

## 2009/10 FINAL REPORT

<b>FSWP File Number*</b>	07350-35/FSWP 09 LR HWRS 11
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\* Please use the FSWP File Number provided in previous FSWP project correspondence.

### 1. Project Information

#### 1.1. Project Title

Partnership Building for Fish Habitat Restoration Priorities in the Upper Pitt Watershed

#### 1.2. Proponent's Legal Name

Fraser Valley Watersheds Coalition

#### 1.3. Project Location

Upper Pitt Watershed

#### 1.4. Contact for this report

Name: Lance Lilley

Phone: 604-702-5006

Email: [llilley@fvrd.bc.ca](mailto:llilley@fvrd.bc.ca)

#### 1.5 Funding Amount

Original Approved Grant Amount:	Total FSWP Expenditures:	Final Invoice Amount:	Final Non-FSWP leveraging, including cash and in-kind:
\$5,000	\$5,000	\$1,000	\$5,225.00

### 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.

While the Upper Pitt watershed is highly valued for its salmon productivity and habitat values, it is not without issues or concerns. Power production, forestry, mining, residential/resort development, recreation impacts, closure of a DFO fish hatchery, aging status of previous habitat restoration projects, and current funding limitations, all contribute to a level of uncertainty and anxiety about the future health of this watershed. With this context, stewardship, partnership building, and information sharing is critical to ensure the productivity of this watershed remains high. This project intended to re-establish a prior network of key stakeholders for the watershed, to gather known information about the watershed, and to discuss priority needs and opportunities. Results included an inaugural meeting of the newly formed 'Upper Pitt Stewards', the creation of a network of stakeholders interested in working together and sharing information, and the beginning of a reference/document database of the habitat conditions of the watershed. In summary, this project helped provide the impetus for a renewed commitment to protect and preserve the Upper Pitt, a legacy that we hope will extend well into the future.

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

This project has allowed our group, the Fraser Valley Watersheds Coalition, to establish a relationship with other stakeholders beyond our core region. Most notably, it has allowed us to get to know folks from the Alouette River Management Society (ARMS) – a well-established and successful group in Maple Ridge/Pitt Meadows. Being able to learn from these groups, to discuss challenges they have faced or lessons they have learned, are critical for relatively young groups such as ours.

### 3.Final Project Results and Effectiveness

**3.1 Copy EXPECTED OUTCOMES from your detailed proposal and insert into this section. Add additional rows as needed. Then please list the FINAL OUTCOMES (the tangible end products resulting from this work) associated with expected outcome.**

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

EXPECTED OUTCOMES	FINAL OUTCOMES
1. Key active stakeholders in the Upper Pitt watershed that pertain to aquatic habitat, salmonid productivity, and biodiversity, will be identified.	An initial list of key stakeholders was identified through initial contacts and by repeatedly asking stakeholders who else should attend.
2. Possible funding sources and potential partners for restoration or enhancement efforts in the Upper Pitt River watershed will be identified and pursued.	Initial discussions with stakeholders included a number of potential partners for restoration activities. No concrete funding opportunities were identified at this point however as we are still in the process of collecting information and identifying priorities.
3. A collaborative roundtable discussion of stakeholders and possible funding sources will be held to discuss the current needs of the watershed and future opportunities.	A successful roundtable discussion was held on Dec 2, 2009 involving 13 key stakeholders and groups. A number of others who were not able to attend were included in email correspondence and meeting minutes. The stakeholders present, deciding to call themselves the “Upper Pitt Stewards”, agreed to continue meeting at least once a year and to work collaboratively on enhancing and protecting the Upper Pitt.
4. Greater awareness of the F.V. Watersheds Coalition and our potential role as a ‘group of groups’ to stakeholders and potential partners.	The normal geographic range of the Fraser Valley Watersheds Coalition is from Hope to Mission (i.e., the range of the Fraser Valley Regional District). Up to this point, they have not had a presence in the Upper Pitt, even though it resides within the FVRD boundaries. Other groups have been previously active there, and this project allowed the Coalition to build a relationship with these groups. This will help to not only allow us to learn from each other, but work collaboratively on the Upper Pitt and other issues of regional scope. ARMS has now been added to the Coalition’s email list and are kept aware of the Coalition’s activities and any opportunities for collaboration or information sharing that may emerge.

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

Two main indicators were identified to measure the success of this project.

(1) Complete project on time and on budget. The project was completed as planned. We came in right on budget (\$5,000) and ahead of the March 31<sup>st</sup> deadline.

(2) Achieve both Project Objectives.

Objective 1: To gather known information about habitat conditions, concerns, and restoration priorities for the Upper Pitt River watershed.

Result: Achieved. We have begun to compile a document database of known data and reports pertaining to Upper Pitt fish habitat (see attachment #4). Part of this review also included detailed discussions with Mr. Al Stobbart, former DFO hatchery manager in the Upper Pitt, prior to his retirement earlier this month (we wanted to make sure this information was not lost upon his retirement).

Objective 2: To build the partnerships needed to pursue both funding opportunities and restoration needs for the Upper Pitt watershed.

Result: Achieved. Through this project, we were able to (a) establish a new watershed group, known as the Upper Pitt Stewards (UPS) to network and steward the Upper Pitt; (b) develop relationships with other non-profit groups (e.g., Alouette River Management Society, BCCF, etc) and First Nations (Katzie First Nation) that the Watersheds Coalition previously did not have relationships with. The on-the-ground benefits that this new group and these new relationships will mean for the Upper Pitt watershed are yet to be determined, but through this project, we have enabled this success to occur.

One notable challenge from this project has been timing and momentum. We wanted to wait until after the fisheries window before calling the roundtable meeting, as many of us have been very busy or unavailable during that time. Unfortunately however, this resulted in the roundtable discussion occurring after the FSWP Conceptual Proposal deadline (September), the potential funding partner we figured to be the most appropriate for continuing to support our efforts. As a result of missing this deadline, we were unable to act quickly on some of the good project ideas that came from the meeting to keep momentum going.

**3.3 REQUIRED: attach all DOCUMENTATION of Final Outcomes, and LIST attachments here. These may include technical reports, maps, photos, evidence of communications, lists of meeting participants, etc.**

List of attachments:

- (1) Invitations to Stakeholders for meeting
- (2) Meeting Minutes (from Dec 2, 2009 roundtable discussion)
- (3) Roundtable Meeting Photos
- (4) Initial Reference Database
- (5) Watershed Program Newsletter
- (6) Summary Notes on Upper Pitt Compiled from Material Provided by Mr. Al Stobbart

**3.4 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?**

The benefits of this project will be continued into the future by having (a) established a new network of interested and passionate stakeholders to work together for the Upper Pitt, (b) renewing a commitment by these stakeholders to work collaboratively and to continue meeting at least once a year to discuss projects, issues, needs, and opportunities in the Upper Pitt.

