

**THE 2000 SYNOPTIC SURVEY OF JUVENILE COHO POPULATIONS IN  
SELECTED LAKES AND STREAMS WITHIN THE SKEENA RIVER  
WATERSHED, BRITISH COLUMBIA**

by

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## INTRODUCTION

Synoptic juvenile coho salmon (*Oncorhynchus kisutch*) surveys have been conducted within the Skeena River watershed since 1994. In the first six years of the program, a total of 87 sites on 52 streams were sampled for coho and other salmonids, principally chinook (*O. tshawytscha*) and steelhead trout (*O. mykiss*). Twelve new sites were added in the present program. Information has also been collected on various components of habitat in lake and stream sites to assist in current appraisal of habitat utilization and potential. These surveys were conceived as an alternative, cost effective, method to assess and monitor coho population levels within the Skeena River drainage. In combination with more rigorous adult surveys, this program will permit delineation of actual and potential areas of coho production, as well as highlight areas of concern.

This report documents the results of the seventh year of sampling, performed throughout the Skeena River watershed between 14 August and 7 September, 2000. The current study was conducted on 38 streams and in 3 lakes. Summary information is presented for physical and chemical characteristics of habitat as well as various estimates of population densities for juvenile coho and other species.

## METHODS

A total of 71 sites on 38 streams and 3 lakes were proposed for sampling during the field program. Sites in 8 streams sampled in 1999 were dropped (Nangeese River, Cullen Creek, Pinkut Creek, Four Mile Creek, Kitwanga River, Moonlit Creek, Clifford Creek and Kispiox River) and 20 new sites on 12 streams were incorporated into the program: Ailport Creek, Alwyn Creek, Bear River, Buck Creek, Bulkley River, Byman Creek, Emerson Creek, Kathlyn Creek, Scotia River, Silvern River, Sinclair River, Talow Creek .

Site locations were geo-referenced using a Micrologic Sportsman GPS. Site boundaries were marked with flagging tape. Sampling was conducted by two independent field crews, one of which was responsible for the western and central portions of the study area, while the other operated mainly in the northern and eastern areas.

### Stream Habitat Assessment

The requirements for habitat sampling were equivalent to those of the 1999 study. Habitat assessment was conducted only on the fish collection sites and was confined to delineation of the site and the

distribution of habitat unit types (pool, riffle, run and dewatered). A sketch map was made of the site, indicating the locations and lengths of habitat units and other prominent habitat features. Channel width was measured using either a tape measure or a Sonin Combo Pro acoustical rangefinder. Sufficient measurements were taken to accurately estimate the surface area of habitat units. Three measures of channel width were recorded: wetted width; bankfull width (in the absence of well defined banks, this was a subjective measurement of channel extent at normal high flows, as indicated by established vegetation in the riparian zone or the extent of exposed sands and gravel); and 10 cm wetted width (the limit of water at least 10 cm deep) in pool habitat.

Measurements of temperature ( $^{\circ}\text{C}$ ) and conductivity ( $\mu\text{mhos}$ ) were made at mid-reach, using a Cole Parmer Model 19815-00 conductivity meter. Time of sampling was recorded for these measurements.

### Fish Population Estimates

All lake sites were sampled semi-quantitatively using Gee minnow traps baited with salmon roe, set along 100 m of shoreline.

Removal-depletion sampling was performed at a majority of stream sites. A sampling site, usually 30 - 50m in length, was selected to encompass a variety of hydraulic types, but with emphasis on pool habitat. This section of creek was blocked off with fine mesh barrier nets and repeated passes were made through the section using an appropriate sampling gear, usually beach or pole seine, or electro-shocker. At a number of sites, sampling passes were conducted with both beach and pole seines to maximize catches. In all cases constant effort per pass was maintained as closely as possible. High water levels prevented quantitative sampling at a number of sites in the Western part of the study area. Coldwater Creek site 3, Gitnadoix River and both Sockeye Creek sites were too deep to permit the use of the above gear types and were sampled using baited Gee minnow traps

All captured fish were identified and counted and the fork length of all salmonids was measured to the nearest mm. Representative sub-samples from the size range of each salmonid species were weighed and scale samples were taken. Sub-samples (up to 30 individuals) from other species were measured for fork length and weighed.

Semi-quantitative sampling was performed outside of the sampling site to increase sample sizes for size-frequency and age composition in streams where removal sampling failed to produce 30 coho. Level of effort was recorded as duration of electroshocking and/or length of stream (m) seined. Coho and other salmonids were sampled as described above; data were maintained separately from those collected in quantitative sampling. Other species were identified and counted.

## Calculations of Density Estimates for Stream Fish

Removal-depletion estimates for three or more removals was calculated using the Zippin method (Zippin 1958). Removal patterns were tested for compliance with the assumption of constant probability of capture throughout successive removals. A specific example for this method of estimation is provided in Appendix A, using coho data from Toboggan Creek (site 2).

## RESULTS

Locations, dates of sampling and general access methods for each sampling location are provided in Tables 1 and 2. With the exception of the mainstem Bulkley River, for which Buck creek sites were substituted, all of the proposed sampling sites were visited during the program.

### Habitat Sampling

Summaries of the dimensions and distribution of stream habitat units are provided in Tables 3 - 5. Basic water chemistry measurements are shown in Table 6.

### Fish collections

Each the three lake sites contained coho: the largest catch, 130 individuals, occurred in McDonnel Lake (Table 7). Catches of non-salmonid species are listed in Table 7. Table 8 provides length and weight information for lake caught species.

Coho were captured in 66 of the 70 sites sampled (Table 9). Exceptions were Ailport Creek, Bear River (both sites) and Shase Creek (site 1). Sampling effort and catches are shown for streams where quantitative sampling was unsuccessful in collecting 30 coho for genetic stock identification (GSI), in Table 10.

Mean fork lengths and weights of coho and other species are presented in Table 11. Parameters of weight on fork length regressions are listed in Table 12 for species where at least 15 measurements of length and weight were made.

Catch data for each of the three or more quantitative sampling passes in stream sites with removal-depletion estimates are presented in Table 13. Linear and areal estimates of abundance and biomass are provided in Tables 14 and 15, respectively.

Current estimates of coho densities are compared among selected streams sampled in 1998 and 1999, in Fig. 1. Mean values are illustrated for streams where estimates were obtained from multiple sites. A majority of populations (15 out of 17) attained greater densities in 2000 than in 1998: the two exceptions were Coldwater Creek and Singlehurst Creek. However, in comparison with the previous year of the program, only 8 streams had increased densities. The largest increase occurred in Clearwater Creek (2.8 to 10.3 individuals.m<sup>-1</sup>). In most other cases, population estimates were similar to those measured in 1999 (Taylor 1999), however, a substantial reduction in density was found in Hankin Creek (7.1 to 0.5 individuals.m<sup>-1</sup>). Less dramatic reductions in population levels were recorded in Clear Creek (4.9 to 2.5 individuals.m<sup>-1</sup>) and Shea Creek (10.2 to 6.2 individuals.m<sup>-1</sup>). The largest recorded mean population densities were again found in Elliot Creek tributary (17.5 individuals.m<sup>-1</sup>) and Schulbuckhand Creek (15.8 individuals.m<sup>-1</sup>) although these were lower than in the previous year (Fig. 1). Elliott Creek tributary site 2 had the largest density of any site in 2000 (Table 14. 25.2 individuals.m<sup>-1</sup>), followed by Alwyn Creek site 2 (22.0 individuals.m<sup>-1</sup>). Other sites that produced >10 individuals.m<sup>-1</sup> were Alastair Lake tributary site 1, Clearwater Creek site 2, Ecstall River tributary site 2 and Nilkitkwa River site 1.

The improvement in population levels of juvenile coho measured in 1999 in some upper Babine Lake tributaries (densities in lower Boucher Creek and Nine Mile Creek reached 3.6 individuals.m<sup>-1</sup> and 3.7 individuals.m<sup>-1</sup>, respectively) was extended to upper Boucher Creek and Lamprey Creek. The former attained 3.7 individuals.m<sup>-1</sup> in comparison to 1.0 individuals.m<sup>-1</sup> in 1999 and 0.8 individuals.m<sup>-1</sup> in 1998 (Taylor 1998). Similarly, Lamprey Creek improved over the 1.4 individuals.m<sup>-1</sup> and 1.3 individuals.m<sup>-1</sup> recorded in 1998 and 1999, respectively, to 3.1 individuals.m<sup>-1</sup>. Although densities in lower Boucher Creek were somewhat less than in 1999 (2.9 individuals.m<sup>-1</sup> versus 3.6 individuals.m<sup>-1</sup>) present levels again represent a marked improvement over 1998 when no coho were observed in this stream.

#### ACKNOWLEDGEMENTS

The program owes its success to the effort and dedication of the crew chiefs, Derek Kyostia, Ivan Stefanov and Jim Hamly. Thanks are also due to the field crew members, David Deluco, Grant Carlson and Charles Thirkill.

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Table 1. Sampling date, positional reference and access method for lake sites.

Lake Name	Date	GPS	Access	Crew based in
Nilkitkwa Lake	23-Aug-00	55 23 36.6 / 126 39 42.7	Boat	Fort Babine
MacDonald Lake	18-Aug-00	54 47 25.6 / 127 33 98.9	Road	Smithers
Ecstall Lake	26-Aug-00	53 45 22.0 / 129 25 25.0	Float plane	Prince Rupert

Table 2. Sampling date, positional reference and access method for stream sites.

Stream Name	Site	Date	GPS	Access	Crew based in
Ailport Creek	1	27-Aug-00	54 28 38.0 / 126 14 04.3	Road	Houston
Alastair Lake Trib.	1	27-Aug-00	54 03 98.0 / 129 11 52.0	Float Plane	P. Rupert
Alwyn Creek	1	25-Aug-00	54 28 06.0 / 128 42 62.0	Helicopter	Terrace
Alwyn Creek	2	25-Aug-00	54 28 07.0 / 128 42 62.0	Helicopter	Terrace
Bear River	1	19-Aug-00	56 03 38.5 / 126 43 08.6	Helicopter	Smithers
Bear river	2	19-Aug-00	56 03 36.3 / 126 43 10.5	Helicopter	Smithers
Boucher Creek (L)	2	23-Aug-00	55 24 98.4 / 126 40 74.7	Boat	Babine Lodge
Boucher Creek (L)	1	23-Aug-00	55 24 96.2 / 126 40 95.1	Boat	Babine Lodge
Boucher Creek (U)	2	24-Aug-00	55 25 86.6 / 126 39 87.9	Boat	Babine Lodge
Boucher Creek (U)	1	24-Aug-00	55 25 88.4 / 126 39 94.3	Boat	Babine Lodge
Buck Ck.	2	31-Aug-00	54 23 57.7 / 126 39 66.3	Road	Smithers
Buck Ck.	1	31-Aug-00	54 23 64.1 / 126 38 47.4	Road	Smithers
Bulkley River	1	30-Aug-00	54 30 15.9 / 126 18 33.2	Road	Topley
Byman Creek	1	29-Aug-00	54 31 03.3 / 126 26 38.1	Road	Houston
Byman Creek	2	29-Aug-00	54 31 15.1 / 126 25 94.1	Road	Houston
Clear Creek (U)	1	17-Aug-00	54 54 29.1 / 128 47 42.0	Road	Terrace
Clearwater Creek	2	24-Aug-00	54 19 34.0 / 128 33 92.0	Road	Terrace
Clearwater Creek	1	24-Aug-00	54 19 34.0 / 128 33 92.0	Road	Terrace
Coldwater Creek	3	24-Aug-00	54 20 02.0 / 128 38 45.0	Road	Terrace
Coldwater Creek (L)	2	18-Aug-00	54 26 09.0 / 128 31 85.0	Road	Terrace
Coldwater Creek (U)	1	18-Aug-00	54 21 14.7 / 128 39 55.1	Road	Terrace
Copper River	2	16-Aug-00	54 47 16.4 / 127 27 08.4	Road	Smithers
Copper River	1	21-Aug-99	54 46 33.2 / 127 27 57.4	Road	Smithers
Deep Creek	2	28-Aug-00	54 34 31.0 / 128 38 83.0	Road	Terrace
Deep Creek	1	22-Aug-00	54 34 24.6 / 128 38 40.3	Road	Terrace
Ecstall River Trib.	2	26-Aug-00	53 45 38.0 / 129 25 18.0	Float plane	Prince Rupert
Ecstall River Trib.	1	26-Aug-00	53 45 40.0 / 129 25 24.0	Float plane	Prince Rupert
Elliot Creek Trib.	2	5-Sep-00	54 34 38.2 / 127 35 48.8	Helicopter	Smithers
Elliot Creek Trib.	1	5-Sep-00	54 34 40.5 / 127 35 42.9	Helicopter	Smithers
Emerson Creek	1	27-Aug-00	54 26 87.4 / 126 48 80.2	Road	Houston
Gitnadoix River	1	19-Aug-00	54 16 51.0 / 129 11 43.0	Helicopter	Terrace
Gitnadoix River	2	19-Aug-00	54 16 51.0 / 129 11 43.0	Helicopter	Terrace
Gosnell Creek	2	4-Sep-00	54 13 27.2 / 127 26 02.5	Helicopter	Smithers
Gosnell Creek	1	4-Sep-00	54 11 53.0 / 127 38 38.5	Helicopter	Smithers

