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**Haslam Lake Lang Creek  
Water Quality and Quantity  
Monitoring Program  
Preliminary Report**

**(2008)**

Prepared for

Powell River Salmon Enhancement Society.

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## **Summary**

The Forest Investment Accounts (FIA) funded Haslam –Lang Water Quality monitoring program has been underway since late summer of 2008. This report summarizes the progress of the water quality monitoring to date.

The program was late starting. This was not in any way the fault of the Powell River Salmon Enhancement Society. Funds from FIA did not come through until late summer. The contractor responsible was unavailable to install the hydrometric equipment on lower Lang Creek until late autumn. Funds for field equipment did not come through until November of 2008. Only sporadic laboratory sampling was conducted from grab samples towards the end of the year. Consequently, little useful data was generated in 2008.

The foundation of the monitoring program has been the automated monitoring station located at the Salmon Enhancement Society Counting Station at the mouth of Lang Creek. That station now records stage, rainfall, turbidity, and water and air temperature on a continuous basis. Data from this station can be downloaded on site or acquired remotely to monitor hydrological characteristics of Lang Creek. Unfortunately that data only came on line in December of 2008. While by year end the site was up and running, there was no useful data to report that was generated in 2008.

In the past, weekly on-site sampling has been carried out by the Powell River Salmonid Enhancement Society at six stations within the watershed. While there is a good record from previous years, the project did not get under way until late in the season and data was collected at these sites only 6 times over 2008 covering late October to year end. Upon reviewing preliminary data collected, it was found that field equipment had only been properly calibrated by year end so data collected in November and December, particularly pH and electrical conductivity measurements were unacceptable.

Some water temperature recorders, (TIDBITS) had been placed within a number of creeks under the initiative of the Salmon Enhancement Society before the project was approved. The hourly temperature data at Lang Creek hatchery has been processed and is presented here.

It is understood that 2 sets of water quality laboratory analysis was collected representing six strategic locations within the Haslam Lang Watershed. This data was unavailable at the time of writing this report.

In spite of the virtual lack of data for 2008, it is understood that all systems are functional and data collection is proceeding well for 2009. High quality data is expected to be collected throughout 2009 during the first year of full time operation.

## **I. INTRODUCTION**

Forest Investment Accounts FIA has provided funding to The Powel River Salmon Enhancement Society to monitor water quality within the Haslam Lang Watershed. The purpose of this monitoring is to

- provide information for resource management planning and decision making at the community and regional level;
- establish baseline levels in support of specific criteria/objective development and attainment reporting;
- provide information on the status, health, trends and uses of water resources;
- employ and train persons from local communities to foster interest and involvement in community watersheds.

This report reviews the results of the 2008 monitoring program within the Haslam Lake and Lang Creek Community Watershed.

## **II. BACKGROUND**

The Monitoring Area lies immediately east of Powell River. It is confined to the drainages flowing into Haslam Lake and Lang Creek, comprising a total area of around 12,800 ha. Elevations range from sea level at the mouth of Lang Creek to 1103 meters on Tin Hat Mountain. Most of the area falls within the Coastal Western Hemlock Biogeoclimatic zone. Douglas fir, red cedar, western hemlock and alder are the most common tree species found. Along the highest ridges on the north east portion of the watershed, one encounters the Mountain Hemlock Biogeoclimatic Zone. Most of the watershed has either been logged or burned in the last 80 years although small isolated patches of old growth remain. A network of forest roads is maintained within the watershed. An even more extensive network of old skid trails occurs at lower elevations throughout the watersheds and these are now used extensively for recreation activities.