Planned next steps include, as resources allow, conducting a field trip to the Upper Pitt with key stakeholders to assess the status of prior restoration sites, continue compiling known information and

references, and ongoing email correspondence of stakeholders regarding relevant information or opportunities. Additional recommendations for further work include: conduct in-depth interviews with notable stakeholders to help flush out added knowledge or references; preparation of a gap analysis to identify notable information gaps regarding habitat conditions in the Upper Pitt; develop an Upper Pitt Stewards website that would include the reference database, maps of the watershed, and photos; complete prioritization of needed activities and projects; develop a Terms of Reference (and possible Society status) for the Upper Pitt Stewards; etc.

**3.5 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. Watershed planning is about the PROCESS more than it is about the PRODUCT. Establishing a network of stakeholders to discuss the watershed and be engaged in its protection/restoration/understanding is the real key to watershed sustainability and action.
2. Think ahead. Be aware of funding deadlines and plan networking events or discussions BEFORE these deadlines (whenever possible) in case project ideas emerge at the meeting that the group is eager to pursue but funding is required.
3. Although not as easy as during a crisis or impending mega-project that stirs interest and emotion, watershed planning during non-crisis moments may be challenging but is essential to maintain interest and hopefully prevent major crisis from occurring.

## 8. Appendices

**REQUIRED:** attach all **DOCUMENTATION** of Final Outcomes, listed above in section 3.3. These may include technical reports, maps, photos, evidence of communications, lists of meeting participants, etc.

- (1) Invitations to Stakeholders for meeting
- (2) Meeting Minutes (from Dec 2, 2009 roundtable discussion)
- (3) Roundtable Meeting Photos
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- (5) Watershed Program Newsletter
- (6) Summary Notes on Upper Pitt Compiled from Material Provided by Mr. Al Stobbart

**Lance Lilley**

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**From:** Lance Lilley  
**Sent:** September 2, 2009 15:49  
**To:** Foy, Matthew; Al Stobbart; Mike Pearson; kbaird@bccf.com; Wilson, Greg ENV:EX; egolds@sfu.ca; votton@sfu.ca; info@pitttriverlodge.com; arms@telus.net; mike@katzie.ca; Marion Robinson; gcrclayton@shaw.ca; Thomas R. Cadieux  
**Cc:** Dick Bogstie; Rachel Drennan  
**Subject:** Upper Pitt Fish Habitat

Hi all,

A couple of years ago a roundtable discussion was held amongst stakeholders to discuss fish habitat restoration and enhancement opportunities in the Upper Pitt River system.

Given the value of the area and the potential for further impacts, we are gauging interest to see if another workshop/roundtable should be held this fall or winter to figure out the priority needs of the area, find out what each other are working on (if anything) regarding the Upper Pitt, and to collectively strategize for new opportunities and potential for collaboration.

Please let me know if you would be interested in attending.

Sincerely,

**Lance Lilley**

Watershed Planner  
Fraser Valley Regional District /  
Fraser Valley Regional Watersheds Coalition  
45950 Cheam Avenue  
Chilliwack, BC V2P 1N6

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Toll Free 1-800-528-0061  
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Email llilley@fvrld.bc.ca

*\* Please consider the environment before printing this email.*

## Lance Lilley

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**From:** Lance Lilley  
**Sent:** December 1, 2009 14:38  
**To:** Geoff Clayton; Marion Robinson; Maurice.Coulter-Boisvert@dfo-mpo.gc.ca; Foy, Matthew; egolds@sfu.ca; Al Stobbart; Amanda Balcke; Cory Hryhorczuk; mike@katzie.ca; armsvolunteer@telus.net; Rachel Drennan  
**Cc:** info@pittriverlodge.com; Dick Bogstie; Siri Bertelsen  
**Subject:** Meeting tomorrow re: Upper Pitt

Upper Pitt Stakeholders:

This is a reminder about our Upper Pitt Roundtable Discussion tomorrow from 9:30 until lunch at the ARMS building/Rivers Heritage Centre at 24959 Alouette Road, Allco Park, Maple Ridge, BC. (see <http://www.alouetteriver.org/map.html> for driving instructions)

Again, the purpose of the meeting is to discuss fish habitat needs and issues in the Upper Pitt, identify potential funding sources, lead applicants, and opportunities for collaboration, and review projects that may require completion or revisiting. Lunch (pizzas) will be provided.

Please bring your ideas as well as any reference material you may have that may aid the discussion or be able to be shared. Funding for the project was provided by the Fraser Salmon and Watersheds Program.

I'm looking forward to seeing you there.

Sincerely,

**Lance Lilley**

Watershed Planner  
Fraser Valley Regional District /  
Fraser Valley Watersheds Coalition  
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*\* Please consider the environment before printing this email.*

# Upper Pitt Stewards (UPS)

## Meeting Notes

December 2, 2009

9:30 am – 1:00 pm

ARMS Rivers Heritage Centre (24959 Alouette Road, Alco Park, Maple Ridge, BC)

*The purpose of the meeting was to have an inaugural discussion of Upper Pitt stakeholders to talk about fish habitat needs and issues in the Upper Pitt, and to identify potential funding sources, lead applicants, and opportunities for collaboration.*

### Attendees:

- Dave Harper – [dharper@bccf.com](mailto:dharper@bccf.com) – BC Conservation Foundation
- Cory Hryhorczuk – [cory\\_h@bccf.com](mailto:cory_h@bccf.com) – BC Conservation Foundation
- Amanda Balcke – [arms@telus.net](mailto:arms@telus.net) – ARMS
- Matt Foy – [matthew.foy@dfo-mpo.gc.ca](mailto:matthew.foy@dfo-mpo.gc.ca) – DFO – SEP
- Marion Robinson – [mrobinson@fraserbasin.bc.ca](mailto:mrobinson@fraserbasin.bc.ca) – FBC (FVWC)
- Lance Lilley – [llilley@fvrd.bc.ca](mailto:llilley@fvrd.bc.ca) – FVRD/FVWC
- Abby Cruikshank – [armsvolunteer@telus.net](mailto:armsvolunteer@telus.net) – ARMS
- Al Stobbart – [astobbart@fvrd.bc.ca](mailto:astobbart@fvrd.bc.ca) – DFO/SEP/FVRD
- Jonathan Bulcock – [jonathan.bulcock@dfo-mpo.gc.ca](mailto:jonathan.bulcock@dfo-mpo.gc.ca) – DFO/MEB/RRU
- Maurice Coulter-Boisvert – [Maurice.coulter-boisvert@dfo-mpo.gc.ca](mailto:Maurice.coulter-boisvert@dfo-mpo.gc.ca) – DFO/OHEB/STCI
- Geoff Clayton – [gclayton@telus.net](mailto:gclayton@telus.net) – ARMS
- Mike Leon – [mike@katzie.ca](mailto:mike@katzie.ca) – Katzie First Nations
- Rachel Drennan – [fvrc@live.ca](mailto:fvrc@live.ca) – FVWC

