

Pacific Salmon Foundation
Strategic Salmon Recovery Plan
Squamish Salmon Recovery Plan
FINAL REPORT

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PSF

Please submit completed applications to:

Jim Shinkewski
Pacific Salmon Foundation
Suite 300 – 1682 West 7th Avenue
Vancouver, BC

Proponent Information

Applicant's Legal Name: Squamish River Watershed Society
Address, Mailing: Box 1791, Squamish, BC, V8B 0B3
Address, Courier: 41820 Rayburn Road, Brackendale, BC, V0N 1H0
Project Manager: Edith Tobe **Title:** Executive Director
Phone: 604-898-9171 **Fax:** 604-898-9161 **Cell:** 604-892-7919 **Email:** tobe@shaw.ca

List Subcontractors and contact information:

J.O. Thomas and Associates, 1370 Kootenay Street, Vancouver, BC V5K 4R1

Project Information

Amount Requested from the PSF: \$59,720 **Total Project Value:** \$106,000
Is this project a result of a previous PSF Project? YES NO
Project Start Date: July 1, 2007 **Project End Date:** December 1st, 2007

Please attach proposal, maps and other relevant document

Project Title: Creel Survey of Squamish River Watershed Recreational Fishery

Project Activity Type:

Habitat Assessment **Stock Assessment** **Education and Awareness**
Habitat Rehabilitation **Stock Rehabilitation** **Stewardship and Community Planning**

Target Species: Chinook and pink salmon and steelhead

Project Review and Application Authorization:

Reviewed

Fisheries and Oceans Canada	<input checked="" type="checkbox"/> / N	Ministry of Environment	<input checked="" type="checkbox"/> / N
Squamish Nation	<input checked="" type="checkbox"/> / N	District of Squamish	<input checked="" type="checkbox"/> / N
Squamish Lillooet Regional District	Y / N	Other:	Y / N

Project Relevance and Significance

The last creel survey conducted in the Squamish system was conducted by DFO and occurred in 1998 (Palermo and Thompson 2002). Since that time, there have been very little by way of complete records of the recreational fishing effort and catch in the Squamish River and tributaries. A creel survey is required to establish reliable and current estimates of basic salmon sport fishery statistics including the spatial and temporal distribution of fishing effort and catch. Without this information it is difficult to determine the effects of the sport fishery on the status of Squamish watershed salmonids and whether the sport fishery regulations are adequate to ensure long term fisheries health in this watershed.

The Squamish River Watershed is the largest watershed within the Strait of Georgia Basin. The Squamish River is a large glacier fed river that flows south from its head-waters in the Coast Mountains to empty into the head of Howe Sound at the city of Squamish. Its main tributaries are the Cheakamus and Elaho rivers. It drains a watershed of about 3200 sq km. It is home to late running winter steelhead in the Cheakamus River and five species of Pacific Salmon: Chinook, coho, chum, pinks, and the occasional sockeye. There are resident and sea running char, cutthroat trout and a few rainbow trout.

There are a variety of watershed and other plans that have been developed for the Squamish River over the years. A Squamish River Watershed Salmon Recovery Plan (SRWSRP) was completed for the river in May 2005 and a "Salmon Assessment Framework" document was completed November 2006. Building on this plan and other sources, Pacific Salmon Foundation in partnership with the Squamish River Watershed Society, Fisheries and Oceans Canada (DFO), Squamish Nation and numerous other partners continue to engage the public to specify targets and projects to assist in the recovery of all species of anadromous salmonids in that area.

In 1998, when the Squamish River watershed recreational fishery was last assessed, a hybrid instantaneous effort-access point study design was used (Palermo and Thompson 2002); this methodology will be used again to ensure data is comparable. Using this approach, total effort will be estimated using a combination of instantaneous effort rod counts of the entire system during peak fishing effort and hourly rod counts conducted at high angling effort locations. Depending on the spatial distribution of anglers and access to all angling sites by car, instantaneous effort counts will include ground (car) and overflight methods. Catch rates are estimated from angler interviews using either access-point, roving or bus-route approaches depending on the spatial distribution of angler effort in the system.

