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Fish Catch Statistics in Salmonid Nursery Lakes of the Nass River System Under Study by the Interim Measures Fisheries Program



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**Canadian Data Report of
Fisheries and Aquatic Sciences 904**



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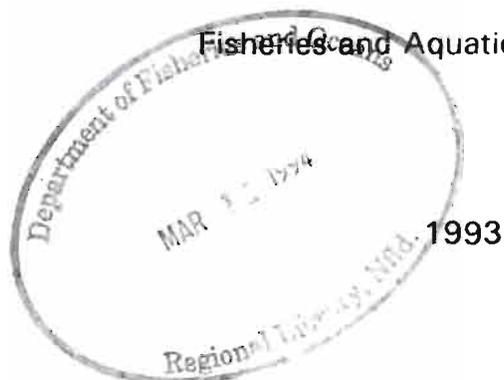
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Canadian Data Report of

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FISH CATCH STATISTICS IN SALMONID NURSERY LAKES OF THE NASS RIVER
SYSTEM UNDER STUDY BY THE INTERIM MEASURES FISHERIES PROGRAM

by

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ABSTRACT

D.K. McCreight, M.R.S. Johannes, S.P. Murdoch and K.D. Hyatt. 1993. Fish catch statistics in salmonid nursery lakes of the Nass River system under study by the Interim Measures Fisheries Program. Can. Data Rep. Fish. Aquat. Sci. 904: 55 p.

Limnetic and littoral fish populations were biosampled during 1991 and 1992 using mid-water trawls, beach seines, variable mesh gillnets and gee minnow traps from nine sockeye nursery lakes of the Nass River watershed. These lakes were surveyed by the Salmon Recruitment Assessment Program (Canadian Department of Fisheries and Oceans) in cooperation with biologists and technicians from the Nisga'a Tribal Council and the Province of British Columbia as part of the Interim Measures Fisheries Program. The lakes sampled include: Bonney, Bowser, Damdochax, Dragon, Fred Wright, Halfway, Kwinageese, Lava and Meziadin. After at least one month of preservation, individual fish from sample collections were processed and measured for species, length and weight. Summary statistics were calculated for lengths and weights by species and length frequencies were plotted by survey (date and lake) and species. The results are presented in tables and figures.

RÉSUMÉ

D.K. McCreight, M.R.S. Johannes, S.P. Murdoch and K.D. Hyatt. 1993. Fish catch statistics in salmonid nursery lakes of the Nass River system under study by the Interim Measures Fisheries Program. Can. Data Rep. Fish. Aquat. Sci. 904: 55 p.

On a procédé à l'échantillonnage des populations de poissons pélagiques et littorales en 1991 et en 1992 au moyen de chaluts pélagiques, de sennes de plage, de filets maillants à maillage variable, et de pièges à ménés gee dans neuf lacs du bassin versant de la Nass, servant de nourriceries pour le saumon rouge. Ces lacs ont été évalués dans le cadre du Programme d'évaluation du recrutement des salmonidés (PERS) (Pêches et Océans Canada) en collaboration avec les biologistes et les techniciens du Conseil de la tribu Nisga'a et de la province de la Colombie-Britannique, dans le cadre du Programme de mesures intérimaires concernant les pêches. Les échantillons ont été prélevés dans les lacs: Bonney, Bowser, Damdochax, Dragon, Fred Wright, Halfway, Kwinageese, Lava et Meziadin. Après une période de préservation d'au moins un mois, on a déterminé l'espèce, le poids et la longueur de chacun des poissons échantillonnés. On a établi des statistiques sommaires pour la longueur et le poids par espèce, et on a reporté sur un graphique les fréquences de longueur par campagne de prélèvement (date et lac) et par espèce. Les résultats sont présentés sous forme de tableaux et de figures.

INTRODUCTION

The Nass River system supports stocks of all six anadromous Pacific Salmonids including: sockeye (*Oncorhynchus nerka*), coho (*O. kisutch*), chum (*O. keta*), chinook (*O. tshawytscha*), pink (*O. gorbuscha*) and rainbow trout (*O. mykiss*) (Palmer 1991). Numerically sockeye salmon are the most abundant salmon species and relative to other areas of B.C. this system supports moderate to high sockeye production. Recent assessments (1991-1992) of annual salmon production have focused efforts to establish current and potential sockeye production in salmonid nursery lakes of the Nass system.

To help establish actual and potential salmon production in the Nass River system, an Interim Measures Fisheries Program was developed with cooperation among the Canadian Department of Fisheries and Oceans (DFO), the Province of British Columbia (BC) and the Nisga'a Tribal Council (NTC). During 1991/1992 personnel from DFO (Salmon Recruitment Assessment Program) and the NTC initiated a series of salmon stock assessment studies.

We report here data collected to assess fish population structure in salmonid nursery lakes during surveys using mid-water trawls, gee minnow traps, variable mesh gillnets and beach seines in nine sockeye nursery lakes in the Nass watershed. The lakes surveyed include: Bonney, Bowser, Damdochax, Dragon, Fred Wright, Halfway, Kwinageese, Lava and Meziadin. This report includes: (1) catch summary tables listing sample lake and date, transects covered, start time, end time, duration, flow meter reading, trawl depth, weather codes, waves, lake surface temperature and catch (where sampled) for beach seines, gillnets, minnow traps and trawls; (2) tables of catch statistics listing sample lake and date, species, catch, length and weight of fish caught (mean, range, standard deviation and variance); (3) a map of the Nass River watershed; (4) individual lake maps with location of standard hydroacoustic and trawl survey transects and sampling stations; and (5) length frequencies for juvenile sockeye and coho salmon caught in beach seines, minnow traps and trawls.

The information reported here, along with other data, will be used to help establish fish community structure, abundance and species composition in order to predict juvenile sockeye lake carrying capacity. This information will be used to assess factors which might limit current salmon production. Understanding the processes defining current salmon production can help guide managers in making sound decisions to enhance sockeye stocks in the Nass River System.

METHODS

Juvenile sockeye populations were assessed using hydroacoustic and trawl survey design (Hyatt et al. 1984) to determine sockeye salmon and other fish abundances, and sampled with midwater trawls, gee minnow traps, variable mesh gillnets and beach seines to determine population structure and fish community species composition. Data on species composition and population structure were based on fish samples collected using a 2 x 2 x 7.5m (width, depth, length) 350um mid-water trawl (Gjernes 1979, Hyatt et al. 1984), a 2 x 45m variable mesh gillnet, 2 x 15m beach seine and 0.25 x 0.75m (conical) gee minnow trap (Hyatt et al. 1984). All catches were recorded and preserved samples were individually labelled with gear type, lake, date, time, gear set duration, sample location, sample depths, gear set number, number and species of fish caught and initials of collection crew. Trawl caught fish were preserved in 3.7% formaldehyde, while minnow trap, beach seine and gillnet caught fish were preserved in 50% ethanol. Fish were kept in preservatives for at least five weeks to stabilize fish sizes before measuring. Fish were weighed to 0.01g and measured to 1mm. Scales were taken from fish of sizes greater than 75mm.

Mid-water trawls were towed at speeds ranging from 0.7 to 1.2 m.s-1 and at depths complimentary to fish targets identified from hydroacoustic surveys. Greater than six trawls were completed per survey night and of these at least two trawl samples were used to collect fish in the insonifiable surface waters (Gjernes 1979, Hyatt et al. 1984). Surveys were conducted at night to ensure uniform light levels throughout the water column. Juvenile sockeye salmon disperse from daytime schools to feed during the night and juvenile sockeye collections are made easier when fish are dispersed more uniformly among the different habitats.

Cross-lake transects for hydroacoustic/trawl surveys were set in order to cover a total linear distance roughly proportional to the size and shape of the lake (Simpson et al. 1981, Hyatt et al. 1984, Rutherford et al. 1986, Murdoch et al. 1993). Specific transects were fixed by marking start and end points. Surveys were conducted during August to September.

A sample size of 100 juvenile sockeye from trawl surveys was recommended for each lake and date sampled. To achieve these sample sizes the entire trawl catch often had to be kept and preserved. If individual trawl catches were greater than 200 hundred sockeye, than the entire catch was counted and a random sample of 100 individuals were kept and preserved for later analysis.

The numbers of gee minnow traps set in each lake was roughly proportional to the lake size (10 to 20 trapping sites). Minnow trap sites were characterized by

having: depths ranging from 0.5 to 1.5m, aquatic vegetation, and protection from waves and wind.

Variable mesh gillnets were only set in Bonney, Bowser, Fred Wright and Kwinageese lakes. Gillnets were set for approximately 24hrs. In Bowser lake, nets were set for just over three hours to limit catches of returning adult salmon.

Beach seines were used only in Bowser and Damdochax lakes. In Bowser lake, seines were set parallel to the shoreline and hauled for approximately 30m. Sites were chosen at the mouths of rivers flowing into the lake and along the shore between river mouths. In Damdochax lake, seines were set perpendicular to the shoreline and hauled into shore.

Fish from minnow traps, gillnets and beach seines were enumerated on site. Fish collected in minnow traps and beach seines were all kept and preserved. If greater than 50 fish of a given species were collected, then a random subsample was kept and preserved. All fish less than 100mm in size were kept and fish greater than 100mm were measured, counted and released.

Raw data from beach seines, gillnets and minnow traps were entered into a spreadsheet program for statistical analysis. Weight and length, means, maximums and minimums, standard deviations and variances, were calculated for each sample collection, by lake, date, gear type and fish species (eg. Enzenhofer et al. 1991, Mueller et al. 1991, Mueller and Enzenhofer 1991).

RESULTS

During 1991 to 1992 four surveys (late summer 1991, spring, mid and late summer 1992) were completed to nine sockeye nursery lakes of the Nass River System. Of these surveys to the Nass, 20 total fish/trawl surveys were completed to individual lakes over this time: 5 fish surveys late summer 1991; 7 during August 1992; 8 during September 1992.

Catches from fifteen beach seines included: juvenile sockeye salmon, sculpins, adult and juvenile whitefish, juvenile and adult suckerfish, juvenile kokanee salmon, juvenile coho salmon and adult dolly varden. Catches from a total of 76hrs of gillnetting included: adult sockeye salmon, adult and juvenile rainbow trout, adult and juvenile suckerfish, adult dolly varden, adult and juvenile whitefish, reidsided shiners, juvenile coho salmon, sculpins, juvenile northern squawfish and peamouth chub.

Catches from 180 minnow trap sets, (240.75hrs total set time) included: sculpins, reidsided shiners, juvenile coho salmon, threespine sticklebacks, juvenile northern squawfish and suckerfish. Ninety-one trawls were completed during these surveys, catching a variety of fish species including: juvenile sockeye salmon, threespine sticklebacks (caught exclusively in Dragon lake), sculpins, whitefish, coho salmon juveniles and smolts, peamouth chub, pink salmon fry and suckerfish.

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Figure 1. Nass River watershed showing location of survey salmonid nursery lakes.

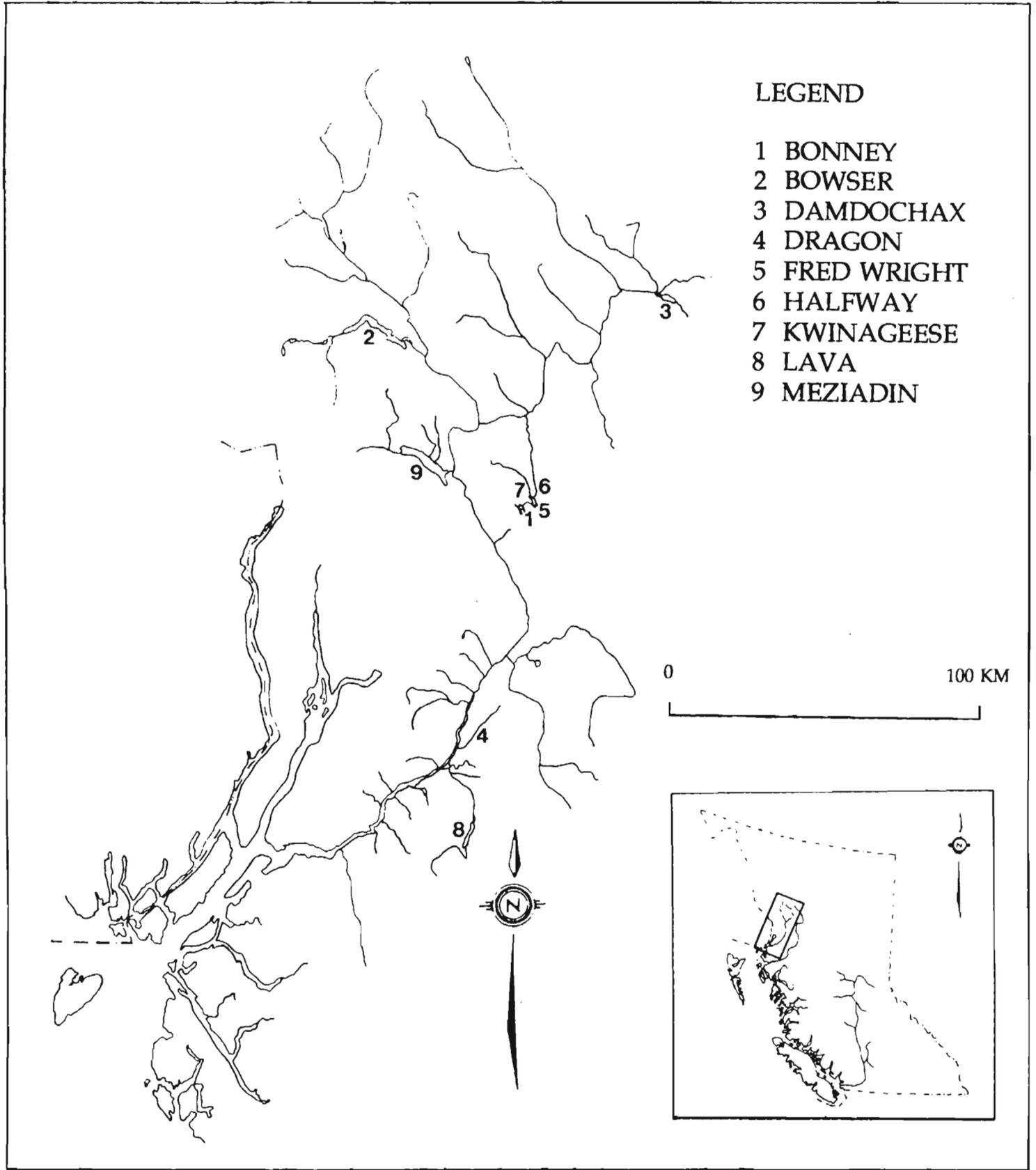


Figure 1. Nass River watershed showing salmonid nursery lakes surveyed.

Table: 1. Weather observation codes.