### Regrets:

- Dan Gerak (Pitt River Lodge)
- Elaine Golds (Burke Mountain Naturalists)
- Dick Bogstie (FVRD Electoral Area "F" Director)
- Mike Pearson (Chair, Fraser Valley Watersheds Coalition)

## 1. Group Formation, Identity, and Structure:

### (a) Additional stakeholders in watershed:

- Upper Pitt Rate Payers Association
- Province (MOE, MOFR, MEMPR)
- Niho Cattle Company
- IPP Industry
- Teal Cedar
- Metro Vancouver Parks (Janis Jarvis, Wendy DaDalt)
- hunting and fishing clubs (?)
- City of Coquitlam/Port Coquitlam/Pitt Meadows. (note – Darrell Penner – Councilor with Port Coquitlam – has house in Upper Pitt)



- Hell's Angels
  - Ducks Unlimited
  - Pitt Polder Preservation Society
  - Funders: FSWP, HCTF, etc?
- In Squamish – model of stakeholders working in collaboration with IPP developers worked well (made the best of a bad situation) – If IPPs ever go forward, best to be in a position to work with them if that happens.
  - Good to have list of projects/needs prepared (and approximate budgets) just in case.
  - The IPP proposal for Upper Pitt was re-submitted but did not make the cut again.
- Status of PRAWN: (Pitt River Area Watersheds Network) – society status lapsed. Costs more to get back up and running than does to start a new group.
  - Has around \$9500 in funds (jointly administered by Elaine Golds and Geoff) remaining – can go towards leveraging funds for new Upper Pitt activities
- (b) Interest amongst attendees to form a new group/network to collaboratively enhance the Upper Pitt Watershed. Group name through consensus agreement: Upper Pitt Stewards (UPS).
  - Intent is to remain a relatively informal/loose assemblage of stakeholders for the w/shed.
- (c) Geographic Range of group: Upper Pitt watershed (mountain top to mountain top)
- (d) Roles discussed:
  - ARMS as chair/host
  - Katzie to consider co-chairing
  - DFO willing to help with information, project ideas, assistance in funding applications, etc.
  - Fraser Valley Watersheds Coalition can help to coordinate as needed (and possibly provide use of their website for information, updates, etc).
  - BCCF willing to help with funding applications.
- (e) Terms of Reference discussion – to possibly include:
  - Membership (see above)
  - How to work with each other
  - Purpose of group: to act as a collaborative network to better understand and enhance the environmental health of the Upper Pitt watershed.
  - Policy question about acting as a lobby group (unresolved) and is and action item going forward

## 2. Activities/projects needed for watershed:

- ARMS to host annual or biannual meeting of stakeholders to discuss the watershed, funding proposals, projects, issues, etc.
  - Suggested date: Thursday after Labour Day. Second meeting possibly in spring
  - Important to maintain momentum and keep group active and relevant (“the process IS the product”)

- Need for literature review and research on known data/information (including interviews with key staff who are retiring shortly – Al Stobbart – to make sure knowledge transfer occurs).
  - Katzie/ARMS/PRAWN has boxes of information on the watershed they can provide
    - ACTION: Lance to contact FSWP for consideration of late application. If approved, BCCF volunteered to draft funding proposal.
- Corbould Creek side channel requires ongoing maintenance
- Need to revisit old projects for effectiveness
- BCCF – Upper Red Slough project – will be going back up in 2010 to audit
- Some cultural work has been done for Katzie on Transformer sites – still need resource mapping.

- Lunch -

### 3. Final Thoughts and Adjournment

Addenda Information update from ARMS:

It has come to our attention that Bruce Bell, Councillor for the City of Pitt Meadows and liaison to ARMS, has a cabin on Pitt Lake. Bruce should be included in this group's mail out, in ARMS opinion, as he has shown interested here. Bruce's e-mail will be in this CC return.

Roundtable Meeting Photos:  
Dec 2, 2009



## Reference Database - Upper Pitt Watershed

Reference Title	Year	Author	Type	Availability
Upper Pitt River Watershed Management Plan: Preliminary Draft	2002	Pitt River Area Watershed Network	Report	hard copy available at FVRD
Lower Fraser Valley Streams Strategic Review (Pitt River - 225-260)	1999	Fraser River Action Plan	Report	<a href="http://www.dfo-mpo.gc.ca/Library/240006.pdf">http://www.dfo-mpo.gc.ca/Library/240006.pdf</a>
3-D Watershed Model of Upper Pitt Watershed		Ron Simpson	3-D model	located at Katzie First Nation
Upper Pitt River Water Power Project: Project Description	2007	Run of River Power Inc	Report	<a href="http://a100.gov.bc.ca/appsdata/epic/documents/p291/d23620/1172084283402_fd9247a7d40b42048f7dc3730ef1e32a.pdf">http://a100.gov.bc.ca/appsdata/epic/documents/p291/d23620/1172084283402_fd9247a7d40b42048f7dc3730ef1e32a.pdf</a>
Upper Pitt Habitat Restoration Discussion Minutes	2007	BCCF	meeting minutes	hard copy available at FVRD
"Upper Pitt River Sockeye PSC Escapements 1951-2009"	2009	DFO	graph	hard copy available at FVRD
"Upper Pitt River Coho Escapement data (1951-2009)"	2009	DFO	graph	hard copy available at FVRD
"Upper Pitt River Aquatic Habitat Rehabilitation in Red Slough and Blue Creek"	2007	BCCF	report	pdf available from BCCF
Map: Satellite Photo (and zoning) of Upper Pitt Watershed	2009	FVRD	map	hard copy available at FVRD
"Upper Pitt River heads BC's Most Endangered Rivers List for 2008"	2008	Outdoor Rec Council of BC	press release	<a href="http://www.orcbc.ca/pro_endangered.htm">http://www.orcbc.ca/pro_endangered.htm</a>
Upper Pitt Stewards (UPS) Meeting Notes	2009	Fraser V. Watersheds Coalition	meeting minutes	hard copy available at FVRD
Pitt River Lodge Website		Pitt River Lodge	website	<a href="http://www.pittriverlodge.com/">http://www.pittriverlodge.com/</a>
Burke Mountain Naturalists Website		BMN	website	<a href="http://www.bmn.bc.ca/">http://www.bmn.bc.ca/</a>
Alouette River Management Society (ARMS) Website		ARMS	website	<a href="http://www.alouetteriver.org/">http://www.alouetteriver.org/</a>
BC Conservation Foundation Website		BCCF	website	<a href="http://www.bccf.com/">http://www.bccf.com/</a>
Fraser Basin Council Website		IBC	website	<a href="http://www.fraserbasin.bc.ca/">http://www.fraserbasin.bc.ca/</a>
Fraser Valley Watersheds Coalition Website		FVWC	website	<a href="http://www.fvwc.ca/">http://www.fvwc.ca/</a>
NIHI Land and Cattle Company Website		NIHI	website	<a href="http://www.niho.com/">http://www.niho.com/</a>
Wild Steelhead Conservation Planning in the Lower Mainland Region Upper Pitt River	1998	Aquatic Resources Ltd	report	BC Fisheries, Victoria, BC. Ref #HQ1470
Determination of egg to fry survival of sockeye in the natural spawning grounds in Pitt River.	1982	Cooper, AC	report (unpub)	DFO - Fraser River. Ref #29C-32
Upper Pitt River Adult Coho Assessment 1997-1998	1997	DFO	Report	DFO, Vancouver. Ref #DFO076
Upper Pitt River Wild Coho Assessment Project	1999	DFO	Report	DFO, Vancouver. Ref #DFO180
A Review of the Pitt River Watershed. Prepared for New projects Unit, Salmonid Enhancement Program, DFO	1985	Elson, M.S.	Report	DFO - Fraser River. Ref #29C-30
Pitt River Sockeye Hatchery Update	1995	Harding, D.R.	Report	DFO, Vancouver. Ref #PI002
Streams/Fisheries Resources of the Upper Pitt Watershed	1996	Stobart, A.L.	Report	Pitt River Hatchery DFO. Ref #PI029