Table 2. cont'd

Stream Name	Site	Date	GPS	Access	Crew based in
Hadenschild Creek	1	23-Aug-00	54 36 55.0 / 128 23 87.0	Road	Terrace
Hankin Creek	1	18-Aug-00	54 47 08.4 / 127 30 03.9	Road	Smithers
Kathlyn Creek	1	15-Aug-00	54 47 63.0 / 127 11 58.0	Road	Smithers
Kathlyn Creek	2	15-Aug-00	54 47 93.0 / 127 11 58.0	Road	Smithers
Lamprey Creek (L)	2	24-Aug-00	55 12 58.5 / 126 35 00.0	Boat	Babine Lodge
Lamprey Creek (U)	1	24-Aug-00	55 12 66.4 / 126 35 17.9	Boat	Babine Lodge
Morrison River	1	1-Sep-00	54 23 64.1 / 126 38 74.7	Helicopter	Smithers
Nichyeskwa River	2	2-Sep-00	55 28 66.6 / 126 58 11.3	Helicopter	Smithers
Nichyeskwa River	1	2-Sep-00	55 28 67.6 / 126 57 91.3	Helicopter	Smithers
Nilkitkwa River	1	17-Aug-00	55 57 64.2 / 126 58 90.6	Helicopter	Smithers
Nilkitkwa River	2	17-Aug-00	55 57 57.2 / 126 59 19.0	Helicopter	Smithers
Nine Mile Creek	1	21-Aug-00	55 12 46.8 / 126 34 57.4	Boat	Babine Lodge
Nine Mile Creek	2	21-Aug-00	55 18 02.4 / 126 38 04.6	Boat	Babine Lodge
Schulbuckhand Creek	2	16-Aug-00	54 20 61.0 / 128 32 57.0	Road	Terrace
Schulbuckhand Creek	1	16-Aug-00	54 20 61.0 / 128 32 57.0	Road	Terrace
Scotia river	2	20-Aug-00	54 16 34.0 / 129 11 64.0	Helicopter	Terrace
Scotia River	1	20-Aug-00	54 16 34.0 / 129 11 64.0	Helicopter	Terrace
Shase Creek	2	26-Aug-00	54 27 74.2 / 125 04 62.7	Helicopter	Smithers
Shase Creek	1	26-Aug-00	54 27 70.7 / 125 04 73.4	Helicopter	Smithers
Shea Creek (L)	2	6-Sep-00	54 15 20.5 / 127 30 61.9	Helicopter	Smithers
Shea Creek (U)	1	6-Sep-00	54 15 20.5 / 127 30 61.9	Helicopter	Smithers
Silvern Creek	1	17-Aug-00		Road	Smithers
Sinclair River	2	3-Sep-00	54 36 23.0 / 127 28 67.6	Helicopter	Smithers
Sinclair River	1	3-Sep-00	54 36 48.3 / 127 30 79.1	Helicopter	Smithers
Singlehurst Creek	2	20-Aug-00	54 36 28.8 / 128 23 55.6	Road	Terrace
Singlehurst Creek	3	20-Aug-00	54 36 56.0 / 128 23 87.0	Road	Terrace
Singlehurst Creek	1	20-Aug-00	54 36 28.8 / 128 23 55.6	Road	Terrace
Sockeye Creek (L)	1	16-Aug-00	54 26 09.0 / 128 31 85.0	Road	Terrace
Sockeye Creek (U)	2	16-Aug-00	54 26 04.1 / 128 31 51.7	Road	Terrace
Tachek Creek	2	25-Aug-00	55 47 33.4 / 126 07 58.9	Road	Houston
Tachek Creek	1	25-Aug-00	55 47 45.1 / 126 07 47.8	Road	Houston
Talow Creek	1	1-Sep-00	54 23 62.1 / 126 38 73.7	Helicopter	Smithers
Telkwa River	1	2-Sep-00	54 31 88.9 / 127 39 38.2	Helicopter	Smithers
Toboggan Creek	1	15-Aug-00	54 53 46.6 / 127 15 58.0	Road	Smithers

Table 2. cont'd

Stream Name	Site	Date	GPS	Access	Crew based in
Toboggan Creek	3	20-Aug-00	54 55 63.0 / 127 17 53.0	Road	Smithers
Toboggan Creek	2	15-Aug-00	54 53 32.4 / 127 15 61.3	Road	Smithers

Table 3. Summary of stream habitat units.

Stream Name	Site	Habitat Unit #	Habitat type	Length (m)
Ailport Creek	1	1	Pool	11.1
Alastair Lake Trib.	1	1	Pool	30.0
Alwyn Creek	1	1	Riffle	10.2
Alwyn Creek	2	1	Pool	12.5
Alwyn Creek	1	2	Pool	7.0
Alwyn Creek	2	2	Glide	10.5
Alwyn Creek	1	3	Glide	4.8
Alwyn Creek	1	4	Pool	8.0
Bear River	1	1	Glide	30.0
Bear river	2	1	Pool	20.1
Boucher Creek (L)	2	1	Pool	15.0
Boucher Creek (L)	1	1	Pool	23.0
Boucher Creek (U)	2	1	Pool	15.4
Boucher Creek (U)	1	1	Pool	12.7
Buck Ck.	2	1	Glide	30.0
Buck Ck.	1	1	Glide	22.0
Bulkley River	1	1	Pool	50.0
Byman Creek	2	1	Glide	5.6
Byman Creek	1	1	Pool	13.0
Byman Creek	1	2	Glide	5.0
Byman Creek	2	2	Pool	30.4
Clear Creek (U)	1	1	Pool	32.0
Clearwater Creek	2	1	Riffle	14.0
Clearwater Creek	1	1	Riffle	15.5
Clearwater Creek	2	2	Pool	16.0
Clearwater Creek	1	2	Glide	34.5
Coldwater Creek	3	1	Glide	30.0
Coldwater Creek (L)	2	1	Pool	23.0
Coldwater Creek (L)	2	2	Riffle	15.0
Coldwater Creek (L)	2	3	Glide	12.0
Coldwater Creek (U)	1	1	Pool	27.0
Copper River	2	1	Glide	6.5
Copper River	1	1	Pool	27.0
Copper River	2	2	Pool	13.8

Table 3. cont'd

Stream Name	Site	Habitat Unit #	Habitat type	Length (m)
Copper River	2	3	Glide	5.0
Deep Creek	2	1	Pool	30.0
Deep Creek	1	1	Pool	30.0
Ecstall River Trib.	1	1	Pool	5.2
Ecstall River Trib.	2	1	Pool	30.0
Ecstall River Trib.	1	2	Glide	14.8
Ecstall River Trib.	1	3	Pool	10.0
Elliot Creek Trib.	2	1	Pool	12.0
Elliot Creek Trib.	1	1	Glide	2.0
Elliot Creek Trib.	1	2	Pool	21.3
Elliot Creek Trib.	2	2	Glide	13.0
Emerson Creek	1	1	Pool	12.0
Gitnadoix River	1	1	Glide	9.4
Gitnadoix River	1	2	Riffle	20.6
Gosnell Creek	1	1	Pool	18.6
Gosnell Creek	2	1	Pool	25.0
Hadenschild Creek	1	1	Pool	30.0
Hankin Creek	1	1	Pool	10.5
Kathlyn Creek	1	1	Glide	17.5
Kathlyn Creek	2	1	Pool	30.0
Kathlyn Creek	1	2	Riffle	5.0
Kathlyn Creek	1	3	Pool	7.5
Lamprey Creek (L)	2	1	Pool	10.0
Lamprey Creek (L)	2	2	Glide	3.0
Lamprey Creek (L)	2	3	Riffle	7.0
Lamprey Creek (U)	1	1	Glide	22.0
Morrison River	1	1	Pool	49.0
Nichyeskwa River	2	1	Glide	20.0
Nichyeskwa River	1	1	Pool	19.5
Nilkittkwa River	2	1	Pool	10.6
Nilkittkwa River	1	1	Pool	15.8
Nilkittkwa River	1	2	Riffle	6.2
Nilkittkwa River	2	2	Glide	6.5
Nilkittkwa River	2	3	Pool	3.0

Table 3. cont'd

Stream Name	Site	Habitat Unit #	Habitat type	Length (m)
Nilkitkwa River	1	3	Pool	8.0
Nilkitkwa River	2	4	Riffle	1.4
Nilkitkwa River	2	5	Pool	4.3
Nilkitkwa River	2	6	Riffle	1.9
Nilkitkwa River	2	7	Pool	3.3
Nine Mile Creek	2	1	Glide	2.1
Nine Mile Creek	1	1	Glide	2.0
Nine Mile Creek	1	2	Pool	13.0
Nine Mile Creek	2	2	Pool	11.0
Nine Mile Creek	1	3	Glide	7.8
Nine Mile Creek	2	3	Glide	6.9
Nine Mile Creek	1	4	Pool	16.2
Schulbuckhand Creek	1	1	Pool	30.0
Schulbuckhand Creek	2	1	Pool	30.0
Scotia river	2	1	Pool	15.5
Scotia River	1	1	Pool	43.0
Shase Creek	2	1	Pool	7.6
Shase Creek	1	1	Glide	13.0
Shase Creek	2	2	Glide	4.4
Shea Creek (L)	2	1	Pool	21.0
Shea Creek (U)	1	1	Pool	20.6
Silvern Creek	1	1	Glide	10.0
Silvern Creek	1	2	Riffle	9.4
Silvern Creek	1	3	Glide	5.6
Sinclair River	1	1	Pool	50.0
Sinclair River	2	1	Pool	15.0
Singlehurst Creek	3	1	Riffle	6.0
Singlehurst Creek	2	1	Pool	2.2
Singlehurst Creek	1	1	Riffle	3.8
Singlehurst Creek	3	2	Pool	3.7
Singlehurst Creek	2	2	Riffle	2.4
Singlehurst Creek	1	2	Glide	7.4
Singlehurst Creek	1	3	Pool	6.0
Singlehurst Creek	3	3	Riffle	4.8

Table 3. cont'd

Stream Name	Site	Habitat Unit #	Habitat type	Length (m)
Singlehurst Creek	2	3	Pool	7.7
Singlehurst Creek	2	4	Riffle	1.5
Singlehurst Creek	1	4	Riffle	6.3
Singlehurst Creek	3	4	Pool	4.7
Singlehurst Creek	1	5	Pool	6.5
Singlehurst Creek	3	5	Glide	7.1
Singlehurst Creek	2	5	Pool	3.5
Singlehurst Creek	3	6	Pool	9.8
Singlehurst Creek	2	6	Glide	14.3
Singlehurst Creek	1	6	Riffle	8.3
Singlehurst Creek	3	7	Riffle	3.9
Singlehurst Creek	2	7	Pool	14.4
Singlehurst Creek	1	7	Pool	11.7
Singlehurst Creek	3	8	Glide	6.5
Singlehurst Creek	3	9	Riffle	3.5
Sockeye Creek (L)	1	1	Pool	8.0
Sockeye Creek (L)	1	2	Riffle	20.0
Sockeye Creek (L)	1	3	Pool	17.0
Sockeye Creek (U)	2	1	Pool	50.0
Tachek Creek	2	1	Pool	7.9
Tachek Creek	1	1	Pool	10.0
Tachek Creek	1	2	Riffle	7.0
Tachek Creek	1	3	Pool	0.8
Talow Creek	1	1	Pool	20.0
Telkwa River	1	1	Pool	70.0
Toboggan Creek	3	1	Glide	34.3
Toboggan Creek	1	1	Glide	3.9
Toboggan Creek	2	1	Pool	18.09
Toboggan Creek	2	2	Pool	4.42
Toboggan Creek	1	2	Pool	1.6
Toboggan Creek	1	3	Glide	13.5



Table 4. Summary of channel widths

Stream Name	Site	Mean bank-full width (m)	Variance of bank-full width	Mean wetted width (m)	Variance of wetted Width
Ailport Creek	1	8.00	0.39	5.43	2.62
Alastair Lake Trib.	1	4.13	5.09	2.45	3.96
Alwyn Creek	1	9.17	1.11	7.17	0.94
Alwyn Creek	2	8.66	2.92	6.33	1.81
Bear River	1	22.23	5.76	8.78	6.00
Bear river	2	9.78	0.33	8.14	0.21
Boucher Creek (L)	1	11.32	2.68	8.95	0.16
Boucher Creek (L)	2	7.37	1.17	3.25	2.01
Boucher Creek (U)	1	15.05	6.84	11.35	1.90
Boucher Creek (U)	2	13.43	4.34	11.98	6.85
Buck Ck.	1	14.07	1.38	9.03	0.16
Buck Ck.	2	17.97	0.80	9.83	0.04
Bulkley River	1	-	-	10.00	-
Byman Creek	1	5.20	0.11	4.02	1.18
Byman Creek	2	7.59	0.51	5.71	0.46
Clear Creek (U)	1	6.59	0.82	6.52	1.08
Clearwater Creek	1	11.90	4.91	11.78	5.15
Clearwater Creek	2	9.05	3.36	8.72	3.91
Coldwater Creek	3	23.09	4.66	14.51	7.31
Coldwater Creek (L)	2	13.02	2.91	6.99	6.23
Coldwater Creek (U)	1	10.85	4.06	7.64	3.10
Copper River	1	19.44	20.31	4.72	4.52
Copper River	2	14.34	11.44	5.18	0.64
Deep Creek	1	13.08	4.55	11.25	2.59
Deep Creek	2	5.76	3.25	5.07	3.36
Ecstall River Trib.	1	9.83	11.25	6.80	5.08
Ecstall River Trib.	2	12.67	3.77	10.83	4.32
Elliot Creek Trib.	1	12.85	6.59	5.61	6.52
Elliot Creek Trib.	2	6.26	2.34	5.65	2.07
Emerson Creek	1	8.52	0.74	2.75	1.00
Gitnadoix River	1	4.45	1.82	3.54	1.88
Gosnell Creek	1	36.80	2.88	8.20	9.67
Gosnell Creek	2	6.72	2.32	4.82	0.82