SKY: 0	0-10% CLOUD COVER	LIGHT: 0	DAYLIGHT
1	11-20% CLOUD COVER	1	DARK OVERCAST NIGHT
2	21-30% CLOUD COVER	2	BRIGHT MOONLIGHT
3	31-40% CLOUD COVER	3	MODERATE MOONLIGHT
4	41-50% CLOUD COVER	4	NIGHT
5	51-60% CLOUD COVER	5	OVERNIGHT
6	61-70% CLOUD COVER		
7	71-80% CLOUD COVER	WIND: 0	NO WIND
8	81-90% CLOUD COVER	1	1-5 CM WAVES
9	91-100% CLOUD COVER	2	6-10 CM WAVES
10	INTERMITENT RAIN	3	11-15 CM WAVES
11	CONTINUOUS RAIN	4	16-20 CM WAVES
12	SNOW, RAIN OR BOTH	5	21-30 CM WAVES
13	HAIL	6	31-40 CM WAVES
		7	41-50 CM WAVES
		8	51-100 CM WAVES

WEATHER CONDITIONS FOR GILLNETS AND MINNOW TRAPS ARE FOR THE DAY THE NETS/TRAPS WERE LAID IF SET OVERNIGHT.

MEZIADIN TRAWL CATCH SURFACE TEMP. WERE COLLECTED AT MLT#1.

Table: 2. Fish species and their common names used in the tables.

Common Name	Scientific Name
Coho Salmon	<i>Oncorhynchus kisutch</i>
Dolly Varden	<i>Salvelinus malma</i>
Kokanee	<i>Oncorhynchus nerka</i>
Northern Squawfish	<i>Ptychocheilus oregonensis</i>
Peamouth Chub	<i>Mylocheilus sp.</i>
Pink Salmon	<i>Oncorhynchus gorbuscha</i>
Rainbow Trout	<i>Oncorhynchus mykiss</i>
Red-Sided Shiner	<i>Clinostomus elongatus</i>
Sculpin	<i>Cottus sp.</i>
Sockeye Salmon	<i>Oncorhynchus nerka</i>
Stickleback	<i>Gasterosteus sp.</i>
Suckerfish	<i>Catostomus sp.</i>
Whitefish	<i>Coregonus sp.</i>

Figure 2. Individual lake maps presenting locations of trawl survey transects and beach seine, gillnet and minnow trap sampling stations for the following lakes: Bonney, Bowser, Damdochax, Dragon, Fred Wright, Halfway, Kwinageese, Lava and Meziadin.

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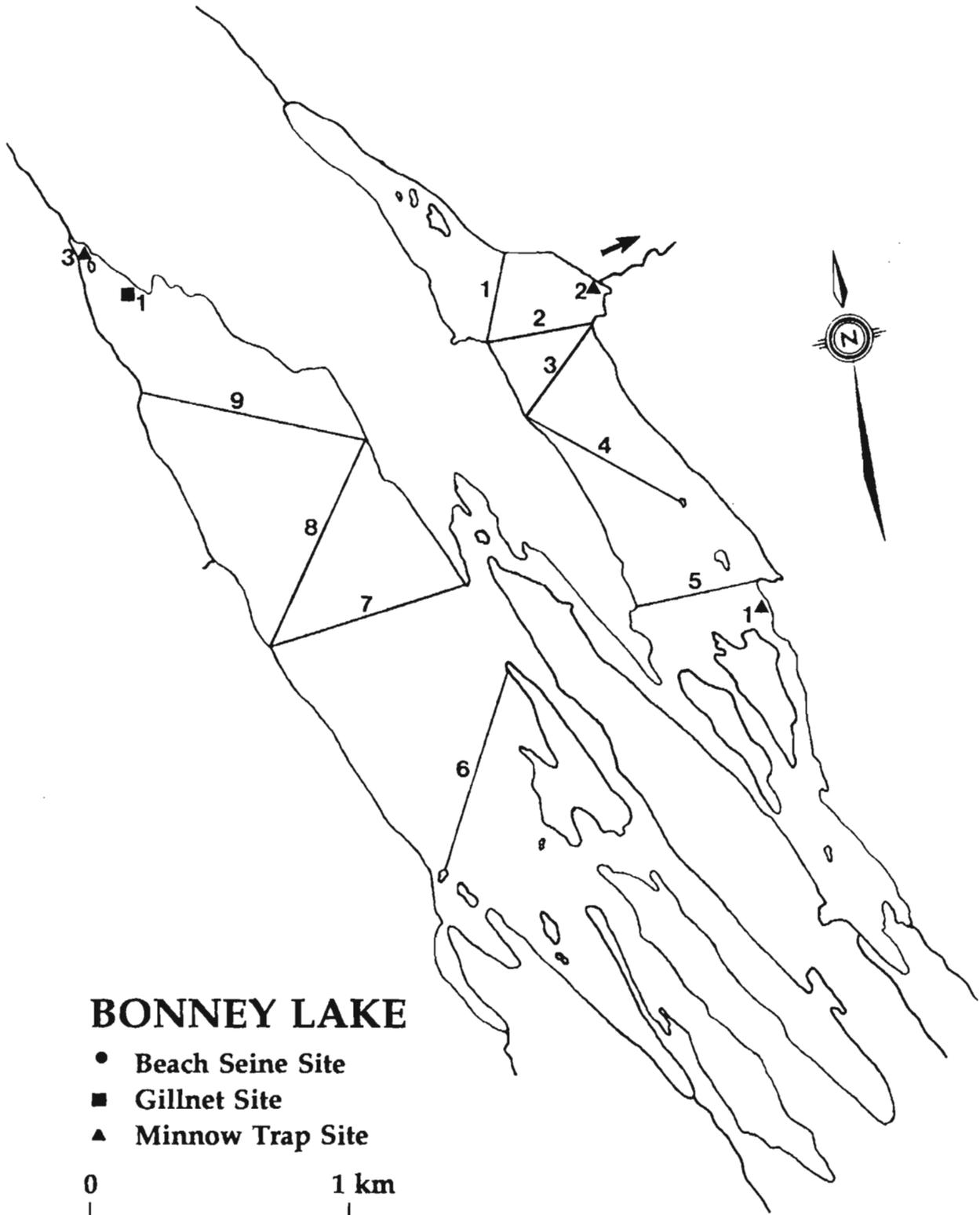
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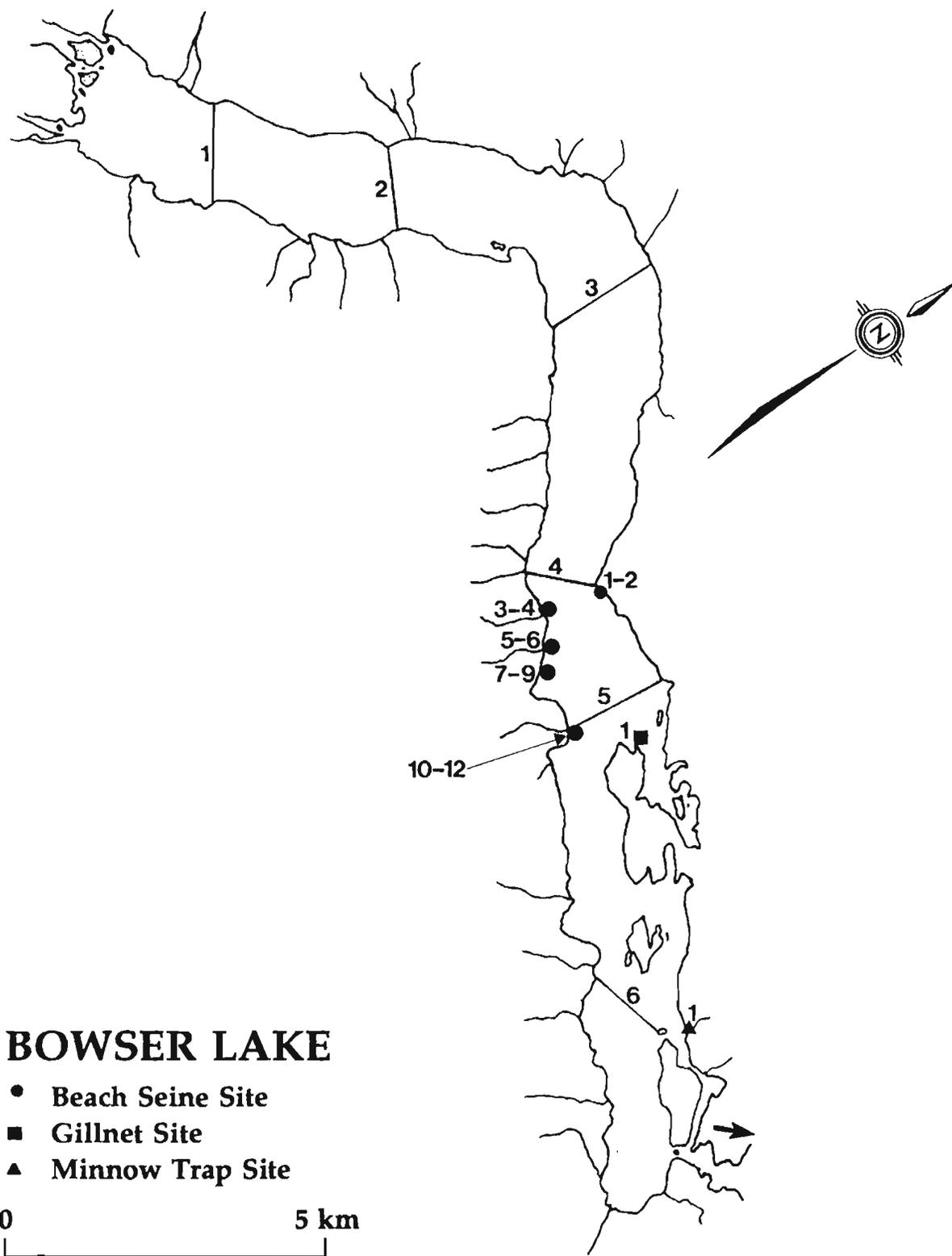
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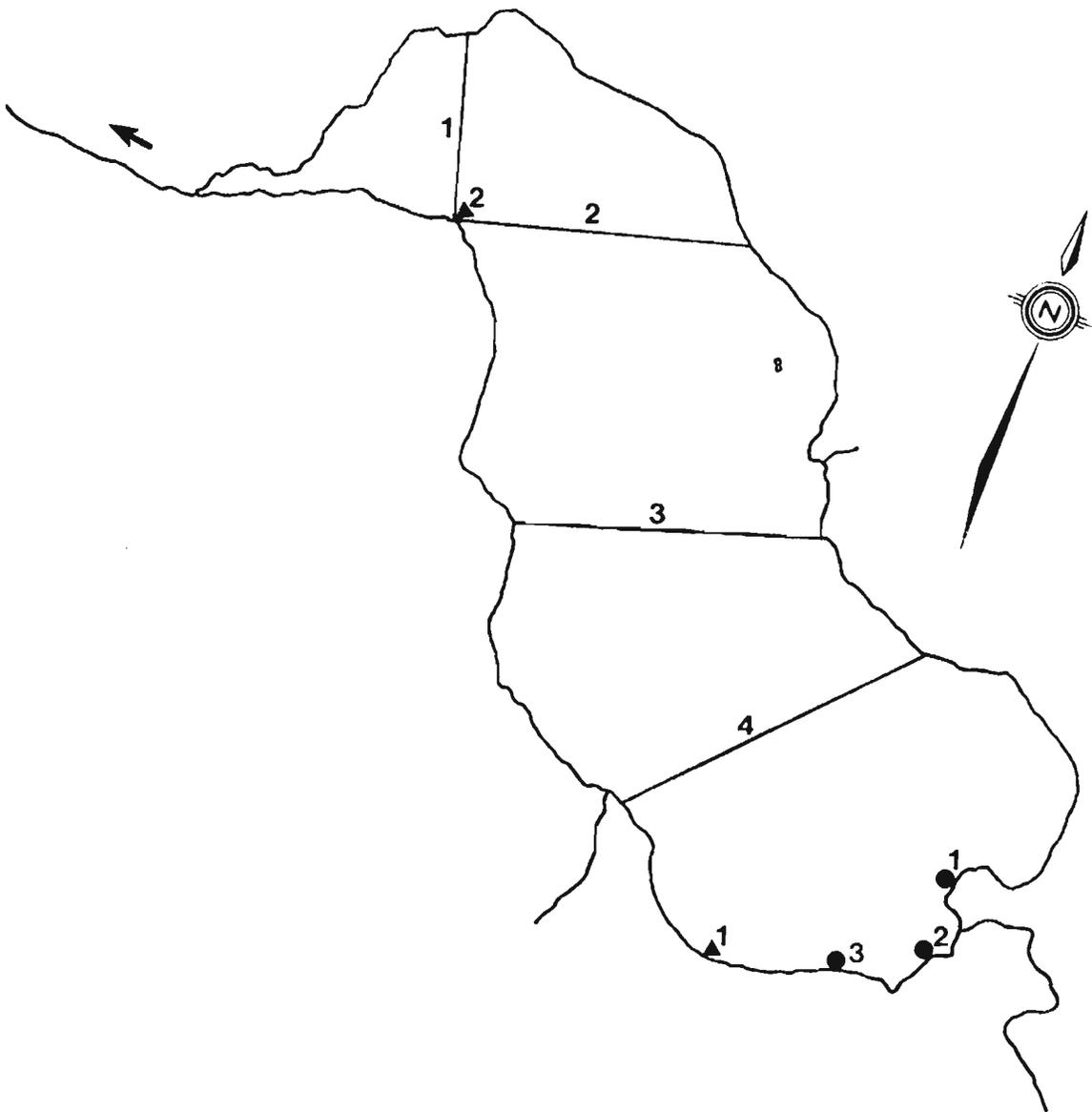
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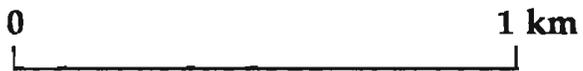


