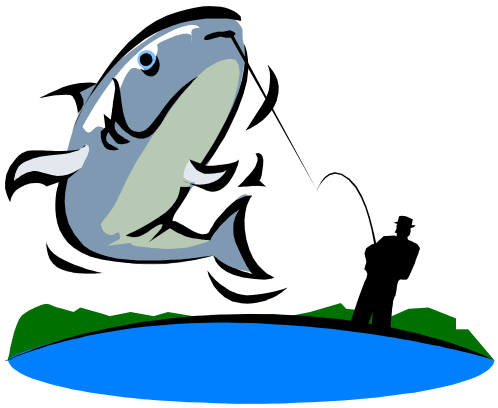
# - PINE LAKE -

# SPRING LITTORAL



# INDEX NETTING

# - 2003 -

Brett Thomas
Ministry of Natural Resources
Bracebridge Area Office
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## INTRODUCTION

Pine Lake is a small cold water lake located in the Oakley Ward of the Town of Bracebridge. It is a popular lake for cottaging, made obvious by the numerous cottages that ring the lake. Brook trout (Salvelinus fontinalis) are native to the lake while lake trout (Salvelinus namaycush) were introduced in 1950. Brook trout had reportedly done well historically, but competition with spiny-rayed fish and the introduction of lake trout are probable causes of their demise.

Historically, the lake was stocked with lake trout and brook trout. Brook trout stocking ceased in 1966 eliminating the possibility of stocked fish persisting in the existing fishery. A private rainbow trout (Oncorhynchus mykiss) stocking program is ongoing with the Pine Lake Cottage Association. The lake was removed from the stocking program in 1994 as angler creel indicated natural reproduction was occurring within the introduced lake trout population. Consistent with the south-central lake trout strategy, the lake was closed to winter fishing in 1996.

A spring littoral index netting (SLIN) program was scheduled for the spring of 2002 to determine the status of the lake trout population and the relative abundance of other fish species to support future management decisions.

## METHODOLOGY

The standard method for SLIN as outlined in "manual of Instruction, Spring Littoral Index Netting (SLIN), 1999 was followed on Pine Lake. The standard SLIN sampling method allows for comparison of relative fish abundance over time and between different Lakes.

Fishing gear was small-mesh monofilament gill net dyed a light green in color. 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 water temperatures reached 13ºC. 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 six per day over a five-day period for a total sampling effort of 30 net sets.

Upon completion of the project, additional day and over-night sets were required to obtain the minimum sample of 20 lake trout.

Data collected from target and non-target species included total length, fork length, round weight, fin clips, and aging structures. Gonad condition, otoliths, and sex were additional parameters obtained from mortalities.

## RESULTS

A total of 30 sets (90 min.) were completed over a five day period from May 15, 2002 to May 22, 2002. The following table summarizes catch totals and catch per unit effort by species.

TABLE 1.

PINE 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 | 8 | 0.267 |
| rainbow trout | 5 | 0.167 |
| common white sucker | 10 | 0.333 |

It appears that lake trout abundance in Pine Lake is quite low with a C.U.E. of 0.267 fish/91m of net. Three of the eight fish were unclipped indicating they were of natural origin with weights ranging from 1100g to 2750g. The remaining five fish were marked with an LV clip indicating they were representatives of the last stocking in 1994. Their weights were similar, falling in a narrow range of 1200g to 1350g. Biological sampling was conducted and all eight fish were released in good condition.

Rainbow trout from the private plantings were also present in the catch. Although the C.U.E. of 0.167 fish/91m of net would normally be considered low, they were well represented in the catch given the sampling methodology. All fish were in excellent condition and live released post sampling.

Common white suckers (Catostomus commersoni) rounded out the species sampled with a total catch of ten fish. Weights ranged from 800g to 1500g with a relatively low abundance of 0.333 fish/91m.

In addition to the standard SLIN netting, 6 overnight sets and 6 day sets were implemented to obtain a sample of 20 lake trout. Ten lake trout, 16 common white sucker, 23 rock bass and 1 smallmouth bass were caught (Table 2 and Table 3).

A more detailed summary of the entire catch is available in Table 2 and Table 3.

## DISCUSSION

Lake trout abundance in Pine Lake is quite low in comparison with similar lake trout lakes in the area. Supplementary netting to obtain a minimum sample of fish continued to support this theory. The total capture for the two sampling methods was eighteen, five unclipped and the remaining thirteen clipped. The naturalized lake trout comprised 28% of the sampled population. The need to sample the minimum of 20 fish was ruled unnecessary upon the capture of the fifth unclipped fish. The minimum 25% natural fish was set out in the south-central lake trout strategy as a guideline to manage the lake as a naturally reproducing lake trout lake. The low abundance was not entirely surprising given the limited stocking effort and limited lake trout habitat available in the lake. The lake was last stocked in 1994 with 500 LV clipped lake trout. In summation, lake trout abundance is likely in line with expectations for this lake given its borderline physical qualities and substantial level of exploitation.

It is generally believed that rainbow trout are not easily caught in short, daytime sets of small-mesh gill net. These fish were only sampled during the first three days of netting, during what looked like a period of extreme fish activity. Fish were seen rising and porpoising over the entire surface of the lake, but heavily concentrated in key locations. It is hypothesized by the field crew that the rainbow trout were vulnerable to the sampling gear during this period of activity. Catches outside of the three-day period dropped off completely, even during supplementary day and over-night sets.

Common white suckers were sampled in relatively small numbers but this may not truly represent the existing population due to the irregular distributions of fish associated with recent spawning activity.