Table 4. cont'd

Stream Name	Site	Mean bank-full width (m)	Variance of bank-full width	Mean wetted width (m)	Variance of wetted Width
Hadenschild Creek	1	3.83	0.46	1.88	0.29
Hankin Creek	1	-	-	4.62	5.96
Kathlyn Creek	1	6.83	1.64	5.78	0.80
Kathlyn Creek	2	6.71	1.08	6.37	1.24
Lamprey Creek (L)	2	11.71	4.08	4.02	0.74
Lamprey Creek (U)	1	-	-	6.72	1.45
Morrison River	1	-	-	10.00	-
Nichyeskwa River	1	5.39	1.06	4.88	1.20
Nichyeskwa River	2	15.50	11.52	4.46	3.45
Nilkitkwa River	1	7.56	4.11	6.21	1.90
Nilkitkwa River	2	1.97	1.09	1.51	0.38
Nine Mile Creek	1	6.57	0.84	4.17	0.55
Nine Mile Creek	2	5.64	0.28	3.96	2.05
Schulbuckhand Creek	1	12.69	2.66	11.49	2.61
Schulbuckhand Creek	2	12.61	0.85	8.59	2.99
Scotia River	1	8.38	1.72	6.87	1.11
Scotia river	2	3.23	0.20	3.23	0.20
Shase Creek	1	8.97	3.30	5.67	4.62
Shase Creek	2	6.95	2.20	2.38	1.87
Shea Creek (L)	2	6.69	0.61	5.40	0.29
Shea Creek (U)	1	4.82	4.06	3.66	1.30
Silvern Creek	1	6.23	0.18	4.48	0.79
Sinclair River	1	-	-	4.00	-
Sinclair River	2	13.20	3.20	11.00	2.00
Singlehurst Creek	1	7.07	1.97	4.68	1.41
Singlehurst Creek	2	5.96	2.23	5.00	0.90
Singlehurst Creek	3	6.22	0.82	4.43	0.76
Sockeye Creek (L)	1	19.02	16.42	18.53	13.13
Sockeye Creek (U)	2	17.31	1.83	14.75	0.94
Tachek Creek	1	3.22	0.14	2.37	1.12
Tachek Creek	2	9.40	1.47	4.70	0.67
Talow Creek	1	-	-	9.50	-
Telkwa River	1	-	-	10.00	-
Toboggan Creek	1	4.88	0.60	4.02	0.47

Table 4. cont'd

Stream Name	Site	Mean bank-full width (m)	Variance of bank-full width	Mean wetted width (m)	Variance of wetted Width
Toboggan Creek	2	3.46	3.26	3.46	3.26
Toboggan Creek	3	13.14	11.44	9.83	4.09

Table 5. Length and area of habitat types by stream.

Stream Name	Site	Habitat type	Length (m)	Wetted Area (m <sup>2</sup> )
Ailport Creek	1	Pool	11.1	60.2
Alastair Lake Trib.	1	Pool	30.0	73.5
Alwyn Creek	1	Glide	4.8	34.4
Alwyn Creek	1	Pool	7.0	50.2
Alwyn Creek	1	Pool	8.0	57.4
Alwyn Creek	1	Riffle	10.2	73.2
Alwyn Creek	2	Glide	10.5	66.5
Alwyn Creek	2	Pool	12.5	79.1
Bear River	1	Glide	30.0	263.5
Bear river	2	Pool	20.1	163.6
Boucher Creek (L)	1	Pool	23.0	205.9
Boucher Creek (L)	2	Pool	15.0	48.8
Boucher Creek (U)	1	Pool	12.7	144.2
Boucher Creek (U)	2	Pool	15.4	184.4
Buck Ck.	1	Glide	22.0	198.6
Buck Ck.	2	Glide	30.0	295.0
Bulkley River	1	Pool	50.0	500.0
Byman Creek	1	Glide	5.0	20.1
Byman Creek	1	Pool	13.0	52.3
Byman Creek	2	Glide	5.6	32.0
Byman Creek	2	Pool	30.4	173.7
Clear Creek (U)	1	Pool	32.0	208.7
Clearwater Creek	1	Glide	34.5	406.4
Clearwater Creek	1	Riffle	15.5	182.6
Clearwater Creek	2	Pool	16.0	139.6
Clearwater Creek	2	Riffle	14.0	122.1
Coldwater Creek	3	Glide	30.0	435.4
Coldwater Creek (L)	2	Glide	12.0	83.9
Coldwater Creek (L)	2	Pool	23.0	160.9
Coldwater Creek (L)	2	Riffle	15.0	104.9
Coldwater Creek (U)	1	Pool	27.0	206.3
Copper River	1	Pool	27.0	127.4
Copper River	2	Glide	5.0	25.9
Copper River	2	Glide	6.5	33.7

Table 5. cont'd

Stream Name	Site	Habitat type	Length (m)	Wetted Area (m <sup>2</sup> )
Copper River	2	Pool	13.8	71.5
Deep Creek	1	Pool	30.0	337.4
Deep Creek	2	Pool	30.0	152.0
Ecstall River Trib.	1	Glide	14.8	100.6
Ecstall River Trib.	1	Pool	5.2	35.4
Ecstall River Trib.	1	Pool	10.0	68.0
Ecstall River Trib.	2	Pool	30.0	324.9
Elliot Creek Trib.	1	Glide	2.0	11.2
Elliot Creek Trib.	1	Pool	21.3	119.6
Elliot Creek Trib.	2	Glide	13.0	73.4
Elliot Creek Trib.	2	Pool	12.0	67.8
Emerson Creek	1	Pool	12.0	33.0
Gitnadoix River	1	Glide	9.4	33.3
Gitnadoix River	1	Riffle	20.6	72.9
Gosnell Creek	1	Pool	18.6	152.5
Gosnell Creek	2	Pool	25.0	120.5
Hadenschild Creek	1	Pool	30.0	56.4
Hankin Creek	1	Pool	10.5	48.5
Kathlyn Creek	1	Glide	17.5	101.2
Kathlyn Creek	1	Pool	7.5	43.4
Kathlyn Creek	1	Riffle	5.0	28.9
Kathlyn Creek	2	Pool	30.0	191.1
Lamprey Creek (L)	2	Glide	3.0	12.1
Lamprey Creek (L)	2	Pool	10.0	40.2
Lamprey Creek (L)	2	Riffle	7.0	28.2
Lamprey Creek (U)	1	Glide	22.0	147.8
Morrison River	1	Pool	49.0	490.0
Nichyeskwa River	1	Pool	19.5	95.1
Nichyeskwa River	2	Glide	20.0	89.1
Nilkitkwa River	1	Pool	8.0	49.7
Nilkitkwa River	1	Pool	15.8	98.1
Nilkitkwa River	1	Riffle	6.2	38.5
Nilkitkwa River	2	Glide	6.5	9.8
Nilkitkwa River	2	Pool	3.0	4.5

Table 5. cont'd

Stream Name	Site	Habitat type	Length (m)	Wetted Area (m <sup>2</sup> )
Nilkitkwa River	2	Pool	3.3	5.0
Nilkitkwa River	2	Pool	4.3	6.5
Nilkitkwa River	2	Pool	10.6	16.0
Nilkitkwa River	2	Riffle	1.4	2.1
Nilkitkwa River	2	Riffle	1.9	2.9
Nine Mile Creek	1	Glide	2.0	8.3
Nine Mile Creek	1	Glide	7.8	32.5
Nine Mile Creek	1	Pool	13.0	54.2
Nine Mile Creek	1	Pool	16.2	67.5
Nine Mile Creek	2	Glide	2.1	8.3
Nine Mile Creek	2	Glide	6.9	27.3
Nine Mile Creek	2	Pool	11.0	43.6
Schulbuckhand Creek	1	Pool	30.0	344.6
Schulbuckhand Creek	2	Pool	30.0	257.8
Scotia River	1	Pool	43.0	295.3
Scotia river	2	Pool	15.5	50.1
Shase Creek	1	Glide	13.0	73.8
Shase Creek	2	Glide	4.4	10.5
Shase Creek	2	Pool	7.6	18.1
Shea Creek (L)	2	Pool	21.0	113.4
Shea Creek (U)	1	Pool	20.6	75.5
Silvern Creek	1	Glide	5.6	25.1
Silvern Creek	1	Glide	10.0	44.8
Silvern Creek	1	Riffle	9.4	42.1
Sinclair River	1	Pool	50.0	200.0
Sinclair River	2	Pool	15.0	165.0
Singlehurst Creek	1	Glide	7.4	34.6
Singlehurst Creek	1	Pool	6.0	28.1
Singlehurst Creek	1	Pool	6.5	30.4
Singlehurst Creek	1	Pool	11.7	54.7
Singlehurst Creek	1	Riffle	3.8	17.8
Singlehurst Creek	1	Riffle	6.3	29.5
Singlehurst Creek	1	Riffle	8.3	38.8
Singlehurst Creek	2	Glide	14.3	71.5

Table 5. cont'd

Stream Name	Site	Habitat type	Length (m)	Wetted Area (m <sup>2</sup> )
Singlehurst Creek	2	Pool	2.2	11.0
Singlehurst Creek	2	Pool	3.5	17.5
Singlehurst Creek	2	Pool	7.7	38.5
Singlehurst Creek	2	Pool	14.4	72.0
Singlehurst Creek	2	Riffle	1.5	7.5
Singlehurst Creek	2	Riffle	2.4	12.0
Singlehurst Creek	3	Glide	6.5	28.8
Singlehurst Creek	3	Glide	7.1	31.4
Singlehurst Creek	3	Pool	3.7	16.4
Singlehurst Creek	3	Pool	4.7	20.8
Singlehurst Creek	3	Pool	9.8	43.4
Singlehurst Creek	3	Riffle	3.5	15.5
Singlehurst Creek	3	Riffle	3.9	17.3
Singlehurst Creek	3	Riffle	4.8	21.3
Singlehurst Creek	3	Riffle	6.0	26.6
Sockeye Creek (L)	1	Pool	8.0	148.3
Sockeye Creek (L)	1	Pool	17.0	315.0
Sockeye Creek (L)	1	Riffle	20.0	370.6
Sockeye Creek (U)	2	Pool	50.0	737.5
Tachek Creek	1	Pool	0.8	1.9
Tachek Creek	1	Pool	10.0	23.7
Tachek Creek	1	Riffle	7.0	16.6
Tachek Creek	2	Pool	7.9	37.1
Talow Creek	1	Pool	20.0	190.0
Telkwa River	1	Pool	70.0	700.0
Toboggan Creek	1	Glide	3.9	15.7
Toboggan Creek	1	Glide	13.5	54.3
Toboggan Creek	1	Pool	1.6	6.4
Toboggan Creek	2	Pool	4.4	15.3
Toboggan Creek	2	Pool	18.1	62.6
Toboggan Creek	3	Glide	34.3	337.1

Table 6. Average stream water temperature and conductivity.

Stream Name	Site	Temperature (°C)	Conductivity (µmhos)
Ailport Creek	1	11.0	167.0
Alastair Lake Trib.	1	8.0	24.0
Alwyn Creek	1	13.0	185.0
Alwyn Creek	2	13.0	178.0
Bear River	1	12.0	56.0
Bear river	2	13.0	69.0
Boucher Creek (L)	2	10.0	110.0
Boucher Creek (L)	1	10.0	111.0
Boucher Creek (U)	2	10.0	109.0
Boucher Creek (U)	1	10.0	113.0
Buck Ck.	2	11.0	144.5
Buck Ck.	1	11.0	143.5
Bulkley River	1	14.0	228.0
Byman Creek	1	12.0	225.0
Byman Creek	2	15.0	212.0
Clear Creek (U)	1	8.0	50.0
Clearwater Creek	2	11.0	152.0
Clearwater Creek	1	11.0	152.0
Coldwater Creek	3	10.0	15.0
Coldwater Creek (L)	2	11.5	22.0
Coldwater Creek (U)	1	12.0	22.0
Copper River	2	13.0	85.0
Copper River	1	13.0	85.0
Deep Creek	2	13.0	33.0
Deep Creek	1	13.0	31.0
Ecstall River Trib.	2	12.0	24.0
Ecstall River Trib.	1	11.0	22.0
Elliot Creek Trib.	2	5.0	72.0
Elliot Creek Trib.	1	9.0	90.0
Emerson Creek	1	10.0	99.0
Gitnadoix River	1	9.0	13.0
Gitnadoix River	2	12.0	19.0
Gosnell Creek	2	8.0	52.0



Table 6. cont'd

Stream Name	Site	Temperature (°C)	Conductivity (µmhos)
Gosnell Creek	1	7.0	74.0
Hadenschild Creek	1	11.5	30.0
Hankin Creek	1	9.0	95.0
Kathlyn Creek	1	16.0	45.0
Kathlyn Creek	2	17.0	44.0
Lamprey Creek (L)	2	9.0	92.0
Lamprey Creek (U)	1	9.0	95.0
Morrison River	1	10.0	59.0
Nichyeskwa River	2	7.0	33.0
Nichyeskwa River	1	7.0	34.0
Nilkitkwa River	1	12.0	27.0
Nilkitkwa River	2	8.0	28.0
Nine Mile Creek	1	10.0	114.0
Nine Mile Creek	2	10.0	111.0
Schulbuckhand Creek	2	10.0	66.0
Schulbuckhand Creek	1	10.5	68.0
Scotia river	2	12.0	19.0
Scotia River	1	12.0	19.0
Shase Creek	2	11.0	74.0
Shase Creek	1	11.0	74.0
Shea Creek (L)	2	7.0	42.0
Shea Creek (U)	1	7.0	42.0
Silvern Creek	1	10.0	35.0
Sinclair River	2	7.0	79.0
Sinclair River	1	7.0	79.0
Singlehurst Creek	2	11.0	86.0
Singlehurst Creek	3	10.5	100.0
Singlehurst Creek	1	10.0	111.0
Sockeye Creek (L)	1	11.0	96.0
Sockeye Creek (U)	2	11.0	96.0
Tachek Creek	2	9.0	167.0
Tachek Creek	1	9.0	167.0
Talow Creek	1	11.0	59.0

Table 6. cont'd

Stream Name	Site	Temperature (°C)	Conductivity (µmhos)
Telkwa River	1	8.0	46.0
Toboggan Creek	1	12.0	60.0
Toboggan Creek	3	9.0	56.0
Toboggan Creek	2	12.0	35.0

Table 7. Summary of sampling effort and total catches of coho and other species by lake site.

