Assessment of Forest Lake using Brook Trout Index Netting, 2007

File Report

Mike Marquardson
Ontario Ministry of Natural Resources
Bracebridge, Ontario
2007

Forest Lake is located at the village of South River branching east and is approximately 320 ha in size. Originally the lake was 2 separate basins joined by the South River and a single lake has been created by the implementation of a dam at the outflow. This has increased the area and depth of the lake. Approximately 85 % of the lake is less then 3m deep and weedy and the remainder of the area constitutes a deeper basin on the extreme south-east end where the maximum depth is approximately 17m deep. Originally the only game species present was brook trout (*Salvelinus fontinalis*). Stocking of brook trout has taken place on a regular basis from 1941 to 1971. Additional stocking has occurred in the years 1988, 1989, 1991, and 1994 (Bracebridge area lake file). The lake is currently not stocked due to the presence of competitor / predator species.

This is a follow up assessment to the investigation occurring in the fall of 2004 (Bracebridge area lake file). This investigation was initiated due to some public concerns expressed through the Water Management Plan (WMP) process concerning change in water levels possibly affecting brook trout spawning habitat in the lower reaches of inflow streams. A two day netting assessment was done in 2007 to determine presence, abundance and population characteristics of natural brook trout.

Methods

The gill nets prescribed for Brook Trout Index Netting (BTIN) were used (Monroe 2005). Sites were randomly selected and nets were set for 30 minutes as to minimize brook trout mortality. After the first day completed with no trout caught, the set duration was extended to 2 hours for the second day. The protocol suggests two mesh sizes for this type of survey, 51mm and 64mm stretched mesh. We also used a third net with a 38mm mesh size in this lake to try to catch juvenile fish that might not get caught in larger mesh sizes. Panel length is a standard of 15.2m long and 2.4m high. Each gang of net consisting of three panels of a single mesh size tied together has a total fishing length of 45.6m. A crew size of two people was used, and captured fish were weighed, measured and structures were taken for age determination. A temperature and dissolved oxygen (D.O.) profile was recorded to ensure the nets were placed in suitable trout habitat. Minnow traps were also placed in several locations around the southeast basin as well as in the basins inflow.

Results and Discussion

Sampling occurred on August 21st and 22nd 2007. The surface temperature was approximately 18° C. The temperature and D.O. profile was recorded in the deepest section of the lake and shows how temperature and amount of available oxygen decrease as depth increases (Figure 1). Fourteen net sets and 6 minnow trap sets were completed (Figure 2) over this 2 day period consisting of 5 sets with 64mm mesh, 5 with 51mm mesh, and 4 with the 38mm mesh size. Total net catch over the survey included as follows:

1 smallmouth bass	*Micropterus dolomieu*
3 white sucker	*Castostomus commersoni*
1 northern pike	*Esox lucius*
2 cisco (lake herring)	*Coregonus clupeaformis*
1 rainbow smelt	*Osmerus mordax*

The minnow traps did not produce any Y.O.Y trout at all. The trap catch was as follows:

4 yellow perch	*Perca flavescens*
22 pumpkinseed	*Lepomis gibbosus*
7 rock bass	*Ambloplites rupestris*
3 bluntnose minnow	*Pimephales notatus*

This two day survey produced no brook trout in the nets, nor were any young of the year (Y.O.Y.) trout found in the minnow traps set in the lake or the inflow of the main basin. The presence of northern pike and smallmouth bass would indicate that no trout are left in the lake due to competition and predation. If any brook trout are found it would most likely be incidental as they are capable of traveling great distances and therefore could likely be found in most coldwater streams pending no predation. With the last stocking being in 1994, none of these stocked fish would be present in the lake. This would dictate that the lake should no longer be managed as a trout lake.

References

Monroe, B. 2005. Manual of instructions - Draft: Brook Trout Index Netting (BTIN). Ontario Ministry of Natural Resources, Algonquin Fisheries Assessment Unit, Whitney, ON.

Ontario Ministry of Natural Resources 2007 Bracebridge Area Files-Forest Lake File. . Bracebridge ON.