Data collected during the angler interviews will include the number and species retained (i.e. harvested) and released (including the number of jacks recorded separately for Chinook and coho), where the angler was fishing, time and day of interview, whether retained fish were adipose-fin clipped or not, the number of hours spent fishing, whether or not the angler has finished fishing for the day, gear type used, number of anglers in party. In addition, all catch should be inspected and this information (whether or not the catch was inspected and whether or not the angler's identification of catch was correct) will be recorded on the interview sheets and reported. Complete trip interviews when the angler has finished for the day are preferred and will be emphasized. Incomplete interview results may be included; however, effort will be applied to ensure they are unbiased given the potential instability of catch rates over time in fisheries where "bag limits" exist (i.e. there shouldn't be a significant difference between incomplete and complete interview catch rates and this will be demonstrated by the proponent if incomplete interviews are used.)

Overflight maps with angler counts will also be generated including off peak effort to provide an "instantaneous" snapshot of angler distribution and effort in the entire system. The final report, comparable to DFO annual reports (http://www.pac.dfo-mpo.gc.ca/fraserriver/recreational/recfisherystudies_e.htm). will include regulations, Stock/Watershed Profile including the context of this current project (brief), study area,

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methods, results, and discussion (brief), recommendations for future studies, acknowledgments and references. Results will be reported monthly, showing time period by each day type (weekend & weekday): open days in study period, number of survey shifts, number of interviews, number of instantaneous rod counts (overflights), mean rod count, estimated average daily effort (hours) and estimated total effort (hours) and catch and release estimates by species and mark type. Catch rates will also be presented temporally and spatially to provide information on the distribution of angler effort. Along with the final reporting, all data will be electronically stored and summarized using state of art creel software as approved by the TRC. This electronic data is to be provided to the Plan Coordinator and DFO.

The creel study is part of two step program in which the initial stage was to study chinook and pink fisheries (funded by PSF SSRP) and the second step to study chum and coho fisheries (funded by CN CERF). The final report will be available following the completion of the second step towards the end of January. However, this report concludes the segment required by PSF SSRP. All final data will be available to the PSF and all interested parties and will be shared when available by the Plan Coordinator.

What species, life stage does this project target: Chinook and pink salmon adults, some steelhead

Provide design drawings and a description of the techniques and methods being used (if appropriate)
J.O. Thomas Proposal attached.

If required, has the design been approved by a Professional Engineer and/or Biologist? N/A

Is this project utilizing recognized or emerging technologies? YES

Please provide supporting argument for its selection: as requested in RFP

**Will this project require long-term maintenance?
If yes, what are the anticipated annual costs?** NO

Who will fund it? N/A

Performance Expectations

2007 Squamish River Watershed Creel Survey Summary Progress Report: July – October 15

A. Staff Recruitment and Selection

Efforts to recruit and hire staff for the Squamish River Watershed Creel Survey began in late June with the placement of employment opportunity advertisements in The Squamish Chief newspaper, the Pique newsmagazine (print), the Pique newsmagazine (online), and the Canada Job Bank.

From a total of 40 respondents, 9 people were interviewed of which 3 candidates were selected and hired as technicians for this survey. These include Heath Zander (Squamish), Russell Jacobs (Squamish), and Greg Rebar (Whistler). All of these individuals have substantial fisheries-related experience much of which has been done in the Squamish River watershed area.

Two additional staff, Troy Kinoshta and Elly Ho, located at the J.O. Thomas and Associates office, were identified for contingency field survey tasks, and to provide on-site training for local technicians specified above.