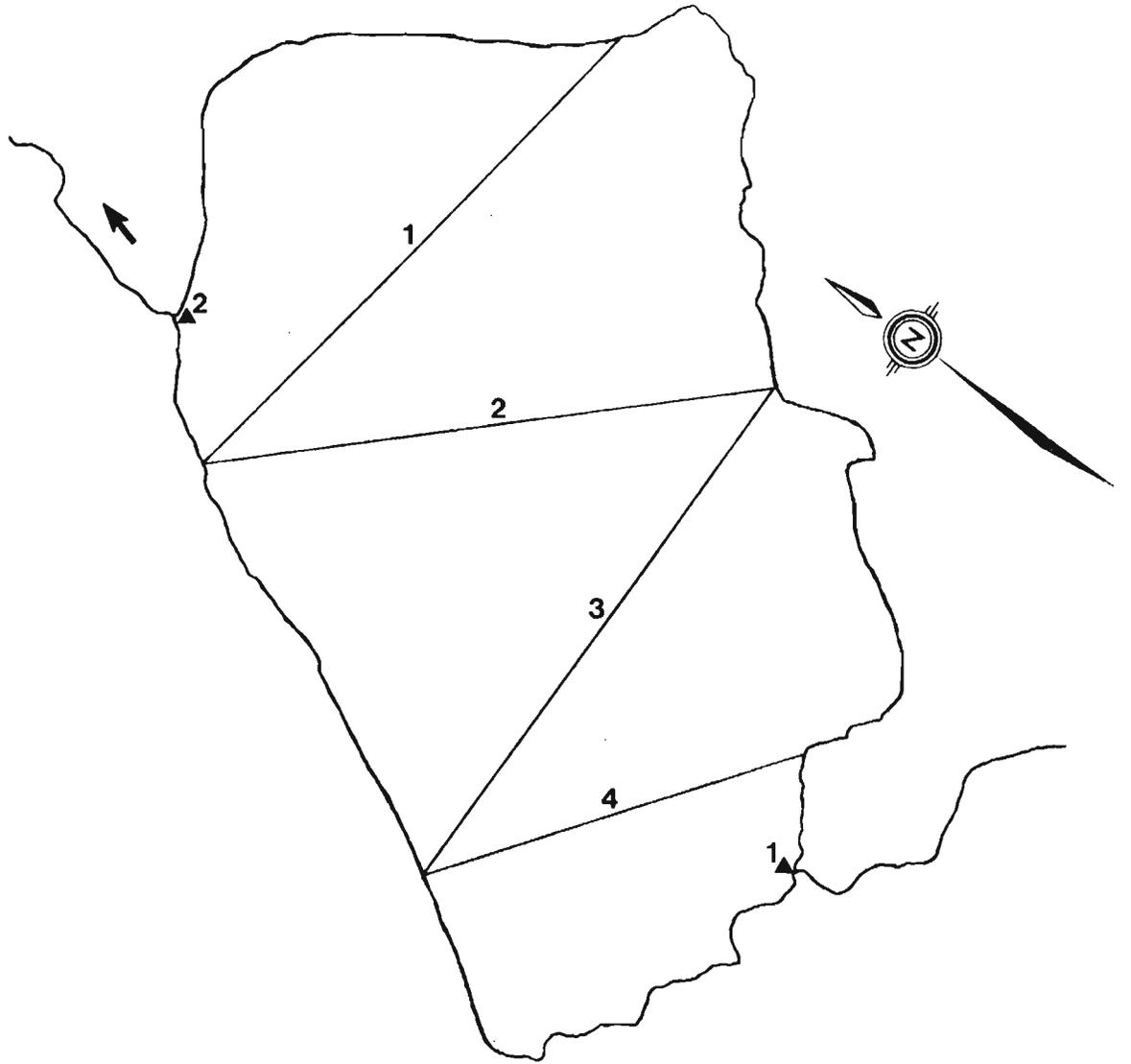




DAMDOCHAX LAKE

- Beach Seine Site
- Gillnet Site
- ▲ Minnow Trap Site

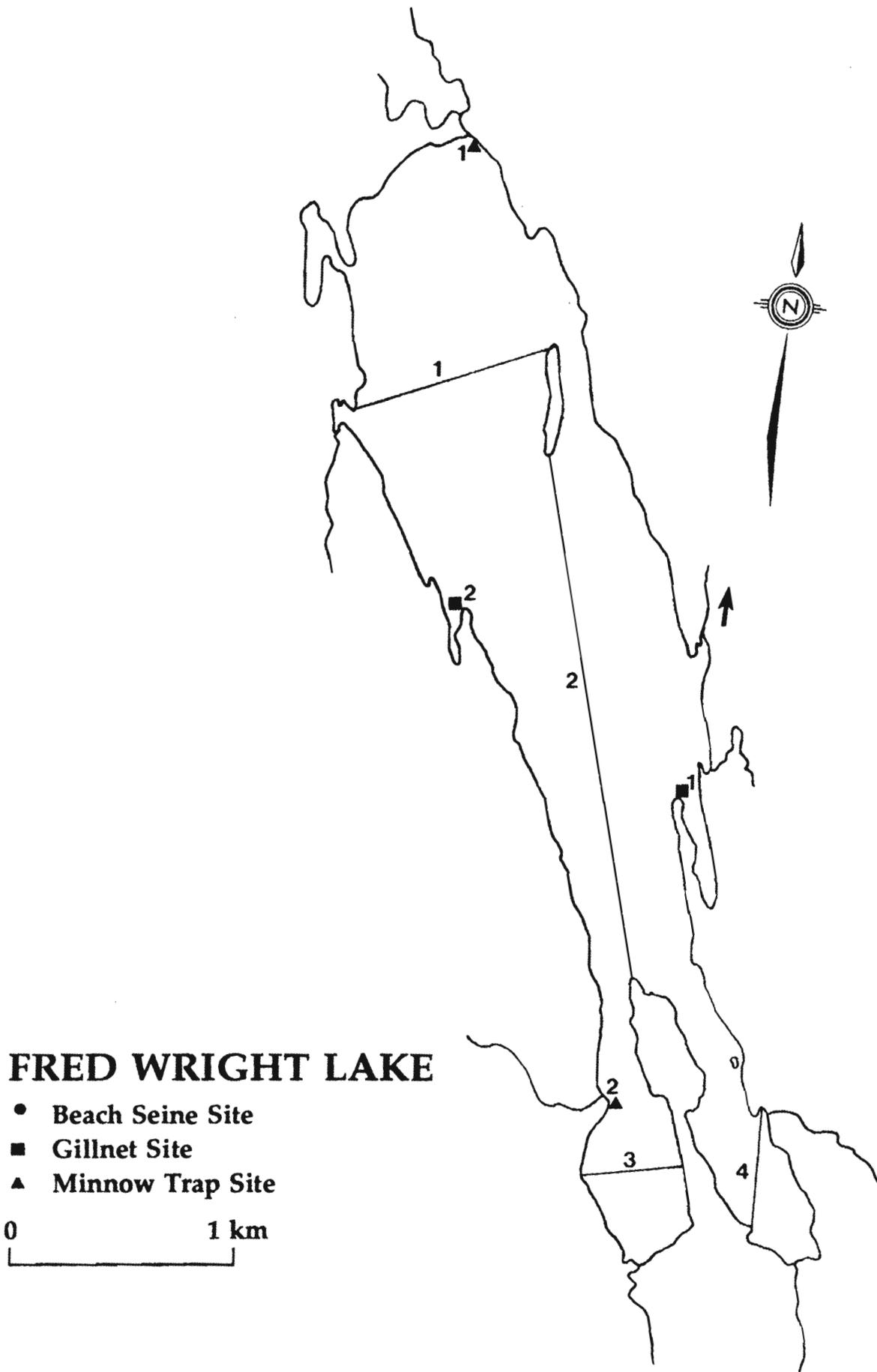




DRAGON LAKE

- Beach Seine Site
- Gillnet Site
- ▲ Minnow Trap Site

0 1 km

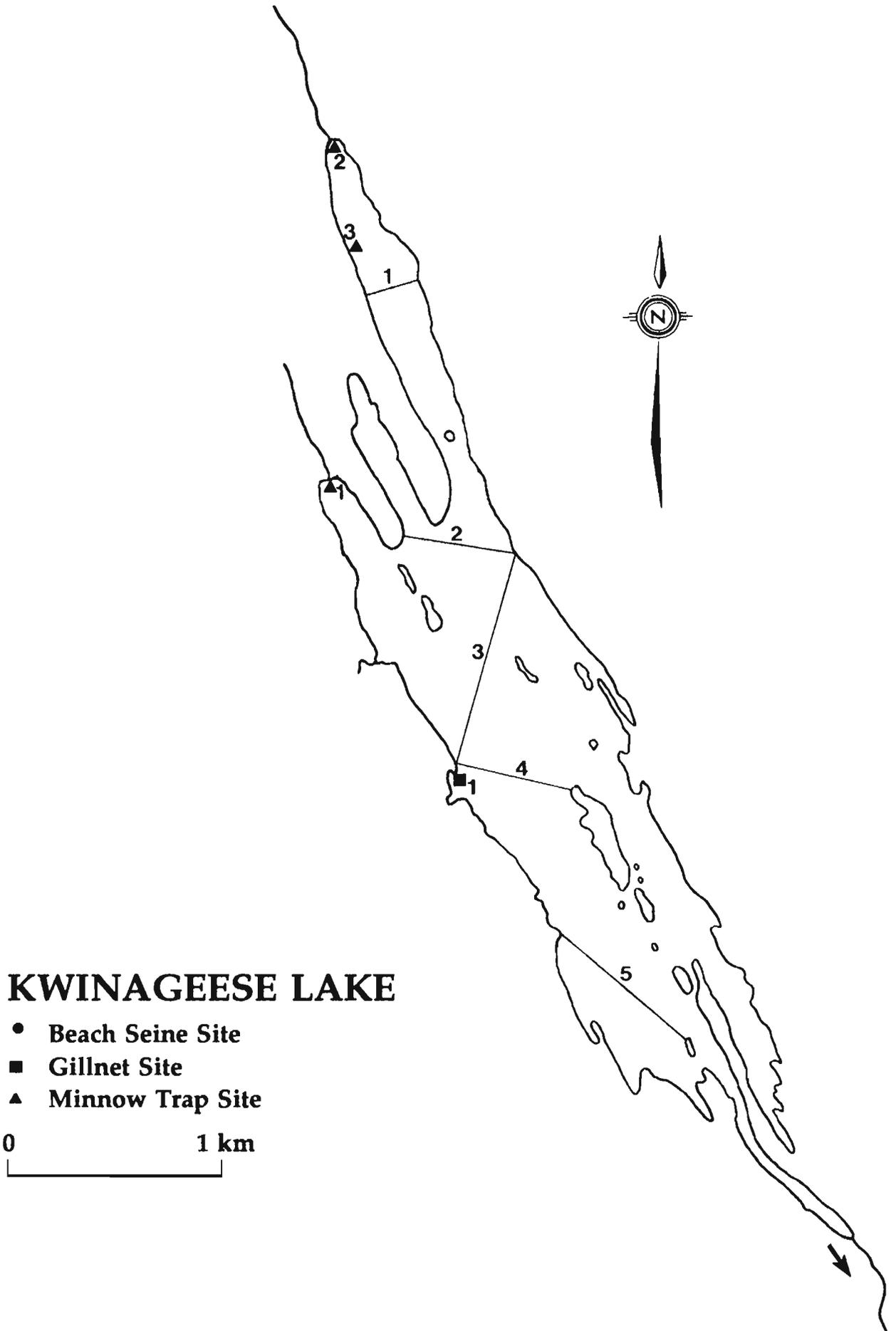




HALFWAY LAKE

- Beach Seine Site
- Gillnet Site
- ▲ Minnow Trap Site

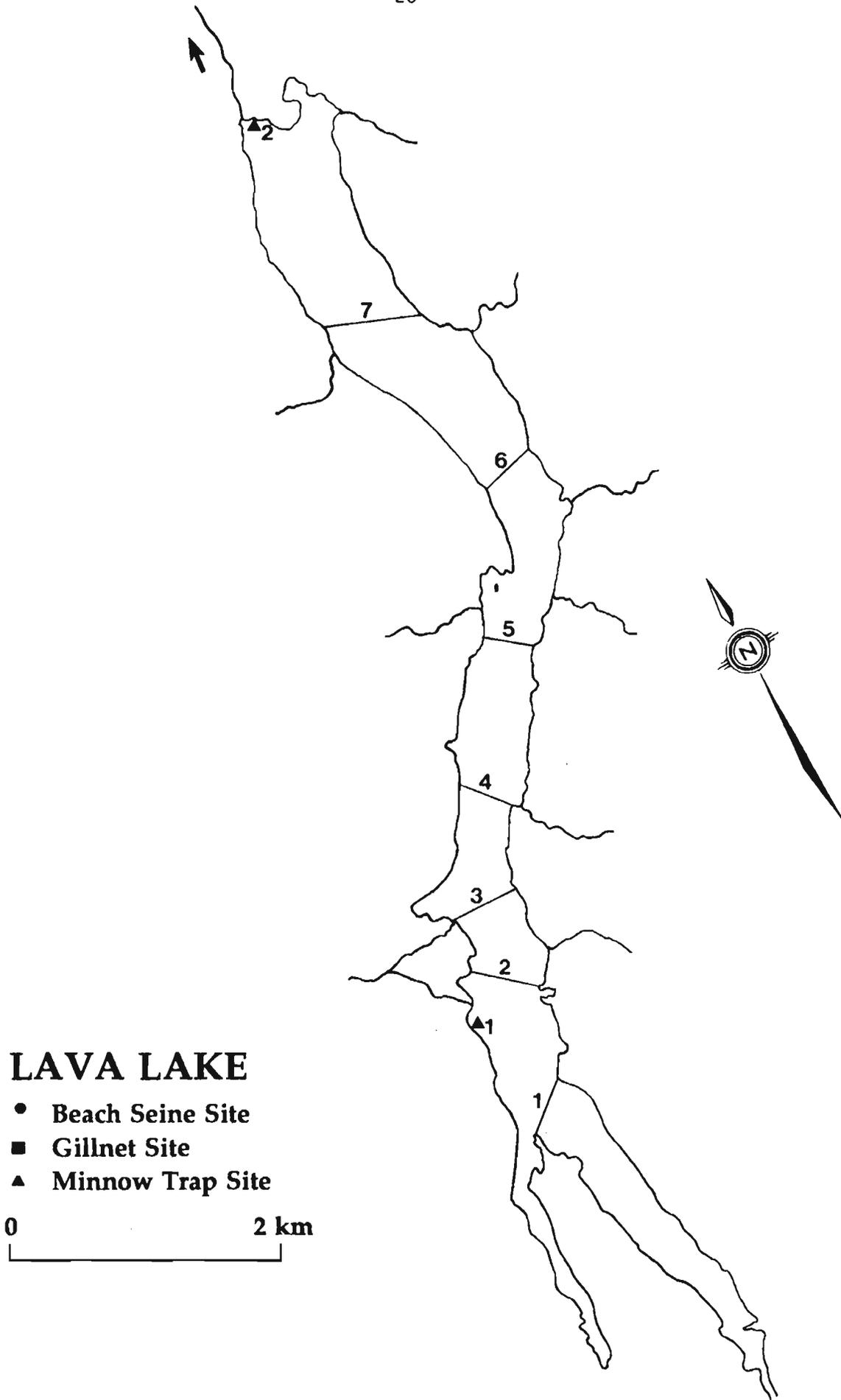
0 1 km



KWINAGEESE LAKE

- Beach Seine Site
- Gillnet Site
- ▲ Minnow Trap Site

0 1 km





MEZIADIN LAKE

- Beach Seine Site
- Gillnet Site
- ▲ Minnow Trap Site

0 5 km

Table: 3. Beach seine catch summary tables for (a) Bowser and (b) Damdochax lakes.

Table: 3a. Bowser Lake.

