# Results of a Broad-scale Monitoring Survey Conducted on Langford Lake, 2017

File Report

2018

Trevor Drennan
Ministry of Natural Resources and Forestry
Bracebridge

Langford Lake (WBY_LID: 17-6339-50346) is located in Perry Township, Parry Sound District. The lake has an approximate surface area of 42 hectares and a mean depth of 3 meters. The maximum depth of the lake is 7 meters. Water clarity is moderate with a secchi reading of 3.5 meters The lake is accessible to the public off Long Lake Road via a small boat launch. The lake is part of the Little East River system and there is no form of water regulation on the lake.

Langford Lake was stocked regularly with Brook Trout until 1967, however, a lake survey conducted in 1972 did not catch any Brook Trout. It is likely that once stocking was discontinued in the lake, combined with the introduction of Yellow Perch, that Brook Trout became extirpated from the lake. It is unknown whether there was a native population.

The purpose of the survey is to update the fish community of the lake and to evaluate the current status of any possible remnant Brook Trout population.

**Methods**

The Broad-scale Monitoring (BsM) protocol was followed (Sandstrom et al 2015). Gear consisted of large mesh (NA-1) and small mesh (ON-2) gillnets. The large mesh gillnets target fish larger than 20cm in length, typically the size range of interest to anglers. The net has a length of 24.8 m consisting of 8 panels per gang which are 1.8 meters high. The mesh sizes, in inches, are 1.50”, 2.00”, 2.50”, 3.00”, 3.50”, 4.00”, 4.50” and 5.00”. The small mesh gillnets target smaller fish and are intended to detect the presence of other species in the lake. It has a length of 12.5m, 5 panels and is 1.8m high. Its stretch measure, also in inches, is 0.50”, 0.75”, 1.00”, 1.25” and 1.50”.

The number of nets and allocation to depth stratum were done according to the BsM protocol. Efforts were allocated over the depth strata of 1-3 and 3-6+ meters. Nets were set overnight between the time frame of 16-22 hours.

The fork length was measured for all captured fish. Walleye were subjected to full scientific sampling, including length, weight, gender, gonad condition and stomach contents. Walleye also had scales and spines removed for age analysis.

A temperature-dissolved oxygen profile was collected to determine how the lake was thermally stratified and the availability of oxygen.