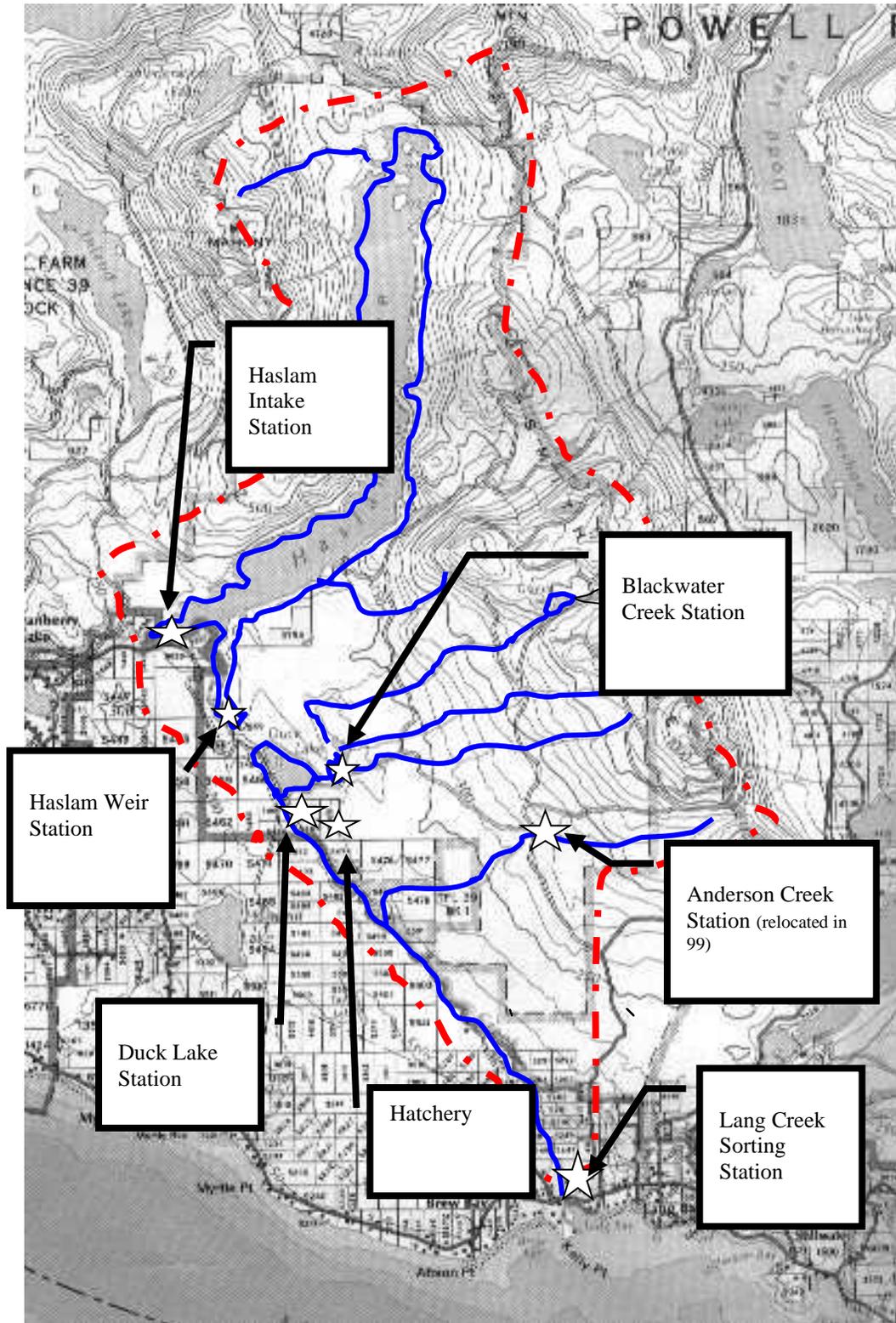
Most of the watershed (excepting land immediately adjacent to Lang Creek) is comprised of crown land. Forestry for timber extraction is likely to be the major industrial use of the watersheds for the foreseeable future. Forest Development Plans have been drawn up, indicating future cutblocks and required access roads. The Ministry of Environment, Lands and Parks, (MoELP) completed the first Coastal Watershed Assessment Procedure (CWAP) in 1997. The results from this study indicated that the forest harvesting activities planned was conservative, and unlikely to influence hydrological characteristics of the watershed. Mining does not play much of a role on the area. Small rock quarries are used for the extraction of road ballast. The interest in a large kaolin deposit along the south bank of Lang Creek appears to have lessened as preliminary results showed that the deposit was of low quality. Agriculture is restricted to a few small hobby farms along lower Lang Creek. Settlement (low density) is likewise confined to the southern strip adjacent to Lang Creek and even less so along the southern slopes of Haslam Lake. Being close to the population center of Powell River, the Haslam Lang area is popular with recreationists for hiking, mountain bike riding and non-motorized boating. Fisheries resources are substantial, particularly in the lower watershed. A large salmon population is supported along the course of Lang Creek within the lower 8 km of channel and adjacent tributaries. Major

investment has been made in a fish hatchery, a counting station and an artificial spawning channel on Lang Creek. In 2000, Lang Creek was classified as a sensitive stream because of its high fisheries values. In the summer of 2000, a second Coastal Watershed Assessment Procedure (CWAP) was carried out which supported the conclusions of the first CWAP. It also stressed that good management would be more important to the continued health of the watershed than the actual amount of watershed logged or roaded. With the recently established Community Forest positioned within the watershed area, there was renewed interest in water quality monitoring.