Date	Site No.	Time Start	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
11-Sep-92	1	08:31	6	3	0	8.0	8	FRY	SOCKEYE
							5	NONE	WHITEFISH
11-Sep-92	2	08:38	6	3	0	8.0	1	FRY	SOCKEYE
11-Sep-92	3	08:55	6	3	0	8.0	3	FRY	SOCKEYE
							2	NONE	WHITEFISH
11-Sep-92	4	09:07	6	3	0	8.0	1	ADULT	DOLLY VARDEN
							1	FRY	SOCKEYE
11-Sep-92	5	09:18	6	3	0	8.0	3	FRY	SOCKEYE
11-Sep-92	6	09:30	6	3	0	8.0	12	FRY	SOCKEYE
							2	NONE	SUCKERFISH
							1	NONE	WHITEFISH
11-Sep-92	7	09:42	6	3	0	8.0	14	FRY	SOCKEYE
							3	NONE	WHITEFISH
11-Sep-92	8	09:54	6	3	0	8.0	3	FRY	SOCKEYE
11-Sep-92	9	10:06	6	3	0	8.0	1	ADULT	KOKANEE
							3	FRY	SOCKEYE
							3	NONE	SUCKERFISH
11-Sep-92	10	10:21	6	3	0	8.0	1	FRY	SOCKEYE
							1	NONE	WHITEFISH
11-Sep-92	11	10:33	6	3	0	8.0	5	FRY	SOCKEYE
							1	NONE	WHITEFISH
11-Sep-92	12	10:46	6	3	0	8.0	29	FRY	SOCKEYE

Table: 3b. Damdochax Lake.

Date	Site No.	Time Start	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
23-Sep-92	1	14:50	9	0	0	10.5	0		
23-Sep-92	2	15:15	9	0	0	10.5	1	FRY	COHO
							58	NONE	SCULPIN
23-Sep-92	3	15:45	9	0	0	10.5	2	FRY	SOCKEYE
							23	NONE	SCULPIN

Table: 4. Gillnet catch summary tables for (a) Bonney, (b) Bowser, (c) Fred Wright and (d) Kwinageese lakes.

Table: 4a. Bonney Lake.

Date	Site No.	Time Start	Duration (Hrs)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
15-Sep-92	1	16:00	24.50	12	5	6	11.0	92	NONE	RAINBOW
								2	NONE	SCULPINS
								28	NONE	SUCKERS

Table: 4b. Bowser Lake.

Date	Site No.	Time Start	Duration (Hrs)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
10-Sep-92	1	09:13	3.12	10	3	4	8.0	2	FRY	COHO
								1	NONE	DOLLY VARDEN
								15	NONE	SUCKERFISH
								6	NONE	WHITEFISH

Table: 4c. Fred Wright Lake.

Date	Site No.	Time Start	Duration (Hrs)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
12-Aug-92	1	11:30	2.25	0	0	0	18.0	4	NONE	DOLLY VARDEN
								3	NONE	SOCKEYE
								2	NONE	WHITEFISH
18-Sep-92	2	15:30	22.5	9	5	6	10.0	6	FRY	COHO
								8	NONE	DOLLY VARDEN
								5	NONE	RAINBOW TROUT
								12	NONE	RED SIDED SHINER
								1	NONE	SCULPIN
								2	NONE	SUCKERFISH
								7	NONE	WHITEFISH

Table: 4d. Kwinageese Lake.

Date	Site No.	Time Start	Duration (Hrs)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
22-Sep-92	1	11:00	23.5	9	5	0	10.5	6	NONE	DOLLY VARDEN
								2	NONE	NORTHERN SQUAWFISH
								2	NONE	PEAMOUTH CHUB
								6	NONE	RAINBOW
								17	NONE	SUCKERFISH
								10	NONE	WHITEFISH

Table: 5. Minnow trap catch summary tables for (a) Bonney, (b) Bowser, (c) Damdochax, (d) Dragon, (e) Fred Wright, (f) Halfway, (g) Kwinageese, (h) Lava and (i) Meziadin lakes.

Table: 5a. Bonney Lake.

Date	Site No.	Time Start	Duration (Hrs)	Trap No.	Depth (m)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
10-Aug-92	1	19:35	15.00	1	1.00	7	1	0	18.0	3	NONE	SCULPIN
10-Aug-92	1	19:35	15.00	2	1.13	7	1	0	18.0	11	NONE	SCULPIN
10-Aug-92	1	19:35	15.00	3	1.25	7	1	0	18.0	3	NONE	SCULPIN
10-Aug-92	1	19:35	15.00	4	1.38	7	1	0	18.0	31	NONE	SCULPIN
10-Aug-92	1	19:35	15.00	5	1.50	7	1	0	18.0	5	NONE	SCULPIN
10-Aug-92	2	19:35	15.00	6	1.50	7	1	0	18.0	7	NONE	SCULPIN
10-Aug-92	2	19:35	15.00	7	1.63	7	1	0	18.0	12	NONE	SCULPIN
10-Aug-92	2	19:35	15.00	8	1.75	7	1	0	18.0	8	NONE	SCULPIN
10-Aug-92	2	19:35	15.00	9	1.88	7	1	0	18.0	0		
10-Aug-92	2	19:35	15.00	10	2.00	7	1	0	18.0	16	NONE	SCULPIN
15-Sep-92	3	14:37	24.25	1	0.73	12	5	6	11.0	3	NONE	SCULPIN
15-Sep-92	3	14:37	24.25	2	0.71	12	5	6	11.0	0		
15-Sep-92	3	14:37	24.25	3	0.68	12	5	6	11.0	2	NONE	SCULPIN
15-Sep-92	3	14:37	24.25	4	0.66	12	5	6	11.0	5	NONE	SCULPIN
15-Sep-92	3	14:37	24.25	5	0.63	12	5	6	11.0	1	NONE	SCULPIN
15-Sep-92	3	14:30	23.50	6	0.83	12	5	6	11.0	1	NONE	SCULPIN
15-Sep-92	3	14:30	23.50	7	0.85	12	5	6	11.0	3	NONE	SCULPIN
15-Sep-92	3	14:30	23.50	8	0.86	12	5	6	11.0	0		
15-Sep-92	3	14:30	23.50	9	0.88	12	5	6	11.0	0		
15-Sep-92	3	14:30	23.50	10	0.89	12	5	6	11.0	0		
15-Sep-92	3	15:20	24.00	11	3.50	12	5	6	11.0	6	NONE	SCULPIN
15-Sep-92	3	15:20	24.00	12	3.50	12	5	6	11.0	1	NONE	SCULPIN
15-Sep-92	3	15:20	24.00	13	3.50	12	5	6	11.0	1	NONE	SCULPIN
15-Sep-92	3	15:20	24.00	14	3.50	12	5	6	11.0	1	NONE	SCULPIN
15-Sep-92	3	15:20	24.00	15	3.50	12	5	6	11.0	2	NONE	NORTH. SQUAWFISH
										4	NONE	SCULPIN
15-Sep-92	3	15:20	24.00	16	3.50	12	5	6	11.0	0		
15-Sep-92	3	15:20	24.00	17	3.50	12	5	6	11.0	0		
15-Sep-92	3	15:20	24.00	18	3.50	12	5	6	11.0	0		
15-Sep-92	3	15:20	24.00	19	3.50	12	5	6	11.0	1	NONE	SCULPIN
15-Sep-92	3	15:20	24.00	20	3.50	12	5	6	11.0	0		

Table: 5b. Bowser Lake.

Date	Site No.	Time Start	Duration (Hrs)	Trap No.	Depth (m)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
12-Sep-92	1	15:30	20.5	1	0.50	10	4	0	8.0	29	FRY	COHO
										1	NONE	DOLLY VARDEN
12-Sep-92	1	15:30	20.5	2	0.50	10	4	0	8.0	8	FRY	COHO
12-Sep-92	1	15:30	20.5	3	0.50	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	4	0.50	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	5	0.50	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	6	0.50	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	7	0.50	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	8	0.50	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	9	0.50	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	10	0.50	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	11	0.50	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	12	1.00	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	13	1.17	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	14	1.33	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	15	1.50	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	16	0.90	10	4	0	8.0	1	FRY	COHO
12-Sep-92	1	15:30	20.5	17	1.05	10	4	0	8.0	1	FRY	COHO
12-Sep-92	1	15:30	20.5	18	1.20	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	19	1.35	10	4	0	8.0	0		
12-Sep-92	1	15:30	20.5	20	1.75	10	4	0	8.0	0		

Table: 5c. Damdochax Lake.

Date	Site No.	Time Start	Duration (Hrs)	Trap No.	Depth (m)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
23-Sep-92	1	12:00	25.00	1	1.57	9	5	0	10.5	0		
23-Sep-92	1	12:00	25.00	2	1.57	9	5	0	10.5	0		
23-Sep-92	1	12:00	25.00	3	1.57	9	5	0	10.5	2	NONE	SCULPIN
23-Sep-92	1	12:00	25.00	4	1.57	9	5	0	10.5	0		
23-Sep-92	1	12:00	25.00	5	1.57	9	5	0	10.5	0		
23-Sep-92	1	12:00	25.00	6	0.76	9	5	0	10.5	0		
23-Sep-92	1	12:00	25.00	7	0.76	9	5	0	10.5	1	NONE	SCULPIN
23-Sep-92	1	12:00	25.00	8	0.76	9	5	0	10.5	1	NONE	SCULPIN
23-Sep-92	1	12:00	25.00	9	0.76	9	5	0	10.5	1	NONE	SCULPIN

Table: 5c. Damdochax Lake (Cont'd).

Date	Site No.	Time Start	Duration (Hrs)	Trap No.	Depth (m)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
23-Sep-92	1	12:00	25.00	10	0.76	9	5	0	10.5	0		
23-Sep-92	2	12:50	24.50	11	4.32	9	5	0	10.5	0		
23-Sep-92	2	12:50	24.50	12	4.14	9	5	0	10.5	0		
23-Sep-92	2	12:50	24.50	13	3.97	9	5	0	10.5	1	NONE	SCULPIN
23-Sep-92	2	12:50	24.50	14	3.79	9	5	0	10.5	0		
23-Sep-92	2	12:50	24.50	15	3.61	9	5	0	10.5	0		
23-Sep-92	2	12:50	24.50	16	0.96	9	5	0	10.5	0		
23-Sep-92	2	12:50	24.50	17	0.96	9	5	0	10.5	0		
23-Sep-92	2	12:50	24.50	18	0.96	9	5	0	10.5	0		
23-Sep-92	2	12:50	24.50	19	0.96	9	5	0	10.5	0		
23-Sep-92	2	12:50	24.50	20	0.96	9	5	0	10.5	0		

Table: 5d. Dragon Lake.

Date	Site No.	Time Start	Duration (Hrs)	Trap No.	Depth (m)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
17-Aug-92	1	16:55	19.00	1	2.00	8	3	3	19.0	1	NONE	SCULPIN
17-Aug-92	1	16:55	19.00	2	2.13	8	3	3	19.0	0		
17-Aug-92	1	16:55	19.00	3	2.25	8	3	3	19.0	4	NONE	SCULPIN
17-Aug-92	1	16:55	19.00	4	2.38	8	3	3	19.0	1	NONE	SCULPIN
17-Aug-92	1	16:55	19.00	5	2.50	8	3	3	19.0	0		
17-Aug-92	2	17:05	19.75	6	2.00	8	3	3	19.0	1	NONE	SCULPIN
17-Aug-92	2	17:05	19.75	7	2.00	8	3	3	19.0	0		
17-Aug-92	2	17:05	19.75	8	2.00	8	3	3	19.0	4	NONE	SCULPIN
17-Aug-92	2	17:05	19.75	9	2.00	8	3	3	19.0	1	NONE	SCULPIN
17-Aug-92	2	17:05	19.75	10	2.00	8	3	3	19.0	2	NONE	SCULPIN

Table: 5e. Fred Wright Lake.

Date	Site No.	Time Start	Duration (Hrs)	Trap No.	Depth (m)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
11-Aug-92	1	19:58	23.5	1	0.84	7	5	3	18.0	1	NONE	RED SIDED SHINER
										3	NONE	SCULPIN
11-Aug-92	1	19:58	23.5	2	0.82	7	5	3	18.0	6	NONE	RED SIDED SHINER
										6	NONE	SCULPIN
11-Aug-92	1	19:58	23.5	3	0.80	7	5	3	18.0	11	NONE	SCULPIN
11-Aug-92	1	19:58	23.5	4	0.78	7	5	3	18.0	1	NONE	RED SIDED SHINER
										11	NONE	SCULPIN
11-Aug-92	1	19:58	23.5	5	0.76	7	5	3	18.0	3	NONE	RED SIDED SHINER
										14	NONE	SCULPIN
11-Aug-92	1	19:58	23.5	6	0.66	7	5	3	18.0	39	NONE	RED SIDED SHINER
										6	NONE	SCULPIN
11-Aug-92	1	19:58	23.5	7	1.19	7	5	3	18.0	13	NONE	RED SIDED SHINER
										12	NONE	SCULPIN
11-Aug-92	1	19:58	23.5	8	1.72	7	5	3	18.0	16	NONE	SCULPIN
11-Aug-92	1	19:58	23.5	9	2.25	7	5	3	18.0	62	NONE	SCULPIN
11-Aug-92	1	19:58	23.5	10	2.78	7	5	3	18.0	1	NONE	RED SIDED SHINER
										20	NONE	SCULPIN
11-Aug-92	2	20:17	23.5	11	0.40	7	5	3	18.0	3	NONE	RED SIDED SHINER
										19	NONE	SCULPIN
11-Aug-92	2	20:17	23.5	12	0.53	7	5	3	18.0	14	NONE	SCULPIN
11-Aug-92	2	20:17	23.5	13	0.66	7	5	3	18.0	1	NONE	RED SIDED SHINER
										4	NONE	SCULPIN
11-Aug-92	2	20:17	23.5	14	0.78	7	5	3	18.0	8	NONE	SCULPIN
11-Aug-92	2	20:17	23.5	15	0.91	7	5	3	18.0	5	NONE	SCULPIN
11-Aug-92	2	20:17	23.5	16	0.79	7	5	3	18.0	1	NONE	SCULPIN
11-Aug-92	2	20:17	23.5	17	1.23	7	5	3	18.0	5	NONE	SCULPIN
11-Aug-92	2	20:17	23.5	18	1.68	7	5	3	18.0	7	NONE	SCULPIN
11-Aug-92	2	20:17	23.5	19	2.12	7	5	3	18.0	0		
11-Aug-92	2	20:17	23.5	20	2.56	7	5	3	18.0	11	NONE	SCULPIN
17-Sep-92	1	13:52	26	1	3.75	11	5	2	8.5	0		
17-Sep-92	1	13:52	26	2	3.75	11	5	2	8.5	3	NONE	SCULPIN
17-Sep-92	1	13:52	26	3	3.75	11	5	2	8.5	0		
17-Sep-92	1	13:52	26	4	3.75	11	5	2	8.5	1	NONE	SCULPIN
17-Sep-92	1	13:52	26	5	3.75	11	5	2	8.5	0		

Table: 5e. Fred Wright Lake (Cont'd).