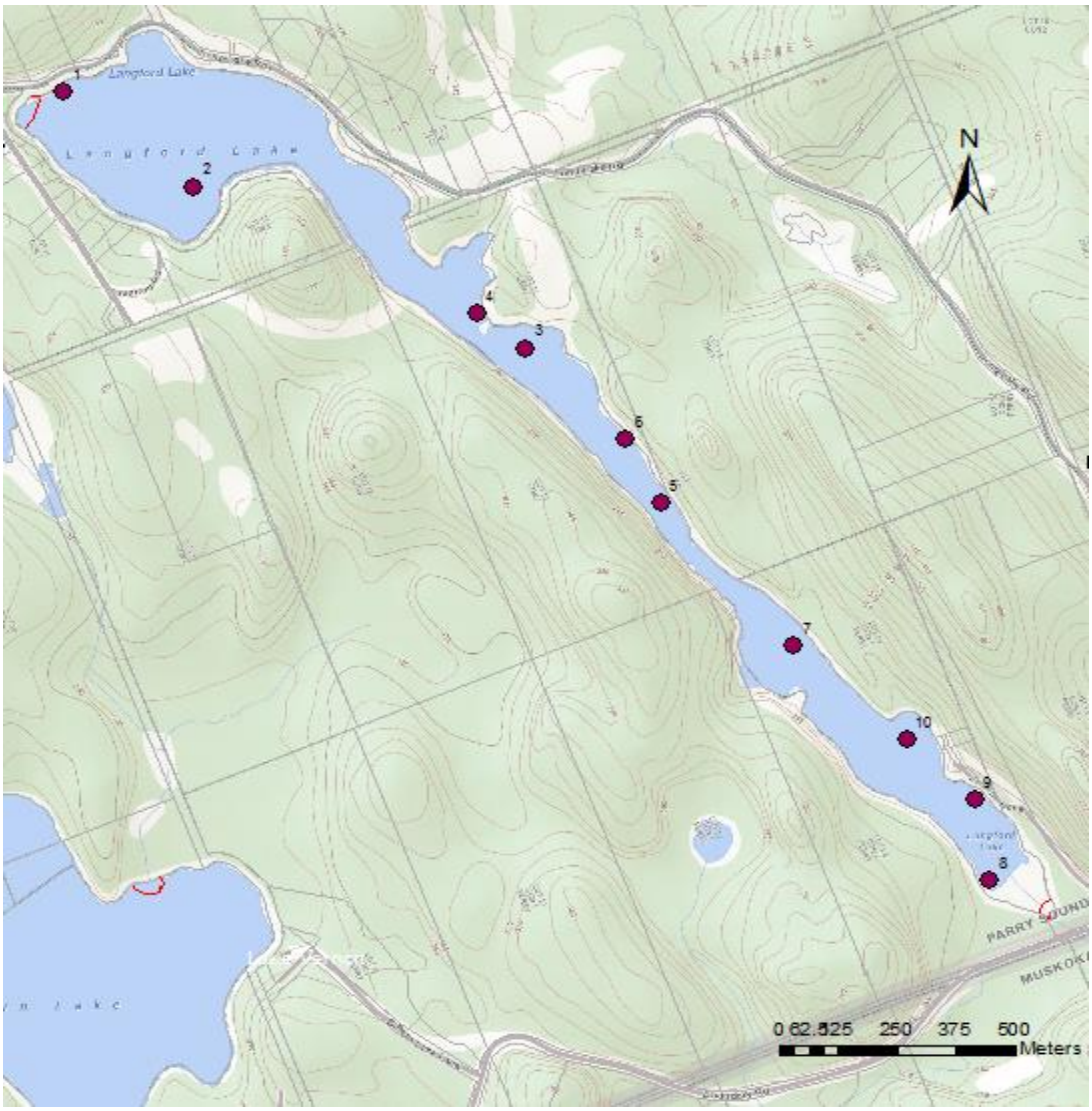



Figure 1 Net set locations, Langford Lake, 2017.

## Results

Netting occurred over three days; July 29, 30 and 31st, 2017. Overall, 6 single-gang large mesh nets and 4 single-gang small mesh nets were set, as indicated by Figure 1 and Table 1.

Table 1 Net set details, Langford Lake, 2017

| effort | easting | northing | set date | set time | lift date | lift time | gear | total gangs | depth start | depth end |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 632795 | 5035468 | 08/29/2017 | 13:54 | 08/30/2017 | 9:40 | 1 | 1 | 1.9 | 3.2 |
| 2 | 633072 | 5035253 | 08/29/2017 | 14:10 | 08/30/2017 | 10:30 | 1 | 1 | 5.5 | 5.9 |
| 3 | 633780 | 5034887 | 08/29/2017 | 14:31 | 08/30/2017 | 11:10 | 1 | 1 | 3.5 | 5.4 |
| 4 | 633675 | 5034966 | 08/29/2017 | 14:40 | 08/30/2017 | 11:30 | 2 | 1 | 1.8 | 3.2 |
| 5 | 634066 | 5034535 | 08/29/2017 | 14:54 | 08/30/2017 | 11:40 | 2 | 1 | 4.5 | 5.1 |
| 6 | 633993 | 5034680 | 08/30/2017 | 13:02 | 08/31/2017 | 9:30 | 1 | 1 | 3.8 | 5.9 |
| 7 | 634348 | 5034213 | 08/30/2017 | 13:15 | 08/31/2017 | 9:55 | 1 | 1 | 5 | 5.6 |
| 8 | 634767 | 5033681 | 08/30/2017 | 13:35 | 08/31/2017 | 10:00 | 1 | 1 | 1.4 | 3 |
| 9 | 634734 | 5033866 | 08/30/2017 | 13:40 | 08/31/2017 | 10:30 | 2 | 1 | 1.1 | 3.3 |
| 10 | 634593 | 5034002 | 08/30/2017 | 13:50 | 08/31/2017 | 10:35 | 2 | 1 | 3.8 | 4.3 |

The catch summary (Table 2, Figure 2) of the survey was as follows: White Sucker (17), Smallmouth Bass (24), Largemouth Bass (28), Yellow Perch (66), Walleye (6), Pumpkinseed (1) and Brown Bullhead (1).