# FVRD-FVWC Watershed Program



January 2010

Issue No. 1

## 2009 YEAR IN REVIEW

Lance Lilley  
Watershed Planner  
Fraser Valley Regional District/  
Fraser Valley Watersheds Coalition



**Watershed Program Overview:** Formed in 2005, the FVRD-FVWC Watershed Program is a joint partnership between the Fraser Valley Regional District (FVRD) and the Fraser Valley Watersheds Coalition (FVWC), with additional support from Fisheries and Oceans Canada (DFO). It is a unique and effective partnership between local government and a non-profit society that combines the strengths of both partners to achieve results of common interest to both. The goal of this program is quite simply to improve the health of watersheds in the Fraser Valley. Through grants and in-kind contributions, the Watershed Program works towards this goal through habitat restoration and enhancement projects, environmental monitoring, community stewardship, partnership building, and watershed planning.

Since its inception, this program has resulted in approximately \$2 million dollars in projects, over 100,000 m<sup>2</sup> of new or restored habitat within the Fraser Valley, and immeasurable benefits such as improved partnerships, community engagement, and a greater understanding of our watersheds.

### Watershed Program Projects

This report is intended to provide a summary of the initiatives undertaken in 2009 through the FVRD-FVWC Watershed Program.

2009 was another exciting and productive year for the Watershed Program. Thanks to strong support from the Regional District, an active and enthusiastic FVWC membership and Board, and a number of new and exciting projects, the FVRD-FVWC Watershed Program continued to provide substantial value and benefit to the region's watersheds.

Due to the past success of the Watershed Program and the need to build on these achievements, the Fraser Valley Watersheds Coalition was able to hire a part-time Outreach Coordinator (Rachel Drennan) in

early 2009. Working out of the Coalition's new headquarters at UFV Chilliwack, Rachel and the Coalition Directors have added substantial value to the Watershed Program by coordinating community projects and events, pursuing additional funding sources, allowing continued community engagement through a bi-monthly 'lecture series', starting up circulation of the Coalition's newsletter (*Watershed Connections*), and working to re-launch a newly designed Coalition website ([www.fvwc.ca](http://www.fvwc.ca)).

As for other achievements from 2009, the Watershed Program contributed to:

- The addition of over 4,000 native trees and shrubs (covering ~ 7,400 m<sup>2</sup> or 1.8 acres of valuable riparian habitat);

- The restoration of almost 10,000 m<sup>2</sup> (2.5 acres) of critical spawning and rearing salmon habitat;
- The training of 30 new Streamkeepers;
- The formation of local stakeholder groups for the Upper Pitt and for the Hope/Camp Slough;
- The completion of a Final Report for the Chilliwack R. Watershed Strategy;
- The design of a conceptual plan for upgrading the Hammersley Pumping Station (Kent);
- The ongoing efforts to understand and enhance the water quality of Cultus Lake through the Cultus Lake Aquatic Stewardship Strategy;
- The securing of funding for a number of new and ongoing projects for 2010.

Projects were distributed in many FVRD watersheds, including the Chilliwack River watershed (FVRD Electoral Area "E"), the Upper Pitt watershed (Electoral Area "F"), the Mountain Slough watershed (District of Kent), the Stave and Silverdale watersheds (District of Mission), the Harrison watershed (Village of Harrison Hot Springs), and the Hope Slough watershed (City of Chilliwack). Table 1 provides a summary of these projects.

#### Classification of Watershed Projects

Riparian Planting:



In-Stream Habitat Restoration:



Monitoring or Surveying:



Stakeholder Engagement/Planning:



**Table 1.** Summary table of 2009 FVRD-FVWC Watershed Program projects.

Project	Project Duration	Location	Project Value <sup>1</sup>	Outcomes	Project Type
1. Chilliwack River Watershed Strategy	2005-ongoing	FVRD Electoral Area "E"	~ \$300,000	Improved knowledge of watershed; relationship building; watershed recommendations report.	
2. Chwk River Fish-Hazard Management Strategy (Phase 1)	2007-9	FVRD Electoral Area "E"	~ \$135,000	Better understanding of flooding & fish habitat impacts along the Chilliwack River.	
3. Evans Road Compensation Project (Camp Slough)	2008-13	City of Chilliwack	~ \$300,000	Improved water quality; restoration of 3,100 m <sup>2</sup> (to be completed by 2013); greater stewardship and appreciation	
4. Hammersley Pump Upgrade Plan	2008-9	District of Kent	~ \$72,000	Identification of feasible design options to upgrade & present to stakeholders	
5. Stave River Spawning Habitat Restoration Project	2008-9	District of Mission	~ \$136,000	Restoration of 4,000 m <sup>2</sup> of spawning habitat & 150 m <sup>2</sup> of riparian habitat	
6. Silverdale Wetlands Restoration Project	2008-9	District of Mission	~ \$125,000	Restoration of 5,000 m <sup>2</sup> of side channel & wetland habitat; enhanced stewardship and wildlife appreciation	
7. Highway 7 (Mission) Compensation Project	2009-13	District of Mission	~ \$460,000	38,000 m <sup>2</sup> in fish habitat compensation, community engagement (to be completed by 2013)	
8. Partnership Building for Fish Habit in the Upper Pitt Watershed	2009-10	FVRD Electoral Area "F"	~ \$10,450	Identification of a strategy for restoration of Upper Pitt River habitat	
9. Community-based Riparian Plantings	2009-10	Agassiz, Harrison, Chilliwack	~ \$36,000	Restoration of approximately 7,400 m <sup>2</sup> of riparian habitat with ~4000 plants	