Date	Site No.	Time Start	Duration (Hrs)	Trap No.	Depth (m)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
17-Sep-92	1	13:52	26	6	3.75	11	5	2	8.5	1	NONE	SCULPIN
17-Sep-92	1	13:52	26	7	3.75	11	5	2	8.5	3	NONE	SCULPIN
17-Sep-92	1	13:52	26	8	3.75	11	5	2	8.5	3	NONE	SCULPIN
17-Sep-92	1	13:52	26	9	3.75	11	5	2	8.5	1	NONE	SCULPIN
17-Sep-92	1	13:52	26	10	3.75	11	5	2	8.5	5	NONE	SCULPIN
17-Sep-92	2	14:30	25.75	11	0.43	11	5	2	8.5	0		
17-Sep-92	2	14:30	25.75	12	0.49	11	5	2	8.5	0		
17-Sep-92	2	14:30	25.75	13	0.56	11	5	2	8.5	0		
17-Sep-92	2	14:30	25.75	14	0.62	11	5	2	8.5	1	NONE	SCULPIN
17-Sep-92	2	14:30	25.75	15	0.68	11	5	2	8.5	0		
17-Sep-92	2	14:30	25.75	16	0.23	11	5	2	8.5	2	NONE	SCULPIN
17-Sep-92	2	14:30	25.75	17	0.27	11	5	2	8.5	1	NONE	SCULPIN
17-Sep-92	2	14:30	25.75	18	0.31	11	5	2	8.5	1	NONE	SCULPIN
17-Sep-92	2	14:30	25.75	19	0.34	11	5	2	8.5	1	NONE	RED SIDED SHINER
17-Sep-92	2	14:30	25.75	20	0.38	11	5	2	8.5	2	NONE	SCULPIN
17-Sep-92	2	14:30	25.75	20	0.38	11	5	2	8.5	3	NONE	SCULPIN

Table: 5f. Halfway Lake.

Date	Site No.	Time Start	Duration (Hrs)	Trap No.	Depth (m)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
19-Sep-92	1	16:00	20.50	1	0.35	10	5	4	11.0	0		
19-Sep-92	1	16:00	20.50	2	0.35	10	5	4	11.0	1	NONE	SCULPIN
19-Sep-92	1	16:00	20.50	3	0.35	10	5	4	11.0	1	FRY	COHO
19-Sep-92	1	16:00	20.50	4	0.35	10	5	4	11.0	0		
19-Sep-92	1	16:00	20.50	5	0.35	10	5	4	11.0	0		
19-Sep-92	1	16:00	20.50	6	0.43	10	5	4	11.0	0		
19-Sep-92	1	16:00	20.50	7	0.43	10	5	4	11.0	1	FRY	COHO
19-Sep-92	1	16:00	20.50	8	0.43	10	5	4	11.0	0		
19-Sep-92	1	16:00	20.50	9	0.43	10	5	4	11.0	0		
19-Sep-92	1	16:00	20.50	10	0.43	10	5	4	11.0	0		

Table: 5g. Kwinageese Lake.

Date	Site No.	Time Start	Duration (Hrs)	Trap No.	Depth (m)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
21-Sep-92	1	18:05	21.50	1	0.76	9	5	0	10.5	1	NONE	NORTHERN SQUAWFISH
										1	NONE	SCULPIN
21-Sep-92	1	18:05	21.50	2	0.76	9	5	0	10.5	0		
21-Sep-92	1	18:05	21.50	3	0.77	9	5	0	10.5	0		
21-Sep-92	1	18:05	21.50	4	0.78	9	5	0	10.5	3	NONE	NORTHERN SQUAWFISH
										3	NONE	SCULPIN
21-Sep-92	1	18:05	21.50	5	0.79	9	5	0	10.5	1	NONE	RED SIDED SHINER
21-Sep-92	1	18:05	21.50	6	1.00	9	5	0	10.5	0		
21-Sep-92	1	18:05	21.50	7	1.05	9	5	0	10.5	0		
21-Sep-92	1	18:05	21.50	8	1.10	9	5	0	10.5	1	NONE	SCULPIN
21-Sep-92	1	18:05	21.50	9	1.15	9	5	0	10.5	0		
21-Sep-92	1	18:05	21.50	10	1.20	9	5	0	10.5	1	NONE	RED SIDED SHINER
										3	NONE	SCULPIN
21-Sep-92	2	18:30	21.50	11	0.60	9	5	0	10.5	2	NONE	SCULPIN
21-Sep-92	2	18:30	21.50	12	0.69	9	5	0	10.5	0		
21-Sep-92	2	18:30	21.50	13	0.79	9	5	0	10.5	3	NONE	NORTHERN SQUAWFISH
21-Sep-92	2	18:30	21.50	14	1.18	9	5	0	10.5	2	NONE	SCULPIN
21-Sep-92	2	18:30	21.50	15	1.56	9	5	0	10.5	0		
21-Sep-92	3	18:40	21.50	16	0.41	9	5	0	10.5	1	NONE	SCULPIN
21-Sep-92	3	18:40	21.50	17	0.50	9	5	0	10.5	0		
21-Sep-92	3	18:40	21.50	18	0.59	9	5	0	10.5	1	NONE	NORTHERN SQUAWFISH
21-Sep-92	3	18:40	21.50	19	0.67	9	5	0	10.5	1	NONE	SCULPIN
21-Sep-92	3	18:40	21.50	20	0.76	9	5	0	10.5	0		

Table: 5h Lava Lake.

Date	Site No.	Time Start	Duration (Hrs)	Trap No.	Depth (m)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
17-Aug-92	1	17:05	22.50	1	0.50	5	3	1	17.0	3	NONE	SCULPIN
17-Aug-92	1	17:05	22.50	2	0.56	5	3	1	17.0	4	NONE	SCULPIN
17-Aug-92	1	17:05	22.50	3	0.63	5	3	1	17.0	0		

Table: 5h Lava Lake (Cont'd).

Date	Site No.	Time Start	Duration (Hrs)	Trap No.	Depth (m)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
17-Aug-92	1	17:05	22.50	4	0.68	5	3	1	17.0	LOST		
17-Aug-92	1	17:05	22.50	5	0.75	5	3	1	17.0	3	NONE	SCULPIN
17-Aug-92	2	17:42	22.25	6-10	0.50	5	3	1	17.0	LOST		

NOTE : LOST = TRAPS DISTROYED BY BEAR.

Table: 5i. Meziadin Lake.

Date	Site No.	Time Start	Duration (Hrs)	Trap No.	Depth (m)	Sky	Light	Wind	Surface Temp (°C)	Catch	Age	Species
09-Sep-92	1	13:30	23	1	1.50	10	5	6	12.0	10	NONE	SCULPIN
09-Sep-92	1	13:30	23	2	1.50	10	5	6	12.0	1	NONE	SCULPIN
										1	NONE	SUCKERFISH
09-Sep-92	1	13:30	23	3	1.50	10	5	6	12.0	3	NONE	SCULPIN
09-Sep-92	1	13:30	23	4	1.50	10	5	6	12.0	0		
09-Sep-92	1	13:30	23	5	1.00	10	5	6	12.0	1	NONE	SCULPIN
09-Sep-92	1	13:30	23	6	1.00	10	5	6	12.0	0		
09-Sep-92	1	13:30	23	7	1.00	10	5	6	12.0	1	NONE	SCULPIN
										1	NONE	SUCKERFISH
09-Sep-92	1	13:30	23	8	1.00	10	5	6	12.0	2	NONE	SCULPIN
09-Sep-92	1	13:30	23	9	1.00	10	5	6	12.0	0		
09-Sep-92	1	13:30	23	10	1.00	10	5	6	12.0	1	NONE	SCULPIN
09-Sep-92	2	15:00	22	11	1.00	10	5	6	12.0	2	NONE	SCULPIN
09-Sep-92	2	15:00	22	12	1.00	10	5	6	12.0	0		
09-Sep-92	2	15:00	22	13	1.00	10	5	6	12.0	0		
09-Sep-92	2	15:00	22	14	1.00	10	5	6	12.0	1	NONE	SCULPIN
09-Sep-92	2	15:00	22	15	1.00	10	5	6	12.0	4	NONE	SCULPIN
09-Sep-92	2	15:00	22	16	1.00	10	5	6	12.0	4	NONE	SCULPIN
09-Sep-92	2	15:00	22	17	1.00	10	5	6	12.0	1	NONE	SCULPIN
										1	NONE	SUCKERFISH
09-Sep-92	2	15:00	22	18	1.00	10	5	6	12.0	0		
09-Sep-92	2	15:00	22	19	1.00	10	5	6	12.0	1	NONE	SCULPIN
09-Sep-92	2	15:00	22	20	1.00	10	5	6	12.0	1	NONE	SUCKERFISH

Table: 6. Trawl catch summary tables for (a) Bowser, (b) Damdochax, (c) Dragon, (d) Fred Wright, (e) Kwinageese and (f) Meziadin Lakes.

Table: 6a. Bonney Lake.

Date	Location (transect)	Sample No.	Depth (m)	Time		Duration (min)	Flow Meter Distance	Sky	Light	Wind	Surface Temp (°C)	Sockeye Catch	Other Catch	Species
				Start	Finish									
10-Aug-92	5-2	1	0	23:27	23:34	7	12111	7	1	0	18	0	0	
15-Sep-92	6-8	1	0	22:36	22:51	15	20774	12	1	5	11	0	0	
15-Sep-92	8-9	2	10	22:58	23:13	15	26807	12	1	5	11	0	0	

Table: 6b. Bowser Lake.

Date	Location (transect)	Sample No.	Depth (m)	Time		Duration (min)	Flow Meter Distance	Sky	Light	Wind	Surface Temp (°C)	Sockeye Catch	Other Catch	Species
				Start	Finish									
01-Sep-91	2-3	1	0	22:42	22:57	15	24073	7	4	0	7.5	4	0	
02-Sep-91	3-4	2	0	14:22	14:37	15	30539	7	0	0	7.5	5	0	
02-Sep-91	3-4	3	0	14:43	14:58	15	30217	7	0	0	7.5	3	0	
02-Sep-91	4-5	4	0	15:02	15:17	15	29358	7	0	0	7.5	4	0	
02-Sep-91	4-5	5	0	15:21	15:36	15	28281	7	0	0	7.5	1	0	
11-Sep-92	5-6	1	0	09:27	09:42	15	37449	10	0	0	8.0	2	0	
11-Sep-92	5-6	2	0	09:50	10:05	15	24639	10	0	0	8.0	2	0	
11-Sep-92	5-6	3	0	10:08	10:23	15	27511	10	0	0	8.0	0	0	
11-Sep-92	5-6	4	0	10:28	10:43	15	26962	10	0	0	8.0	0	0	
11-Sep-92	6-6	5	0	10:48	11:03	15	26708	10	0	0	8.0	3	1	PEAMOUTH CHUB
11-Sep-92	6-END	6	0	11:08	11:23	15	28111	10	0	0	8.0	0	1	PEAMOUTH CHUB
11-Sep-92	4-3	7	0	15:28	15:43	15	25243	10	0	0	8.0	1	0	
11-Sep-92	4-3	8	0	15:47	16:02	15	25886	10	0	0	8.0	1	0	
11-Sep-92	3-2	9	0	16:09	16:24	15	25145	10	0	0	8.0	0	0	
11-Sep-92	3-2	10	0	16:29	16:44	15	27296	10	0	0	8.0	0	0	
11-Sep-92	3-2	11	0	16:48	17:03	15	25539	10	0	0	8.0	0	0	
11-Sep-92	4-5	12	0	17:25	17:40	15	27230	10	0	0	8.0	2	1	PEAMOUTH CHUB
11-Sep-92	5-4	13	0	17:45	18:05	20	34301	10	0	0	8.0	2	0	
11-Sep-92	4-5	14	0	18:10	18:25	15	27515	10	0	0	8.0	2	0	
11-Sep-92	4-5	15	0	18:31	18:52	21	38832	10	0	0	8.0	3	0	

Table: 6c. Damdochax Lake.

Date	Location (transect)	Sample No.	Depth (m)	Time Start	Time Finish	Duration (min)	Flow Meter Distance	Sky	Light	Wind	Surface Temp (°C)	Sockeye Catch	Other Catch	Species
06-Sep-91	4-2	1	0	22:14	22:29	15	28965	10	1	0	11.5	1	0	
06-Sep-91	3-4	2	0	22:36	22:48	12	25226	10	1	0	11.5	0	0	
06-Sep-91	4-2	3	11	22:58	23:13	15	29673	10	1	0	11.5	9	0	
06-Sep-91	2-4	4	13	23:20	23:35	15	31635	10	1	0	11.5	35	0	
06-Sep-91	4-2	5	13	23:41	23:56	15	27687	10	1	0	11.5	34	0	
07-Sep-91	2-4	6	13	00:02	00:17	15	28179	10	1	0	11.5	21	0	
14-Aug-92	4-2	1	10	23:37	23:50	13	27271	8	1	1	14.0	4	0	
14-Aug-92	2-4	2	11	23:56	00:11	15	31633	8	1	1	14.0	10	0	
15-Aug-92	4-2	3	12	00:15	00:30	15	31521	8	1	1	14.0	6	0	
15-Aug-92	2-4	4	11	00:34	00:47	13	27003	8	1	1	14.0	7	0	
15-Aug-92	4-2	5	13	00:52	01:07	15	31699	8	1	1	14.0	4	0	
15-Aug-92	2-4	6	0	01:12	01:27	15	23613	8	1	1	14.0	2	0	
23-Sep-92	4-2	1	8	22:31	22:42	11	17291	9	1	0	10.5	9	0	
23-Sep-92	2-4	2	10	22:47	23:02	15	24271	9	1	0	10.5	7	0	
23-Sep-92	4-2	3	12	23:07	23:25	18	30757	9	1	0	10.5	21	12	SCULPIN
23-Sep-92	2-4	4	12	23:33	23:48	15	24415	9	1	0	10.5	12	3	WHITEFISH
23-Sep-92	4-2	5	11	23:56	00:11	15	26646	9	1	0	10.5	18	23	SCULPIN
23-Sep-92	2-4	6	12	00:17	00:32	15	27102	9	1	0	10.5	16	6	SCULPIN
23-Sep-92	4-2	7	0	00:40	00:55	15	24378	9	1	0	10.5	0	0	1 WHITEFISH
23-Sep-92	2-4	8	0	01:00	01:15	15	20841	9	1	0	10.5	0	0	

Table: 6d. Dragon Lake.

Date	Location (transect)	Sample No.	Depth (m)	Time Start	Time Finish	Duration (min)	Flow Meter Distance	Sky	Light	Wind	Surface Temp (°C)	Sockeye Catch	Other Catch	Species
17-Aug-92	4-1	1	0	00:28	00:39	11	15019	8	3	3	19.0	0	159	STICKLEBACK
17-Aug-92	1-4	2	4	00:46	00:56	10	17704	8	3	3	19.0	0	1	RED SIDED SHNER
17-Aug-92	4-1	3	6	01:00	01:10	10	20064	8	3	3	19.0	0	63	STICKLEBACK

Table: 6e. Fred Wright Lake.