Weather conditions were variable throughout the sampling period but did not impact the ability to carry out sampling on any scheduled days. Strong winds were common on most days and surface water temperatures remained below the upper threshold of 13ºC. Site temperatures during the SLIN program ranged from 7.9º- 9.1ºC., while creeping up to 11.3ºC during the supplementary sets.

Angling parties were observed throughout the program indicating a fair level of exploitation, with some parties being observed on more than one day. Discussions with these anglers revealed they were targeting and catching lake trout rather than rainbows.

## RECOMMENDATIONS

1. Continue to manage Pine Lake as a naturally reproducing lake trout fishery with winter/early spring sanctuary status due to the presence of a small population of naturalized fish.
2. Conduct SLIN in 2007 to determine if Pine Lake continues to support a lake trout population in the absence of stocking and to monitor the effects of harvest controls.
3. Permit Cottage Association to continue with private stocking of rainbow trout as growth and survival of fish appear to be meeting stocking objectives.

Table 2. **PINE LAKE SPRING LITTORAL INDEX NETTING - 2002 LAKE TROUT CATCH SUMMARY**

| SPECIES | FISH # | FORK LENGTH (mm) | TOTAL LENGTH (mm) | ROUND WEIGHT (g) | CLIPS ON CAPTURE |
|---|---|---|---|---|---|
| SLIN Catch | | | | | |
| lake trout | 1 | 466 | 513 | 1210 | LV |
| lake trout | 2 | 485 | 534 | 1350 | LV |
| lake trout | 3 | 520 | 580 | 1750 | nil |
| lake trout | 4 | 609 | 663 | 2750 | nil |
| lake trout | 5 | 465 | 514 | 1200 | LV |
| lake trout | 6 | 474 | 523 | 1100 | nil |
| lake trout | 7 | 468 | 513 | 1200 | LV |
| lake trout | 8 | 496 | 542 | 1280 | LV |
| Supplementary Overnight Sets | | | | | |
| lake trout | ON1 | 465 | 505 | 1200 | LV |
| lake trout | ON2 | 510 | 554 | 1320 | LV |
| lake trout | ON3 | 479 | 521 | 1340 | LV |
| lake trout | ON4 | 461 | 500 | 1340 | LV |
| lake trout | ON5 | 477 | 515 | 1280 | LV |
| lake trout | ON6* | 490 | 534 | 1300 | LV |
| lake trout | ON7 | 474 | 520 | 1160 | LV |
| lake trout | ON8* | 264 | 285 | 210 | nil |
| lake trout | ON9 | 673 | 740 | 3550 | nil |
| lake trout | ON10 | 475 | 516 | 1300 | LV |

Note: LV clip indicates 1994 stocking (500 lake trout)
* mortalities

Table 3. **PINE LAKE SPRING LITTORAL INDEX NETTING - 2002 CATCH SUMMARY-NONTARGET SPECIES**

| SPECIES | FISH # | FORK LENGTH (mm) | TOTAL LENGTH (mm) | ROUND WEIGHT (g) | CLIPS ON CAPTURE |
|---|---|---|---|---|---|
| SLIN Catch | | | | | |
| rainbow trout | 1 | 406 | 426 | 1000 | nil |
| rainbow trout | 2 | 401 | 418 | 1350 | nil |
| rainbow trout | 3 | 413 | 437 | 950 | nil |
| rainbow trout | 4 | 441 | 471 | 1050 | nil |
| rainbow trout | 5 | 391 | 415 | 800 | nil |
| c. white sucker | 1 | 384 | 416 | 825 | nil |
| c. white sucker | 2 | 470 | 503 | 1500 | nil |
| c. white sucker | 3 | 419 | 446 | 1150 | nil |
| c. white sucker | 4 | 407 | 435 | 800 | nil |
| c. white sucker | 5 | 432 | 455 | 1190 | nil |
| c. white sucker | 6 | 432 | 463 | 1000 | nil |
| c. white sucker | 7 | 424 | 451 | 1210 | nil |
| c. white sucker | 8 | 460 | 485 | 1300 | nil |
| c. white sucker | 9 | 431 | 468 | 1000 | nil |
| c. white sucker | 10 | 424 | 455 | 1100 | nil |
| Supplementary Overnight Sets | | | | | |
| smallmouth bass | ON1 | 195 | 205 | 95 | nil |
| c. white sucker | ON1 | 500 | - | 1700 | nil |
| c. white sucker | ON2 | 430 | - | 1100 | nil |
| c. white sucker | ON3 | 205 | - | 105 | nil |
| c. white sucker | ON4 | 205 | - | 105 | nil |
| c. white sucker | ON5 | 250 | - | 205 | nil |
| c. white sucker | ON6 | 210 | - | 160 | nil |
| c. white sucker | ON7 | 217 | - | 160 | nil |
| c. white sucker | ON8 | 230 | - | 160 | nil |
| c. white sucker | ON9 | 195 | - | 110 | nil |
| c. white sucker | ON10 | 285 | - | 300 | nil |
| c. white sucker | ON11 | 433 | - | 1250 | nil |
| c. white sucker | ON12 | 425 | - | 1000 | nil |
| c. white sucker | ON13 | 247 | - | 195 | nil |
| c. white sucker | ON14* | 232 | - | 180 | nil |
| c. white sucker | ON15 | 208 | - | 120 | nil |
| c. white sucker | ON16* | 200 | - | 110 | nil |
| Total catch of 23 rock bass-bulk weight of 1980g | | | | | |

* mortalities