Table 2 Summary of Catch, Langford Lake, 2017

| Species | Large (NA1) | Small (ON2) | Total |
|---|---|---|---|
| White Sucker | 17 | 0 | 17 |
| Smallmouth Bass | 20 | 4 | 24 |
| Largemouth Bass | 25 | 3 | 28 |
| Yellow Perch | 8 | 58 | 66 |
| Walleye | 6 | 0 | 6 |
| Pumpkinseed | 0 | 1 | 1 |
| Brown Bullhead | 1 | 0 | 1 |

The large-mesh catch was dominated by Smallmouth and Largemouth Bass. Yellow Perch dominated the catch, comprising 46% of the total catch. The two species of bass, Largemouth and Smallmouth, accounted for 36% of the total catch, while the other species made up the other 18% of the total catch. The large catch of Yellow Perch can be attributed to one small-mesh net capturing a school of 55 mm length fish. This school accounted for all but 8 fish included in the total Yellow Perch catch.

Smallmouth Bass, Largemouth Bass, Walleye and Brown Bullhead had not been previously documented in the lake.

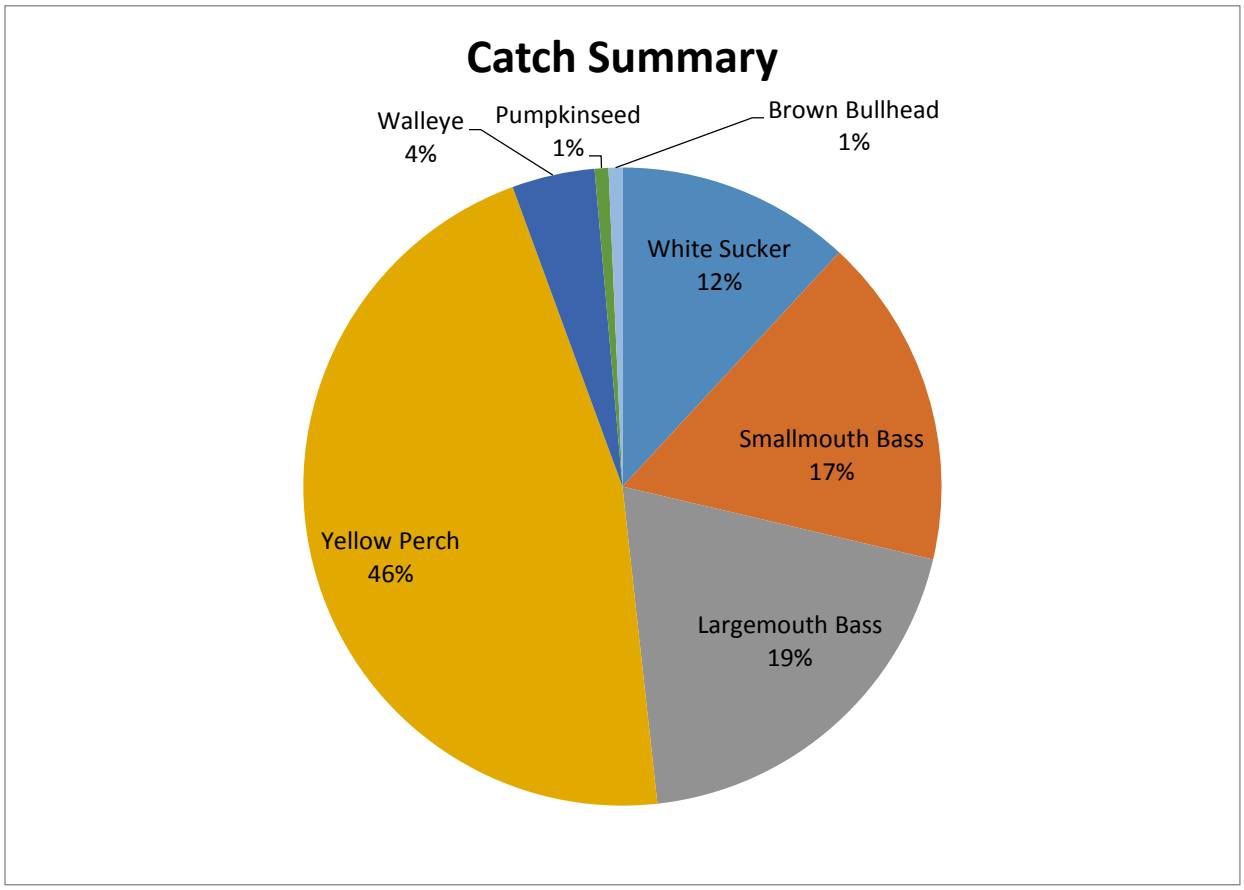



Figure 2 Summary of catch on Langford Lake, 2017

The six Walleye caught represented total lengths between 255-591mm as shown in Table 3. These lengths should represent a variety of age classes being caught, which will be confirmed once the samples are aged.

Table 3 Summary of Walleye catch, Langford Lake, 2017