Date	Location (transect)	Sample No.	Depth (m)	Time		Duration (min)	Flow Meter Distance	Sky	Light	Wind	Surface Temp (°C)	Sockeye Catch	Other Catch	Species
				Start	Finish									
08-Sep-91	4-4	1	0	22:42	22:52	10	17124	9	1	1	12.5	1	0	
08-Sep-91	4-4	2	12	23:03	23:09	6	18197	9	1	1	12.5	21	0	
08-Sep-91	4-4	3	10.5	23:17	23:23	6	11455	9	1	1	12.5	4	0	
08-Sep-91	2-2	4	0	23:36	23:51	15	30584	9	1	1	12.5	3	2	PEAMOUTH CHUB
08-Sep-91	2-2	5	12	23:56	00:11	15	32563	9	1	1	12.5	24	0	
08-Sep-91	2-2	6	11	00:17	00:32	15	31251	9	1	1	12.5	19	0	
13-Aug-92	0-1	1	0	00:49	01:04	15	22121	0	2	0	18.0	0	0	
13-Aug-92	2-3	2	7	01:48	02:03	15	24687	0	2	0	18.0	0	0	
17-Sep-92	2-2	1	14	23:32	23:47	15	28680	11	1	2	8.5	9	0	
17-Sep-92	2-2	2	14	00:09	00:24	15	28625	11	1	2	8.5	12	0	
17-Sep-92	2-2	3	15	00:33	00:48	15	27832	11	1	2	8.5	16	0	
17-Sep-92	2-2	4	15	00:56	01:11	15	25614	11	1	2	8.5	11	0	
17-Sep-92	2-2	5	16	01:18	01:33	15	28073	11	1	2	8.5	10	0	
17-Sep-92	2-2	6	0	01:41	01:56	15	28293	11	1	2	8.5	0	0	

Table: 6f. Kwinageese Lake.

Date	Location (transect)	Sample No.	Depth (m)	Time		Duration (min)	Flow Meter Distance	Sky	Light	Wind	Surface Temp (°C)	Sockeye Catch	Other Catch	Species
				Start	Finish									
07-Sep-91	5-4	1	0	22:16	22:31	15	31359	0	4	0	12.0	0	0	
07-Sep-91	4-2	2	0	22:38	22:53	15	32242	0	4	0	12.0	0	0	
14-Aug-92	5-4	1	0	00:04	00:19	15	22281	7	3	1	17.5	0	0	
20-Sep-92	4-3	1	0	20:49	21:04	15	22580	9	1	0	10.5	0	0	
20-Sep-92	3-4	2	0	21:08	21:23	15	20217	9	1	0	10.5	0	0	
20-Sep-92	4-3	3	10	21:32	22:47	15	22361	9	1	0	10.5	0	0	

Table: 6g. Lava Lake.

Date	Location (transect)	Sample No.	Depth (m)	Time		Duration (min)	Flow Meter Distance	Sky	Light	Wind	Surface Temp (°C)	Sockeye Catch	Other Catch	Species
				Start	Finish									
17-Aug-92	4-5	1	0	23:59	00:14	15	21172	5	3	1	17.0	0	0	
18-Aug-92	4-5	2	0	00:17	00:32	15	17738	5	3	1	17.0	0	0	

Table: 6h. Meziadin Lake.

Date	Location (transect)	Sample No.	Depth (m)	Time		Duration (min)	Flow Meter Distance	Sky	Light	Wind	Surface Temp (°C)	Sockeye Catch	Other Catch	Species
				Start	Finish									
30-Sep-91	5-5	1	0	22:46	23:01	15	28667	7	3	0	11.0	2	0	
30-Sep-91	5-4	2	7	23:07	23:22	15	30883	7	3	0	11.0	8	0	
30-Sep-91	3-2	3	9	01:14	01:29	15	26883	7	3	0	11.0	59	0	
30-Sep-91	3-2	4	4	01:32	01:47	15	28687	7	3	0	11.0	11	1	PEAMOUTH CHUB
30-Sep-91	1-2	5	0	03:41	03:56	15	21886	7	3	0	11.0	0	0	
30-Sep-91	1-2	6	9	03:59	04:14	15	30535	7	3	0	11.0	10	0	
07-Aug-92	4-3	1	0	23:47	00:02	15	26739	0	2	0	12.5	0	0	
08-Aug-92	4-3	2	8	00:11	00:26	15	36869	0	2	0	12.5	2	0	
08-Aug-92	3-3	3	11	01:24	01:39	15	34238	0	2	0	12.5	3	0	
08-Aug-92	3-2	4	9	01:46	02:01	15	37893	0	2	0	12.5	6	2	COHO SMOLT
08-Aug-92	2-1	5	9	02:06	02:21	15	33963	0	2	0	12.5	1	0	
08-Aug-92	1-2	6	0	02:26	02:41	15	26003	0	2	0	12.5	3	1	COHO SMOLT
08-Aug-92	2-1	7	6	02:48	03:03	15	33143	0	2	0	12.5	1	1	COHO SMOLT
09-Aug-92	5-5	8	5	00:25	00:40	15	30590	0	2	0	12.5	54	0	
09-Aug-92	5-6	9	5	00:46	01:01	15	33794	0	2	0	12.5	64	0	
09-Aug-92	6-5	10	8	01:05	01:20	15	31168	0	2	0	12.5	24	0	
09-Sep-92	5-4	1	0	21:03	21:18	15	20379	10	1	6	12.0	1	0	
09-Sep-92	4-5	2	4	21:27	21:42	15	26551	10	1	6	12.0	33	0	
09-Sep-92	5-4	3	4	21:50	22:05	15	26584	10	1	6	12.0	15	0	
09-Sep-92	4-5	4	6	22:10	22:25	15	26375	10	1	6	12.0	29	0	
09-Sep-92	5-4	5	5	22:31	22:46	15	26571	10	1	6	12.0	66	0	
09-Sep-92	4-3	6	10	22:52	23:07	15	25671	10	1	6	12.0	23	0	
09-Sep-92	4-3	7	0	23:12	23:27	15	27706	10	1	6	12.0	2	0	

Table: 7. Beach seine catch statistics tables presenting the lake name, species, sample size and the mean, maximum, minimum, standard deviation and variance for both length (mm) and weight (g) for Bowser and Damdochax lakes.

Lake Name	Date	Catch		Length (mm)					Weight (g)				
		Species	N	Mean	Max	Min	S.D.	Var	Mean	Max	Min	S.D.	Var
BOWSER	12-Sep-92	Kokanee	1	117.00	117	117	0.00	0.00	21.04	21.04	21.04	0.00	0.00
		Sockeye (fry)	81	44.15	86	29	12.64	159.75	1.19	7.00	0.16	1.28	1.64
		Sucker	3	101.67	108	90	10.12	102.33	11.49	13.26	8.45	2.65	6.99
		Whitefish	3	91.33	112	75	18.88	356.33	8.67	16.62	3.70	6.96	48.42
DAMDOCHAX	23-Sep-92	Coho (fry)	1	68.00	68	68	0.00	0.00	3.14	3.14	3.14	0.00	0.00
		Sculpin	57	46.70	121	20	16.26	264.21	1.42	18.02	0.08	2.37	5.64
		Sockeye (fry)	2	40.50	43	38	3.54	12.50	0.46	0.59	0.33	0.18	0.03

Table: 8. Gillnet catch statistics tables presenting the lake name, species, sample size and the mean, maximum, minimum, standard deviation and variance for both length (mm) and weight (g) for Bonney, Bowser, Fred Wright and Kwinageese lakes.

Lake Name	Date	Catch		Length (mm)					Weight (g)				
		Species	N	Mean	Max	Min	S.D.	Var	Mean	Max	Min	S.D.	Var
BONNEY	15-Sep-92	Rainbow Trout	10	113.7	148	85	22.200	492.90	15.79	31.24	5.96	8.749	76.540
		Rainbow Trout	78	213.4	290	88	55.100	3092	NA	NA	NA	NA	NA
		Sculpin	2	102.0	102	102	0.000	0.000	10.57	11.28	9.86	1.004	1.008
		Sucker	23	96.8	117	77	13.200	174.30	10.33	18.79	4.03	4.970	24.700
BOWSER	11-Sep-92	Coho (fry)	2	116.0	123	109	9.899	98.00	18.53	21.83	15.22	4.674	21.800
		Dolly Varden	1	390.0	390	390	0.000	0.000	NA	NA	NA	NA	NA
		Suckerfish	2	82.0	84	80	2.828	8.000	6	6.58	5.42	0.820	0.673
		Suckerfish	13	247.3	310	150	57.400	3294	NA	NA	NA	NA	NA
		Whitefish	2	117.5	127	108	13.440	180.50	16.41	20.68	12.13	6.046	36.551
		Whitefish	4	200.0	250	170	36.740	1350	NA	NA	NA	NA	NA
FRED WRIGHT	12-Aug-92	Dolly Varden	4	512.5	590	460	55.603	3092	NA	NA	NA	NA	NA
		Sockeye (Adult)	3	540.0	610	500	60.830	3700	NA	NA	NA	NA	NA
		Whitefish	2	255.0	310	200	77.780	6050	NA	NA	NA	NA	NA
	18-Sep-92	Coho (fry)	6	105.2	113	81	12.110	146.60	13.55	17.10	5.36	4.193	17.580
		Rainbow Trout	2	117.5	123	112	7.778	60.50	18.67	19.56	17.77	1.266	1.602
		Redsided Shiner	11	80.2	109	54	18.400	338.40	7.24	16.66	1.83	5.070	25.700
		Sculpin	1	100.0	100	100	0.000	0.000	11.12	11.12	11.12	0.000	0.000
		Sucker	1	118.0	118	118	0.000	0.000	12.92	12.92	12.92	0.000	0.000
		Whitefish	4	126.3	134	118	6.652	44.250	16.81	20.11	13.31	2.825	7.981
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KWINAGEESE	22-Sep-92	Dolly Varden	6	466.3	710	183	199.460	39782	NA	NA	NA	NA	NA
		Kokanee	1	185.0	185	185	0.000	0.000	80.29	80.29	80.29	0.000	0.000
		Kokanee	10	243.4	253	230	7.290	53.156	NA	NA	NA	NA	NA
		Northern Squawfish	2	144.0	174	114	42.430	1800	35.58	56.43	14.74	29.480	869.0
		Pearmouth Chub	2	142.0	157	127	21.210	450.0	24.22	30.61	17.82	9.044	81.800
		Rainbow Trout	6	257.0	311	171	51.610	2664	NA	NA	NA	NA	NA
		Sculpin	1	153.0	153	153	0.000	0.000	50.12	50.12	50.12	0.000	0.000
		Suckerfish	3	116.7	120	114	3.055	9.333	15.86	16.04	15.53	0.284	0.080
		Suckerfish	14	198.1	280	169	31.343	982.4	NA	NA	NA	NA	NA
		Whitefish	10	203.6	310	144	52.498	2756	NA	NA	NA	NA	NA

NA - Not Available as fish were sampled in the field.

Table: 9. Minnow trap catch statistics tables presenting the lake name, species, sample size and the mean, maximum, minimum, standard deviation and variance for both length (mm) and weight (g) for Bowser and Damdochax lakes.

Lake Name	Date	Site	Catch		Length (mm)					Weight (g)				
			Species	N	Mean	Max	Min	S.D.	Var	Mean	Max	Min	S.D.	Var
BONNEY	15-Sep-92	3	N. Squawfish	2	65.0	69	61	5.657	32.000	2.71	3.17	2.25	0.651	0.423
			Sculpin	29	86.0	104	55	10.650	113.429	8.01	16.57	1.75	3.198	10.226
BOWSER	11-Sep-92	1	Coho (fry)	39	61.9	95	45	12.031	144.746	2.67	10.02	0.85	2.101	4.413
			Dolly Varden	1	105.0	105	105	0.000	0.000	8.54	8.54	8.54	0.000	0.000
DAMDOCHAX	23-Sep-92	1	Sculpin	6	65.7	92	43	19.654	386.267	4.18	10.43	0.86	3.688	13.601
DRAGON	17-Aug-92	1	Sculpin	14	74.6	118	49	19.041	362.555	5.44	15.54	1.11	4.095	16.773
FRED WRIGHT	11-Aug-92	1	Redsided Shiner	12	97.2	109	87	7.976	63.606	10.49	13.83	7.30	2.315	5.358
			Sculpin	1	91.0	91	91	0.000	0.000	7.45	7.45	7.45	0.000	0.000
			Sockeye (fry)	1	92.0	91	91	0.000	0.000	7.23	7.23	7.23	0.000	0.000
	12-Aug-92	1	Peamouth Chub	1	100.0	100	100	0.000	0.000	5.96	5.96	5.96	0.000	0.000
			Redsided Shiner	46	86.2	115	72	9.300	86.497	7.21	17.48	4.15	2.909	8.460
	12-Aug-92	2	Redsided Shiner	2	98.5	104	87	7.767	60.333	10.35	11.66	7.19	2.128	4.530
	17-Sep-92	1	Sculpin	17	82.7	101	62	11.450	131.096	6.06	12.23	2.04	2.718	7.385
	17-Sep-92	2	Redsided Shiner	1	47.0	47	47	0.000	0.000	1.05	1.05	1.05	0.000	0.000
			Sculpin	10	79.3	97	52	15.671	245.567	6.43	11.63	1.40	3.467	12.081
HALFWAY	19-Sep-92	1	Coho (fry)	2	73.0	75	71	2.828	8.000	4.48	4.88	4.07	0.573	0.328
			Sculpin	1	103.0	103	103	0.000	0.000	15.51	15.51	15.51	0.000	0.000
KWINAGEESE	21-Sep-92	1	N. Squawfish	4	119.8	146	105	18.661	348.250	20.44	36.34	12.69	10.945	119.802
			Peamouth Chub	4	114.0	144	94	21.354	456.000	18.17	32.51	9.72	10.175	103.523
			Redsided Shiner	2	80.5	84	77	4.950	24.500	7.48	9.58	5.37	2.977	8.862
			Sculpin	14	88.2	114	66	13.069	170.797	8.45	18.41	2.57	4.310	18.576
LAVA	17-Aug-92	1	Sculpin	10	85.6	122	62	20.348	414.044	8.63	24.02	2.50	7.550	57.006

Table: 9. Minnow trap catch statistics tables presenting the lake name, species, sample size and the mean, maximum, minimum, standard deviation and variance for both length (mm) and weight (g) for Bowser and Damdochax lakes (Cont'd).