All of these staff have worked continuously through this reporting period including Heath Zander (Squamish), Russell Jacobs (Squamish), and Greg Rebar (Whistler). In addition, Troy Kinoshta, based at the J.O. Thomas and Associates office in Vancouver, was deployed on a limited number of occasions throughout the survey

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period to cover periods of intensive field activity and as a contingency to cover for community-based technicians specified above.

B. Training and Orientation

A training workshop was conducted at J.O. Thomas and Associates program office in Vancouver on July 26 attended by Doug Tallman (Program Manager), Elly Ho, Troy Kinoshita, Heath Zander, Russell Jacobs, and Greg Rebar. This workshop covered:

- Survey objectives and structure
- Onsite procedures
- Interview script and procedures
- Data forms
- Scheduling
- Administration

Onsite training for the access point survey was conducted the following day on July 27 at locations in the survey area including the Mamquam Bar (on the Squamish River downstream of the confluence of the Squamish and Mamquam Rivers), Fisherman's Park, and the Bailey Bridge on the Cheakamus River. On the same date, a supervised roving shift was conducted through all of the survey area covering the Squamish River up to the Powerhouse Channel, and the Cheakamus River up to the Suspension Bridge. This training provided the opportunity to conduct live interviews and an orientation to site logistics and tasks including the interview process and direct observation of fishing activity at a site.

B. Quality Assurance

Following onsite training, a number of full-day quality assurance visits have been conducted by the Program Manager: these were done on July 30, August 3, August 5, August 23, September 14, and September 28. These visits were used to assess the performance of each survey technician, current fishery dynamics, and the technical performance of the survey.

C. Survey Design and Development

Pre-survey reconnaissance trips were conducted starting in mid-April during the development of the survey proposal, followed by an onboard DFO jet boat patrol with Rob Harris (C&P Squamish Detachment) on June 17, and a comprehensive road access trip on July 23. These were conducted to develop a complete inventory of fishing locations and to begin to investigate spatial and temporal relationships between these locations. Further bi-weekly assessments were conducted based on current and cumulative survey data, and onsite quality assurance visits referred to above. Through these, the survey area was divided into five zones (which are the major reporting strata), and into a total of 11 sections (sub zones), within which 27 distinct fishing locations were found. As well, selection probabilities for the access point survey schedule were adjusted based on trends in effort and catch observed over each previous two-week period.

D. Operations and Data Analysis

Three sets of core field activities were carried out according to a survey schedule where all three activities occur concurrently: 1) a roving survey is conducted during each shift where a survey technician travels through the entire survey area according to one of seven randomized sequences counting rods and conducting angler interviews, 2) exit interviews are conducted through an access point survey where anglers are interviewed for data relating to catch and effort at the end of their trip, and 3) direct observations of catch and effort through the same access point survey referred to here.

Overflights were conducted on August 5 and September 1 to: 1) determine the utility of this method to count anglers in the survey area, and 2) to determine if the sampling frame is covering all of the active fishery. These flights were conducted using a Cessna Skyhawk on wheels flying from the Squamish Municipal Airport, over

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the Cheakamus River up to Swift before turning west down the Pilchuck River, then up the Squamish River to the Powerhouse before turning back down the Squamish to the Ashlu, then to the lower survey boundary at the outfall adjacent to the Railway Museum.

A total of 57 roving shifts and 117 access point shifts were completed between July 27 (survey start date) and October 15 over which 932 incomplete-trip, and 525 complete-trip interviews were conducted respectively (see Table_1).

River conditions (flow and turbidity) and regulations played a significant role in governing the nature of the recreational fishery on the Squamish River and its tributaries. Flow on the Squamish River at the hydrographic station near Brackendale indicated a discharge above 600 m³/s prior to the last week of July covering virtually all of the normal fishing locations. Shoreline areas and bars began to dry up through August dropping to about 150 m³/s providing increasing fishing area for anglers with continuing improved conditions through September as discharge rates and turbidity decreased. Discharge at the hydrographic station near Brackendale indicated a decline to about 100 m³/s prior by the last week in September opening up all potential fishing locations in the survey area. These conditions deteriorated significantly for most of the first two weeks in October with heavy rains increasing discharge up to 1200 m³/s effectively inundating most fishing locations in the second week of October.