| SPECIES | FISH | Fate | FLEN | TLEN | RWT | SEX | GONAD |
|---|---|---|---|---|---|---|---|
| 334 | 1 | D | 560 | 591 | | F | 22 |
| 334 | 2 | D | 450 | 478 | 1000 | F | 22 |
| 334 | 3 | D | 255 | 273 | 200 | 9 | 10 |
| 334 | 4 | D | 530 | 560 | | F | 22 |
| 334 | 5 | D | 458 | 488 | | M | 22 |
| 334 | 6 | | 280 | 302 | 280 | F | 10 |

The variability in fork length of the species caught in the survey can show the potential for various year classes to be represented in the catch. Table 4 demonstrates the catch number and fork length statistics of all species caught in the survey.

Table 4 Fork Length Statistics, Langford Lake, 2017

| Species | Caught | Minimum FLEN | Maximum FLEN | Average FLEN |
|---|---|---|---|---|
| White Sucker | 17 | 240 | 490 | 407 |
| Brown Bullhead | 1 | 370 | 370 | 370 |
| Pumpkinseed | 1 | 110 | 110 | 110 |
| Smallmouth Bass | 24 | 145 | 395 | 280 |
| Largemouth Bass | 28 | 55 | 390 | 246 |
| Yellow Perch | 67 | 55 | 300 | 77 |
| Walleye | 6 | 255 | 560 | 422 |

The dissolved oxygen and temperature profile (Figure 3) of the lake indicates a non-stratified lake. There is no presence of a thermocline and the water temperature was warm to a depth of 5m. Even without the presence of a thermocline, oxygen levels were moderate possibly due to mixing of the lake by the wind.

