Fraser Salmon & Watersheds Program

2010/11 FINAL REPORT

FSWP File Number*	FSWP 10 D 101 HWRS

* Please use the FSWP File Number provided in previous FSWP project correspondence.

1. Project Information

1.1. Project Title

Fraser Valley; Habitat Restoration Performance Evaluation and Project Legacy

1.2. Proponent's Legal Name

British Columbia Conservation Foundation

1.3. Project Location

Fraser Valley- High priority watersheds and sloughs located from the Alouette River, east to Hope, BC.

1.4. Contact for this report

Name: Kerry Baird	Phone: (604) 576-1433	Email: kbaird@bccf.com

1.5 Funding Amount

Original Approved Grant Amount:	Total FSWP Expenditures:	Final Invoice Amount:	Final Non-FSWP leveraging, including cash and in-kind:
$13,261	$11,677.03	$6,372.64	$7,524.84

2. Project Summary

Please provide a single paragraph describing your project, its objectives, and the results. As this summary may be used in program communications, clearly state the issue(s) that were addressed and avoid overly technical descriptions. Maximum 300 words.

The purpose and scope of this project is to evaluate the current function of existing habitat restoration projects, in the Fraser Valley, that have been constructed by provincial and federal agencies, and local watershed stewardship groups. The project will simultaneously catalogue all restoration projects deemed of high value and priority to representatives of the BC Ministry of Natural Resource Operations (NRO), and Fisheries and Oceans Canada (FOC) who are well versed with the projects.

Restoration programs such as the provincial Forest Renewal BC (FRBC) and federal Resource Restoration Division (RRD) were integral at responding to impacted watersheds in the Fraser Valley. Since the mid 1990's, greater than 50 habitat restoration projects of varying aspects have been funded and implemented through non-government organizations, First Nations, and government agencies. The cost of these projects has been estimated to be greater than $2 million dollars. During the years of implementation, effectiveness evaluation and project monitoring was of low priority. The situation is changing, and project evaluation and monitoring is

now a fundamental component of restoration projects. Identifying modification or maintenance needs on existing restoration projects has a significant cost benefit over commencing new restoration projects. Furthermore, it is likely that the past habitat projects resulted in the greatest level of restoration success. Unfortunately, the ongoing success of these valuable projects may be hampered as a result of human neglect. This project saw the inspecting of a select habitat restoration projects and document the "challenges" and "opportunities" that exist at each. From that point, each of the restoration projects was placed into the ranking system developed through partnership with NRO and FOC. The ranking system was developed into a simple chart format, with project name, location, year built, amount of habitat created, and functionality ranking. The objective of the spreadsheets were to develop and shared the knowledge gained during the project with local community and stewardship groups, so they could possibly aid in the future maintenance of past restoration projects.

OPTIONAL: **Please give a short statement (up to 100 words) of the most compelling activity or outcome from your project.**

The most compelling outcome of the project was coming to the realization that a lot of money has been spent on the construction of restoration projects through out the Fraser Valley and that the investments made by government and other funders have not been taken care of.

3. Final Project Results and Effectiveness

3.1 Please copy THE EXPECTED DELIVERABLES from your detailed proposal and insert into this table. Add additional rows as needed. Then describe the FINAL DELIVERABLES (the tangible end products resulting from this work) associated with each expected Deliverable.

If FINAL DELIVERABLES differ from the original EXPECTED DELIVERABLES, please describe why, and the implications for the project.

EXPECTED DELIVERABLES	FINAL DELIVERABLES
1. Use a multi-disciplinary team of professionals (MOE, and FOC), stream stewards, angling groups, and First Nations to acquire local knowledge of project locations, operations and objectives to document and transfer the knowledge;	The organizations that participated in this project were both provincial and federal governments. Stewardship groups were consulted through email and phone to transfer and share knowledge regarding the status, maintenance, and location of past restoration projects.
2. Inspect the most relevant and important habitat restoration projects within the lower Fraser, and upper Pitt River watershed, evaluating the current performance based on industry protocols;	After consultation with all groups the decision was made to base the focus of the project review on the likelihood of public based monitoring and maintenance, rather than biophysical performance.
3. Provide a list of projects with corresponding: a) performance ratings, b) recommendations to improve habitat capacity, and c) recommendations and schedules for monitoring/maintenance to ensure longevity of functional habitat.	A list of projects has been produced that outlines numerous watersheds and the projects found within them. Performance ratings for each project were completed, schedules for maintenance, at this point are not complete, but consultation activities will continue.