Regulations relating to the Squamish River watershed recreational fishery to October 15, included the following:

- Non-retention for pink salmon.
- Chum retention (2 per day) allowed on the Squamish River below the powerlines after September 15.
- Chinook retention (2 per day) allowed for fish <55cm on the Squamish River below the powerlines.
- Chinook retention (2 per day) allowed for fish <55cm on the Squamish River above the powerlines to September 15.
- Hatchery coho retention (1 per day) allowed on the Squamish River below the powerlines after September 15.
- Non-retention for all chinook salmon on the Cheakamus River (after August 1).
- Hatchery coho retention (1 per day) allowed on the Cheakamus River after September 15.
- Chum retention (2 per day) allowed on the Cheakamus River after September 15.
- Chinook retention (2 per day) allowed for fish <55mm on the Mamquam River above the CN Rail bridge to September 15.
- Chinook retention (2 per day) allowed for fish <55mm on the Mamquam River below the CN Rail bridge.
- Hatchery coho retention (1 per day) allowed on the Mamquam River after September 15.
- Chum retention (2 per day) allowed on the Mamquam River below the CN rail bridge after September 15.

As a conservative approach, catch and effort estimates have been calculated using data from both surveys where effort in angler*hours has been estimated from progressive and instantaneous angler counts, and catch calculated as the product of estimated effort and catch (harvest and release) per angler hour from access point exit interviews. Catch rate data from direct observations will be compared to co-incident exit interview data to assess the accuracy of release estimates based on angler interviews and to assess the stability of catch rates. As well, catch rates estimated from incomplete-trip data collected through the roving survey will be compared with catch rate rates estimated from complete-trip interviews collected through exit interviews at access points to check for significant differences. Direct observations of fishing effort will be used to generate angler activity profiles as part of the investigation to determine an optimum survey approach (roving*access_access or roving access).

**Pacific Salmon Foundation Strategic Salmon Recovery Plan
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Most angler effort was observed on Mamquam Bar (Squamish River) and the Mamquam River targeting pink until the middle of September, then coho and chum from late September to October 15. Angler interviews did not indicate chinook as a target species at any time through the survey frame. Total angler effort for the survey period and area is estimated to be 18,616 angler hours, most of which occurred in August in Zone 1. Chinook catch, virtually all of which was reported to be released, has been estimated at 42 pieces. Similarly, pink catch has been estimated at 5899 pieces, all of which was released as per regulation except for one pink that was observed to have been caught and kept in contravention to current regulation. The estimated coho catch is 178 pieces, caught primarily in Zone 2, all which was reported to have been released. The catch of chum has been estimated to be 26 pieces of which about 40% was harvested.

Table 1. Operational results, catch estimates, and angler effort estimates for the Squamish River watershed recreational fishery survey between July 27 and October 15, 2007.

Zone*	Period	Operational Results				Catch and Effort Estimates				
		Roving Survey		Access Point Survey		Chinook (Pcs)	Pink (Pcs)	Coho (Pcs)	Chum (Pcs)	Angler Effort (Angler*Hrs)
		Shifts	Interviews	Shifts	Interviews					
1-5	July 27-August 31	27	539	57	273	0	3785	0	0	12,616
1-5	September 1 - 30	20	252	40	155	36	2114	104	0	4497
1-5	October 1 - 15	10	141	20	97	6	0	74	26	1855
Total		57	932	117	525	42	5899	178	26	18,968

- * Zone 1=Squamish River (Outfall-Powerlines)
- Zone 2=Cheakamus River
- Zone 3=Squamish River (Powerlines-Ashlu Confluence)
- Zone 4=Ashlu River
- Zone 5=Squamish River (Ashlu Confluence-Elaho Confluence)

F. Planned Activities

The preparation of Final 2007 Squamish River Watershed Creel Survey Report is in progress and will cover not only the survey period between July 27 to October 15 referred to in this progress summary, but also the following period from October 16 to December 31. This will be a detailed report covering design, preparation, implementation, analytical survey tasks and results, and recommendations for an optimum survey design for this fishery. It is anticipated that this report will be completed in late January 2008.