Lake Name	Date	# traps	set length(hr.)	Total coho	Total other species
McDonnel Lake <sup>1</sup>	18-Aug-00	20	6.25	130	8 cottus
Nilkitkwa Lake <sup>1</sup>	23-Aug-00	10	7.0	3	1 rainbow, 8 cottus, 5 red-sided shiner, 1 pikeminnow
Ecstall Lake <sup>1</sup>	26-Aug-00	15	8.0	23	2 cutthroat, 28 stickleback, 2 cottus

<sup>1</sup> Sampling conducted using Gee traps

Table 8. Mean length and weight of fish species by lake site.

Lake Name	Fish species	Mean Lt. (mm)	n Length	Mean Wt. (g)	n Weight
Ecstall Lake	coho	93.9	23	9.89	23
Ecstall Lake	cottus	124.0	2	22.80	2
Ecstall Lake	cutthroat	124.5	2	18.50	2
Ecstall Lake	stickleback	55.9	28	1.57	28
MacDonald Lake	coho	62.2	130	2.53	50
MacDonald Lake	cottus	66.9	8	-	-
Nilkitkwa Lake	coho	61.3	3	3.32	1
Nilkitkwa Lake	cottus	89.8	8	10.53	7
Nilkitkwa Lake	rainbow	110.0	1	15.64	1
Nilkitkwa Lake	red-sided shiner	71.6	5	4.97	2
Nilkitkwa Lake	pikeminnow	78.0	1	5.16	1

Table 9. Summary of total catches, by species, from stream sites.

Stream Name	Site	Fish species	Total catch
Ailport Creek	1	Rainbow	218
Alastair Lake Trib.	1	Coho	199
Alwyn Creek	1	Coho	114
Alwyn Creek	2	Coho	468
Alwyn Creek	1	Cutthroat	52
Alwyn Creek	2	Cutthroat	12
Alwyn Creek	1	Rainbow	4
Alwyn Creek	2	Sockeye	28
Alwyn Creek	2	Stickleback	34
Bear River	1	Red-sided Shiner	1
Bear River	1	Sockeye	129
Bear River	1	Whitefish	1
Boucher Creek (L)	1	Coho	53
Boucher Creek (L)	2	Coho	46
Boucher Creek (L)	1	Rainbow	35
Boucher Creek (L)	2	Rainbow	21
Boucher Creek (L)	1	Sockeye	3
Boucher Creek (U)	1	Coho	61
Boucher Creek (U)	2	Coho	33
Boucher Creek (U)	2	Lamprey	0
Boucher Creek (U)	1	Rainbow	54
Boucher Creek (U)	2	Rainbow	105
Boucher Creek (U)	1	Whitefish	2
Boucher Creek (U)	2	Whitefish	1
Buck Ck.	1	Chinook	61
Buck Ck.	2	Chinook	7
Buck Ck.	1	Coho	37
Buck Ck.	2	Coho	76
Buck Ck.	1	Cutthroat	7
Buck Ck.	2	Cutthroat	62
Buck Ck.	1	Rainbow	125
Buck Ck.	2	Rainbow	74
Buck Ck.	2	Sucker	12
Buck Ck.	1	Trout sp.	1

Table 9. cont'd

Stream Name	Site	Fish species	Total catch
Buck Ck.	1	Whitefish	17
Bulkley River	1	Coho	2
Bulkley River	1	Rainbow	1
Byman Creek	2	Chinook	13
Byman Creek	1	Coho	42
Byman Creek	2	Coho	81
Byman Creek	1	Cutthroat	4
Byman Creek	2	Cutthroat	103
Byman Creek	2	Lake Chub	1
Byman Creek	1	Rainbow	59
Byman Creek	2	Rainbow	25
Byman Creek	1	Sucker	1
Byman Creek	2	Sucker	1
Byman Creek	1	Trout sp.	1
Byman Creek	2	Trout sp.	2
Byman Creek	2	Whitefish	14
Clear Creek (U)	1	Coho	71
Clear Creek (U)	1	Dolly Varden	7
Clearwater Creek	1	Coho	38
Clearwater Creek	2	Coho	244
Clearwater Creek	1	cottus	3
Clearwater Creek	2	cottus	4
Clearwater Creek	1	Cutthroat	39
Clearwater Creek	2	Cutthroat	23
Clearwater Creek	2	Dolly Varden	1
Coldwater Creek	3	Coho	8
Coldwater Creek	3	Dolly Varden	6
Coldwater Creek (L)	2	Coho	150
Coldwater Creek (L)	2	Cutthroat	58
Coldwater Creek (L)	2	Dolly Varden	4
Coldwater Creek (L)	2	Rainbow	4
Coldwater Creek (U)	1	Coho	135
Coldwater Creek (U)	1	Cutthroat	33
Coldwater Creek (U)	1	Dolly Varden	1

Table 9. cont'd

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Stream Name	Site	Fish species	Total catch
Copper River	1	Coho	194
Copper River	2	Coho	179
Copper River	2	Cottus	3
Copper River	1	Cutthroat	1
Copper River	2	Whitefish	1
Deep Creek	1	Coho	78
Deep Creek	2	Coho	132
Deep Creek	1	cottus	1
Deep Creek	2	cottus	1
Deep Creek	1	Cutthroat	14
Deep Creek	2	Cutthroat	6
Deep Creek	1	Dolly Varden	1
Deep Creek	1	Mountain whitefish	4
Deep Creek	1	Rainbow	9
Deep Creek	2	Stickleback	6
Ecstall River Trib.	1	Coho	72
Ecstall River Trib.	2	Coho	283
Ecstall River Trib.	1	Stickleback	1
Elliot Creek Trib.	1	Coho	211
Elliot Creek Trib.	2	Coho	296
Elliot Creek Trib.	1	Dolly Varden	3
Elliot Creek Trib.	2	Dolly Varden	3
Emerson Creek	1	Coho	33
Emerson Creek	1	Rainbow	40
Gitnadoix River	1	Coho	90
Gitnadoix River	2	Coho	54
Gitnadoix River	2	Stickleback	1
Gosnell Creek	1	Coho	123
Gosnell Creek	2	Coho	194
Gosnell Creek	2	Cutthroat	2
Gosnell Creek	1	Dolly Varden	4
Gosnell Creek	2	Dolly Varden	5
Gosnell Creek	1	Rainbow	4
Gosnell Creek	2	Rainbow	15

Table 9. cont'd

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Stream Name	Site	Fish species	Total catch
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Gosnell Creek	1	Whitefish	1
Hadenschild Creek	1	Coho	123
Hadenschild Creek	1	Stickleback	20
Hankin Creek	1	Coho	5
Hankin Creek	1	Cottus	2
Hankin Creek	1	Dolly Varden	1
Hankin Creek	1	Rainbow	22
Kathlyn Creek	1	Coho	1
Kathlyn Creek	2	Coho	24
Kathlyn Creek	2	Cutthroat	1
Kathlyn Creek	1	Pikeminnow	2
Kathlyn Creek	2	Pikeminnow	20
Kathlyn Creek	1	Rainbow	35
Kathlyn Creek	2	Rainbow	29
Lamprey Creek (L)	2	Burbot	2
Lamprey Creek (L)	2	Chinook	5
Lamprey Creek (L)	2	Coho	19
Lamprey Creek (L)	2	Cottus	7
Lamprey Creek (L)	2	Dolly Varden	1
Lamprey Creek (L)	2	Kokanee	2
Lamprey Creek (L)	2	Rainbow	3
Lamprey Creek (U)	1	Chinook	3
Lamprey Creek (U)	1	Coho	9
Lamprey Creek (U)	1	Cottus	18
Lamprey Creek (U)	1	Dolly Varden	2
Lamprey Creek (U)	1	Kokanee	2
Lamprey Creek (U)	1	Rainbow	8
Morrison River	1	Coho	10
Morrison River	1	Pikeminnow	13
Morrison River	1	Rainbow	0
Morrison River	1	Shiner	13
Morrison River	1	Sucker	4
Nichyeskwa River	1	Coho	68
Nichyeskwa River	2	Coho	21

Table 9. cont'd

Stream Name	Site	Fish species	Total catch
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Nichyeskwa River	2	Cutthroat	18
Nichyeskwa River	2	Rainbow	1
Nilkitkwa River	1	Coho	493
Nilkitkwa River	2	Coho	85
Nilkitkwa River	2	Dolly Varden	3
Nilkitkwa River	1	Lake Chub	7
Nilkitkwa River	1	Rainbow	1
Nine Mile Creek	1	Coho	77
Nine Mile Creek	2	Coho	49
Nine Mile Creek	1	Cottus	26
Nine Mile Creek	2	Cottus	9
Nine Mile Creek	2	Lamprey	0
Nine Mile Creek	1	Rainbow	3
Nine Mile Creek	2	Sucker	1
Schulbuckhand Creek	1	Coho	474
Schulbuckhand Creek	2	Coho	438
Schulbuckhand Creek	1	Cutthroat	29
Schulbuckhand Creek	2	Cutthroat	8
Schulbuckhand Creek	1	Dolly Varden	12
Schulbuckhand Creek	2	Dolly Varden	3
Scotia River	1	Coho	258
Scotia river	2	Coho	68
Scotia river	2	Cottus	1
Scotia River	1	Rainbow	3
Shase Creek	2	Coho	2
Shase Creek	2	Lake Chub	30
Shase Creek	1	Rainbow	57
Shase Creek	2	Rainbow	69
Shase Creek	1	Whitefish	1
Shase Creek	2	Whitefish	1
Shea Creek (L)	2	Coho	116
Shea Creek (L)	2	Cutthroat	3
Shea Creek (L)	2	Rainbow	3
Shea Creek (U)	1	Coho	149

Table 9. cont'd

Stream Name	Site	Fish species	Total catch
Shea Creek (U)	1	Dolly Varden	2

Shea Creek (U)	1	Rainbow	11
Silvern Creek	1	Coho	2
Silvern Creek	1	Dolly Varden	19
Silvern Creek	1	Rainbow	1
Sinclair River	1	Coho	1
Sinclair River	2	Coho	103
Singlehurst Creek	1	Coho	31
Singlehurst Creek	2	Coho	56
Singlehurst Creek	3	Coho	31
Singlehurst Creek	1	Cutthroat	18
Singlehurst Creek	2	Cutthroat	13
Singlehurst Creek	3	Cutthroat	12
Singlehurst Creek	1	Dolly Varden	34
Singlehurst Creek	2	Dolly Varden	24
Singlehurst Creek	3	Dolly Varden	32
Sockeye Creek (L)	1	Coho	95
Sockeye Creek (L)	1	Cottus	7
Sockeye Creek (L)	1	Cutthroat	5
Sockeye Creek (U)	2	Coho	240
Sockeye Creek (U)	2	Cottus	23
Tachek Creek	1	Coho	23
Tachek Creek	2	Coho	27
Tachek Creek	2	Cottus	2
Tachek Creek	1	Kokanee	0
Tachek Creek	2	Kokanee	0
Tachek Creek	1	Rainbow	44
Tachek Creek	2	Rainbow	55
Tachek Creek	2	Sockeye	0
Talow Creek	1	Coho	7
Talow Creek	1	Lake Chub	2
Talow Creek	1	Pikeminnow	25
Talow Creek	1	Sucker	3
Telkwa River	1	Coho	12
Table 9. cont'd			
Stream Name	Site	Fish species	Total catch
Telkwa River	1	Dolly Varden	2
Toboggan Creek	1	Chinook	3

Toboggan Creek	2	Chinook	62
Toboggan Creek	3	Chinook	9
Toboggan Creek	1	Coho	69
Toboggan Creek	2	Coho	144
Toboggan Creek	3	Coho	90
Toboggan Creek	1	Dolly Varden	5
Toboggan Creek	3	Lamprey	1
Toboggan Creek	1	Rainbow	9
Toboggan Creek	2	Rainbow	5
Toboggan Creek	3	Rainbow	69
Toboggan Creek	2	Whitefish	11
Toboggan Creek	3	Whitefish	6

Table 10. Summary of catches and sampling effort for sites where semi-quantitative sampling was performed.

Stream Name	Site	Sampling gear	Sampling effort	Fish species	Total catch
Bulkley River	1	Gee traps	5 hours	Coho	2
Bulkley River	1	Gee traps	5 hours	Rainbow	1
Clearwater Creek	1	PS <sup>1</sup>	31 m	Coho	38
Clearwater Creek	1	PS	31 m	cottus sp.	3
Clearwater Creek	1	PS	31 m	Cutthroat	39
Coldwater Creek	3	Gee traps	7.5 hrs 20 traps	Coho	8
Coldwater Creek	3	Gee traps	7.5 hrs 20 traps	Dolly Varden	6
Gitnadoix River	2	Gee traps	7 hrs 20 traps	Coho	54
Gitnadoix River	2	Gee traps	7 hrs 20 traps	Stickleback	1
Kathlyn Creek	1	PS	60m	Coho	1
Kathlyn Creek	1	PS	60m	Pikeminnow	2
Kathlyn Creek	1	PS	60m	Rainbow	35
Lamprey Creek (L)	2	EL <sup>2</sup> BS <sup>3</sup>	10.05 min	Burbot	2
Lamprey Creek (L)	2	EL\BS	10.05 min	Chinook	5
Lamprey Creek (L)	2	EL\BS	10.05 min	Coho	19
Lamprey Creek (L)	2	EL\BS	10.05 min	Cottus	7
Lamprey Creek (L)	2	EL\BS	10.05 min	Dolly Varden	1
Lamprey Creek (L)	2	EL\BS	10.05 min	Kokanee	2
Lamprey Creek (L)	2	EL\BS	10.05 min	Rainbow	3
Morrison River	1	BS	49m	Coho	10
Morrison River	1	BS	49m	Pikeminnow	13
Morrison River	1	BS	49m	Rainbow	0
Morrison River	1	BS	49m	Shiner	13
Morrison River	1	BS	49m	Sucker	4

Table 10 cont'd

Stream Name	Site	Sampling	Sampling effort	Fish species	Total catch
Silvern Creek	1	PS/BS	40m	Coho	2
Silvern Creek	1	PS/BS	40m	Dolly Varden	19
Silvern Creek	1	PS/BS	40m	Rainbow	1
Sockeye Creek (L)	1	Gee traps	7 hrs 20 traps	Coho	95
Sockeye Creek (L)	1	Gee traps	7 hrs 20 traps	cottus sp.	7
Sockeye Creek (L)	1	Gee traps	7 hrs 20 traps	Cutthroat	5
Sockeye Creek (U)	2	Gee traps	6 hrs 19 traps	Coho	240
Sockeye Creek (U)	2	Gee traps	6 hrs 19 traps	cottus sp.	23
Talow Creek	1	PS/BS	30 m	Coho	7
Talow Creek	1	PS/BS	30 m	Lake Chub	2
Talow Creek	1	PS/BS	30 m	Pikeminnow	25
Talow Creek	1	PS/BS	30 m	Sucker	3
Telkwa River	1	Gee Traps	7 hours/ 20 traps	Coho	12
Telkwa River	1	Gee Traps	7 hours/ 20 traps	Dolly Varden	2

PS = pole seine EL = electroshocker BS = beach seine

Table 11. Mean length and weight of fish species by stream site.