3.2 Please evaluate the EFFECTIVENESS of your project in achieving Project Objectives. Identify the indicators you have used to measure the effectiveness of your project. Please include any notable successes or challenges.

During the course of this project three main indicators were set to assess the level of project effectiveness. The first indicator dealt with cooperation development. For this project to be success a large amount of cooperation was needed in order to sequester the important information needed to complete the project. Information sources came from government and non-government, stewardship groups, and first nations.

The second indicator was the development of a ranking system. The original methodology cited that a series of evaluations, primarily based on biological standards, would be completed on all the highlight projects. Since this project had a late starting date and the actual scope of the task at hand was realized, the evaluations protocol was streamlined. The streamlining of the evaluation protocol was developed in coordination with NRO and FOC staff members. Instead of a habitat ranking system being based solely on biological standards, fish/m^2, we found it more important that the projects be based on social ranking. The social ranking was developed through communications with NRO and FOC. The streamlined social based evaluation protocol places past habitat projects into three main categories. The three categories are:

1) Green-Projects that are functional (flowing water in the channel, presence of adult and or juvenile fish, and open access for fish to the channel) and have some form of monitoring plan in place either through government, first nation, or non-government. The most important factor is that there is some form of professionally trained biologist or engineer that over sees the monitoring processes.

2) Yellow – Projects that appear to be functional and have some form of monitoring plan in place. However, the maintenance and monitoring of the project is completed by groups or individuals not under the guidance of a RP Bio or PENG or the project has no monitoring or maintenance plan.

3) Red – Projects that aren't functional at all and have no groups or organizations responsible for the monitoring or maintenance of the project.

In most cases green project were found to be in urban areas close to communities or important to government organizations. Project ear marked as yellow projects appeared to be located higher in watersheds within areas that are accessible year round, but still fairly far, distance wise, from the closet community. Projects branded with the, "Red" label were found to be located in the upper portions of watersheds, in locations that are very difficult, at times, to reach.

The third indicator to the projects success will be the continued addition of information to the project lists and the development of lasting partnerships with the highlighted watersheds. These partnerships will involve the development of, "ownership" over selected restoration projects by community groups. These community groups will work in coordination with organization the technical background and capacity to aid in small maintenance works.

3.4 IF applicable, please describe how your project has achieved one or more of the following supported processes (Section 2.2 of RFP; section 7 of detailed proposal template). If results differ from those originally anticipated, please describe.

Engagement of First Nations. Please specify who, and in what capacity.	Due to the short period of time allotted for the finalization of this project, limited contact was made with First Nations groups in the Fraser Valley. The hope is to continue the project on a voluntary basis to increase the knowledge capacity for past projects and act as technical support when needed.
Active partnerships with one or more organizations.	Partnerships were developed with biologists and technicians with the BC Ministry of Natural Resource Operations and the Department of Fisheries and Oceans. Partnership building activities are a continuing process and will continue into the future. Email contacts have been

	solicited to a number of stream-keepers and stewardship groups throughout the Fraser Valley in order to expand the present restoration project knowledge base developed during the project.
Relationship building, as a foundation for sustainable, enduring activities.	The main goal of this project was to develop long term relationships between stewardship, consultants, and government agencies. The process is still ongoing and will continue into the future.
Capacity building, including mentorship models, leadership training and skills development.	These three activities: capacity building, mentorship, training, and skill development, have started, but due to the late start of the project these activities will continue into the future as more stewardship groups reply to communications.
Recognition and support of champions and their initiatives.	Over time this project could develop into a very important tool for all restoration practitioners in the Fraser Valley. Individuals and groups involved in the maintenance and stewardship of orphaned restoration projects will become the champions and will need to receive recognition of efforts and even funds from groups such as FSWP.

3.5 Please describe how the benefits of this project will be sustained and/or be built upon into the future. What are the planned next steps, or recommendations for further work, if applicable?

This project has allowed for the development of a collaboration tool. This project will is an ongoing process and doesn't end once the final report is submitted. Community groups, government, and non-government organizations will continue add information to the work completed by BCCF. Ultimately, we would like to have community groups develop a sense of ownership over restoration project highlighted during the project. At the same time, we want to keep groups with the biological and technical knowledge needed to insure project functionality in the loop and willing to assist. Future assistance in this process will be voluntary basis with community groups taking ownership of certain projects. As mentioned above, this project is far from being completed and is only a stepping stone to future collaboration and work.