<sup>1</sup> Estimated project value includes both cash and estimated in-kind contributions over the total duration of the project (i.e., not just for 2009)

### Project #1: Chilliwack River Watershed Strategy (Final Report & Launch)



The Chilliwack River Watershed Strategy (CRWS) is a multi-stakeholder collaborative watershed planning process initiated in 2005 to bring people together to discuss the watershed and how to deal with some of the issues and challenges it faces.

This year, after 4+ years of effort, the planning phase of CRWS was wrapped-up. We finalized and printed our "Watershed Issues and Recommendations" Report, we engaged responsible agencies about CRWS and how they can help with implementation, and, in partnership with the Chilliwack River Action Committee, we hosted a public 'launch' of CRWS on Nov 26, 2009 to let residents know about efforts taken to-date.

The next phase of CRWS is both exciting and challenging. It is important that we maintain



Stakeholders gather to discuss issues and concerns within the Chilliwack River Watershed (Sept 25, 2009).

momentum to make sure the efforts spent to-date translates to on-the-ground benefits. We have submitted funding applications to continue providing a forum for information exchange about the watershed and to establish a watershed health monitoring program to allow us to note trends, evaluate successes, and report results in an annual (or bi-annual) State of the Watershed Report that will keep us informed and interested about this significant and magnificent watershed.

### Project #2: Chwkw River Fish-Hazard Management Strategy (Phase 1)



As a recommendation coming out of the Chilliwack River Watershed Strategy, a need was identified to better understand the complicated issue of flood management and fish habitat implications along the Chilliwack River. With funding provided in 2008 by the Fraser Salmon and Watersheds Program, Fisheries and Oceans Canada, and the FVRD, consultants were hired to obtain

detailed air photo imagery of the key stretch of river between the Vedder and Tamihi Bridges, as well as to provide a historical and current assessment of flooding hazards as they relate to watershed health. Subsequent



Flooding on the Chilliwack River (2006)

phases of the project, pending funding, will look at site specific issues and options to avoid future conflicts between flood management and fish habitat protection.

### Project #3: Evans Road Overpass (Chilliwack) Compensation Project



As part of fisheries habitat requirements associated with the new Evans Road overpass in Chilliwack, the Coalition, in partnership with DFO and the City of

Chilliwack, began a multi-year project in 2008 aimed at improving water quality and habitat conditions within the Hope and Camp Slough. These slough habitats have become heavily impacted over the past few decades



due to dyking, flood control, and encroachment of private property. Major habitat and water quality issues have arisen such as vegetative overgrowth, sedimentation, and low oxygen levels.

This is an exciting and significant project for the Coalition. As part of the fisheries requirements, we are obligated to restore 3,100 m<sup>2</sup> of fish habitat by 2013. We see this as a substantial opportunity however to achieve much more in this region, including building stewardship and awareness about the sloughs and understanding the issues and challenges facing this drainage system.

We have already begun improving flows into Camp Slough by working with the City of Chilliwack on opening up the 'CHIP' gates (Camp/Hope Improvement Project) near the slough's intake from the Fraser River. Initial water quality monitoring results have looked positive. Additionally, we have been



Water quality monitoring in Camp Slough

providing education in the form of Streamkeeper Training to a number of local residents and First Nations, and have hosted a very well attended community planting. Future plans include in-stream fish habitat restoration, further riparian plantings, signage, and the production of a booklet for the community that describes the slough habitat, its history and usage, its habitat values, and tips for landowners.

#### Project #4: Hammersley Pump Upgrade

With funding provided by the Fraser Salmon and Watersheds Program and the District of Kent, in 2008 we undertook a project to look at options for upgrading the Hammersley Pumping Station.



Hammersley Pump Station (a priority site for upgrading due to fisheries and flooding concerns in Mountain Slough)

This floodgate, along Mountain Slough in the District of Kent, is in need of upgrades to better deal with seasonal flooding, water quality, and fish passage

and mortality issues. Under the guidance of a project steering committee made up of the Coalition, members of the local Drainage Committee, the District of Kent, the BC Ministry of Environment, and DFO, we were able to initiate a study of various design options for the site, and have the diverse group of stakeholders agree on a common design concept for the site. The project has allowed for substantial progress to be made not only at developing a strategy for moving forward with the pump station but also in building relationships and trust amongst stakeholders.

#### Project #5: Stave River Spawning Habitat Restoration Project

The Lower Stave River supports the second largest chum salmon population in the Fraser River watershed (after the Harrison).

Due to the effects of the Ruskin power station on gravel movement however, periodic restoration of the spawning areas is required to maintain the high productivity of the watershed. In 2007/8 we were involved





in streambank stabilization and re-grading. In 2008/9 we continued these efforts by focusing on enhancing the habitat values of a side channel near the Ruskin Recreation Area. With financial support from the BC Hydro Bridge Coastal Restoration Program and in-kind expertise provided by DFO, BC Hydro, and the Kwantlen First Nation, we were able to restore approximately 4,000 m<sup>2</sup> of spawning habitat, enhance 150 m<sup>2</sup> of

riparian habitat with the addition of over 300 native plants, and increase the recreational and wildlife viewing values of the site by installing a new footbridge designed to handle the high number of visitors who visit and enjoy this site.



Rearing and spawning habitat enhancement in the lower Stave River

### Project #6: Silverdale Wetlands Project

Led by the Stave Valley Salmonid Enhancement Society (SVSES), a number of organizations have been working for the past several years towards acquiring and restoring the Silverdale Wetlands in Mission. Because of their efforts, the site is now protected and will remain a regional jewel.

The Watershed Program was able to secure funding from the BC Ministry of

Transportation for further restoration of these wetlands, carried out in 2008 and 2009. As a result of this project, over 500 m of productive side channel habitat was restored and several acres of mixed terrestrial habitat were enhanced. Continued restoration will continue at the site as part of Highway 7 Compensation Project (see Project #7).

