Splake Stocking and Fish Community Assessment of Grandview Lake

2010

File Report

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Ministry of Natural Resources
Bracebridge

2012
Grandview Lake (Figure 1) is a small (74 ha), relatively deep (26 m), clear water (Secchi: 5.7 m DMM 2008) lake located in Ridout Township. The lake is accessible by the public directly off Hwy 117, between Baysville and Dorset. There is no launch for trailered boats but small boats and canoes may be put in at a landing.

The composition of the native fish community is not documented; stocking of several species began before the first survey. Lake and brook trout were stocked beginning in 1939 and 1943, respectively; the early dates suggesting that if there were native populations the abundance was low. Smallmouth bass were introduced beginning in 1948. Lake trout stocking continued, periodically, until 1975. A lake trout population assessment was done in 1976. Nine lake trout were caught of which six did not have hatchery fin clips suggesting some natural reproduction was occurring. It was recommended that the lake should no longer be managed for lake trout due to the limited amount of habitat and low abundance of stocked and possibly natural fish.

Splake stocking began in 1986. An assessment in 1988 caught no stocked splake. A follow-up assessment was planned but never completed and splake stocking continued until the present (Table 1). Three large lake trout were also caught in this assessment.

Anecdotally, it appeared that there was little fishing effort directed at the stocked splake, suggesting that the fishery was poor. An assessment was completed in 2010 to obtain current information on the composition of the fish community and on the abundance and population characteristics of stocked splake.

**METHODS**

Aspects of the Brook Trout Index Netting (BTIN, Monroe 2005) and Summer Profundal Index Netting (SPIN, Sandstrom et al 2007) gear and protocols were used. The intent was to use a variety of gear to maximize the chance of detecting all of the major fish species that were present, with an emphasis on mesh sizes expected to catch splake.

The BTIN gear consisted of two monofilament gillnets that were 90 m long by 2.4 m high. Each net was comprised of 6 panels, all of one mesh size; one of 2 inch mesh and the second of 2.5 inch mesh.

SPIN gear consisted of gill nets that were 64 m long by 1.8 m high and had two eight-panel gangs of the following stretch mesh sizes; 2.25, 2.50, 2.75, 3.00, 3.50, 4.00, 4.50 and 5.00 inch. The mesh sizes were randomly arranged.
A third gill net comprised two panels of 1.0 inch mesh was also used.

Captured fish species were measured for fork length and age structures were taken from target species.

A zooplankton net haul was done to look for the presence of invasive spiny water flea.

A temperature and dissolved oxygen profile was available from the District of Muskoka sampling program (Appendix).

RESULTS and DISCUSSION

Netting was conducted in two time periods; August 11-12 and August 18-19, 2010 (Table 2). In the first period eight sets were completed; five short duration daytime sets (three BTIN, two SPIN) and three overnight sets (two BTIN, one SPIN). The second set of net sets was done specifically to target ciscos which were not caught in the first eight sets. All were overnight sets (one BTIN, two SPIN and one small mesh gill net). Nets were generally set in and below the thermocline to target splake and cisco.

The catch was dominated by white suckers (105 caught), followed in order of abundance by smallmouth bass (22), burbot (12), splake (2), rock bass (1) and lake trout (1)(Table 3).

The two splake caught were both large individuals (582 and 698 mm FL, Table 4, Table 5). The larger individual was aged to be 8 years old. An age could not be determined from the other.

The lake trout was also a large individual with a partially regenerated fin clip indicating that it was a stocked fish. It was aged to be 36 years old, which corresponds fairly closely with the last documented stocking event in 1975.

Changes to the fish community composition have occurred since the last assessment in 1988. Rock bass have become established through unknown means. Only one was caught but they are probably more abundant than the netting suggests, as most netting effort was in or below the thermocline, where rock bass would not typically occur.

No ciscos were caught, despite being abundant in previous assessments. While it is not conclusive that they no longer occur in the lake, at the very least the abundance appears to be
dramatically lower than in the past. The reason for the decline isn’t known. The abundance of deep water predators does not appear to be high enough to have affected the population greatly. It is possible that non-native smelt, which were detected in previous surveys, impacted the cisco through competition for zooplankton food or depredation on larval cisco. No smelt were caught in 2010, though it is likely that they are still present (they are only vulnerable to the smallest mesh sizes used and may escape detection if the abundance is low).

No naturally reproduced lake trout or brook trout were caught. In 1976, several unclipped lake trout and one unclipped brook trout were caught, indicating that some reproduction was occurring. If they are still present in the lake their abundance must be very low.

The zooplankton haul did not yield any spiny water flea, but large numbers of native water fleas were caught.

Despite regular stocking of relatively large numbers of splake, only two were caught; both large, older individuals. Early survival of stocked fish is very poor. This phenomenon has been observed in other splake lakes in the District. It appears to be related to high water clarity and the presence of other large predators, notably smallmouth bass. It is speculated that direct depredation by and/or competition with bass is causing low survival of newly stocked fish. The splake that were caught were large and robust indicating that the fish that do survive past the early post–stocking period can find ample food, grow quickly and live a long time.

In recent years the stocking rate of splake was consistently 2500 fish. Using a rough average size at stocking of 50 g, the recommended stocking rate is about 1900 to 2300 fish (2.0-2.5 kg/ha for waters > 6 m deep; OMNR 2002). The recommended rate is a generalized value based on a limited number of studies. While the actual rate was only modestly above the recommended rate, it may be excessive for the available food resources for small fish in Grandview Lake, resulting in poor survival.

A trial has been initiated to stock splake as fall yearlings in Clear (Perry Twp.) and Corkery Lakes where low early survival has been observed as well. This trial is intended to determine whether the postulated early-survival bottleneck can be by-passed by stocking larger fish and stocking them in the fall when bass are becoming less active. If better returns can be obtained using this strategy, it could be applied to Grandview Lake as well. If not, stocking less frequently or at a lower density could be attempted to explore whether excessive stocking is reducing the availability of food for newly stocked fish. Failing that, discontinuation of splake stocking would be appropriate as a reasonable fishery is not currently being created. If splake stocking is
discontinued the stocking of a species that could perhaps take better advantage of the deep water habitat and apparent zooplankton abundance, such as rainbow trout, could be considered.

REFERENCES


Table 1  Recent splake stocking history, Grandview Lake. All recent stockings were of spring yearlings.

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Table 2  Net set details, Grandview Lake, 2010.

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<th>Depth 3 end</th>
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Table 3  Catch summary for Grandview Lake, 2010.

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Table 4  Descriptive statistics of the fork lengths of captured fish, by species, Grandview Lake, 2010.

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Table 5  Fork length frequency distribution, by species, Grandview Lake, 2010.

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Figure 1  Map showing bathymetry and net set locations, Grandview Lake, 2010.

Appendix  Temperature and dissolved oxygen profile from Grandview Lake, August 2008 (DMM 2008).
### Appendix: Detailed fish information, Grandview Lake, 2010.

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Note:  R: released, RG: released in good health, RF: released in fair health, RP: released in poor health, D: dead in net