3.6. What are the top three lessons learned from this project that could be useful to communicate to others doing similar work in the Basin?

1. Soliciting information from such a broad and varying array of people and organizations is extremely time consuming.
2. Collaborative information sharing is an excellent tool for skill development.
3. Partnerships are not build in one day

REQUIRED: Attach all DOCUMENTATION of Final Deliverables, and LIST attachments in Section 7. These may include technical reports, maps, photos, evidence of communications, lists of meeting participants, etc.

4. Outreach and Communications

Please describe how you have communicated project activities and results within local and basin-wide communities, across organizations and/or to decision makers.

Please list and attach copies of (or links to) any communications materials from these efforts that you have not previously submitted.

Project communication was primarily completed through email and telephone. With a late start date to the project, an early winter, and high snow pack it was absolutely imperative that the field work for this project was completed quickly and efficiently. The short field portion of the project only involved BCCF staff members. The information collected during the project will be circulated to the government and non-government groups that were contacted during the project. To this data, stream-keepers, first nations, and angling groups are still being discovered and contacted regarding participation and information sharing regarding the project. BCCF staff members feel that this project is extremely vital and will continue, on a voluntary basis, to add information as it is collected to the completed spreadsheets.

8. APPENDICES

LIST all REQUIRED DOCUMENTATION here, and attach at the end of this report. These include:

1. **Documentation of FINAL RESULTS. These may include technical reports, maps, photos, lists of meeting participants, etc. (Section 3).**
2. **Communications and Outreach materials, if applicable (Section 4)**
3. **Letters of Confirmation for non-FSWP contributions (Section 5.2)**

1. Project Location Pictures
2. Project Summary and Result Sheets
3. Project Overview Map
4.
5.

APPENDIX 1. PHOTOGRAPHIC RECORD – EXAMPLES OF THE PROJECT VISITED

Example of a past restoration project sign


Example of the available and functional habitat on the Borden Creek side channel.

Another example of a past restoration sign


Spring Creek habitat restoration project functioning well during mid-winter low water conditions, Coquihalla River watershed.


Borden Creek side channel complex intake location, still functional and stable, Chilliwack watershed.


Example of the LWD structures place on Spring Creek, Coquihalla River watershed.

Example of a debris catcher placed on the Coquihalla River after the flood of 1995, still in place and functioning.

LWD structure placed on Big Silver Creek

Picture showing the LWD structures placed on the main-stem portion of the Coquitlam River.

Close-up look at the LWD structures placed on Big Silver Creek, structure is showing some signs of instability and may need some attention.

Example of the habitat restoration works completed on Karen Creek, Coquihalla River watershed.

Picture of coho salmon utilizing the LWD placed in Foley Creek side channel, Chilliwack River watershed.

Blue Creek habitat restoration works, Upper Pitt River watershed.

Red Slough groundwater side channel and habitat complexing, Upper Pitt River watershed.