### **III. METHODOLOGY**

This project was instigated to provide a continuation for a monitoring program than ran between 1997 and 2001 within the Haslam Lang Community Watershed. The data collected at that time still provides the best available base line upon which the 2008 data will be compared. The sites chosen for water sampling were the same as those developed in the original program and are located on the map on Figure 1 and the sampling schedule is presented in Table 1.

Figure 1. Location of Monitoring Stations



**Table 1. Schedule for Monitoring Sites**

Station	Sampling Interval	Sampling For
Station 1 Lang Creek Sorting Station Provincial Identification Number E220912	Continuous	Water temperature, stage, air temp, rainfall Turbidity
	Weekly	Portable meter to check on continuous recorders
	Event Driven Seasonal	Turbidity, temperature Complete chemical analysis (4 times over year)
Station 2 Anderson Creek Provincial Identification Number (4 km upstream of E220913)	Continuous Weekly	(temperature by tidbit) Portable meter for turbidity, pH, specific conductivity, temp and discharge
	Event Driven Seasonal	Turbidity, low flow, temp Complete chemical analysis (4 times over year)
Station 3 Black Water Creek Provincial Identification Number E220914	Weekly	Portable meter for turbidity, pH, specific conductivity, temp and discharge
	Event Driven Seasonal	Turbidity, temperature Complete chemical analysis (4 times over year)
Station 4 Outlet of Duck Lake Provincial Identification Number E220915	Weekly	Portable meter for turbidity, pH, specific conductivity, temp, and discharge
	Event Driven Seasonal	Turbidity, temperature Complete chemical analysis (4 times over year)
Station 5 Weir at Haslam Lake outlet Provincial Identification Number E220916	Weekly	Portable meter for turbidity, pH, specific conductivity, temp, and stage
	Event Driven Seasonal	Turbidity, temperature Complete chemical analysis (4 times over year)
Station 6 Haslam Lake District Intake Provincial Identification Number E220917	Continuous Weekly	Lake level, rainfall and air temp Portable meter for turbidity, pH, specific conductivity, temp
	Event Driven Seasonal	Turbidity, temperature Complete chemical analysis (4 times over year)

#### IV. SAMPLING PROCEDURES

##### 1. Water sampling for laboratory analyses

All grab samples used for laboratory analyses were to be taken by sampling midstream using laboratory cleaned plastic 1000 ml bottles, as long as safety permitted this. The samples taken for total metal analysis were preserved immediately by addition of 1 ml of 1 molar nitric acid into the 250-ml bottle. Other bottles were cleaned and acid washed at the lab. After collection, samples were packed in ice and air freighted to the laboratory. It is understood 2 sets of 6 samples were collected towards the end of 2008.

##### 2. Analysis using portable meters

Weekly analysis was measured using portable meters. Before sampling, the meters were calibrated with standard solutions following directions supplied by the meter manufacturers. Problems were encountered with calibrating both the pH readings and the salinity readings and data only became reliable towards the end of 2008.

## V. RESULTS

### A. Water Quality Monitoring Results

No water quality sample results were available for presentation in this report

### B. Water Temperature Monitoring Results

Figure 2 provides hourly data collected from Lang Creek Station at Hatchery for 2008.

