

NETTING, LAKELSE - WINTER 1948

Preliminary Notes

The original idea of using two buoys with sufficient rope stretched between the anchors did not work out for the simple reason that the second float in each case, although a stump-end of large cedar, did not show, nor could it be located. The flagged buoys were readily observed. The flag should be red, not white, to show up against the snow. The cord should be about $\frac{1}{4}$ " and no point should be knotted. If a join is necessary it should be spliced. The knots catch in the free edge of the ice hole or even underneath, that is, if the ice is "snow ice" as at Lakelse.

It is possible that a jigger could be used but this should be experimented with first, for the underside of the ice in this relatively mild winter climate is irregular, pitted and not particularly hard. The visibility through it is nil even with the snow swept off the surface.

The method of using long 1" x 4"s is surprisingly rapid if the holes cut to pick up the line are "sighted in". The method is probably not as feasible in very thick ice. It was possible at Lakelse to cut the holes every 20 yards.

In operating the netting, not more than two nets should be strung out together. This facilitates operation and reduces the drag on the nets for pulling through. It would probably be best to set individual nets.

No portion of a net should be left exposed at a hole, i.e., the whole net should be completely immersed. The final "drag" holes should thus be 5 to 10 feet further apart than the length of the net or nets. Otherwise the netting will freeze in the hole.

Proper gloves are essential, for your hands will inevitably get wet. Leather mitts are the best (except for some arctic mitts sold by H.B.C. which do not freeze when wet - should be investigated).

The net is readily dragged out in long lengths across the ice surface.

Do not fold the net over itself nor step on any portion, for it will either freeze to itself or to the ice surface when trodden on.

In general the process is very straightforward and much as might be expected. In planning this present survey not enough time was allotted to the mere business of coming and going from cabin to nets and return. Pulling a sleigh through snow on snowshoes does not permit any greater travelling speed than $1\frac{1}{2}$ to 2 m.p.h. Thus, if a net is set at the south end (say 3 miles) three to four hours must be allowed for travel. No doubt a sleigh dog (if not, a toboggan would be better) would pay for itself in this respect.

Skis are much faster than snowshoes for travelling over the snow on an ice surface if not loaded down or pulling a sleigh, otherwise snowshoes are the only thing.

Net Sets

No. 1.

Position - P.6 (approximately)

Nets - L.VI - $1\frac{1}{2}$ ", 2", 3", 4" (no 5")

Set / January 30, 4.30 p.m.

Collect - " 31, 10.30 a.m.

<u>Species</u>	<u>Net</u>				<u>Totals</u>
	<u>$1\frac{1}{2}$"</u>	<u>2"</u>	<u>3"</u>	<u>4"</u>	
Cutthroat	0	2	1	0	3
Dolly varden	0	0	0	0	0
Whitefish	0	0	0	0	0

No. 2

Position - P.6

Nets - L.VI

Set - January 31, 6.00 p.m.

Collect - February 1, 9.30 a.m.

<u>Species</u>	<u>Net</u>				<u>Totals</u>
	<u>1½"</u>	<u>2"</u>	<u>3"</u>	<u>4"</u>	
Cutthroat	0	0	1	0	1
Dolly varden	0	0	1	0	1
Whitefish	0	0	0	0	<u>0</u>
					2

No. 3

Position - P.6

Nets - L.VI

Set - February 1, 11.00 a.m.)

Collect - " 3, 9.30 a.m.) 2 days

<u>Species</u>	<u>Net</u>				<u>Totals</u>
	<u>1½"</u>	<u>2"</u>	<u>3"</u>	<u>4"</u>	
Cutthroat	0	7	0	0	7
Dolly varden	0	0	0	1	1
Whitefish	0	1	0	0	<u>1</u>
					9

No. 4

Position - Between Yargeau's and beyond Hot Springs creek just off the reed bed - 13' - 8"

Nets - L.IV. Set in two gangs of 2 nets - (1½" & 2½") (3½" & 4½")

Set - February 1, 12.00 p.m.)

) 2 days

Collect - " 3, 12.00 p.m.)

<u>Species</u>	<u>Nets</u>				<u>Totals</u>
	<u>1½"</u>	<u>2½"</u>	<u>3½"</u>	<u>4½"</u>	
Cutthroat	0	2	0	1	3
Dolly varden	0	0	0	0	0
Whitefish	2	0	0	0	<u>2</u>
					5

Grand total of fish -

Cutthroat -	3	1	7	3	=	14
Dolly varden -	0	1	1	0	=	2
Whitefish -	1	2	=	<u>3</u>		
						19

Catch per Net-Night

<u>Species</u>	<u>All positions 1945-7</u>	<u>2 positions only Winter - '48</u>
Peamouth	5.62	0.0
Squawfish	1.33	0.0
Cutthroat	0.91	0.60
Whitefish	0.32	0.1
Sucker	0.23	0.0
Dolly varden	0.04	0.1
Rainbow	0.00	0.0

Night Lines -

11 holes were cut and hooks lowered, baited with fish.

