Oxbow Lake Water Quality - 2022 Report presented by Phil Guselle at the OLCA AGM

Water quality analysis at Oxbow Lake takes into account changes in phosphorus, nitrogen and dissolved oxygen levels and water clarity as affected by algae levels.

Peter and Angie Heydon and Marc Lichtenberg have acted as volunteer Lake Stewards, collecting water samples and measuring water clarity on the east and west arms of Oxbow Lake respectively. They have been active since 2002. These samples are analyzed by the Ontario government at no cost to residents. The District of Muskoka carries out similar analyses of nitrogen and dissolved oxygen biennially. Measurements have been disrupted due to Covid concerns over the past two years but lake Steward samples have been taken. Phosphorus and nitrogen are sampled due to their impacting algae growth. Our lake is designated with a special Lake Trout Lake status and dissolved oxygen level impact the health of lake trout populations. The dissolved oxygen is essentially the air the fish “breathe” under water.

Dissolved oxygen should be at a reading of 7 for ideal fish conditions. When it drops to 4 or below, lake trout populations are compromised. Over the past few years, dissolved oxygen has taken a steep dive from 6.8 to 4.8. We use the numbers from 18m below the surface, the level where lake trout are found in late summer.

Phosphorus levels are generally within acceptable range but have exceeded healthy limits by a small amount twice, in 2016 and 2020. Nitrogen is within acceptable limits, although it has increased fourfold over the measurement period and therefore should be closely monitored into the future.

Looking at water clarity readings over the past 20 years, however, we see decline. Water clarity is an indicator of algae growth, measured by dropping a weighted, white pie-plate sized disk on a line into deeper areas of the lake. The depth of the disk is measured at the point where the disk disappears from view. These readings are taken throughout the open water season since measurements can vary significantly within each season and by location due to factors such as pollen and rainfall, in addition to algae growth.

Climate change is affecting all lakes. Algae growth also depends on the temperature of the water in the lake and how much the lake mixes over the seasons. Higher water temperatures cause more growth of certain algae. Also, there is less healthy mixing of a lake when the top layer gets warmer and the bottom layer is much colder.