### Project #7: Highway 7 (Mission) Compensation Project

Based on the model established previously with the Evans Road Compensation Project, the Coalition has recently been engaged to help deliver fisheries compensation requirements associated with the Wren to Nelson widening of the Lougheed Highway in Mission. This first phase of this project, with the Coalition as the lead, will restore or enhance roughly 38,000 m<sup>2</sup> of fish habitat within the watershed by 2013. Through a partnership involving us, DFO, the BC

Ministry of Transportation, Ducks Unlimited, the District of Mission, and the SVSES, we are currently preparing a project implementation plan and expect to begin activities early in 2010. It is an exciting project and a great opportunity to achieve amazing results in a valuable watershed.



Coalition tour of Silverdale wetlands (Sept, 2009)

### Project #8: Partnership Building for Habitat Restoration in the Upper Pitt

The Upper Pitt River is a biodiversity hotspot in the Lower Mainland and key habitat for regional salmonids. Although without much of the development pressures that face salmon systems elsewhere in the

lower Fraser, the Upper Pitt faces substantial threats from past, ongoing, and proposed landuse activities such as gravel extraction, logging, and power production (IPPs). Due to the ongoing concerns about the watershed, the Watershed Program has

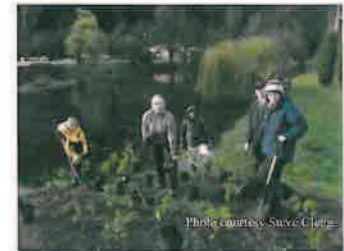
partnered with a number of other stakeholders interested in helping the watershed to strategize our best approach. With funding provided by the Fraser Salmon and Watersheds Program we have recently formed a stakeholder roundtable, known as

the Upper Pitt Stewards, to share information and ideas, discuss the watershed, and collaborate on fund-raising and restoration activities. It is a great first-step in making sure the Upper Pitt maintains its high productivity and fish values.

### Project #9: Riparian Plantings at Various Sites in the Fraser Valley

The Watershed Program was involved in a number of riparian planting projects in 2009, including major projects in the Agassiz area, along the Miami River in Harrison, and along the Little Chilliwack River in Chilliwack. These projects have the double benefit of providing not only enhanced habitat, but also providing opportunities to inform and engage the community about the environment. Use of local volunteers reduces the cost of the projects, educates volunteers about the watershed, and instills

a sense of local ownership over the project so that the community will help monitor and protect the site for years.



Volunteers planting along Miami River (Dec. 2009)

As a result of these dedicated volunteers, over 4,000 native trees and shrubs were planted in 2009 through our program, resulting in the restoration of more than 7,400 m<sup>2</sup> of riparian habitat.

### 2010 and beyond

2010 is shaping up to be another busy and productive year for the Watershed Program. Not only will we be continuing with many of our current projects, we are always in pursuit of additional opportunities to help achieve our goal of improving the health of Fraser Valley watersheds. Expected projects and tasks for 2010 include:

- Continued implementation and monitoring of the Chilliwack River Watershed Strategy;
- Continued involvement on various groups or initiatives (e.g., Cultus Lake Aquatic Stewards, Upper Pitt Stewards, South Coast Conservation Program, Fraser Valley Biodiversity Strategy, etc);
- Continuation of the Evans Road Compensation Project (Hope/Camp Slough enhancement);
- Continuation of the Lougheed Highway (Mission) Compensation Project;
- Further salmon habitat restoration in the Lower Stave River (pending funding);
- Other projects as they arise.

We are always interested in hearing feedback about how the Watershed Program can better serve the community and the region's watersheds. If you have project ideas or would like to help out, contact: Lance Lilley (FVRD Watershed Planner) at [llilley@fvrld.bc.ca](mailto:llilley@fvrld.bc.ca).

Websites of more information:

Fraser Valley Watersheds Coalition: [www.fvwc.ca](http://www.fvwc.ca)

Fraser Valley Regional District: [www.fvrld.bc.ca](http://www.fvrld.bc.ca)

Chilliwack River Watershed Strategy: [www.chilliwackwatershedstrategy.ca](http://www.chilliwackwatershedstrategy.ca)

All information below provided/or written by Al Stobbart, former DFO hatchery manager in Upper Pitt.

## Upper Pitt River Watershed: Synthesis of Information

The Upper Pitt watershed is a southern coastal system of approximately 780 square kilometers. Parks and protected areas include Golden Ears Provincial Park to the east, Garibaldi Provincial Park to the north and Pinecone/Burke Mountain Provincial Park to the west and in total encompass roughly 70% of the Upper Pitt watershed land mass.

Severe flow fluctuations are common-place occurrences on most streams from fall to early spring and are a result of steep gradient, intense rainfall (averages 3-5,000mm annually), and abundant snowmelt. These fluctuations occur to the same degree in the surrounding parks and protected areas as in the areas which have experienced timber harvesting.

The majority of mature, low-elevation stands of second growth hemlock and Douglas fir on the flood plain have regenerated naturally. Intensive silviculture (thinning/spacing etc.) was conducted by the B.C. Forest Service from 1975-1983 throughout much of the watershed at elevations of less than 300m. Interspersed throughout are western red cedar, Sitka spruce and numerous deciduous species, predominately red alder and black cottonwood. Increasingly rare in the lower mainland, plant associations of "Western Hemlock with Salmonberry/ Devil's Club/ or Vine Maple" predominate much of the flood plain. The valley bottom second (and even third) growth is now being harvested once again but fish and wildlife values are important in developing logging plans today.

The varied structure and age classes of both forest and riparian zones are extremely important to fish and wildlife values. In excess of 100 species of birds have been catalogued in the watershed. Red-listed species such as the Tailed Frog, Southern Maidenhair Fern, and Yellow Montane Violet are relatively common in many areas.

Good quality spawning and rearing habitats are limited to the very short, lower gradient delta reaches of most tributaries on the main stem flood plain and the more stable side and back channels of the Upper Pitt River. Much of the "valley bottom" fish habitat was critically affected by past logging and associated road building practices, but as the bulk of timber harvesting in these areas was completed between 1930 and 1960, it has now returned to a more natural state.

All Pacific salmonid species are present in the Upper Pitt watershed, including Sockeye (and Kokanee), Chum, Pink, Coho, and Chinook salmon, along with Bull Trout (rarely Dollie Varden char), Steelhead trout, resident Rainbow trout, and Coastal Cutthroat trout. Steelhead have shown the greatest decline in escapements over the past two to three decades. Other species found in the Upper Pitt River system are Mountain Whitefish, White Sturgeon, Prickly and Coast Range Sculpin, as well as Western Brook and Pacific Lamprey. Occasionally Northern Pike Minnow occur in the lower reaches of the main stem river.