Stream Name	Site	Fish species	Mean Lt. (mm)	n Length	Mean Wt. (g)	n Weight
Ailport Creek	1	Rainbow	43.5	218	0.96	50
Alastair Lake Trib.	1	Coho	42.8	100	0.84	30
Alwyn Creek	1	Coho	55.0	98	2.26	30
Alwyn Creek	1	Cutthroat	73.9	27	7.91	27
Alwyn Creek	1	Rainbow	71.3	3	5.97	3
Alwyn Creek	2	Coho	51.7	100	1.86	30
Alwyn Creek	2	Cutthroat	53.3	7	1.91	7
Alwyn Creek	2	Sockeye	55.1	14	1.39	14
Alwyn Creek	2	Stickleback	40.0	9	0.91	9
Bear River	1	Red-sided Shiner	78.0	1	6.07	1
Bear River	1	Sockeye	59.5	129	2.07	34
Bear River	1	Whitefish	50.0	1	-	-
Boucher Creek (L)	1	Coho	60.7	53	2.52	52
Boucher Creek (L)	1	Rainbow	48.2	35	3.25	35
Boucher Creek (L)	1	Sockeye	64.0	3	2.29	3
Boucher Creek (L)	2	Coho	53.8	46	1.82	46
Boucher Creek (L)	2	Rainbow	37.9	21	0.61	21
Boucher Creek (U)	1	Coho	60.9	61	2.58	61
Boucher Creek (U)	1	Rainbow	43.7	54	1.39	54
Boucher Creek (U)	1	Whitefish	76.0	2	4.15	2
Boucher Creek (U)	2	Coho	65.7	33	3.44	32
Boucher Creek (U)	2	Rainbow	40.2	105	1.04	105
Boucher Creek (U)	2	Whitefish	55.0	1	1.50	1
Buck Ck.	1	Chinook	66.0	61	3.40	43
Buck Ck.	1	Coho	66.0	37	3.30	32
Buck Ck.	1	Cutthroat	48.4	7	1.56	7
Buck Ck.	1	Rainbow	53.2	125	2.33	91
Buck Ck.	1	Trout sp.	33.0	1	0.37	1
Buck Ck.	1	Whitefish	76.5	17	4.07	17
Buck Ck.	2	Chinook	68.4	7	3.76	4
Buck Ck.	2	Coho	66.7	76	3.82	42
Buck Ck.	2	Cutthroat	47.1	62	1.20	35
Buck Ck.	2	Rainbow	79.4	74	7.35	39

Table 11. cont'd

Stream Name	Site	Fish species	Mean Lt. (mm)	n Length	Mean Wt. (g)	n Weight
Buck Ck.	2	Sucker	70.1	12	4.29	12
Bulkley River	1	Coho	66.0	2	3.60	2
Bulkley River	1	Rainbow	90.0	1	7.59	1
Byman Creek	1	Coho	56.5	42	2.18	41
Byman Creek	1	Cutthroat	38.8	4	0.69	4
Byman Creek	1	Rainbow	68.6	59	5.97	57
Byman Creek	1	Sucker	68.0	1	3.12	1
Byman Creek	1	Trout sp.	35.0	1	0.49	1
Byman Creek	2	Chinook	60.4	13	2.53	13
Byman Creek	2	Coho	57.9	81	2.08	39
Byman Creek	2	Cutthroat	38.8	103	0.67	53
Byman Creek	2	Lake Chub	77.0	1	4.89	1
Byman Creek	2	Rainbow	56.8	25	2.60	19
Byman Creek	2	Sucker	88.0	1	4.90	1
Byman Creek	2	Trout sp.	31.0	2	0.24	2
Byman Creek	2	Whitefish	66.6	14	2.91	13
Clear Creek (U)	1	Coho	49.8	71	1.42	30
Clear Creek (U)	1	Dolly Varden	44.1	7	-	-
Clearwater Creek	1	Coho	57.9	38	2.63	30
Clearwater Creek	1	cottus	84.0	2	6.65	2
Clearwater Creek	1	Cutthroat	65.3	28	4.50	28
Clearwater Creek	2	Coho	59.8	100	3.15	30
Clearwater Creek	2	cottus	99.8	4	16.48	4
Clearwater Creek	2	Cutthroat	98.6	23	16.83	23
Clearwater Creek	2	Dolly Varden	104.0	1	15.90	1
Coldwater Creek	3	Coho	53.5	8	1.95	8
Coldwater Creek	3	Dolly Varden	104.5	6	12.80	6
Coldwater Creek (L)	2	Coho	54.6	100	1.65	30
Coldwater Creek (L)	2	Cutthroat	41.0	26	1.14	26
Coldwater Creek (L)	2	Dolly Varden	83.5	2	5.65	2
Coldwater Creek (L)	2	Rainbow	89.5	2	8.25	2
Coldwater Creek (U)	1	Coho	57.7	99	2.41	30
Coldwater Creek (U)	1	Cutthroat	56.6	30	3.29	30
Coldwater Creek (U)	1	Dolly Varden	81.0	1	5.60	1

Table 11. cont'd

Stream Name	Site	Fish species	Mean Lt. (mm)	n Length	Mean Wt. (g)	n Weight
Copper River	1	Coho	44.3	194	0.91	51
Copper River	1	Cutthroat	124.0	1	16.97	1
Copper River	2	Coho	53.5	179	2.56	70
Copper River	2	Cottus	62.3	3	2.44	2
Copper River	2	Whitefish	113.0	1	-	-
Deep Creek	1	Coho	52.1	78	1.82	30
Deep Creek	1	cottus	92.0	1	11.20	1
Deep Creek	1	Cutthroat	40.4	14	1.16	14
Deep Creek	1	Dolly Varden	41.0	1	0.60	1
Deep Creek	1	Mountain whitefish	201.0	4	89.35	4
Deep Creek	1	Rainbow	70.0	9	5.14	9
Deep Creek	2	Coho	51.2	100	1.79	30
Deep Creek	2	cottus	109.0	1	16.00	1
Deep Creek	2	Cutthroat	43.3	6	0.92	6
Deep Creek	2	Stickleback	84.0	6	7.95	6
Ecstall River Trib.	1	Coho	45.2	72	0.84	30
Ecstall River Trib.	1	Stickleback	65.0	1	2.30	1
Ecstall River Trib.	2	Coho	45.3	100	1.65	30
Elliot Creek Trib.	1	Coho	40.2	211	0.71	41
Elliot Creek Trib.	1	Dolly Varden	107.7	3	13.56	3
Elliot Creek Trib.	2	Coho	49.1	296	1.38	84
Elliot Creek Trib.	2	Dolly Varden	68.7	3	3.74	3
Emerson Creek	1	Coho	59.5	33	2.66	33
Emerson Creek	1	Rainbow	44.8	40	1.38	39
Gitnadoix River	1	Coho	45.8	90	1.01	30
Gitnadoix River	2	Coho	46.3	54	1.03	30
Gitnadoix River	2	Stickleback	45.0	1	-	-
Gosnell Creek	1	Coho	60.0	123	2.97	83
Gosnell Creek	1	Dolly Varden	51.0	4	1.62	4
Gosnell Creek	1	Rainbow	70.5	4	6.28	3
Gosnell Creek	1	Whitefish	37.0	1	0.85	1
Gosnell Creek	2	Coho	53.0	194	2.39	41
Gosnell Creek	2	Cutthroat	32.5	2	0.37	2
Gosnell Creek	2	Dolly Varden	45.6	5	1.49	4

Table 11. cont'd



Stream Name	Site	Fish species	Mean Lt. (mm)	n Length	Mean Wt. (g)	n Weight
Gosnell Creek	2	Rainbow	47.4	15	1.19	13
Hadenschild Creek	1	Coho	47.3	100	1.22	30
Hadenschild Creek	1	Stickleback	48.8	20	1.42	20
Hankin Creek	1	Coho	95.6	5	9.54	5
Hankin Creek	1	Cottus	97.5	2	16.36	2
Hankin Creek	1	Dolly Varden	113.0	1	13.88	1
Hankin Creek	1	Rainbow	86.5	22	13.83	21
Kathlyn Creek	1	Coho	66.0	1	3.60	1
Kathlyn Creek	1	Pikeminnow	49.0	2	1.15	2
Kathlyn Creek	1	Rainbow	58.0	35	3.70	35
Kathlyn Creek	2	Coho	65.2	24	3.57	24
Kathlyn Creek	2	Cutthroat	171.0	1	46.30	1
Kathlyn Creek	2	Pikeminnow	46.2	20	1.39	20
Kathlyn Creek	2	Rainbow	63.3	29	5.36	29
Lamprey Creek (L)	2	Burbot	173.0	2	36.79	2
Lamprey Creek (L)	2	Chinook	64.6	5	3.64	5
Lamprey Creek (L)	2	Coho	54.7	19	2.30	17
Lamprey Creek (L)	2	Cottus	54.0	7	2.43	7
Lamprey Creek (L)	2	Dolly Varden	102.0	1	12.25	1
Lamprey Creek (L)	2	Kokanee	236.5	2	-	-
Lamprey Creek (L)	2	Rainbow	57.0	3	4.71	2
Lamprey Creek (U)	1	Chinook	73.7	3	4.95	3
Lamprey Creek (U)	1	Coho	51.3	9	1.69	9
Lamprey Creek (U)	1	Cottus	55.8	18	2.75	18
Lamprey Creek (U)	1	Dolly Varden	41.0	2	0.58	2
Lamprey Creek (U)	1	Kokanee	251.0	2	-	-
Lamprey Creek (U)	1	Rainbow	123.3	8	10.75	7
Morrison River	1	Coho	71.5	10	4.22	10
Morrison River	1	Pikeminnow	41.1	13	0.96	13
Morrison River	1	Shiner	50.6	13	2.16	13
Morrison River	1	Sucker	60.3	4	3.24	4
Nichyeskwa River	1	Coho	54.5	68	2.30	66
Nichyeskwa River	2	Coho	44.7	21	0.92	21
Nichyeskwa River	2	Cutthroat	36.9	18	0.57	18

Table 11. cont'd

Stream Name	Site	Fish species	Mean Lt. (mm)	n Length	Mean Wt. (g)	n Weight
Nichyeskwa River	2	Rainbow	56.0	1	1.77	1
Nilkitkwa River	1	Coho	39.6	493	0.80	54
Nilkitkwa River	1	Lake Chub	36.9	7	-	-
Nilkitkwa River	1	Rainbow	67.0	1	-	-
Nilkitkwa River	2	Coho	37.1	85	0.55	84
Nilkitkwa River	2	Dolly Varden	46.0	3	1.03	3
Nine Mile Creek	1	Coho	56.6	77	2.03	77
Nine Mile Creek	1	Cottus	50.2	26	1.47	26
Nine Mile Creek	1	Rainbow	43.7	3	0.80	3
Nine Mile Creek	2	Coho	55.6	49	2.14	49
Nine Mile Creek	2	Cottus	58.8	9	2.47	8
Nine Mile Creek	2	Sucker	91.0	1	-	-
Schulbuckhand Creek	1	Coho	55.6	100	3.93	30
Schulbuckhand Creek	1	Cutthroat	110.1	22	14.70	22
Schulbuckhand Creek	1	Dolly Varden	145.6	8	35.51	8
Schulbuckhand Creek	2	Coho	51.7	100	1.81	30
Schulbuckhand Creek	2	Cutthroat	85.0	8	6.75	8
Schulbuckhand Creek	2	Dolly Varden	58.3	3	2.43	3
Scotia River	1	Coho	45.5	100	1.00	30
Scotia River	1	Rainbow	53.3	3	2.40	3
Scotia river	2	Coho	49.5	68	1.51	30
Scotia river	2	Cottus	60.0	1	1.60	1
Shase Creek	1	Rainbow	43.5	57	1.13	56
Shase Creek	1	Whitefish	68.0	1	2.85	1
Shase Creek	2	Coho	90.5	2	9.16	2
Shase Creek	2	Lake Chub	61.8	30	3.13	30
Shase Creek	2	Rainbow	49.6	69	2.38	67
Shase Creek	2	Whitefish	58.0	1	1.80	1
Shea Creek (L)	2	Coho	67.4	116	3.60	85
Shea Creek (L)	2	Cutthroat	82.3	3	6.43	3
Shea Creek (L)	2	Rainbow	63.7	3	2.81	3
Shea Creek (U)	1	Coho	55.7	149	2.10	99
Shea Creek (U)	1	Dolly Varden	70.5	2	3.48	2
Shea Creek (U)	1	Rainbow	62.2	11	2.79	11