Appendix 2. Summary of Restoration Projects and Functionality

Chilliwack River Watershed Habiitat Restoration Projects

Name of Project	Watershed	Location (NAD 83)	Year	Restoration Works	Amount of Habitat Created m	Target Species	Completed By	Project Status	Monetary Value
Angelwing Creek Pond Complex	Chilliwack River	539559 5440155	1998-199	Pond Restoration	28000	St, Co, Ch, Rb	Community Futures Development Coorp of North Fraser	Green	$284,000.00
Bulbeard Creek Side Channel and Ponds	Chilliwack River	604500 5438750	1998-199	Side Channel and Ponds	35,000	St, Co, Ch, Rb	Community Futures Development Coorp of North Fraser	Green	$235,000.00
Foley Creek Side Channel	Chilliwack River	539559 5440155	1998-199	Side Channel	9000	St, Co, Ch, Rb	Community Futures Development Coorp of North Fraser	Red	$20,076.00
Little Tamihi Creek Riffle-Pool Sequencing	Chilliwack River	584076 5436313	1998-199	Riffle-Pool	630	St, Co, Ch, Rb	Steelhead Socity Habitat Restoration Corporation	Red	$16,488.00
Slesse Creek (Bar Stabilization)	Chilliwack River	594273 5436974	1998-199	Bar Stabilization	550	St, Co, Ch, Rb	Steelhead Socity Habitat Restoration Corporation	Red	$18,640.00
Slesse Creek (Pond)	Chilliwack River	594274 5436974	1998-199	Pond Restoration	1500	St, Co, Ch, Rb	Steelhead Socity Habitat Restoration Corporation	Red	$19,723.00
Young Creek	Chilliwack River	584579 5436331	1998-199	Pool-Riffle Sequence and overwintering	2000	St, Co, Ch, Rb	Steelhead Socity Habitat Restoration Corporation	Yellow	$35,874.00
Chilliwack River Instream Restoration	Chilliwack River	565776 5441863	1999-200	Instream LWD	12,025	St, Co, Ch, Rb		Red	$71,085.00
Chilliwack River LWD Placement	Chilliwack River	565776 5441863	1999-200	Instream LWD	1000	St, Co, Ch, Rb	Steelhead Socity Habitat Restoration Corporation, MELP, Forest Renewal	Red	$16,315.00
Deer Creek Groundwater Pond	Chilliwack River	582545 5436479	1999-200	Groundwater Pond	400	St, Co, Ch, Rb	Steelhead Society Habitat Restoration, FOC, MOF, Forest Renewal	Yellow	$45,346.00
Millennium Ponds, 14 and 15 mile creek	Chilliwack River	604000 5439000	1999-200	ponds	33,500	St, Co, Ch, Rb	FOC, Cattermole Logging	Yellow	$112,000.00
Slesse Creek R1 Groundwater Pond	Chilliwack River	594273 5436974	1999-200	Pond and LWD	560	St, Co, Ch, Rb	Steelhead Society Habitat Restoration, FOC, MOF, Forest Renewal	Red	$6,317.00
Slesse Creek R4 Road De-activation and Pond Development	Chilliwack River	594273 5436974	1999-200	Pond and Riparian Development	300	St, Co, Ch, Rb	Steelhead Society Habitat Restoration, FOC, MOF, Forest Renewal	Red	$9,685.00
Deer Creek Off-Channel Project	Chilliwack River	582545 5436479	2000-20	Channel and Pond	3657	St, Co, Ch, Rb	Fraser Association (Cattermole Logging), MELP, Spratt Familty	Yellow	$67,639.00
Millennium Ponds, phase II	Chilliwack River	604000 5439000	2000-20	ponds	10,500	St, Co, Ch, Rb	FOC, Cattermole Logging	Yellow	$111,000.00
Centennial Creek LWD	Chilliwack River	565776 5441863	2000-20	LWD Placement	648	St, Co, Ch, Rb	Fraser Association (Cattermole Logging), MELP,	Green	$16,200.00
Slesse Creek LWD	Chilliwack River	594300 5436600	2000-20	LWD Placement	1520	St, Co, Ch, Rb	Fraser Association (Cattermole Logging), MELP	Red	$16,200.00
Borden Creek	Chilliwack River	592597.03, 5436666.4	1997-199	Side Channel and ponds	38000	St, Co, RB, Cm,Bt, Ct	Steelhead Society Habitat Restoration Corp	Green	$245,000
Yukalaup Creek Side Channel	Chilliwack River	611467.20, 5438696.75	1997-199	Side Channel and ponds	11,200	St, Co, Ch, Rb, Cm, Bt, Ct, Pk	DFO	Green	$102,000
					169,990.00				$1,449,188.00

Silverhope Creek Watershed Habitat Restoration Projects

Name of Project	Watershed	Location (NAD 83)	Year	Restoration Works	Amount of Habitat Created	Target Species	Completed By	Monetary Value	Project Status
Yola Creek	Silverhope Creek	617619 5454231	1998	Instream Rock Deflectors	100	St, Co, Ch, Rb	Steelhead Socity Habitat Restoration Corporation	$3,026.00	Red
Silverhope Creek Riparian Treatment	Silverhope Creek	611589 5463732	1999-200	Planting and Brushing		St, Bt, Rb	SSHRC, Interfor, MELP, MOF, Forest Renewal	$42,655.00	Red
					100			$45,681.00	

Alouette River Watershed Habitat Restoration Projects

Name of Project	Watershed	Location (NAD 83)	Year	Restoration Works	mount of Habitat Created (r	Target Species	Completed By	Monetary Value	Project Status
South Alouette LWD	South Alouette Riv	521242 5454901	1997/1998	Instream LWD	7000	St, Co, Ch, Rb	ARMS	$53,000.00	Yellow