**Pacific Salmon Foundation Strategic Salmon Recovery Plan
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Milestones

Task	Completion Date
Development of RFP	March
Review submitted proposals	May
Awarding of contract	May 2007
Development of Creel Survey (for Chinook and pink salmon)	June 2007
Initiation of Creel Survey (for Chinook and pink salmon)	July 2007
Project Updates	October 2007
Final Report with analysis and summary	January 2008

Project Budget

Labour

Service	# of People	Daily Rate	Total Cost	SSRP Contribution
Senior Biologist (DFO)	2	600/day	4800	0
Project Technician (DFO)	1	200/day	4000	0
Data Entry Analysis and Reporting	2		6325	4950
Program Manager	1	45/hour	6165	3690
Creel Sampler		27.5 cost/hr	57571.25	35571.25
Data Technicians		25/hr	4950	2475
Project Manger (SRWS)	1	350/day	1700	0
Labour Sub-Total A			85511.25	46686.25

Materials & Equipment

Item	Details	# of Units	Unit Cost	Total Cost	SSRP Contribution
Overflights				1502	252
Mileage				5131.65	4482.65
Fuel (for boat)				245	245
Sampling Equipment			158.86	508.86	158.86
Meetings			40	40	40
Data Forms			107	107	107
Communication / Shipping				265.62	90.62
Total Materials and Equipment Sub-Total B				7791.13	5376.16

**Pacific Salmon Foundation Strategic Salmon Recovery Plan
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Administration and Overhead Costs**

Item	# of Units	Unit Cost	Total Cost	SSRP Contribution
Taxes and Disbursements			12035.53	7551.53
Office Supplies (printer cartridges, etc)			630	105
		Sub-Total	12665.53	7656.53

TOTAL EXPENSES	TOTALS (A+B+C)		105967.91	59718.94
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Non--PSF Contributions

Non-PSF Revenue Sources	Cash	In-Kind	Volunteer	TOTAL
Fisheries and Oceans		8800	8800	10225
Squamish River Watershed Society		1700		1700
CN CERF	35758			35758
Non-PSF Totals				46258

Certification

I certify that the information provided in this application, including all attachments, is accurate to the best of my knowledge and that I am authorized to sign on behalf of the stated organization.

Signature: _____

Edith B. Tobe

Date: December 27, 2007

(Authorized Signatory)

Name: _

Edith B. Tobe
(Print Name)

THE SQUAMISH RIVER WATERSHED SOCIETY (SRWS)

CLAIM FOR PROGRESS PAYMENT

Contractor's Legal Name & Address: J.O. Thomas & Associates Ltd. (Corporation) 1370 Kootenay Street Vancouver, BC V5K 4R1 Business Number: 121375612 RC GST Number: 121375612 RT	Claim No. #3064 A - 1 -07	Date 05-Oct-07	Contract Price \$59,725.00 (GST Included)

I certify that I have examined the information provided above, including the legal name, address and Revenue Canada identifiers, and that it is correct and complete and fully discloses the identification of this Contractor.

