IN AWE OF OUR WATER
Even when it rains, it's inviting and clean

WATER QUALITY

By Gord Moore

Welcome back to another year of enjoying family activities on our beautiful Wolfe Lake! As I write this report, I reflect on how mild this winter has been. As a city dweller who only moved to the country full-time in 2010, I would have appreciated a warmer winter during my working years. But, as I have now retired and have lived on the lake for 14 years, I have come to appreciate the winters and the snow, if only for our lake levels. Time will tell how this mild winter will affect our lake's water levels this year. Last year's monitoring results are looking good.

I thought I would start this article with a history of how water quality testing actually started on the lake. To do so, I ventured back to a previous Wolfe and Green Lake Vision and Overview Report from 2013 put together by multiple contributors from the Wolfe Lake Association.

The report detailed how regular testing by the Wolfe Lake Association tested only Water Clarity using a Secchi disc during the summer of 1990. A few years later, in the summer of 1996, the Ontario Ministry of the Environment began testing for Total Phosphorus (TP), using deep water samples collected by Lake Association volunteers. This was the start of the Lake Partner Program. At that time, the samples were taken at three different sites and at three different times. Then, beginning in 2001, shallow water testing was undertaken at nine different shoreline sites. These were chosen based on cottage density and sites that might be an issue after rainfall. The samples were sent to a private laboratory in Kingston or the Centre for Sustainable Watersheds, then located in Portland. This system continued up to 2004. In 2002, however, the Centre for Sustainable Watersheds began performing a more detailed analysis of water quality in Wolfe Lake, including tests for Dissolved Oxygen, E. Coli, and Total Phosphorus.

In 2004, in addition to working with the Ontario Ministry of the Environment, we began a program of water testing in conjunction with the Watershed Watch Program of the Rideau Valley Conservation Authority (RVCA). As a result of this collaboration, samples are now taken at deep and shallow water sites several times during the season. We supply the boat and guide while RVCA supplies the biologists and covers all laboratory costs. Additional tests for Calcium, Dissolved Organic Carbon, Dissolved Oxygen, and Nitrogen (TKN) have been added over the years. There are also occasions when RVCA will come in and do special surveys, such as sampling benthic invertebrate numbers and diversity as indirect markers of the water quality in Wolfe Lake.

Overall, the relationships we have with the Lake Partner Program and the Rideau Valley Conservation Authority have been invaluable to the monitoring of our lake for any issues that could be of concern or require action.
So now let's look at how we fared during the 2023 season:

Total Phosphorus (TP) levels (measured in mg/litre)

In 2023, TP levels in our lake ranged from .002 mg/l to .036 mg/l. Provincial guidelines like to see these levels below .02mg/l. Of the 16 TP samples taken last season, 2 were slightly above that figure, while the other 14 were well below. I have looked at the timing of the 2 higher readings and found that both were taken at the 2 deep water points on the lake on May 15th last year. Although they are unsure, RVCA has expressed concern that there may have been a rare laboratory error when these samples were analyzed. They have now indicated that they will continue to monitor the situation this year. All other values over the year at both deep points came in well below the guidelines. As I have mentioned in past reports, Phosphorus is an essential nutrient for our lake. Testing for it helps track the health of the lake, as too much Phosphorus can cause an increase in plant and algae growth, which can decrease water clarity and oxygenation and increase the chances of blue-green algae blooms.

Calcium (measured in mg/l)

Calcium levels increased slightly in 2023 but RVCA has indicated that there have been no significant changes in trends in calcium concentrations in Wolfe Lake during the years that we have been testing. These trends are highlighted in the 2024 Watershed Conditions Report.

Dissolved Organic Carbon (measured in mg/l)

RVCA notes that the results are fairly consistent with previous years, although site location DP3 (Woods Island) had a higher reading than DP1 (a third of the way across from Wolfe Springs to the big rock on the other side). In 2022 these readings were fairly similar at both locations. As noted in the 2024 Watershed Conditions Report, there is no currently detected trend in D.O.C. concentrations on Wolfe Lake.

E. Coli (measured in cfu/100ml)

Once again, E. Coli levels in our lake are extremely low. As indicated in last year's report, the testing for E. Coli tends to be done in shallow areas. Fortunately, we have no issues with E. Coli.

Total Nitrogen or TKN (measured in mg/l):

TKN levels in 2023 were all well within the guidelines.

Secchi Depth (measure of water clarity and/or turbidity in the lake):
Secchi readings increased from 2022 to 2023, indicating increased water clarity. RVCA focuses more on long-term results, so we will continue to monitor the readings to see if a long-term trend develops.

Dissolved Oxygen

As part of the monitoring process, RVCA takes Dissolved Oxygen and temperature readings at 1-meter intervals from surface to lake bottom at both deep points. Results from these readings can provide information on oxygen content at depth throughout the ice-free season. Oxygen contents are fairly consistent throughout the season. There is some oxygen depletion at depth (i.e., low oxygen near lake bottom), however, generally speaking, the majority of the lake profile presents sufficient oxygen content to reduce internal nutrient loading (nutrient release from sediment) and support fish habitat for most species.

Again this year, **I would like to thank Haley Matschke** from the Rideau Valley Conservation Authority for her invaluable contributions to this article. If you have any questions for Haley or would like information on shoreline rehabilitation, she can be reached at haley.matschke@rvca.ca.

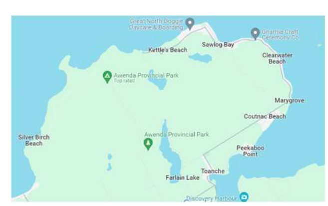
ERADICATION OF EURASIAN WATERMILFOIL AT FARLAIN LAKE

A (costly) success story

By Daniel Spitzer

The aggressive proliferation of invasive Eurasian Watermilfoil (EWM) plagues many North American lakes (including Wolfe Lake). The Farlain Lake Community Association (FLCA) has been battling this problem for over a decade. Different methods to halt the proliferation were investigated, and led to the development of an EWM Integrated Management Plan as the basis for annual control efforts. That plan consists essentially of three components: 1) application of a herbicide, 2) installation of benthic mats in infested areas (bottom barriers), and 3) manual harvesting using DASH (Diver Assisted Harvesting). All of these components require authorization from various government agencies, including Canada's Department of Fisheries and Oceans and Ontario's Ministry of Natural Resources and Forestry and Ministry of the Environment, Conservation and Parks. In 2018, the FLCA received a grant of almost $200,000 from the Ontario Trillium Foundation, an agency of the government of Ontario, to help in their efforts to control the spread of Eurasian Watermilfoil in Farlain Lake.

The new aquatic herbicide ProcellaCOR must be applied by a licensed applicator specifically trained for this herbicide. Canada currently has no trained and licensed applicators for this product, since it has only recently been approved for use in this country by Health Canada. Application also requires special equipment. As a result, the job was awarded to SOLitude, a lake management company based in the United States and currently the only firm licensed to use ProcellaCOR in Canada. In 2023, milfoil was successfully eradicated from Farlain Lake. It is hoped that the experience gained in this project will help other communities dealing with EWM.



For further details, go to farlainlake.ca/our-lake/eurasian-watermilfoil and check out the video clip on Facebook.com, and search there for ‘The Stewards of Water.’

Farlain Lake is a vibrant community of over 300 households tucked away on the Penetanguishene Peninsula in Ontario.