

Background: Lake Simcoe's health

March 2020

Lake Simcoe's ecosystem is in a precarious position. The main **environmental problems facing the lake are**: phosphorus pollution, climate change, alteration of lands and subsequent loss of forests and wetlands, salt, and invasive species. The efforts made to improve the lake's health are helping; however, phosphorus loads have not gone down. The Lake Simcoe Region Conservation Authority's 2015 Phosphorus Update states, "While annual variations are apparent, the recent five-year average phosphorus load is consistent with the average of the last decade (2005/06- 2014/15; 85.8 tonnes) despite an increase in the urban area of the watershed."ⁱ The most recent numbers, 2015 – 2017, show swings from 73 to 131 tonnes/year. ⁱⁱ (The provincial target is 44 tonnes/year.)



The annual Phosphorus load to the lake originates from the following sources: urban runoff and stormwater 31%; atmospheric 27%; rural and agricultural 25%; sewage treatment plants 7%; Septic systems 6%; and Holland Marsh and polders 4%.ⁱⁱⁱ The nutrient Phosphorus reaches the watershed's streams, and the lake, and causes excessive algae and aquatic weed growth, which in turn triggers low oxygen levels in the lake's deep water. The Lake Simcoe science community uses the Lake Trout as an indicator species, since it needs oxygen in the deep parts of the lake to survive. The Lake Trout is showing signs of recovery^{iv} as Phosphorus levels have come down since the 1980's.

Ontario's **Lake Simcoe Protection Plan** is one of the policies that steers our actions today. Its science-based targets drive municipalities, farmers, individuals, developers, the Lake Simcoe Region Conservation Authority and others toward the goal of protecting, improving or restoring the ecological health of the Lake Simcoe watershed. The Rescue Lake Simcoe Coalition's current focus is on maintaining or improving the Lake Simcoe Protection Plan, with the help of people like you.

The Lake Simcoe Protection Plan is unique in that it **drives scientific and policy innovation** and the user-pay principle in urban and suburban development. Models have been developed at Lake Simcoe that can be replicated in other watersheds experiencing Phosphorus pollution (there are many, and that number will grow with more development and climate change). For instance, since 2009, agencies at Lake Simcoe developed the Lake Simcoe Phosphorus Offset Program ^v(which generates revenue if Phosphorus flows off development sites into the ecosystem), the Low Impact Development treatment train tool, and advanced mandatory stormwater guidelines. Further, stronger caps on sewage treatment plant Certificates of Approval have led to a 46% reduction in Phosphorus from sewage treatment plants between 2005 and 2015^{vi}. Without these actions and tools, the Phosphorus load to the lake would be even higher^{vii}, with resulting damage to the lake. We support these tools, but we also need to keep the Lake Simcoe Protection Plan strong to decrease Phosphorus levels.

Development pressures are huge; sources estimate that 12,000 – 17,000 hectares in the watershed will be converted to urban uses by 2031^{viii}. This estimate is based on stronger residential density targets than those in effect today in Ontario. It is well documented that where development and urbanization occur, lower water quality tends to result.^{ix} Today’s development patterns are simply unsustainable, and fly in the face of the clear environmental, carrying capacity limits of the lake. Increasing financial support of higher density, transit oriented, sustainable development is important for the long-term sustainability of the area.

Today we have almost enough **forests and wetlands** to buffer the watershed from the impacts of climate change and the stress of phosphorus pollution. But we are losing, not gaining, forests and wetlands.^x The Lake Simcoe Protection Plan sets a target of 40% “high quality natural cover” across the watershed, but there is no mechanism for achieving this in the Lake Simcoe Protection Plan. To achieve this critical target, we must strengthen LSPP policies affecting high quality natural cover, protect more lands through land trusts and conservation easements, and by innovating to raise funds to purchase lands. It is well established that wetlands provide valuable “ecosystem services” for free, such as reducing the impacts of flooding, reducing nitrogen and phosphorus loads to the lake, and increasing groundwater recharge.

ⁱ Lake Simcoe Region Conservation Authority, 2017. Phosphorus Loads Update, 2012/13 – 2014/15. https://www.lsrca.on.ca/Shared%20Documents/reports/Phosphorus_Load_Report.pdf

ⁱⁱ Lake Simcoe Region Conservation Authority, 2020. Phosphorus Loads Update, 2015 – 2017. <https://www.lsrca.on.ca/Pages/Phosphorus-Loads-Update.aspx>

ⁱⁱⁱ “Ministry of the Environment, Conservation and Parks, Lake Simcoe Phosphorus Reduction Strategy (Toronto: MECP, 2010). Pages 20 - 40. <https://www.ontario.ca/page/lake-simcoe-phosphorus-reduction-strategy>”.

^{iv} Young, Joelle, and Hamdi Jarjanzi, 2014. Biomonitoring Section, Environmental Monitoring and Reporting Branch, Ministry of the Environment, Conservation and Parks. Lake Simcoe Monitoring Report, 2014. (Toronto: MECP, 2014). Page 98. <https://www.lsrca.on.ca/Shared%20Documents/reports/moecc-lake-simcoe-monitoring.pdf>

^v Lake Simcoe Phosphorus Offsetting Policy https://www.lsrca.on.ca/Shared%20Documents/Phosphorus_Offsetting_Policy.pdf

^{vi} Lake Simcoe Region Conservation Authority, 2017. Phosphorus Loads Update, 2012/13 – 2014/15. https://www.lsrca.on.ca/Shared%20Documents/reports/Phosphorus_Load_Report.pdf

^{vii} Ministry of the Environment, Conservation and Parks, Lake Simcoe Phosphorus Reduction Strategy (Toronto: MECP, 2010). Page 7. <https://www.ontario.ca/page/lake-simcoe-phosphorus-reduction-strategy>

^{viii} Ministry of the Environment, Conservation and Parks, Lake Simcoe Phosphorus Reduction Strategy (Toronto: MECP, 2010). Page 30. <https://www.ontario.ca/page/lake-simcoe-phosphorus-reduction-strategy>

^{ix} Lake Simcoe Region Conservation Authority, 2018. Watershed Report Card. <https://www.lsrca.on.ca/watershed-health/reportcard>

^x Ibid.