## Upper Pitt River

The Upper Pitt River has glacial origin. It Flows South 52 km to Pitt Lake from various ice fields located in Garibaldi Park. Extreme flow fluctuations are common. Total discharge ranges from a low of 10 cubic metres per second during the coldest winter conditions to 1,000 or more cubic meters per second during major flood events (e.g. August 1990). Salmonid accessible distance of the Upper Pitt River is 40 km upstream of the lake where impassable rapids are found. Main stem spawning and rearing occurs with much variation in levels from year to year. Main stem spawners numbering 75,000 sockeye, 2,500 Chum, 250 Chinook, 250 Pink, and 300 Coho have been previously observed. Cold annual mean water temperature of ~5.5c (approximate range is 0.0c to 13.0c) has precluded most use by warm water species found in adjacent Pitt Lake with exception of northern pike minnow and possibly bass in the lower reaches from late August to mid-September when temperatures have peaked.

## Slough Creek

Slough Creek has Non-glacial origin, but receives a varying amount (0-75% of flow) of glacial main stem Pitt River during periods of or following freshet (dependent upon river migration

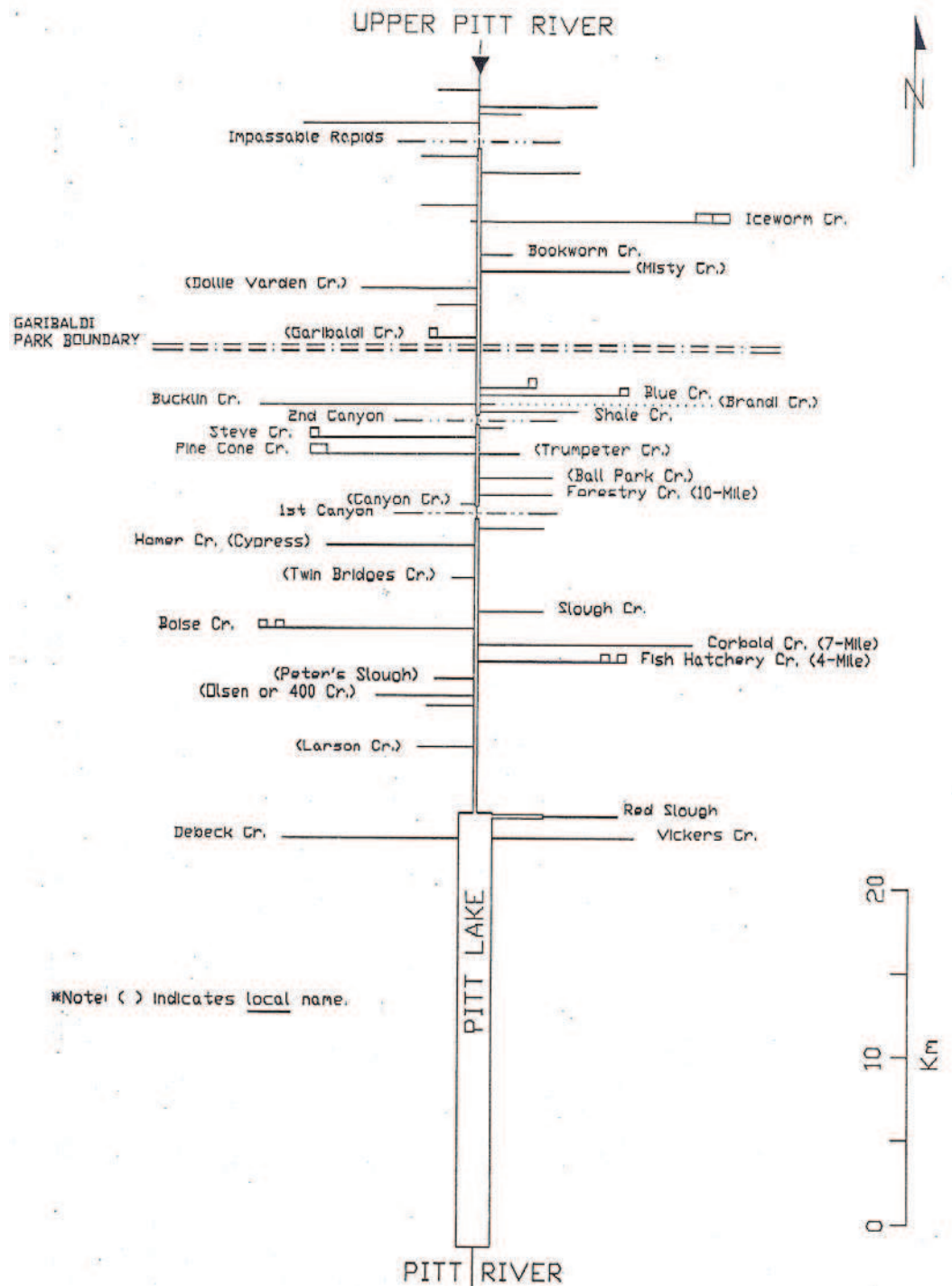


Figure 1: Diagram of Upper Pitt River tributaries.

across the flood plain). Slough Creek flows from mountainous source on East side of Upper Pitt River and numerous ground water sources from valley bottom area between mouth of Slough Creek and First Canyon. It enters Upper Pitt River 12 km upstream of Pitt Lake and has heavy riparian vegetation on its entire length. The lower 500m of Slough Creek below the F.S. Mainline road was the main stem river channel until 1990 flood event. Slough Creek's accessible length totals 6 km. Up to 8,000 sockeye, 200 Coho and 100 Chum have been observed here. Cutthroat and Steelhead utilize Slough Creek for spawning and rearing as well, large numbers of fry have been observed. Substantial annual juvenile Coho numbers indicate either very high fry recruitment or very high egg to fry survival. Sockeye stocks were supplemented with hatchery fry at this location between 1997 and 2000. Two adjoining groundwater restoration projects were constructed by DFO/Forest Renewal BC: Elizabeth Joe Channel in 1999 and Volcanic Brown Channel in 2000. Assessed Coho smolt production alone is ~7-10,000 annually from these two projects.