2007 Creel Survey of the Squamish River Watershed Recreational Fishery

Period of work covered by this claim:	July/Aug 2007	Current Claim (A)	Previous Claim (B)	Total To Date (A+B)
1.0	LABOUR	16,260.00	0.00	16,260.00
2.0	DISBURSEMENTS	1,936.37	0.00	1,936.37
3.0	FEE @ 9% OF LABOUR	1,463.40	0.00	1,463.40
	Subtotal:	19,659.77	0.00	19,659.77
	GST @ 6%:	1,179.59	0.00	1,179.59
	Claim (Including GST):	20,839.36	0.00	20,839.36
			Amount Due:	20,839.36

COPY

PER: _____
Signature

Jim Thomas, President
_____ Title

PROFESSIONAL & TECHNICAL SERVICES

2007 SQUAMISH RIVER CREEL SURVEY

MONTH: July/August 2007

1.0 DIRECT LABOUR

Management	51.50	hrs @ \$	45.00	=	2,317.50
Data Analyst	0.00	hrs @ \$	45.00	=	0.00
Administraion	0.00	hrs @ \$	35.00	=	0.00
Data Technician	0.00	hrs @ \$	25.00	=	0.00
Creel Sampler	507.00	hrs @ \$	27.50	=	13,942.50
	<hr/>				
	<u>558.50</u>	hours			<u>\$ 16,260.00</u>

**SUPPLEMENTARY CLAIM
SQUAMISH RIVER CREEL SURVEY**

Date
04-Oct-07
Claim Number
#3064 A -1- 07

Contractor J.O. THOMAS & ASSOCIATES LTD.			
Description	Current Claim (A)	Previous Claim (B)	Total To Date (A+B)
2.0 DIRECT EXPENSES			
A) Overflight Charter	0.00	0.00	0.00
B) Materials			
- Data Forms	97.37	0.00	97.37
- Sample Supplies	41.17	0.00	41.17
- Misc. Stationery	0.00	0.00	0.00
C) Communication	20.42	0.00	20.42
D) Shipping	0.00	0.00	0.00
F) Travel & Living			
- Mileage	1,599.57	0.00	1,599.57
- Fuel	177.84	0.00	177.84
TOTAL:	1,936.37	0.00	1,936.37

THE SQUAMISH RIVER WATERSHED SOCIETY (SRWS)

CLAIM FOR PROGRESS PAYMENT

Contractor's Legal Name & Address:	Claim No.	Date	Contract Price
J.D. Thomas & Associates Ltd. (Corporation) 1370 Kootenay Street Vancouver, BC V5K 4R1 Business Number: 121375612 RC GST Number: 121375612 RT	#3064 A - 2 -07	26-Nov-07	\$59,725.00 (GST Included)

I certify that I have examined the information provided above, including the legal name, address and Revenue Canada identifiers, and that it is correct and complete and fully discloses the identification of this Contractor.

2007 Creel Survey of the Squamish River Watershed Recreational Fishery

Period of work covered by this claim:	Sept to Oct 15, 2007	Current Claim (A)	Previous Claim (B)	Total To Date (A+B)
1.0	LABOUR	23,341.25	16260.00	39,601.25
2.0	DISBURSEMENTS	2,663.02	1,936.37	4,599.39
3.0	FEE @ 9% OF LABOUR	2,100.71	1,463.40	3,564.11
	Subtotal:	28,104.98	19,659.77	47,764.75
	GST @ 6%:	1,686.30	1,179.59	2,865.89
	Claim (Including GST):	29,791.28	20,839.36	50,630.64
			Amount Due:	29,791.28

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PER:

Signature

Jim Thomas, President

Title

PAID DEC 07 2007
#243

PROFESSIONAL & TECHNICAL SERVICES

2007 SQUAMISH RIVER CREEL SURVEY

MONTH: Sept to Oct 15, 2007

1.0 DIRECT LABOUR

Management	18.00	hrs @ \$	45.00	=	810.00
Data Analyst	0.00	hrs @ \$	45.00	=	0.00
Administraion	1.50	hrs @ \$	35.00	=	52.50
Data Technician	34.00	hrs @ \$	25.00	=	850.00
Creel Sampler	786.50	hrs @ \$	27.50	=	21,628.75