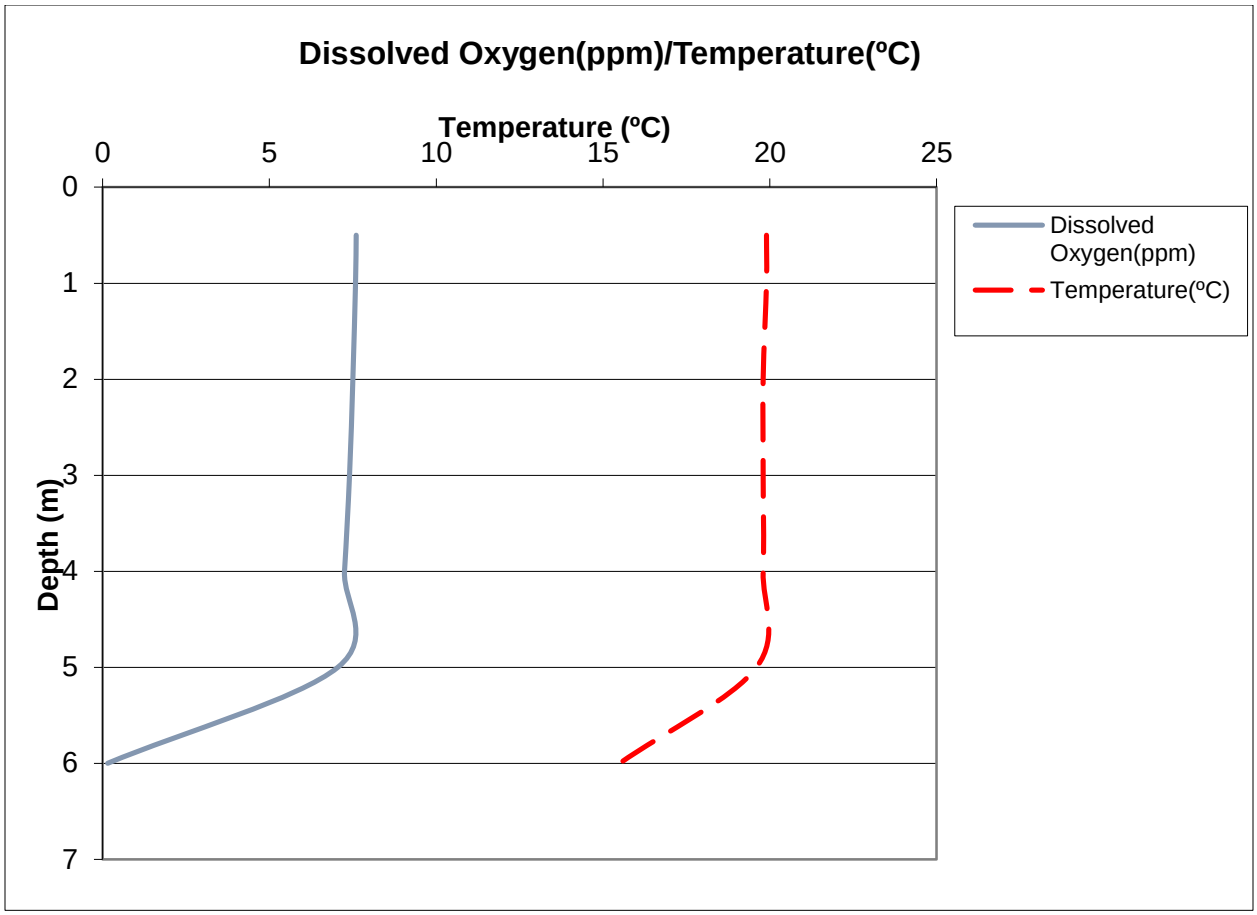



Figure 3 Dissolved oxygen and temperature profile, Langford Lake 2017

## Discussion

Brook Trout have not been stocked into Langford Lake since 1967 due to poor success. The last recorded Brook Trout to be caught in the lake was in 1972 and there has been no further evidence (angler reports) to suggest that they still remain in the lake.

Since the last Brook Trout was caught in the lake, four other predatory species have become established in the lake. The introduction of Yellow Perch, Smallmouth and Largemouth Bass along with Walleye leave the Brook Trout population remnant if not fully extirpated.

Walleye, being a relatively new species to the lake, appear to have established a viable population with multiple age classes being represented. The temperature and clarity of the lake would appear to favour a warm water species such as Walleye and bass.

Langford Lake should be managed as a warm water fishery supporting multiple species of game fish.

## References

Sandstrom, S.J., M.R. Rawson and N.P. Lester. 2015. Manual of Instructions for Inland Lakes Broad-scale Monitoring; Part 1 Netting Survey; version 2015.1. Ontario Ministry of Natural Resources and Forestry, Science and Research Branch, Biodiversity and Monitoring Section, Peterborough, ON. 35 pp. + appends.