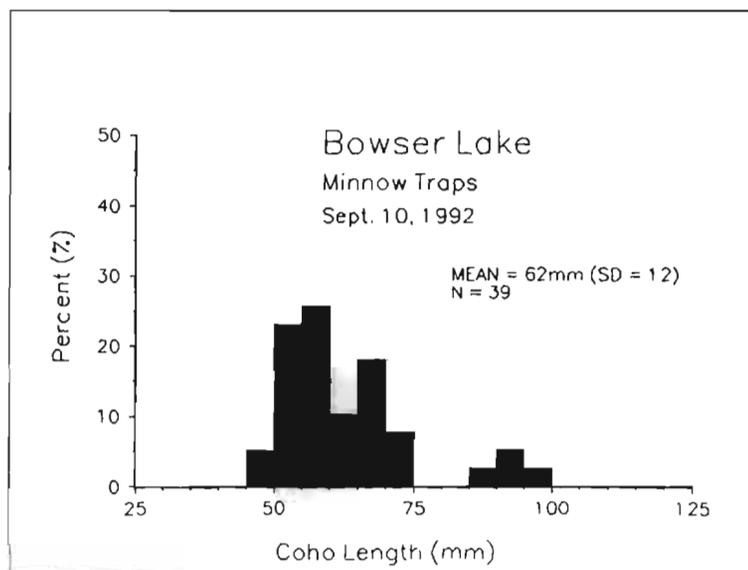
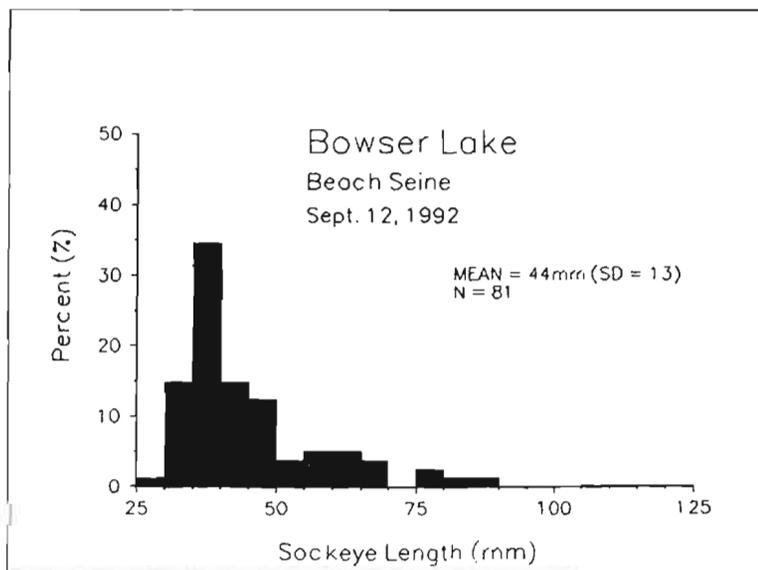
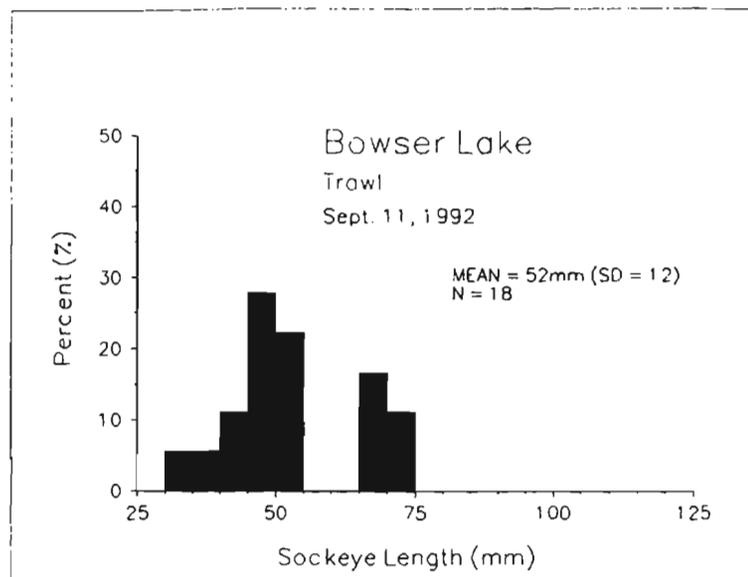
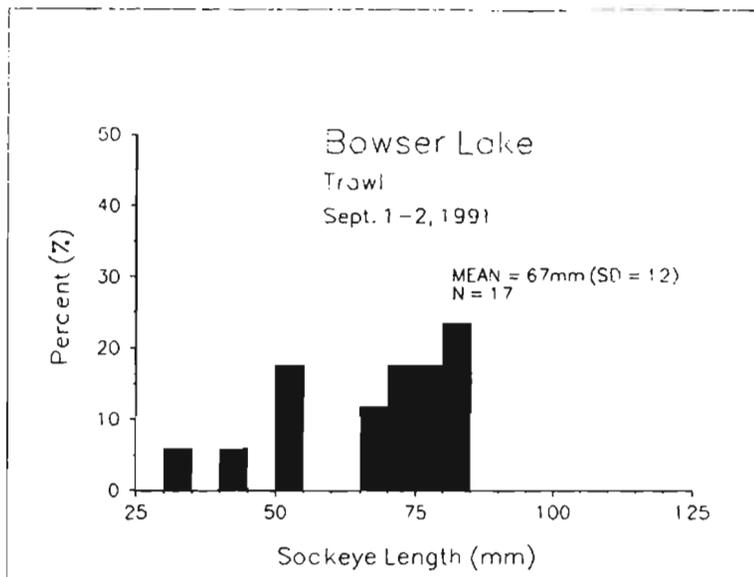
Lake Name	Date	Site	Catch		Length (mm)					Weight (g)				
			Species	N	Mean	Max	Min	S.D.	Var	Mean	Max	Min	S.D.	Var
MEZIADIN	09-Sep-92	1	Sculpin	20	96.6	114	74	11.609	134.779	10.61	18.24	4.03	3.782	14.301
			Suckerfish	2	134.0	143	125	12.728	162.000	24.91	32.18	17.63	10.288	105.851
		2	Sculpin	12	75.9	99	56	13.139	172.629	5.17	11.25	1.86	2.907	8.453
			Suckerfish	2	100.0	113	87	18.385	338.000	11.8	17.14	6.45	7.559	57.138

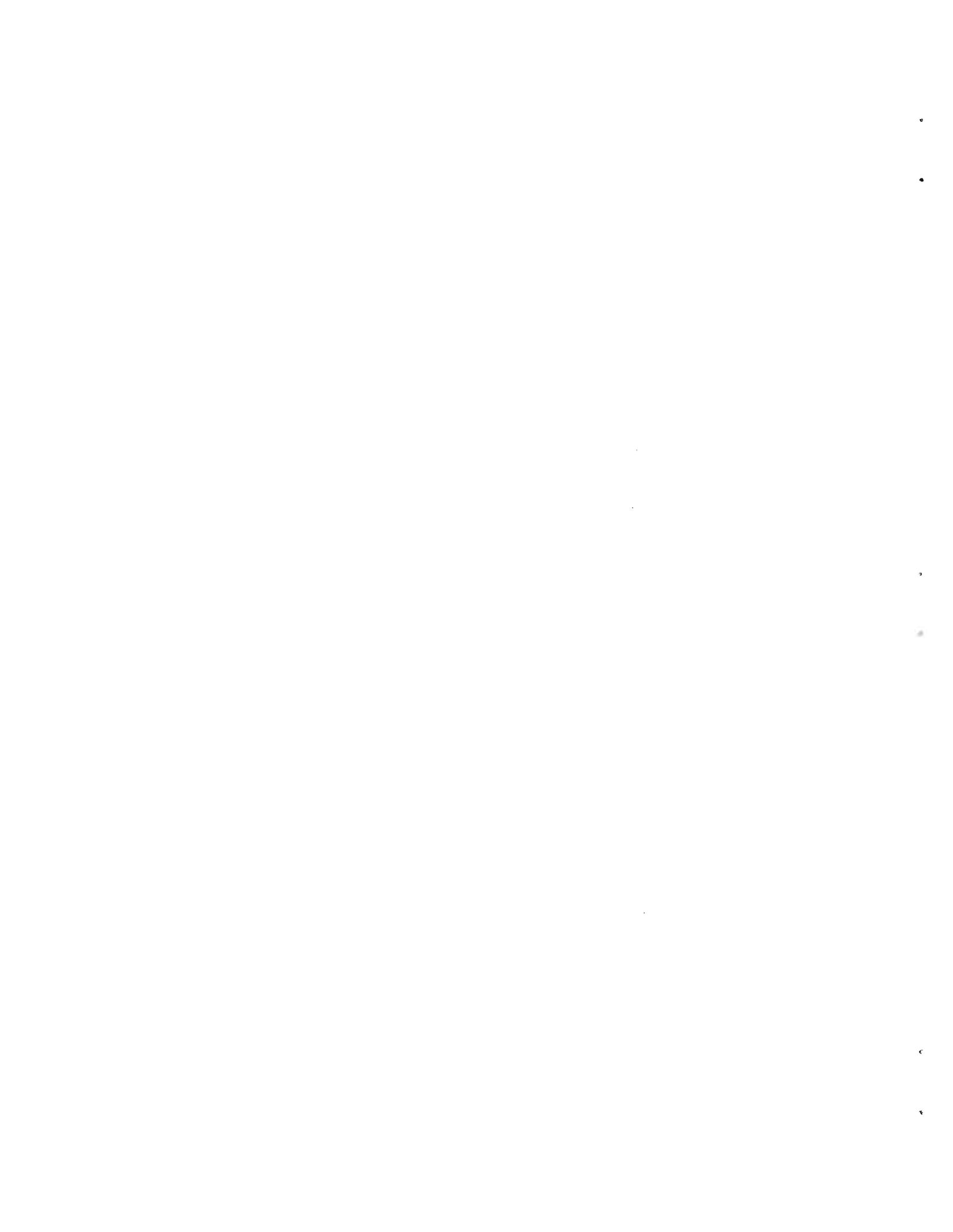
Table: 10. Trawl catch statistics tables presenting the lake name, species, sample size and the mean, maximum, minimum, standard deviation and variance for both length (mm) and weight (g) for Bowser, Damdochax, Dragon, Fred Wright and Meziadin lakes.

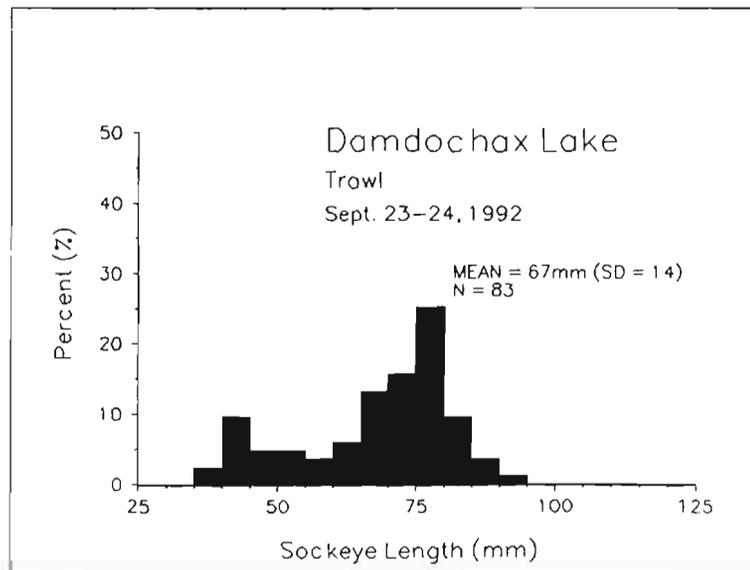
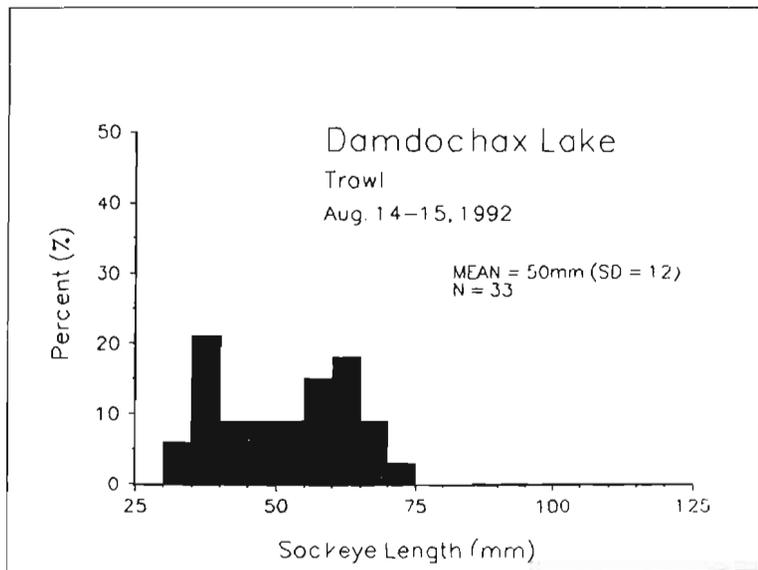
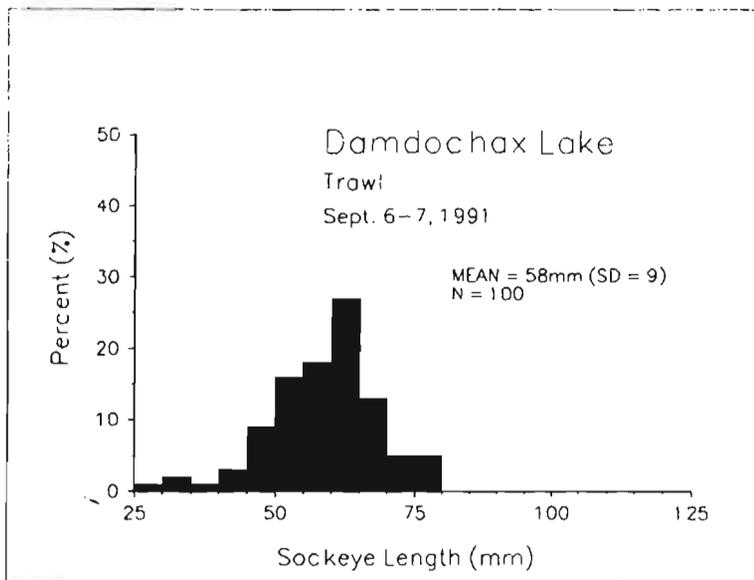
Lake Name	Date	Catch		Length (mm)					Weight (g)				
		Species	N	Mean	Max	Min	S.D.	Var	Mean	Max	Min	S.D.	Var
Bowser	01-Sep-91	Sockeye (fry)	17	67	81	44	11.9	145.1	3.82	6.52	0.48	0.85	0.72
	11-Sep-92	Sockeye (fry)	18	52	72	34	11.5	124.3	2.08	4.45	0.48	1.00	1.01
Damdochax	06-Sep-91	Sockeye (fry)	100	58	78	30	9.3	87.2	2.01	6.23	0.14	1.11	1.23
	14-Aug-92	Sockeye (fry)	33	50	70	31	11.6	134.8	1.56	4.20	0.32	0.61	0.38
	23-Sep-92	Sockeye (fry)	83	67	94	37	13.9	193.1	3.88	9.47	0.51	2.01	4.05
Dragon	17-Aug-92	Stickleback	319	40	88	25	11.2	125.3	0.67	6.08	0.11	0.86	0.74
Fred Wright	08-Sep-91	Sockeye (fry)	72	55	72	39	7.3	53.5	2.12	4.52	0.55	0.18	0.03
	17-Sep-92	Sockeye (fry)	58	70	80	45	6.0	36.7	4.10	6.31	1.01	0.56	0.32
Meziadin	30-Aug-91	Sockeye (fry)	90	53	84	36	7.6	57.1	2.03	7.34	0.5	0.56	0.31
	07-Aug-92	Sockeye (fry)	159	45	102	29	10.1	102.0	2.00	12.4	0.22	1.62	2.63
	08-Sep-92	Sockeye (fry)	169	50	69	30	5.8	33.5	1.52	3.72	0.27	0.22	0.05