Figure 2

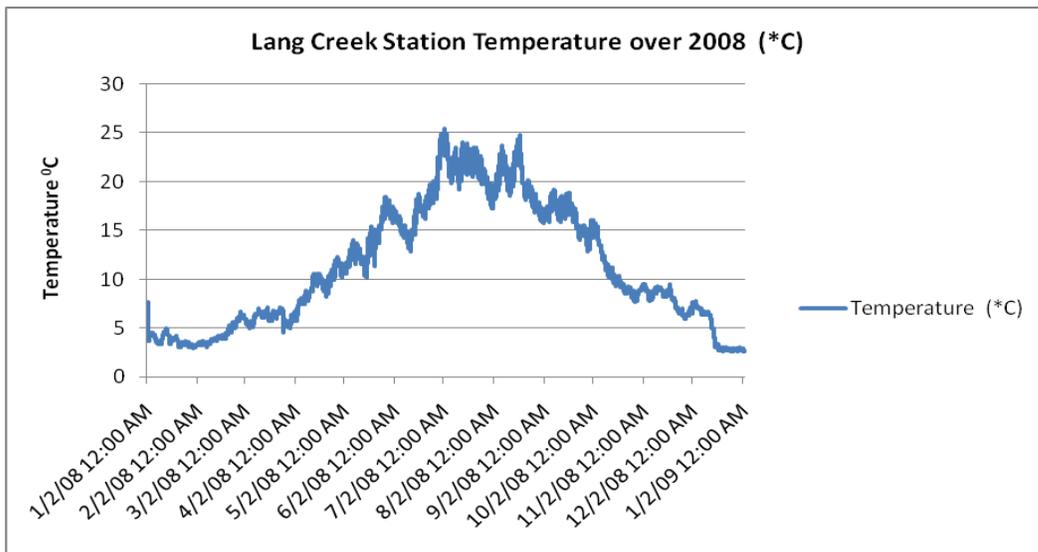
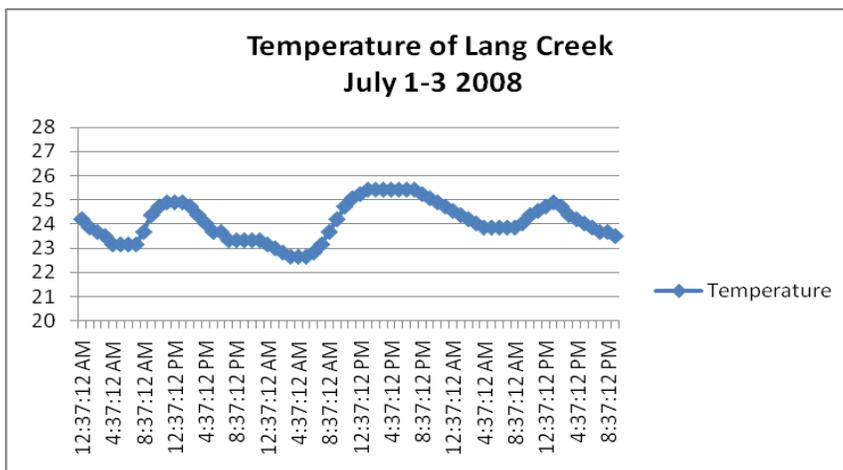


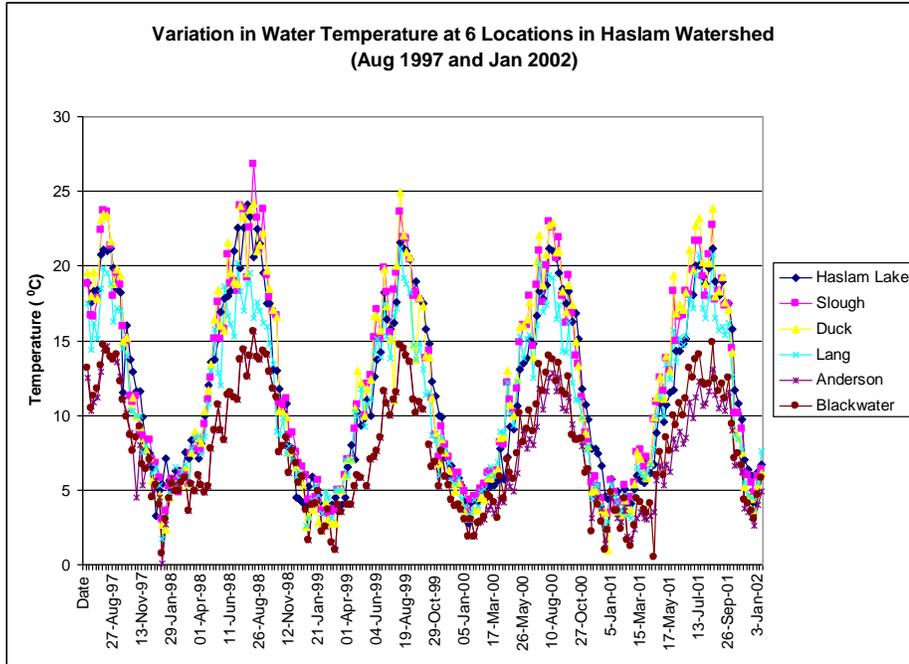
Figure 3 presents hourly temperature data from the Hatchery on Lang Creek on July 1 through 3 when temperatures were the highest for 2008.

Figure 3



Digital data logger information is also available for a number of other smaller streams with the Haslam Lang Watershed and can be processed if required.

Figure 4 shows a compilation of temperature data from a number of locations within the Haslam Lang Watershed between 1997 and 2002. It is apparent that these base temperatures will be very useful when assessing temperature data collected in future years.



### C. Water Quantity Monitoring Results.

While the Stream gauge recorder is now installed and running well, no discharge results are available for 2008. Date Discharge curves will have to be built during 2009 in order to determine Lang Creek Discharge.