### **Corbold Creek**

Corbold Creek has two forks, its glacial fork flows from the Stave Glacier and its non-glacial fork flows from an area in Golden Ears Park. It enters the Upper Pitt 10 km upstream of Pitt Lake on East bank. Mosquito Creek is a small groundwater tributary supplemented by main stem river flow during and following freshet or periods of main stem river migration across the floodplain and drains the valley bottom area located between Corbold Creek and Slough Creek through river channels. Homestead Creek (a small ephemeral tributary) flows from a mountainous source. Accessible length totals of approximately 2.5 km. No fish species have ever been discovered above the falls on Corbold Creek located adjacent to the DFO hatchery, although Brook Trout (char) were clandestinely stocked above them in 1970. Riparian cover, recently lacking on the lower reaches of Corbold Creek because of stream migration across the flood plain, is once again improving and is extensive on the two small tributaries. Up to 30,000 sockeye have been observed here (supplemented by the DFO hatchery located on Corbold since 1960), 250 Chum, 200 Coho, 50 Pink, 20 Chinook. Corbold Creek is also known for high usage as summer rearing area for 2<sup>nd</sup> year Bull Trout and Steelhead juveniles. The smaller tributaries have good levels of Coho, Cutthroat and Rainbow juvenile recruitment.

Three DFO/FRBC restoration projects were completed on the Corbold Creek fan. "Mosquito Creek" Channel is a groundwater channel constructed in 1995. "Homestead Creek" Channel saw construction in 1998 and saw year-round flow supplementation from the DFO hatchery until the hatchery's closure in 2003. Assessment indicates 4-5,000 Coho smolts and other salmonids being produced annually from Mosquito. The "Alvin Pattersen" spawning channel was constructed adjacent to Corbold Creek in 1995-6 in an attempt to alleviate losses of "wild" spawned sockeye eggs or alevins during frequent flood events. This channel has produced an estimated average of 3.4 million fry through the first 10 years of operation. Numerous Coho, along with Chum, Coho, and occasional Steelhead, Pink, Chinook, Bull Trout, Rainbow and Cutthroat trout have been observed as well in this "sockeye" channel.

### **Fish Hatchery Creek**

Fish Hatchery Creek has Non-glacial origin and enters the Upper Pitt 7.5 km upstream of Pitt Lake. It has two main tributaries, one flows from small lakes (Dean/Mystic) located 5-7 km East of the Upper Pitt

River, the other is mostly a ground water tributary. The lakes on the system ( Dean/Mystic) are relatively shallow and retain little run off, resulting in extreme flow fluctuations on a routine basis similar to the glacial streams in the watershed. The ground water tributary provides approximately 50% of the flow during periods of no rain, and drains a series of beaver ponds located in the valley bottom area and two small, short-lived mountainous streams between Corbold Creek and Fish Hatchery Creek. Accessible length varies 2-2.5 km depending upon main stem river migration across the flood plain at the creek's mouth, outside the diked F.S. Mainline Road. Riparian vegetation is extensive on all but the lower 200 m. Up to 2,000 sockeye, 300 Coho, 20 Cutthroat, 50 Chum, and 12 Steelhead have been observed here. Substantial numbers of Coho and moderate trout fry found here most years. The Creek was so named as it was the site of the federal "Dominion Fisheries" Sockeye Hatchery from 1912 to 1932. Sockeye stocks were also supplemented with hatchery fry at this location from 1997-2001 brood years. The groundwater tributary saw spawning and rearing habitat constructed and a controlled flow intake from Corbold Creek was introduced to the constructed portion to reduce high water temperatures in the impoundments over the summer. This "Fish Hatchery Creek Diversion" was completed in 1998 as a DFO/FRBC restoration project. Assessment indicates as many as 15,000 Coho smolts along with Steelhead and Cutthroat trout smolts (and other salmonids) are now being produced from Fish Hatchery Creek.

### **Red Slough Creek**

Red Slough Creek is not a tributary of the Upper Pitt River, but is included here because of its proximity to the mouth of the Upper Pitt at the head of Pitt Lake. It has non-glacial origin and flows mainly from mountainous source tributary; a second "Larson" Creek", and numerous ground water sources (a network of beaver ponds located on the valley bottom area between Fish Hatchery Creek and Pitt Lake) and an additional 4 or 5 mountainous tributaries of varying sizes, one of which includes a small lake. This system is normally separate from the Upper Pitt River except during extreme flood events and enters the head (North end) of Pitt Lake about 1 km East of the mouth of the Upper Pitt. Red Slough Creek follows an old main stem Pitt River channel that was controlled by initial road construction near the turn of the century. It was intermittently the entire Pitt River main stem channel over long periods and most recently ~200 years ago as per Katzie history. Accessible lengths of Red Slough Creek total 15 km. This is one of the most stable systems in the watershed. Named "Red" Slough likely due to free iron present in large quantities through much of area (can be produced by decaying organic matter) leaving a red algae-like stain on the bottom and shoreline over much of it's length. There is excellent riparian cover along the entire length of the creek. Of a somewhat unique nature (located at the head of a lake), the creek is tidal for a distance of nearly 4 km upstream of its mouth. Up to 400 Coho, 250 Chum, 10 Cutthroat, and 6 Steelhead have been observed here. Sea-run Cutthroat were actively targeted in areas adjacent to bluffs and near Red Slough's mouth by knowledgeable anglers from the 1930s into the mid-1970s but continual deposition of sediments has all but filled the deeper, holding water along this stretch. The blockages created by the many beaver dams on the East fork of the Slough allow for a large resident (20-35cm at maturity) Cutthroat population. These fish have access in and out of these areas on highest tides and during freshet events. Historically Red Slough Creek saw escapements of Chinook, sockeye, and Pink. Sockeye stocks were supplemented with hatchery fry at this location in the 1997-2001 brood years. The lower-most kilometer or so of the creek (warmer, more tidally influenced section) sees stickleback, chub, shiner, crappie, and pike minnow along with numerous other minnow and other non-salmonid species.

A summary of habitat restoration projects completed in the Upper Pitt watershed is shown in Table 2. It includes the species that the restoration project targeted and the square meters of improved or created habitat.

**Table 2. Projects Completion, Target Species and Habitat Type**

Completion Year	Channel Name	Target Specie(s)	m <sup>2</sup> Created or Improved		Total
			Spawning	Rearing	
<b>1995</b>	Mosquito Creek	Coho Sockeye/	350	7500	7850
<b>1996-1997</b>	Alvin Pattersen	Coho	8000	2500	10500
<b>1998</b>	Fish Hatchery	Coho/Sockeye	250	75000	75250
<b>1998</b>	Homestead	Coho	750	9500	10250
<b>1999</b>	Elizabeth Joe	Coho	150	2500	2650
<b>2000</b>	Volcanic Brown	Coho	500	3000	3500
<b>Total</b>			<b>10000</b>	<b>100000</b>	<b>110000</b>

**Other species observed:**

Pink, chinook, steelhead, char (dolly varden/bull trout), cutthroat and rainbow trout, whitefish, coast range and prickly sculpin, western brook and Pacific lampreys.

Unfortunately fish numbers have declined in these restoration projects in recent years due to no gravel replacement, flow being dependant on hatchery exhaust waters, lack of maintenance and beaver effects.