000.00		19,750.00
North Fraser Salmon Assistance Society		27,100.00		27,100.00
BCRP	84,700.00		84,700.00	
City of Coquitlam		24,000.00		24,000.00
Grand Total Income, (BCRP & Other)	**84,700.00**	**78,100.00**	**84,700.00**	**70,850.00**
EXPENSES				
Personnel, Project				
Wages, Project Professional Fees		12,000.00		17,750.00
Wages, Construction Supervision	8,000.00	8,000.00	8,000.00	5,500.00
Wages, Labour, General & First Nations	5,000.00	11,000.00	5,000.00	8,500.00
Wages, Monitoring, Vegetation/Wildlife	5,000.00	5,000.00	5,000.00	4,000.00
Wages, Monitoring, Water Quality		12,000.00		12,000.00
Consultant Fees - Site signage	4,000.00	1,000.00	2,141.00	
Total Personnel				
Materials & Equipment				
Equipment Rental	25,000.00		22,193.88	
Equipment Purchased, Small Tools		2,000.00		1,000.00
Equipment Purchased, Monitors	12,000.00	12,000.00	7,512.60	
Materials Purchased	15,000.00		7,800.34	5,000.00
Materials, In Kind Gravel				3,000.00
Supplies, plants, cement, hardware	1,000.00	1,000.00	933.26	
Site Signage	2,000.00		2,000.00	
Total Materials and Equipment				
Travel Expenses		1,200.00		1,200.00
Permits				
Administration				
Contract Administration	7,700.00	2,000.00	7,700.00	2,000.00
Office Supplies		1,600.00		1,600.00
Photocopies & Printing				
Postage				
Communication, Phones Computer		3,900.00		3,900.00
Insurance		1,400.00		1,400.00
Office Rental		4,000.00		4,000.00
Total Administration				
GRAND TOTAL EXPENSES	**84,700.00**	**78,100.00**	**68,281.08**	**70,850.00**
BALANCE (Grand Total Income less Grand Total Expenses)		$0		
Cheque enclosed for Surplus			**16,418.92**	

Appendix II

Performance Measures- Actual Outcomes

Bridge Coast Fish and Wildlife Restoration Program
Coquitlam River Habitat Rehabilitation Project

Performance Measures Project Number 05.Co.01

Performance Measures- Target Outcomes													
Project Type	**Primary Habitat Benefit Target Of Project (M^2)**	**Primary Target Species**	**Habitat m^2**										
			Estuarine	Instream Habitat- Mainstem	Instream Habitat-Tributary	Riparian	Reservoir Shoreline Complexing	Riverine	Lowland Deciduous	Lowland Coniferous	Upland	Wetland
Impact Mitigation													
Fish Passage Technologies	Habitat Made Available												
Drawdown Zone Revegetation/Stabilization	Habitat Made Productive												
Wildlife Migration Improvement	Habitat Made Available												
Prevention Of Drowning Of Nests And Nestlings	Wetland Habitat Made Available Above 1:10 Flood												
Habitat Conservation													
Habitat Conserved General	Conserved By Acquisition And Management												
	Conserved By Other Means	riprap			25000m2								
Designated Rare/Special Habitat	Habitat Protected												
Maintain Or Restore Habitat Forming Process													
Artificial Gravel Recruitment	Area Improved				1000m2								
Artificial Wood Debris Recruitment	Area Improved				500m2								
Small Scale Complexing In Existing Habitats	Area Improved												
Prescribed Burns Or Other Upland Habitat Enhancement For Wildlife	Area Improved												
Habitat Development													
New Habitat Created	Functional Area Created	Salmonids			500m2								

Appendix III

Confirmation of BCRP Recognition

Working Together for Wildlife

Salmonid Enhancement Program
Fisheries and Oceans Canada / Pêches et Océans Canada

North Fraser Salmon Assistance Project

KWAYHQUITLUM

BC Hydro Bridge Coastal Fish and Wildlife Restoration Program (BCRP) provides $1.7 million annually to projects that restore fish and wildlife populations and habitat impacted by the construction of hydroelectric generating stations in 15 watersheds located along the coast, the Fraser Valley, Bridge River, Shuswap River and on Vancouver Island. The program is managed by a Board comprised of three public, three First Nations, one federal, one provincial and one BC Hydro representative.

BC HYDRO FISH & WILDLIFE
BRIDGE COASTAL RESTORATION PROGRAM

RIVER SPRINGS STREAMKEEPERS

RIVER SPRINGS STRATA PLAN N.W. 939

Coquitlam

Welcome to River Springs Estates
New and Renovated Habitats!
With pond and stream areas, rockeries, and new native plants for shelter, the community of River Springs provides the perfect home and getaway for wildlife wanting to live a natural lifestyle.
Here's what some of our residents find so appealing ...
The original channel to the hatchery has undergone the greatest renovation. Twelve inch intake pipes provide fresh river water to our young residents.
Great Blue Herons rave about our diverse menu of rodents, fish and amphibians (especially frogs).
Waterfowl like Mallard ducks prefer our waterfront suites and relaxing poolside areas.
Smolts - juvenile salmon on their way to the sea - hang out in our channel and among the large woody debris before heading downstream.
Hunting raptors love the views and snacks, only a short flight away from home.
Funding Provided By:
FISH & WILDLIFE

Appendix IV

River Springs Oxbow Lake Site Drawing