Table 11. cont'd

Stream Name	Site	Fish species	Mean Lt. (mm)	n Length	Mean Wt. (g)	n Weight
Silvern Creek	1	Coho	43.5	2	0.97	2
Silvern Creek	1	Dolly Varden	53.6	19	2.62	19
Silvern Creek	1	Rainbow	66.0	1	3.84	1
Sinclair River	1	Coho	35.0	1	-	-
Sinclair River	2	Coho	44.3	103	1.38	36
Singlehurst Creek	1	Coho	56.2	31	3.14	31
Singlehurst Creek	1	Cutthroat	97.9	18	19.46	18
Singlehurst Creek	1	Dolly Varden	100.4	29	17.56	29
Singlehurst Creek	2	Coho	47.3	56	2.13	30
Singlehurst Creek	2	Cutthroat	71.8	9	8.09	9
Singlehurst Creek	2	Dolly Varden	62.3	22	3.30	22
Singlehurst Creek	3	Coho	49.7	31	1.78	30
Singlehurst Creek	3	Cutthroat	64.3	12	6.13	12
Singlehurst Creek	3	Dolly Varden	70.1	28	7.92	28
Sockeye Creek (L)	1	Coho	62.2	95	2.82	30
Sockeye Creek (L)	1	Cottus	100.1	7	15.14	7
Sockeye Creek (L)	1	Cutthroat	123.8	5	20.02	5
Sockeye Creek (U)	2	Coho	60.2	100	2.40	30
Sockeye Creek (U)	2	Cottus	91.3	23	9.49	23
Tachek Creek	1	Coho	75.0	23	5.12	22
Tachek Creek	1	Rainbow	44.2	44	1.21	43
Tachek Creek	2	Coho	73.8	27	4.95	26
Tachek Creek	2	Cottus	104.5	2	19.77	2
Tachek Creek	2	Rainbow	46.2	55	1.30	55
Talow Creek	1	Coho	66.7	7	3.36	7
Talow Creek	1	Lake Chub	39.0	2	1.13	2
Talow Creek	1	Pikeminnow	39.8	25	1.10	25
Talow Creek	1	Sucker	39.3	3	0.84	3
Telkwa River	1	Coho	71.0	12	5.69	10
Telkwa River	1	Dolly Varden	83.0	2	7.08	2
Toboggan Creek	1	Chinook	54.3	3	2.74	3
Toboggan Creek	1	Coho	49.8	69	1.46	69
Toboggan Creek	1	Dolly Varden	64.6	5	3.63	5
Toboggan Creek	1	Rainbow	61.8	9	8.23	9

Table 11. cont'd

Stream Name	Site	Fish species	Mean Lt. (mm)	n Length	Mean Wt. (g)	n Weight
Toboggan Creek	2	Chinook	46.5	62	1.18	22
Toboggan Creek	2	Coho	47.0	144	1.22	40
Toboggan Creek	2	Rainbow	67.4	5	24.08	2
Toboggan Creek	2	Whitefish	73.7	11	1.45	9
Toboggan Creek	3	Chinook	56.3	9	1.82	7
Toboggan Creek	3	Coho	48.0	90	1.17	52
Toboggan Creek	3	Lamprey	100.0	1	-	-
Toboggan Creek	3	Rainbow	47.4	69	3.77	36
Toboggan Creek	3	Whitefish	60.5	6	2.05	5

Table 12. Weight on fork length regressions ( $\text{Log}_{(10)} \text{weight} = b(\text{Log}_{(10)} \text{length}) + a$ ), by stream site and species, for  $n \geq 15$ .

Stream Name	Site	Species	a	b	r <sup>2</sup>	n
Ailport Creek	1	Rainbow	-5.22	3.15	0.90	48
Alastair Lake Trib.	1	Coho	-4.22	2.55	0.50	25
Alwyn Creek	2	Coho	-5.24	3.15	0.98	30
Alwyn Creek	1	Coho	-4.75	2.89	0.98	28
Alwyn Creek	1	Cutthroat	-4.84	2.92	1.00	26
Bear River	1	Sockeye	-5.03	2.99	0.76	34
Boucher Creek (L)	1	Coho	-5.29	3.18	0.92	51
Boucher Creek (L)	2	Coho	-4.69	2.84	0.94	46
Boucher Creek (L)	1	Rainbow	-4.94	2.97	0.99	34
Boucher Creek (L)	2	Rainbow	-4.89	2.96	0.93	20
Boucher Creek (U)	1	Coho	-4.50	2.75	0.87	58
Boucher Creek (U)	2	Coho	-5.46	3.27	0.98	32
Boucher Creek (U)	1	Rainbow	-4.48	2.70	0.88	50
Boucher Creek (U)	2	Rainbow	-0.94	0.47	0.06	85
Buck Ck.	1	Chinook	-2.63	1.73	0.37	42
Buck Ck.	2	Coho	-4.52	2.78	0.94	42
Buck Ck.	1	Coho	-5.25	3.16	0.80	31
Buck Ck.	1	Rainbow	-4.78	2.91	0.86	86
Buck Ck.	2	Rainbow	-4.58	2.81	0.98	39
Buck Ck.	1	Whitefish	-4.24	2.57	0.88	17
Byman Creek	1	Coho	-4.71	2.86	0.83	41
Byman Creek	2	Coho	-4.54	2.77	0.62	39
Byman Creek	2	Cutthroat	-4.75	2.87	0.71	50
Byman Creek	1	Rainbow	-4.74	2.88	0.98	56
Byman Creek	2	Rainbow	-4.81	2.93	0.99	19
Clear Creek (U)	1	Coho	-5.12	3.08	0.93	27
Clearwater Creek	2	Coho	-5.08	3.08	0.98	30
Clearwater Creek	1	Coho	-4.47	2.75	0.95	28
Clearwater Creek	1	Cutthroat	-4.94	2.98	0.99	28
Clearwater Creek	2	Cutthroat	-4.90	2.96	1.00	22
Coldwater Creek (L)	2	Coho	-4.82	2.89	0.89	28
Coldwater Creek (L)	2	Cutthroat	-4.82	2.90	0.95	21
Coldwater Creek (U)	1	Coho	-5.11	3.07	0.99	25

Table 12. cont'd

Stream Name	Site	Species	a	b	r <sup>2</sup>	n
Coldwater Creek (U)	1	Cutthroat	-4.55	2.76	0.98	27
Copper River	1	Coho	-5.74	3.46	0.84	51
Copper River	2	Coho	-5.10	3.06	0.98	70
Deep Creek	2	Coho	-5.30	3.20	0.95	27
Deep Creek	1	Coho	-4.79	2.92	0.96	26
Ecstall River Trib.	2	Coho	-5.15	3.12	0.98	19
Ecstall River Trib.	1	Coho	-5.42	3.26	0.92	24
Elliot Creek Trib.	1	Coho	-4.72	2.83	0.83	40
Elliot Creek Trib.	2	Coho	-4.87	2.95	0.93	82
Emerson Creek	1	Coho	-5.19	3.14	0.97	33
Emerson Creek	1	Rainbow	-4.98	3.00	0.92	37
Gitnadoix River	2	Coho	-4.66	2.80	0.70	23
Gitnadoix River	1	Coho	-5.55	3.35	0.92	24
Gosnell Creek	1	Coho	-5.01	3.03	0.93	80
Gosnell Creek	2	Coho	-4.99	3.01	0.99	40
Hadenschield Creek	1	Coho	-5.03	3.04	0.90	28
Hankin Creek	1	Rainbow	-4.70	2.86	0.99	21
Kathlyn Creek	2	Coho	-3.98	2.49	0.72	23
Kathlyn Creek	2	Rainbow	-4.31	2.68	0.93	29
Kathlyn Creek	1	Rainbow	-5.09	3.07	0.92	33
Kathlyn Creek	2	Pikeminnow	-4.21	2.59	0.82	19
Lamprey Creek (L)	2	Coho	-5.11	3.12	0.97	17
Nichyeskwa River	1	Coho	-5.03	3.03	0.94	62
Nichyeskwa River	2	Coho	-4.47	2.68	0.92	20
Nichyeskwa River	2	Cutthroat	-4.68	2.78	0.81	17
Nilkitkwa River	1	Coho	-5.41	3.25	0.91	51
Nilkitkwa River	2	Coho	-4.38	2.61	0.68	75
Nine Mile Creek	2	Coho	-4.91	2.97	0.94	49
Nine Mile Creek	1	Coho	-5.39	3.24	0.96	77
Schulbuckhand Creek	2	Coho	-4.53	2.76	0.93	29
Schulbuckhand Creek	1	Coho	-4.60	2.81	0.98	30
Schulbuckhand Creek	1	Cutthroat	-4.86	2.92	0.97	22
Scotia River	1	Coho	-4.84	2.94	0.92	25
Scotia river	2	Coho	-5.04	3.04	0.96	25

Table 12. cont'd

Stream Name	Site	Species	a	b	r <sup>2</sup>	n
Shase Creek	2	Lake Chub	-5.21	3.15	0.97	28
Shase Creek	1	Rainbow	-5.01	3.02	0.91	56
Shase Creek	2	Rainbow	-4.75	2.89	0.92	66
Shea Creek (L)	2	Coho	-4.71	2.86	0.95	83
Shea Creek (U)	1	Coho	-4.84	2.92	0.98	94
Silvern Creek	1	Dolly Varden	-4.77	2.85	0.97	19
Sinclair River	2	Coho	-4.90	2.95	0.97	34
Singlehurst Creek	3	Coho	-5.09	3.11	0.96	25
Singlehurst Creek	1	Coho	-4.85	2.99	0.98	31
Singlehurst Creek	2	Coho	-4.60	2.83	0.96	30
Singlehurst Creek	1	Cutthroat	-5.15	3.09	1.00	18
Singlehurst Creek	3	Dolly Varden	-4.91	2.98	0.99	28
Singlehurst Creek	1	Dolly Varden	-4.72	2.90	0.99	29
Singlehurst Creek	2	Dolly Varden	-4.78	2.90	0.98	22
Sockeye Creek (L)	1	Coho	-5.17	3.12	0.95	29
Sockeye Creek (U)	2	Coho	-4.64	2.81	0.95	27
Tachek Creek	2	Coho	-4.51	2.78	0.95	26
Tachek Creek	1	Coho	-4.88	2.98	0.84	22
Tachek Creek	2	Rainbow	-4.80	2.88	0.95	50
Tachek Creek	1	Rainbow	-5.03	3.02	0.97	41
Talow Creek	1	Pikeminnow	-4.91	2.98	0.96	24
Toboggan Creek	2	Chinook	-3.58	2.11	0.47	21
Toboggan Creek	3	Coho	-4.44	2.69	0.88	52
Toboggan Creek	2	Coho	-4.79	2.91	0.93	39
Toboggan Creek	1	Coho	-4.52	2.75	0.86	67
Toboggan Creek	3	Rainbow	-5.04	3.03	0.97	36

Table 13. Estimates of population size from removal-depletion passes (P1..P3), by stream site and species, using Zippin's maximum likelihood model for three removals. The goodness-of-fit statistic  $T_1$  indicates the stability of  $p$ , the probability of capture.

Stream Name	Site	Species	P1	P2	P3	N	V(N)	Lower CI	Upper CI	$T_1$
Ailport Creek	1	Rainbow	154	43	21	229	30	219	240	2.19
Alastair Lake Trib.	1	Coho	78	64	57	498	3233	386	609	1.87
Alwyn Creek	1	Coho	76	16	22	127	42	114	139	12.30
Alwyn Creek	1	Rainbow	3	1	0	4	0	3	5	0.28
Alwyn Creek	1	Cutthroat	31	11	10	61	49	47	75	1.81
Alwyn Creek	2	Coho	188	98	84	507	1333	435	578	4.32
Alwyn Creek	2	Cutthroat	5	3	2	14	35	2	25	0.01
Bear River	1	Sockeye	487	27	8	522	0	522	522	14.72
Boucher Creek (L)	1	Rainbow	17	11	3	35	22	26	45	1.00
Boucher Creek (L)	1	Coho	45	6	6	59	4	55	63	5.15
Boucher Creek (L)	2	Coho	36	7	3	47	2	44	49	0.68
Boucher Creek (L)	2	Rainbow	9	6	7	65	232	35	95	2.81
Boucher Creek (U)	1	Coho	48	6	7	63	4	59	67	6.78
Boucher Creek (U)	1	Rainbow	18	21	15	235	8863	50	419	0.88
Boucher Creek (U)	2	Coho	22	5	6	37	16	29	45	2.90
Boucher Creek (U)	2	Rainbow	67	25	13	114	28	104	124	0.45
Buck Creek	1	Rainbow	44	59	30	333	2161	241	424	9.70
Buck Creek	1	Coho	19	14	12	92	986	30	153	0.09
Buck Creek	1	Chinook	35	23	9	80	76	63	97	0.86
Buck Creek	2	Chinook	4	3	0	7	1	5	10	1.63
Buck Creek	2	Cutthroat	41	14	7	66	9	60	72	0.33
Buck Creek	2	Rainbow	38	27	9	88	84	70	106	2.03
Buck Creek	2	Coho	41	27	10	92	73	75	109	1.22
Byman Creek	1	Coho	28	9	5	45	6	40	50	0.45



