-BEAR LAKE-
1997 SPRING LITTORAL INDEX NETTING

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INTRODUCTION

Bear Lake is a coldwater lake in Livingstone Township which borders the west boundary of Algonquin Provincial Park. Water quality and physical characteristics are suitable for lake trout (Salvelinus namaycush) and a substantial outflow may allow immigration and emigration with nearby Kawagama Lake which supports a large population of native lake trout.

Historically, the lake was stocked with lake trout, but recent changes in management strategies resulted in Bear Lake being removed from the stocking program in an attempt to rejuvenate the native stocks.

A spring littoral index netting (SLIN) program was tendered in the spring of 1997 to determine the status of the lake trout population and the relative abundance of other species to support future management decisions.

METHODOLOGY

The standard method for index netting was duplicated from lake trout synthesis. Reference was necessary for data comparisons with more intensive sampling conducted by fisheries assessment units.

Fishing gear was small-mesh monofilament gill net dyed a light green in colour. Each gill net gang (91m) was comprised of six 15.2m panels tied at the brail loops. A gang was comprised of panels of the same mesh size, either 38mm (1 1/2"), 51mm (2"), or 64mm (2 1/2") stretched mesh. Nets were 2.4m tall.

The survey was completed during daylight hours before surface temperatures reached 13 degrees Celsius. The shoreline was broken into sectors of equal length and sampled randomly for 90 minutes. Gangs of different mesh size were used in sequence and set perpendicular to shore. Nets were fished for a minimum of 40 sets or the capture of 20 lake trout, which ever occurred first. Over-night sets would only be employed at the completion of the SLIN program to collect fish required for the minimum sample size of 20 lake trout.

Data collected from target species included total length, fork length, round weight, fin clips, and scale samples. Stomach samples, otoliths, and sex was obtained from mortalities. Non target species were counted and weighed by species.

RESULTS

A total of 15 sets (90 min.) were completed over a three day period from May 14, 1997 to May 22, 1997. The following chart summarizes catch totals by species.

BEAR LAKE SPRING LITTORAL INDEX NETTING SUMMARY
AND CATCH PER UNIT EFFORT (C.U.E.)

SPECIES	NUMBER OF FISH CAUGHT	C.U.E. (FISH/91m of net)
lake trout	23	1.533
round whitefish	3	0.200
smallmouth bass	1	0.067
common white sucker	2	0.133

It appears that lake trout abundance in Bear Lake is quite high with a C.U.E. of 1.533 fish/91m of net. Unclipped fish represented the majority of the catch,totalling14 of the 23. Weights ranged from 100g to 1550g with a mean of 661g. One mortality occurred.

Round whitefish (Prosopium cylindraceum) were present but do not appear to be overly abundant. A total of three were caught which results in a C.U.E. of 0.200 fish/91m of net.

The capture of one smallmouth bass (Micropterus dolomieui) with a C.U.E. of 0.067 fish/91m of net indicates a low abundance.

Common white suckers (Catostomus commersoni) were also low in abundance with a total catch of two fish which results in a C.U.E. of 0.133 fish/91m of net.

DISCUSSION

It appears that lake trout abundance in Bear Lake is quite high and more importantly, 61% of the sample were unclipped fish. The remaining fish were marked with LP fin clips. General condition appeared good and although on the small size, year classes of native fish seemed well represented. Receipt of scale ages should confirm this.

Smallmouth bass are present but abundance is difficult to determine using SLIN as a sampling technique.

Weather conditions on sampling days were windy but generally good. One angling party was observed and through discussion it was confirmed they were targeting brook trout (Salvelinus fontinalis) at the mouth of the inflow from Livingstone Lake.

A note of interest occurred during the lifting of set #09 on May 21,1997. Within a small area of the nearshore panel there was a total catch of one ripe male sucker, two round whitefish, and one small lake trout. During the removal of these fish, the lake trout was observed expelling previously consumed eggs. It was assumed this trout was feeding on sucker spawn and given the close proximity of the round whitefish, they were acting in a similar fashion.

RECOMMENDATIONS

Continue with current management strategy for a self-sustaining lake trout fishery with no supplementary stocking. Consider imposing special restrictions including a winter/spring closure and slot limits.