Chehalis River Watershed Habitat Restoration Projects

Watershed	Location (NAD 83)	Year	Restoration Works	Amount of Habitat Created	Target Species	Completed By	Monetary Value	Project Status
Norrish Creek	563000 5447000	1998	Riparian Restoration	m^2	St, Co, Ch, Rb	Can For and MELP	$54,000.00	Red

Upper Pitt River Watershed Habitat Restoration Projects

Name of Project	Watershed	Location (NAD 83)	Year	Restoration Works	Amount of Habitat Created	Target Species	Completed By	Monetary Value	Project Status
Fish Hatchery Creek	Upper Pitt River	526434 5494858	1998	Side Channel Restoratio	75,200	St, Co, Ch, Rb	FOC,	$105,000.00	Green
Homestead Creek	Upper Pitt River	525436 5495984	1998	Side Channel Restoratio	9,750	St, Co, Ch, Rb	FOC,	$85,500.00	
Rocky Creek	Upper Pitt River	524564 5496410	1998	Side Channel Restoratio	16,000	St, Co, Ch, Rb	Steelhead Socity Habitat Restoration	$59,397.00	Red
Elizabeth Joe Groundwater Channel	Upper Pitt River	524000 5498000	1999-2000	Side Channel Restoratio	2,030	St, Co, Ch, Rb	JS Jones, FOC	$125,000.00	Green
Volcanic Brown Groundwater Chann	Upper Pitt River	516936 5452970	2000-2001	Side Channel Restoratio	2,320	St, Co, Ch, Rb	JS Jones, FOC	$90,700.00	Green
					105,300			$465,597.00	

Coquitlam River Watershed Habitat Restoration Projects

Name of Project	Watershed	Location (NAD 83)	Year	Restoration Works	Amount of Habitat Created	Target Species	Completed By	Monetary Value	Status
Coquitlam River	Coquitlam River	514183 5452610	1998	Instream LWD	m^2	St, Co, Ch, Rb	Community Futures Development Coorp of North Fraser	$19,060.00	Red

Big Silver Creek Watershed Habitat Restoration Projects

Name of Project	Watershed	Location (NAD 83)	Year	Restoration Works	Amount of Habitat Created	Target Species	Completed By	Monetary Value	Project Status
Big Silver Integrated Watershed Monitor	Big Silver	584681 5492054	2000	Watershed Monitoring		St, Co, Ch, Ct, Rb, So	Inter For , BCCF, FOC, MOF	$11,400.00	
Big Silver Integrated Watershed Monitor	Big Silver	584682 5492054	2000-200	Watershed Monitoring (LWD) Placement	675	St, Co, Ch, Ct, Rb, So	Inter For , BCCF, FOC, MOF	$25,000.00	Red
					675			$36,400.00	

Nahatlatch River Watershed Habitat Restoration Projects

Name of Project	Watershed	Location (NAD 83)	Year	Restoration Works	Amount of Habitat Created	Target Species	Completed By	Monetary Value	Project Status
Struzel Pond Complex	Nahatlatch	606735 5537231	2000	Pond and channel complexing	16,660	St, Co, Ch, Rb, Pk, Bt	SSHRC, Interfor, MELP, MOF, Forest Renewal	$106,000.00	Red

Coquihalla River Watershed Habitat Restoration Projects

Name of Project	Watershed	Location (NAD 83)	Year	Restoration Works	Amount of Habitat Created	Target Species	Completed By	Monetary Value	Project Status
Karen Creek	Coquihalla	626326.57, 5480154.53	1996-2006	Side Channel and LWD	4000 m^2	St,Rb, Bt	Steelhead Society Restoration Cooporation	$45,258.00	Yellow
Spring Creek	Coquihalla	626004.62, 5479362.29	1996-2001	Side Channel and LWD	1500 m^2	St,Rb, Bt	Steelhead Society Restoration Cooporation	$39,290.00	Red
Coquihalla LWD	Coquihalla	626004.62, 5479362.29	1996-2002	LWD Debris Catcher	500 m^2	St,Rb, Bt	Steelhead Society Restoration Cooporation	$15,000	Red

Appendix 3. Map of the Project Area and Present Status