Table 13. cont'd

Stream Name	Site	Species	P1	P2	P3	N	V(N)	Lower CI	Upper CI	T <sub>1</sub>
Byman Creek	1	Cutthroat	2	0	1	4	8	-2	9	1.42
Byman Creek	1	Rainbow	46	9	5	62	4	58	66	1.65
Byman Creek	2	Rainbow	22	2	2	26	1	25	28	2.62
Byman Creek	2	Chinook	9	1	0	10	0	10	10	0.10
Byman Creek	2	Coho	68	11	2	82	1	80	84	0.06
Clear Creek (U)	1	Coho	45	14	12	80	33	68	91	2.68
Clearwater Creek	2	Coho	134	58	52	309	4654	175	443	5.97
Clearwater Creek	2	Cutthroat	7	10	6	64	188	37	91	4.94
Coldwater Creek (L)	2	Coho	99	29	22	163	40	151	175	4.75
Coldwater Creek (L)	2	Dolly Varden	2	1	1	6	45	-7	19	0.09
Coldwater Creek (L)	2	Cutthroat	37	14	7	63	15	55	71	0.19
Coldwater Creek (U)	1	Coho	74	48	13	153	98	134	173	4.45
Copper River	1	Coho	170	19	5	196	4	192	200	1.78
Copper River	2	Coho	166	33	13	216	8	211	222	2.30
Deep Creek	1	Mountain whitefish	2	1	1	6	45	-7	19	0.09
Deep Creek	1	Cutthroat	7	6	1	16	7	11	21	1.63
Deep Creek	1	Coho	55	16	7	81	8	76	87	0.48
Deep Creek	2	Rainbow	2	3	1	11	41	-1	24	0.95
Deep Creek	2	Coho	62	48	22	178	465	136	221	1.94
Ecstall River Trib.	1	Coho	41	26	5	78	17	70	86	3.95
Ecstall River Trib.	2	Coho	143	83	57	382	998	321	444	0.51
Elliot Creek Trib.	1	Coho	135	53	23	227	41	214	239	0.18
Elliot Creek Trib.	2	Dolly Varden	2	1	0	3	0	2	4	0.41
Elliot Creek Trib.	2	Coho	119	101	76	630	18876	361	899	0.26
Emerson Creek	1	Rainbow	23	11	6	46	22	37	55	0.06

Table 13. cont'd

Stream Name	Site	Species	P1	P2	P3	N	V(N)	Lower CI	Upper CI	T <sub>1</sub>
Emerson Creek	1	Coho	20	9	4	37	16	29	45	0.00
Gitnadoix River	1	Coho	61	15	14	98	24	88	107	5.17
Gosnell Creek	1	Coho	104	17	2	124	2	121	127	0.35
Gosnell Creek	1	Whitefish				10	98	-9	29	8.40
Gosnell Creek	1	Dolly Varden	1	2	1	40	392	1	79	8.34
Gosnell Creek	1	Rainbow	3	0	1	4	1	2	6	1.80
Gosnell Creek	2	Dolly Varden	3	2	0	5	1	4	7	1.01
Gosnell Creek	2	Rainbow	12	3	0	15	0	14	16	0.68
Gosnell Creek	2	Cutthroat	1	1	0	2	1	1	4	0.68
Gosnell Creek	2	Coho	147	36	12	201	13	194	208	0.58
Hadenschild Creek	1	Coho	95	20	8	126	4	121	130	1.23
Hankin Creek	1	Rainbow	14	5	3	24	5	19	28	0.23
Hankin Creek	1	Coho	4	1	0	5	0	5	6	0.23
Kathlyn Creek	2	Coho	19	4	2	26	2	23	28	0.49
Kathlyn Creek	2	Rainbow	18	7	3	30	5	26	34	0.01
Lamprey Creek (U)	1	Rainbow	3	4	0	8	4	4	12	3.27
Lamprey Creek (U)	1	Chinook	2	1	0	3	0	2	4	0.41
Lamprey Creek (U)	1	Coho	45	13	1	61	2	58	64	1.41
Lamprey Creek (U)	1	Dolly Varden	1	0	1	20	196	-7	47	6.70
Nichyeskwa River	1	Coho	9	8	5	39	718	0	92	0.15
Nichyeskwa River	2	Coho	29	25	14	108	1352	36	180	0.70
Nilkitkwa River	1	Coho	313	150	30	524	88	506	543	12.23
Nilkitkwa River	2	Coho	64	17	5	89	6	84	93	0.04
Nine Mile Creek	1	Rainbow	2	0	1	4	8	-2	9	1.42
Nine Mile Creek	1	Coho	36	23	18	117	621	68	166	0.16

Table 13. cont'd

Stream Name	Site	Species	P1	P2	P3	N	V(N)	Lower CI	Upper CI	T <sub>1</sub>
Nine Mile Creek	2	Coho	31	10	5	49	8	43	55	0.30
Schulbuckhand Creek	1	Coho	363	77	34	489	32	478	500	6.54
Schulbuckhand Creek	1	Cutthroat	18	6	5	33	21	24	42	0.93
Schulbuckhand Creek	1	Dolly Varden	3	9	0	18	134	-5	40	10.79
Schulbuckhand Creek	2	Dolly Varden	2	1	0	3	0	2	4	0.41
Schulbuckhand Creek	2	Coho	312	82	44	459	55	444	473	7.10
Scotia River	1	Coho	151	57	50	307	292	274	341	7.43
Scotia river	2	Coho	43	22	3	72	10	65	78	3.69
Shase Creek	1	Rainbow	38	13	6	61	9	55	67	0.19
Shase Creek	2	Rainbow	43	19	7	75	18	67	83	0.13
Shase Creek	2	Coho	1	1	0	2	1	1	4	0.68
Shea Creek (L)	2	Rainbow	2	0	1	4	8	-2	9	1.42
Shea Creek (L)	2	Coho	100	9	6	116	2	113	119	7.17
Shea Creek (U)	1	Dolly Varden	1	1	0	2	1	1	4	0.68
Shea Creek (U)	1	Rainbow	6	3	2	13	11	7	20	0.05
Shea Creek (U)	1	Coho	114	22	3	140	2	138	143	0.23
Singlehurst Creek	1	Dolly Varden	19	11	4	39	20	30	47	0.33
Singlehurst Creek	1	Coho	16	13	2	35	22	26	45	3.47
Singlehurst Creek	1	Cutthroat	10	5	3	21	20	13	30	0.03
Singlehurst Creek	2	Dolly Varden	22	2	0	24	0	24	24	0.17
Singlehurst Creek	2	Cutthroat	9	2	2	14	2	11	17	0.91
Singlehurst Creek	2	Coho	46	7	3	57	2	54	59	1.18
Singlehurst Creek	3	Dolly Varden	13	11	8	62	232	32	91	0.28
Singlehurst Creek	3	Coho	21	6	4	33	5	29	37	0.76
Singlehurst Creek	3	Cutthroat	10	2	0	12	0	11	13	0.34

Table 13. cont'd

Stream Name	Site	Species	P1	P2	P3	N	V(N)	Lower CI	Upper CI	T <sub>1</sub>
Tachek Creek	1	Coho	13	7	3	26	12	19	33	0.06
Tachek Creek	1	Rainbow	30	9	5	47	8	41	52	0.56
Tachek Creek	2	Rainbow	27	23	5	65	52	51	79	4.79
Tachek Creek	2	Coho	20	6	1	28	1	25	30	0.21
Toboggan Creek	1	Dolly Varden	2	2	1	8	186	-18	35	0.14
Toboggan Creek	1	Rainbow	5	3	1	10	5	6	15	0.14
Toboggan Creek	1	Coho	48	20	1	71	5	67	75	4.62
Toboggan Creek	2	Chinook	31	15	16	94	135	71	117	2.81
Toboggan Creek	2	Coho	80	43	21	167	102	148	187	0.08
Toboggan Creek	3	Rainbow	44	14	10	74	16	66	82	1.63
Toboggan Creek	3	Coho	85	14	2	102	2	100	105	0.09
Toboggan Creek	3	Chinook	7	2	0	9	0	8	10	0.51

Table 14. Linear and areal (x10) density estimates of fish species by stream and site.

Stream Name	Site	Species	N.m <sup>-1</sup>	N.10m <sup>-2</sup>
Ailport Creek	1	Rainbow	20.6	38.0
Alastair Lake Trib.	1	Coho	16.6	67.8
Alwyn Creek	1	Coho	4.2	5.9
Alwyn Creek	1	Cutthroat	2.0	2.8
Alwyn Creek	1	Rainbow	0.1	0.2
Alwyn Creek	2	Coho	22.0	34.8
Alwyn Creek	2	Cutthroat	0.6	1.0
Bear River	1	Sockeye	17.4	19.8
Boucher Creek (L)	1	Coho	2.6	2.9
Boucher Creek (L)	1	Rainbow	1.5	1.7
Boucher Creek (L)	2	Coho	3.1	9.6
Boucher Creek (L)	2	Rainbow	4.3	13.3
Boucher Creek (U)	1	Coho	5.0	4.4
Boucher Creek (U)	1	Rainbow	18.5	16.3
Boucher Creek (U)	2	Coho	2.4	2.0
Boucher Creek (U)	2	Rainbow	7.4	6.2
Buck Ck.	1	Chinook	3.6	4.0
Buck Ck.	1	Coho	4.2	4.6
Buck Ck.	1	Rainbow	15.1	16.8
Buck Ck.	2	Chinook	0.2	0.2
Buck Ck.	2	Coho	3.1	3.1
Buck Ck.	2	Cutthroat	2.2	2.2
Buck Ck.	2	Rainbow	2.9	3.0
Byman Creek	1	Coho	2.5	6.2
Byman Creek	1	Cutthroat	0.2	0.6
Byman Creek	1	Rainbow	3.4	8.6
Byman Creek	2	Chinook	0.3	0.5
Byman Creek	2	Coho	2.3	4.0
Byman Creek	2	Rainbow	0.7	1.3
Clear Creek (U)	1	Coho	2.5	3.8
Clearwater Creek	2	Coho	10.3	11.8
Clearwater Creek	2	Cutthroat	2.1	2.4
Coldwater Creek (L)	2	Coho	3.3	4.7
Coldwater Creek (L)	2	Cutthroat	1.3	1.8

Table 14. cont'd

Stream Name	Site	Species	N.m <sup>-1</sup>	N.10m <sup>-2</sup>
Coldwater Creek (L)	2	Dolly Varden	0.1	0.2
Coldwater Creek (U)	1	Coho	5.7	7.4
Copper River	1	Coho	7.7	16.4
Copper River	2	Coho	8.0	15.4
Deep Creek	1	Coho	2.7	2.4
Deep Creek	1	Cutthroat	0.5	0.5
Deep Creek	1	Mountain whitefish	0.2	0.2
Deep Creek	2	Coho	5.9	11.7
Deep Creek	2	Rainbow	0.4	0.7
Ecstall River Trib.	1	Coho	2.6	3.8
Ecstall River Trib.	2	Coho	12.7	11.8
Elliot Creek Trib.	1	Coho	9.7	17.4
Elliot Creek Trib.	2	Coho	25.2	44.6
Elliot Creek Trib.	2	Dolly Varden	0.1	0.2
Emerson Creek	1	Coho	3.1	11.2
Emerson Creek	1	Rainbow	3.8	13.9
Gitnadoix River	1	Coho	3.3	9.2
Gosnell Creek	1	Coho	6.7	8.1
Gosnell Creek	1	Dolly Varden	2.2	2.6
Gosnell Creek	1	Rainbow	0.2	0.3
Gosnell Creek	1	Whitefish	0.5	0.7
Gosnell Creek	2	Coho	8.0	16.7
Gosnell Creek	2	Cutthroat	0.1	0.2
Gosnell Creek	2	Dolly Varden	0.2	0.4
Gosnell Creek	2	Rainbow	0.6	1.2
Hadenschild Creek	1	Coho	4.2	22.3
Hankin Creek	1	Coho	0.5	1.0
Hankin Creek	1	Rainbow	2.3	5.0
Kathlyn Creek	2	Coho	0.9	1.4
Kathlyn Creek	2	Rainbow	1.0	1.6
Lamprey Creek (U)	1	Chinook	0.2	0.2
Lamprey Creek (U)	1	Coho	3.1	4.5
Lamprey Creek (U)	1	Dolly Varden	1.0	1.5
Lamprey Creek (U)	1	Rainbow	0.4	0.6

Table 14. cont'd

Stream Name	Site	Species	N.m <sup>-1</sup>	N.10m <sup>-2</sup>
Nichyeskwa River	1	Coho	2.0	4.1
Nichyeskwa River	2	Coho	5.4	12.1
Nilkitkwa River	1	Coho	17.5	25.9
Nilkitkwa River	2	Coho	2.9	19.1
Nine Mile Creek	1	Coho	3.0	7.2
Nine Mile Creek	1	Rainbow	0.1	0.2
Nine Mile Creek	2	Coho	2.5	6.2
Schulbuckhand Creek	1	Coho	16.3	14.2
Schulbuckhand Creek	1	Cutthroat	1.1	1.0
Schulbuckhand Creek	1	Dolly Varden	0.6	0.5
Schulbuckhand Creek	2	Coho	15.3	17.8
Schulbuckhand Creek	2	Dolly Varden	0.1	0.1
Scotia River	1	Coho	7.1	10.4
Scotia river	2	Coho	4.6	14.4
Shase Creek	1	Rainbow	4.7	8.3
Shase Creek	2	Coho	0.2	0.7
Shase Creek	2	Rainbow	6.3	26.3
Shea Creek (L)	2	Coho	5.5	10.2
Shea Creek (L)	2	Rainbow	0.2	0.4
Shea Creek (U)	1	Coho	6.8	18.6
Shea Creek (U)	1	Dolly Varden	0.1	0.3
Shea Creek (U)	1	Rainbow	0.6	1.7
Singlehurst Creek	1	Coho	0.7	1.5
Singlehurst Creek	1	Cutthroat	0.4	0.9
Singlehurst Creek	1	Dolly Varden	0.8	1.7
Singlehurst Creek	2	Coho	1.1	2.3
Singlehurst Creek	2	Cutthroat	0.3	0.6
Singlehurst Creek	2	Dolly Varden	0.5	1.0
Singlehurst Creek	3	Coho	0.7	1.5
Singlehurst Creek	3	Cutthroat	0.2	0.5
Singlehurst Creek	3	Dolly Varden	1.2	2.8
Tachek Creek	1	Coho	1.4	6.1
Tachek Creek	1	Rainbow	2.6	11.0
Tachek Creek	2	Coho	3.1	6.6

Table 14. cont'd

Stream Name	Site	Species	N.m <sup>-1</sup>	N.10m <sup>-2</sup>
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Tachek Creek	2	Rainbow	7.2	15.4
Toboggan Creek	1	Coho	3.7	9.3
Toboggan Creek	1	Dolly Varden	0.4	1.0
Toboggan Creek	1	Rainbow	0.5	1.3
Toboggan Creek	2	Chinook	5.2	15.0
Toboggan Creek	2	Coho	9.2	26.7
Toboggan Creek	3	Chinook	0.3	0.3
Toboggan Creek	3	Coho	3.0	3.0
Toboggan Creek	3	Rainbow	2.2	2.2



Table 15. Linear and areal (x10) estimates of fish biomass by species, stream and site. Mean weights per species were calculated from regressions of weight on length where  $n \geq 15$ .

