

Crisis in Swan Lake Park

What should be done?

by Fred Peters, Friends of Swan Lake Park



Many have witnessed first-hand the poor water quality issues in Swan Lake this past summer. In spite of the city's attempt to improve the water quality through a Phoslock treatment in 2013 and an aggressive geese management program, the water quality today is as bad or worse than in 2012. A recent analysis confirms the presence of harmful bacteria in the lake.



Great Blue Heron. Leg coated with Cyanobacteria
Photo courtesy of Don Fowler

The poor water quality directly impacts the aquatic life and the quality and quantity of water-based plants that are a source of oxygen for fish and food for waterfowl. The team of caregivers for our swans feel there are not sufficient food sources in the lake and that their effort to feed the swans three times each day is essential for the swans' survival. In a lake this size, we should not have to worry about feeding three swans!

The primary challenge is the excess amount of phosphorus in the lake that stimulates excessive growth of algae and phytoplankton. Phytoplankton is what gives the water its dark green look and the algae are the slimy green substances on the surface. The excess phytoplankton and algae prevent the sunlight from reaching water-based plants which is needed for their survival. The excess phosphorus arises primarily from the large migrating geese population.



Photo courtesy of Don Fowler

Swan Lake also contains cyanobacteria, a type of bacteria. Though not algae, cyanobacteria is often referred to as blue-green algae. Certain forms of cyanobacteria found in Swan Lake produce toxins, or poisons, that are harmful to animals and can be harmful to humans. One form can impact individuals with respiratory issues, another can cause liver damage. The level of cyanobacteria in Swan Lake is below the guidelines for banning recreational activities but there is a risk that some of the bacteria may become airborne. We believe the levels within Swan Lake warrant the posting of a health risk warning at the park, and have requested that the city also post a temporary ban on fishing in the lake until the water quality is restored.

The Friends of Swan Lake Park recently met with the city staff and made three specific recommendations:

1. Immediately initiate the proposed Remediation Plan.
2. Develop a long term sustainable Environmental Plan for the park, including a program for restoration of the damaged elements.
3. Incorporate a monitoring mechanism that will provide for timely remedial action into a long-term Stewardship Plan for the park.

Proposed Remediation: Do It Now, Don't Delay

In March, the city staff plans to submit a recommendation to council that a treatment to reduce phosphorus levels be applied in the spring of 2021. We fully endorse their recommendation for remediation, however, strongly object to deferring the treatment until 2021. The lake is in crisis now and the treatment should be applied in the spring of 2020 to prevent the problems from becoming worse.

Everyone wants to see an improvement in the water quality. But what does that mean?

It is important that the City commit to defining what they think success looks like. Our belief is that the only sustainable solution is to reduce and maintain Swan Lake phosphorus levels to a point that meets established environmental guidelines. This means that the lake will have fair to clear water, submerged aquatic plants, some fish and only periodic algae blooms. It is unlikely that this will be accomplished in one treatment and an additional treatment may be required over the next two to three years to accomplish this goal.

Sustainable Environmental Plan and Restoration Program

The environmental elements in the park are all interconnected and interdependent. We have identified over 80 different species of birds and mammals that inhabit the park and six invasive plant species that are gaining hold.

Swan Lake Park falls within the Rouge River watershed. The Toronto and Region Conservation Authority (TRCA) has developed comprehensive environmental plans for the nine watersheds it oversees, including the Rouge River watershed. We have asked the city to work with the TRCA and initiate a similar environmental review of Swan Lake Park.

Without any stream water inflows or outflows, common to many other waterbodies in the area, Swan Lake is more like a very large stagnant puddle depending mainly on precipitation for replenishment. This presents a particularly difficult problem for phosphorus level remediation and maintenance.

We have asked the city to investigate what we call “engineering” solutions such as implementing techniques to create water flow and forms of natural filtration to offset the intrinsic challenges facing the lake.

There is an Ontario association of environmental consultants that hosts an annual competition for university and college students. The students are asked to develop solutions to solve challenging environmental problems. We have asked the city to enter Swan Lake Park as a project for the competition.

Timely Response Mechanism

Periodic remediation treatments may be the only viable solution; however, we should not wait five to seven years to have the issues addressed.

In 2006, Swan Lake was in crisis. Fellow Swan Lake Village resident, Jon Van Loon, started pestering the city about the problem in 2010. Markham undertook the Phoslock treatment in 2013—seven years after the problem was identified.

In 2016, it was recognized that the lake had returned to its pre-crisis levels. At that time, one type of harmful cyanobacteria, microcystin was recorded at 3.7 times the federal guidelines for recreational waters, yet no health risk notices were posted. Fortunately, cyanobacteria levels are currently at more moderate levels.

Two years ago, the consultants recommended another Phoslock treatment. The city's staff asked the consultant to outline other alternatives. This has led us to the current report and the city's plan for the next remediation treatment in 2021, five years after the problem was recognized.

In its 2017 report, the city's consultants recommended that the City define “trigger” points to spur future treatments. We endorse this recommendation.

The Friends of Swan Lake Park plan to host a meeting to discuss these issues and will be inviting the city staff and our local councillor, Andrew Keyes to attend. Come to the meeting on March 9th, 7:00-8:30 pm and bring your questions. □