Position - Just off camp on the edge of the drop-off and close to open water of the Granite creek side branch.

No fish were caught although operated for three nights and days.

Notes on Fish Distribution -

Only cutthroat, Dolly varden and whitefish were caught. The latter two of these species are known to be comparatively scarce in Lakelse, with the cutthroat more abundant. No peamouth or squawfish were located despite their abundance and despite a two night set of 4 nets (8 net-nights) in shallow water where they are known to be abundant in the spring and summer months. In addition none was caught in deeper water (P.6 - 16 night-nets) nor by night lines (11 night lines for 3 nights = 33 "night-lines").

Certain observations by the fisheries inspector, Mr. V. Giraud and information gleaned from two winter resident trappers provide a possible answer to the lack of the two abundant species, peamouth and squawfish as well as the sucker which is never caught readily in gill-nets. Mr. Giraud reported that in the late fall (consult Giraud's records) very large numbers of squawfish, suckers and presumably peamouth were observed schooling in the extensive shallows of the south end. With assistance from a trapper he managed to make a haul, using an old piece of gill net, and within a few minutes had obtained 30 to 40 specimens. On examining the stomachs of the squawfish not one was found to contain a single trace of food. This fact would give credence to the belief that they were migrating fish and entering a new ecological habitat. In addition to this information it was learnt that the

only worthwhile winter fishing may be found at this southern end in very shallow water. Large dolly varden and steelhead have been taken as well as squawfish by hook and line.

These few but significant observations point to a very different distribution during the winter of the various species in Lakelse lake and indicate a possible means of removing squawfish while not interfering with the cutthroat population.

With such vastly different physical conditions during winter, or ice covered months, such differences might well be expected. Mr. Giraud is going to attempt to get samples by fishing in the latter part of February in this southern sector. What the relation^{is} and predation on young sockeye during this period must be is open to new speculation if distinct differences in zones of habitation can be shown to exist. Instead of bringing the two together (squawfish and young sockeye), as an even temperature condition would appear to produce, it may well be that squawfish bring about the major effective portion of their annual sockeye depletion during summer months. The cutthroat on the other hand could be the winter "hazard" which its summer diet (high in insects) does not indicate it to be.

Considerable winter netting and fishing would add greatly to these presumptions. Meanwhile it is recommended that during March when the Lakelse work will commence that netting be forwarded if possible to the exclusion of other lake work and later operations.

Notes on the Analysis of the Stomachs -

The stomach contents of the fish obtained have been analyzed and the results are tabulated below. The diet of the cutthroats during the winter is heavily balanced toward fish in that 98 per cent. is fish of various species with sockeye yearlings making up 33 per cent. This would tend to support the hypothesis made above that predation by this species is most important during the winter months.

1. Cutthroat trout - 14 specimens -

	<u>Total No.</u> <u>all stom.</u>	<u>Total Vol.</u> <u>all stom.</u>	<u>Av. No.</u> <u>all stom.</u>	<u>Av. Vol.</u> <u>all stom.</u>	<u>%</u> <u>Vol.</u>
MYSIDACEA:					
Mysis relicta	12	0.1	.86	.007	.60
FISH:					
Sockeye yearlings	3	5.4	.21	.386	33.16
Salmonidae or Coregonidae	11	0.6	.07	.043	3.69
Sticklebacks	40	8.65	2.86	.617	53.01
Sculpin	2	0.85	.14	.061	5.24
Remains	3	0.5	.21	.036	3.10
PLANT:					
Remains	-	0.2	-	.014	1.20
EMPTY: 2 (14.3% of total)					

incl.
this only

98.20

2. Dolly varden char - 2 specimens

FISH:					
Sockeye yearlings	3	2.6	1.5	1.3	100

3. Rocky Mountain whitefish - 3 specimens

INSECTA:					
Diptera (larva)	11	T	3.7	T	5
AMPHIPODA:					
Gammarus	5	T	1.7	T	5
MOLLUSCA:					
Gastropoda	12	.15	4.0	.05	85
PLANT:					
Remains	-	T	-	T	5

Plankton populations -

A series of 3 total verticals and 4 stage hauls were taken at Stn. #1 at Lakelse lake on February 2, 1948 in order to obtain an indication of the abundance of plankton present at this time of year and its vertical distribution in the lake. One other total vertical was taken at a point one-quarter mile south of Stn. #1, at a similar depth, for comparative work.

The number of species, and numbers of each species present in the lake at this time was found to be much reduced from those of summer samples. Those forms found to be in greatest abundance in February were Cyclops sp. (with the larval nauplii) and the rotifer Notholca sp. Bosmina sp. was the only cladoceran to be found and was, itself, present in relatively small numbers. The large copepod Epischura sp. was entirely lacking.

The vertical distribution of all plankters in Lakelse lake for this winter month may be seen in Figure 1, which follows.