Stream Name	Site	Species	Mean weight (g)	Ng.m <sup>-1</sup>	Ng.10m <sup>-2</sup>
Ailport Creek	1	Rainbow	0.87	18.0	33.2
Alastair Lake Trib.	1	Coho	0.87	14.5	59.0
Alwyn Creek	1	Coho	1.92	8.1	11.3
Alwyn Creek	1	Cutthroat	4.11	8.4	11.7
Alwyn Creek	2	Coho	1.45	31.9	50.3
Bear River	1	Sockeye	1.86	32.4	36.9
Boucher Creek (L)	1	Coho	2.38	6.1	6.8
Boucher Creek (L)	1	Rainbow	1.16	1.8	2.0
Boucher Creek (L)	2	Coho	1.72	5.4	16.5
Boucher Creek (L)	2	Rainbow	0.60	2.6	7.9
Boucher Creek (U)	1	Coho	2.54	12.6	11.1
Boucher Creek (U)	1	Rainbow	0.90	16.6	14.7
Boucher Creek (U)	2	Coho	3.03	7.3	6.1
Boucher Creek (U)	2	Rainbow	0.65	4.8	4.0
Buck Ck.	1	Chinook	3.33	12.1	13.4
Buck Ck.	1	Coho	3.18	13.3	14.7
Buck Ck.	1	Rainbow	1.77	26.8	29.7
Buck Ck.	2	Coho	3.49	10.7	10.9
Buck Ck.	2	Rainbow	5.67	16.6	16.9
Byman Creek	1	Coho	1.96	4.9	12.2
Byman Creek	1	Rainbow	3.59	12.4	30.7
Byman Creek	2	Coho	2.17	5.0	8.7
Byman Creek	2	Rainbow	2.15	1.6	2.7
Clear Creek (U)	1	Coho	1.28	3.2	4.9
Clearwater Creek	2	Coho	2.50	25.8	29.5
Clearwater Creek	2	Cutthroat	10.12	21.6	24.8
Coldwater Creek (L)	2	Coho	1.61	5.2	7.5
Coldwater Creek (L)	2	Cutthroat	0.72	0.9	1.3
Coldwater Creek (U)	1	Coho	2.00	11.3	14.8
Copper River	1	Coho	0.89	6.9	23.8
Copper River	2	Coho	1.54	12.3	14.6
Deep Creek	1	Coho	1.67	4.5	4.0

Table 15. cont'd

Stream Name	Site	Species	Mean weight (g)	Ng.m <sup>-1</sup>	Ng.10m <sup>-2</sup>
Deep Creek	2	Coho	1.48	8.8	17.4
Ecstall River Trib.	1	Coho	0.95	2.5	3.6
Ecstall River Trib.	2	Coho	1.04	13.3	12.3
Elliot Creek Trib.	1	Coho	0.66	6.4	11.4
Elliot Creek Trib.	2	Coho	1.32	33.3	58.9
Emerson Creek	1	Coho	2.37	7.3	26.5
Emerson Creek	1	Rainbow	0.94	3.6	13.1
Gitnadoix River	1	Coho	1.04	3.4	9.6
Gosnell Creek	1	Coho	2.36	15.7	19.2
Gosnell Creek	2	Coho	1.57	12.6	26.1
Hadenschield Creek	1	Coho	1.13	4.8	25.3
Hankin Creek	1	Rainbow	6.98	16.0	34.6
Kathlyn Creek	2	Coho	3.46	3.0	4.7
Kathlyn Creek	2	Rainbow	3.36	3.4	5.3
Nichyeskwa River	1	Coho	1.72	3.4	7.1
Nichyeskwa River	2	Coho	0.90	4.8	10.9
Nilkitkwa River	1	Coho	0.59	10.3	15.3
Nilkitkwa River	2	Coho	0.51	1.5	9.7
Nine Mile Creek	1	Coho	1.93	5.8	13.9
Nine Mile Creek	2	Coho	1.87	4.6	11.6
Schulbuckhand Creek	1	Coho	2.02	32.9	28.7
Schulbuckhand Creek	1	Cutthroat	12.86	14.1	12.3
Schulbuckhand Creek	2	Coho	1.57	24.0	27.9
Scotia River	1	Coho	1.09	7.8	11.3
Scotia river	2	Coho	1.31	6.1	18.9
Shase Creek	1	Rainbow	0.87	4.1	7.2
Shase Creek	2	Rainbow	1.40	8.7	36.7
Shea Creek (L)	2	Coho	3.25	18.0	33.3
Shea Creek (U)	1	Coho	1.86	12.6	34.4
Singlehurst Creek	1	Coho	2.45	1.7	3.7
Singlehurst Creek	1	Cutthroat	10.29	4.3	9.2
Singlehurst Creek	1	Dolly Varden	12.00	9.4	20.0
Singlehurst Creek	2	Coho	1.41	1.6	3.2

Table 15. cont'd

Stream Name	Site	Species	Mean weight (g)	Ng.m <sup>-1</sup>	Ng.10m <sup>-2</sup>
Singlehurst Creek	2	Dolly Varden	2.61	1.3	2.5
Singlehurst Creek	3	Coho	1.55	1.0	2.3
Singlehurst Creek	3	Dolly Varden	3.96	4.9	11.1
Tachek Creek	1	Coho	5.06	7.3	30.9
Tachek Creek	1	Rainbow	0.85	2.2	9.4
Tachek Creek	2	Coho	4.79	14.9	31.7
Tachek Creek	2	Rainbow	1.00	7.2	15.3
Toboggan Creek	1	Coho	1.40	5.2	13.0
Toboggan Creek	2	Chinook	0.85	4.4	12.8
Toboggan Creek	2	Coho	1.16	10.7	30.9
Toboggan Creek	3	Coho	1.20	3.6	3.6
Toboggan Creek	3	Rainbow	1.09	2.4	2.4

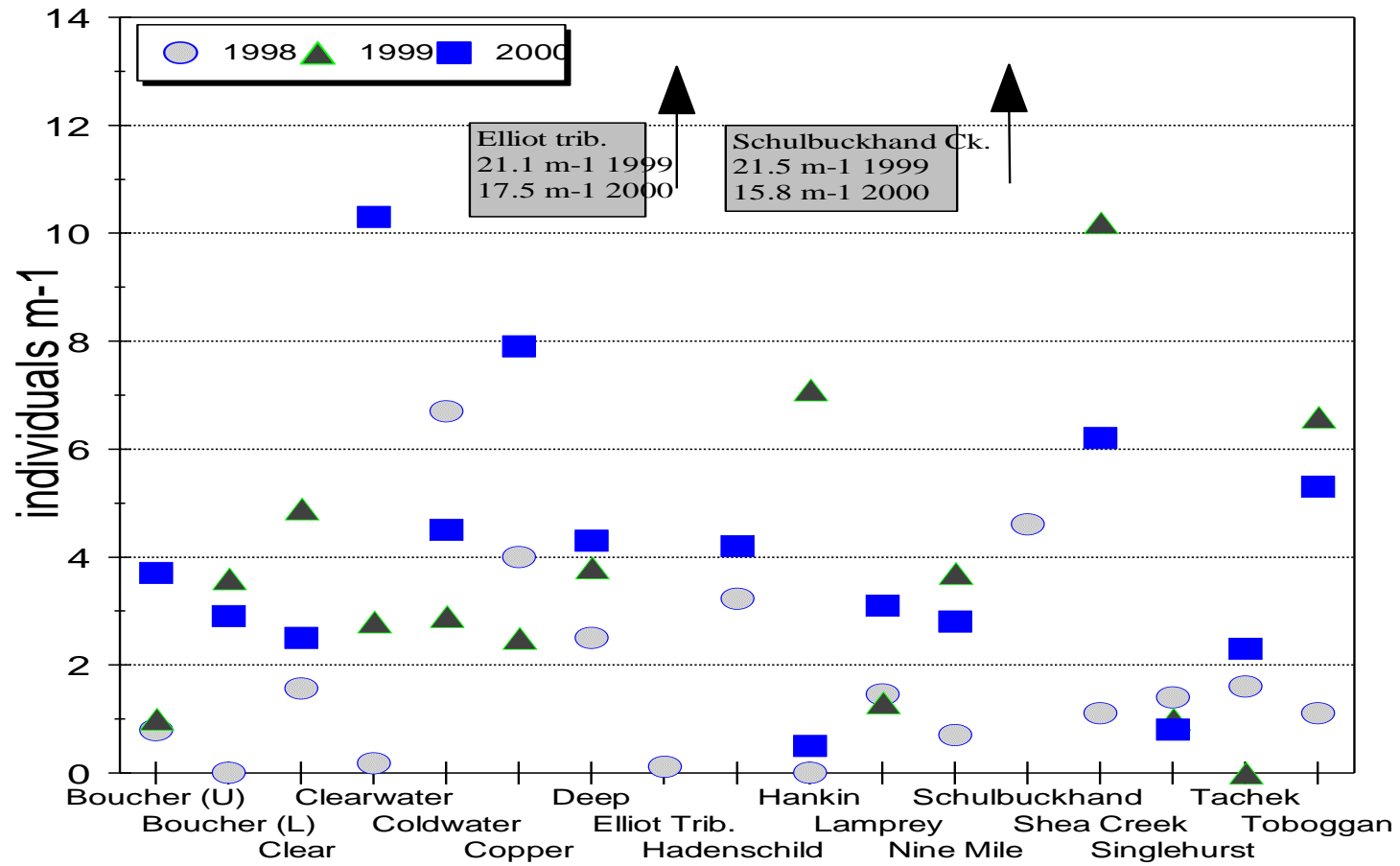


Fig. 1. Comparison of estimates of coho density (m<sup>-1</sup>) among stream sites sampled in 1998, 1999 and 2000

APPENDIX A

The following example calculations illustrate population estimation by removal/depletion, using data for Toboggan Creek (site 2) coho. Actual calculations were performed by computer, discrepancies between tabulated results and those calculated here result from rounding errors.

Removal - depletion.

The Zippin maximum-likelihood estimate is given by

$$\hat{N} = \frac{n_1 + n_2 + n_3}{\hat{q}} \quad (3)$$

where  $\hat{q}$  is determined graphically (Zippin 1956).

Similarly, the value of the probability of capture ( $\hat{q}$ ) is derived from

$$\frac{n_2 + 2n_3}{n_1 + n_2 + n_3} = R \quad (4)$$

and is also determined graphically.

From the Toboggan Creek example, successive catches were;  $n_1=80$ ,  $n_2=43$  and  $n_3=21$ . From (4)

$$R = \frac{n_2 + 2n_3}{n_1 + n_2 + n_3} = \frac{85}{144} = 0.59$$

From the appropriate graphs, for  $R=0.59$  and  $s=3$  gives  $\hat{q} = 0.47$  and  $(1 - \hat{q}^3) = 0.86$

Then from (3)

$$\hat{N} = \frac{144}{0.86} = 167$$

The variance of the population estimate is

$$= \frac{167(0.86)(0.14)}{(0.86)^2 - (1.44)^2(0.14/0.53)} = \frac{20.1068}{(0.7396) - (2.0736)(0.2642)} = 104 \quad (5)$$

and  $s = 10.2$

An approximate confidence interval for  $N$  is  $\pm 1.96(10.2)$  or 147 and 187 (Table 13).

While it is necessary to assume that  $p_i$ , the probability of capture in the  $i$  th sample, is constant among passes when care is taken to sample with constant effort, we can determine the validity of this assumption for the above method using a goodness-of-fit statistic

$$= \chi^2 = \sum \frac{(n_i - E_i)^2}{E_i} \quad (6)$$

where

$$(n_1, n_2, n_3) = (80, 43, 21)$$

and

$$(E_1, E_2, E_3) = (79, 42, 22)$$

Hence

$$\chi^2 = 0.08$$

which, for two degrees of freedom ( $p > 0.05$ ), indicates that  $p$  was unchanged throughout the sampling procedure.

Linear and areal densities of coho are found from  $\hat{N} / L$  and  $\hat{N} / A$ , respectively, where  $L$  is site length (m) and  $A$  is site area (m<sup>2</sup>). The Toboggan Creek site was 18.1m

long with a mean width of 3.46m. Thus, coho population sizes were 9.2 individuals.m<sup>-1</sup> and 2.66 individuals.m<sup>-2</sup> (or 26.6 individuals.10m<sup>-2</sup> Table 14).

Estimated mean biomass of coho in Toboggan Creek was calculated from regression of weight on length

$$\log_{10} \text{ weight} = b (\log_{10} \text{ length}) + a$$

where  $b = 2.91$  and  $a = -4.79$  (Table 12). From Table 11 the mean length of coho was 47.0mm, resulting in a mean weight of 1.16g. The linear and areal biomasses of coho in Toboggan Creek are then 10.7g.m<sup>-1</sup> and 30.9g.10m<sup>-2</sup>, respectively.