840.00 hours

\$ 23,341.25

**SUPPLEMENTARY CLAIM
SQUAMISH RIVER CREEL SURVEY**

Date 28-Nov-07
Claim Number #3064 A -2- 07

Contractor J.O. THOMAS & ASSOCIATES LTD.			
Description	Current Claim (A)	Previous Claim (B)	Total To Date (A+B)
2.0 DIRECT EXPENSES			
A) Overflight Charter	252.00	0.00	252.00
B) Materials			
- Data Forms	9.63	97.37	107.00
- Sample Supplies	117.69	41.17	158.86
- Misc. Stationery	0.00	0.00	0.00
C) Communication	60.93	20.42	81.35
D) Shipping	0.00	0.00	0.00
F) Travel & Living			
- Mileage	2,222.77	1,599.57	3,822.34
- Fuel	0.00	177.84	177.84
TOTAL:	2,663.02	1,936.37	4,599.39

THE SQUAMISH RIVER WATERSHED SOCIETY (SRWS)

CLAIM FOR PROGRESS PAYMENT

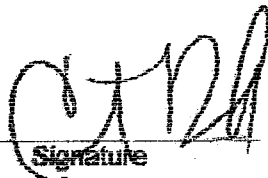
Contractor's Legal Name & Address:	Claim No.	Date	Contract Price
J.O. Thomas & Associates Ltd. (Corporation) 1370 Kootenay Street Vancouver, BC V5K 4R1 Business Number: 121375612 RC GST Number: 121375612 RT	#3064 A - 3 -07	18-Dec-07	\$59,725.00 (GST included)

I certify that I have examined the information provided above, including the legal name, address and Revenue Canada identifiers, and that it is correct and complete and fully discloses the identification of this Contractor.

2007 Creel Survey of the Squamish River Watershed Recreational Fishery

Period of work covered by this claim:		Current Claim (A)	Previous Claim (B)	Total To Date (A+B)
	Nov/Dec 2007			
1.0	LABOUR	7,190.00	39,601.25	46,791.25
2.0	DISBURSEMENTS	736.74	4,599.39	5,336.13
3.0	FEE @ 9% OF LABOUR	647.10	3,564.11	4,211.21
	Subtotal:	8,573.84	47,764.75	56,338.59
	GST @ 6%:	514.43	2,865.87	3,380.30
	Claim (Including GST):	9,088.27	50,630.62	59,718.89
			Amount Due:	9,088.27

PER:



Signature

Jim Thomas, President

Title

PROFESSIONAL & TECHNICAL SERVICES

2007 SQUAMISH RIVER CREEL SURVEY

MONTH: Nov/Dec 2007

1.0 DIRECT LABOUR

Management	12.50	hrs @ \$	45.00	=	562.50
Data Analyst	110.00	hrs @ \$	45.00	=	4,950.00
Administration	1.50	hrs @ \$	35.00	=	52.50
Data Technician	65.00	hrs @ \$	25.00	=	1,625.00
Creel Sampler	0.00	hrs @ \$	27.50	=	0.00
					<hr/>
	<u>189.00</u>	hours			<u>\$ 7,190.00</u>

SUPPLEMENTARY CLAIM
SQUAMISH RIVER CREEL SURVEY

Date
 18-Dec-07
 Claim Number
 #3064 A-3-07

Contractor J.O. THOMAS & ASSOCIATES LTD.			
Description	Current Claim (A)	Previous Claim (B)	Total To Date (A+B)
2.0 DIRECT EXPENSES			
A) Overflight Charter	0.00	252.00	252.00
B) Materials			
- Data Forms	0.00	107.00	107.00
- Sample Supplies	0.00	158.86	158.86
- Misc. Stationery	0.00	0.00	0.00
C) Communication	9.27	81.35	90.62
D) Shipping	0.00	0.00	0.00
F) Travel & Living			
- Mileage	580.31	3,822.34	4,482.65
- Fuel	67.16	177.84	245.00
TOTAL	736.74	4,599.39	5,336.13