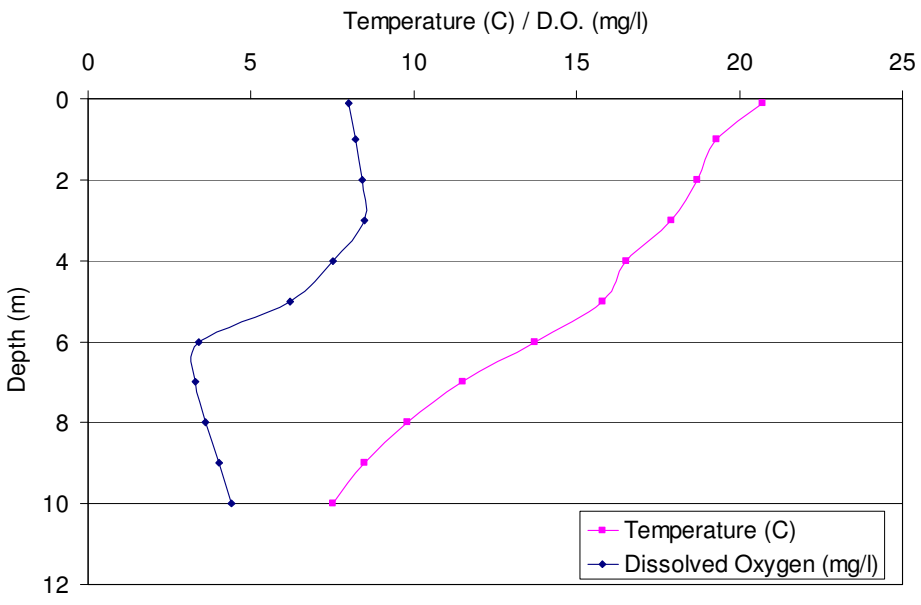


Figure 1 Water temperature and dissolved oxygen profile, Forest Lake, Joly twp. August 21 & 22, 2007

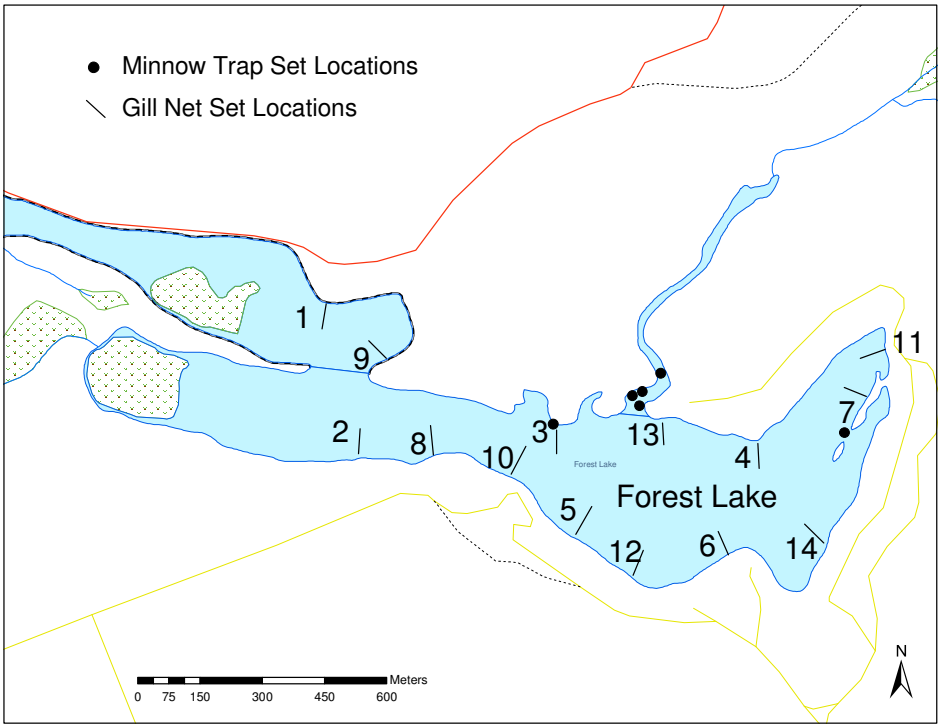


Figure 2 BTIN set locations, Forest Lake, 2007