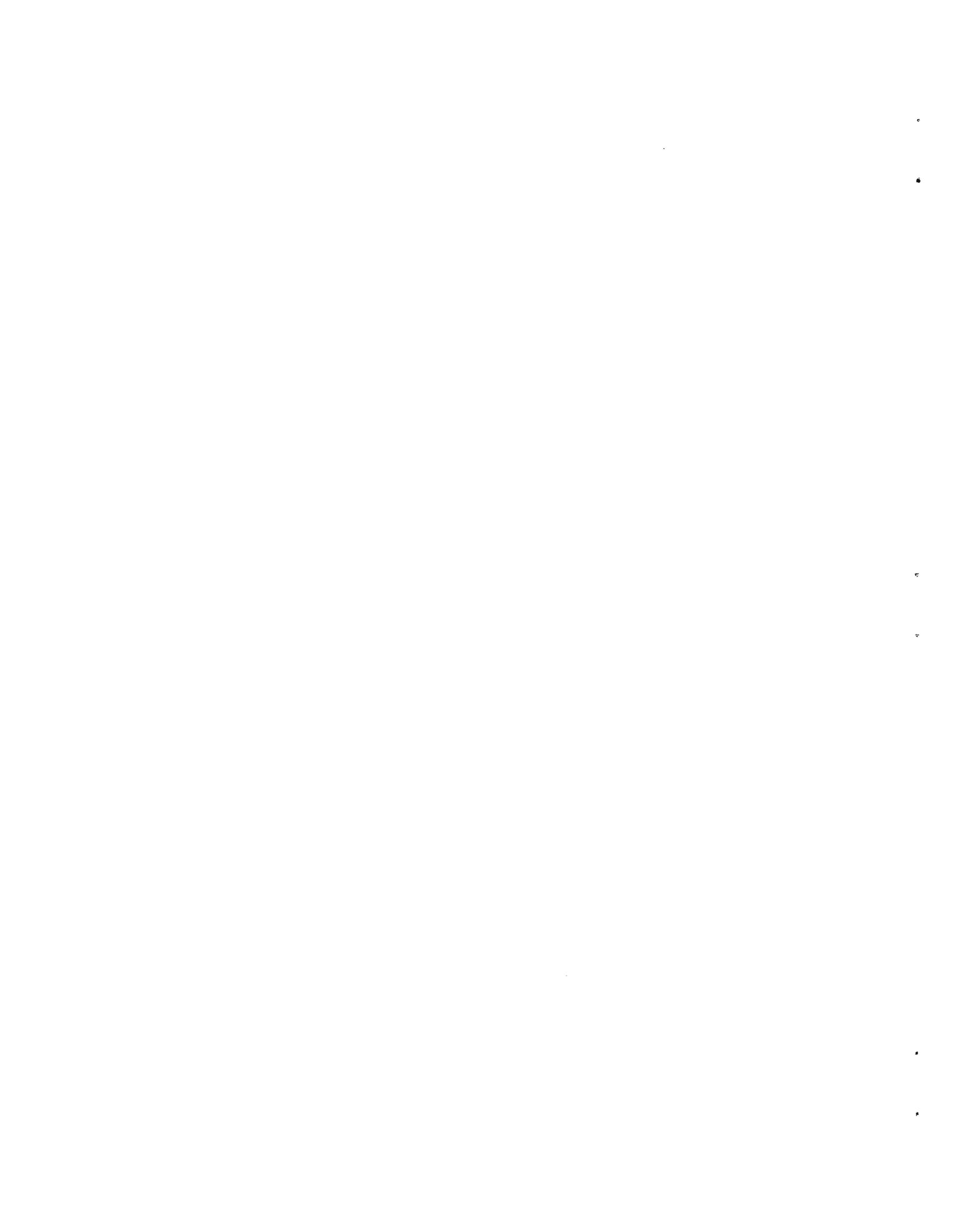
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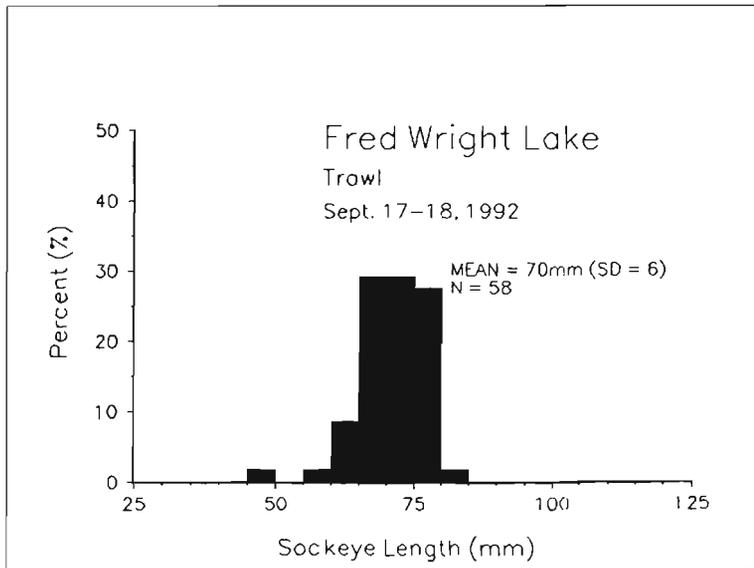
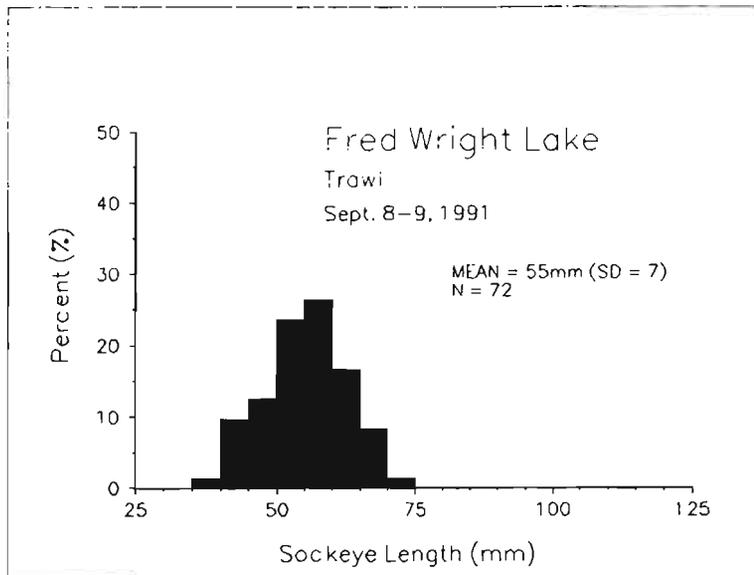
Figure 3. Length frequency plots of beach seine, minnow trap and trawl caught juvenile sockeye and coho salmon, presented by lake and survey date for Bowser, Damdochax, Fred Wright and Meziadin lakes. The mean length with the standard deviation and the sample size are provided with each plot.

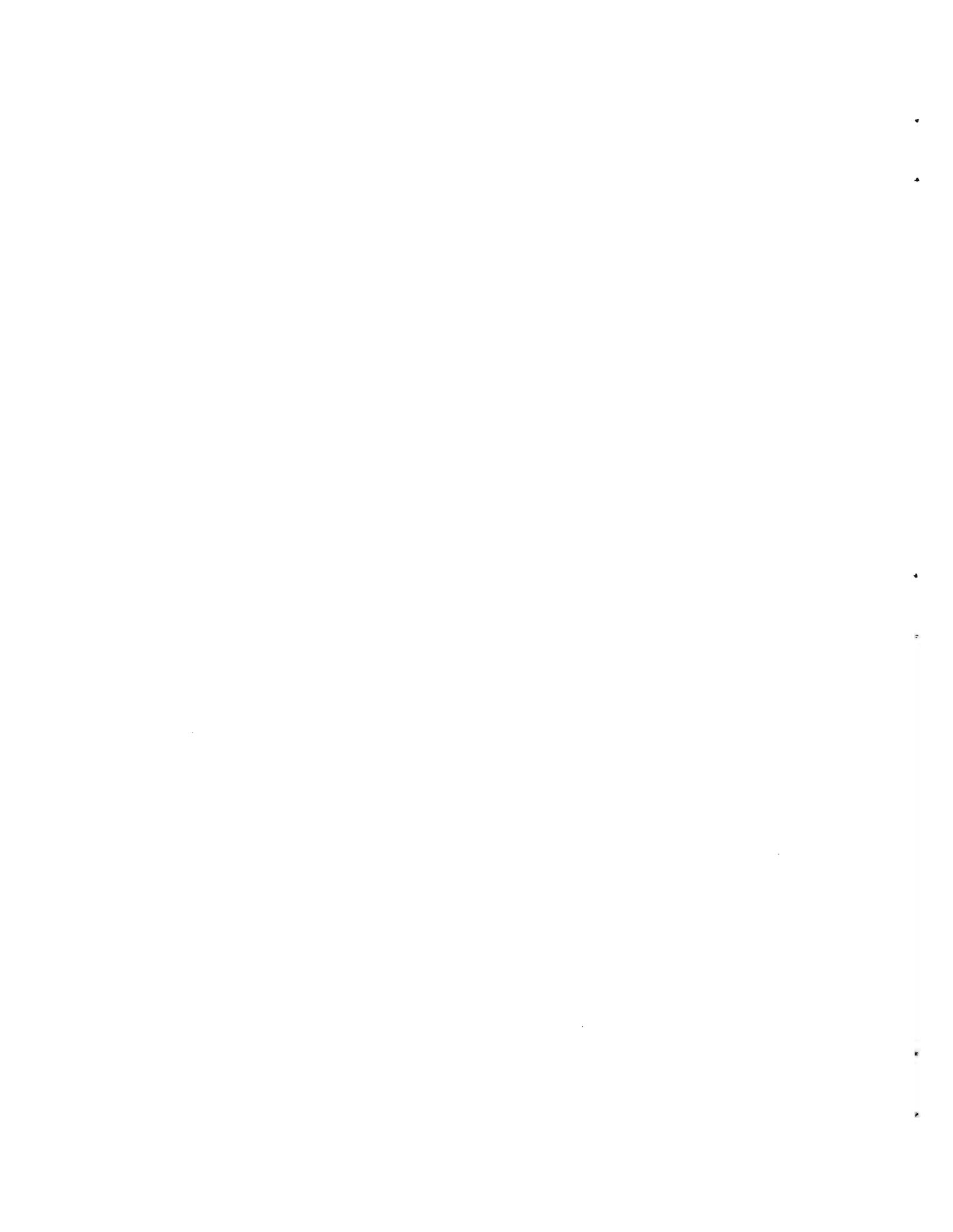


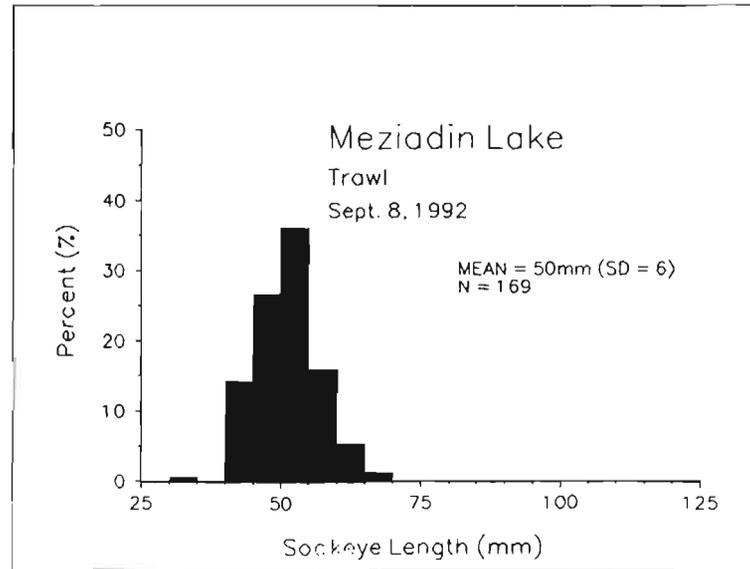
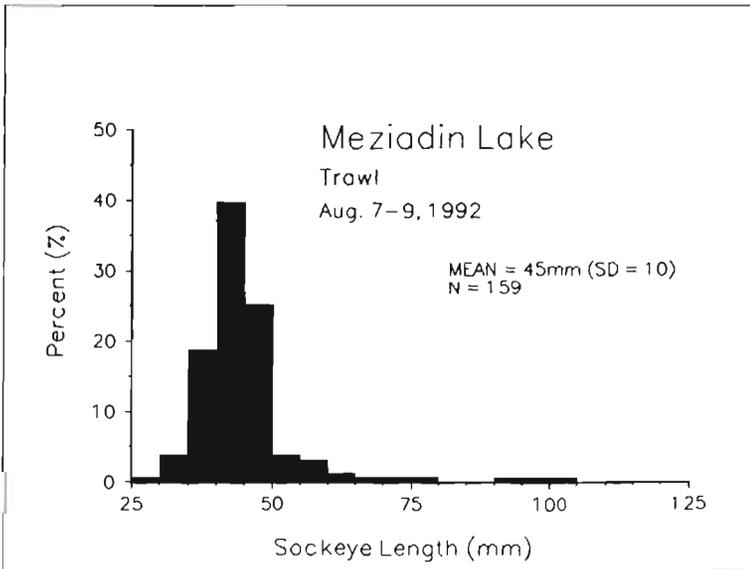
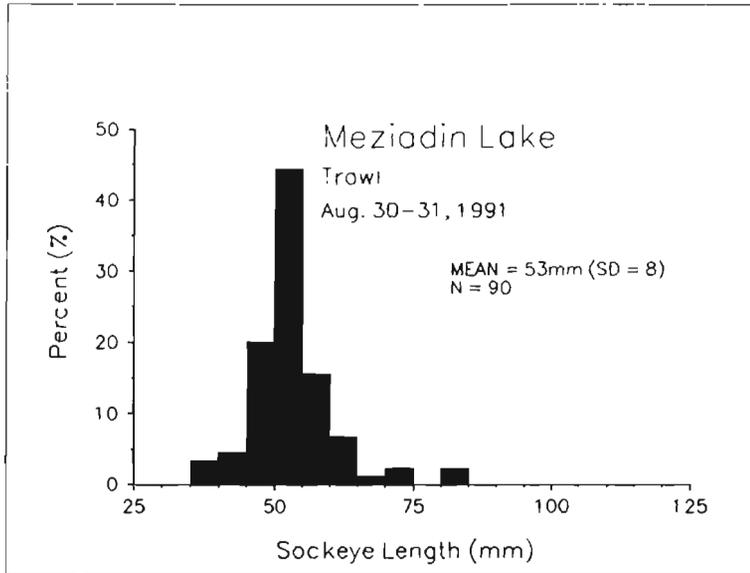












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