



The Buck Lake Association Inc.

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"To enhance people's enjoyment of Buck Lake now and for future generations"

Buck Lake News – 2016 April

Alarming Increase in Phosphorus at the North End of the North Branch

Submitted by Cheryl Savery

Every year a group of volunteers collects water samples from Buck Lake as part of the Lake Partners Program. These samples are then sent away for phosphorus and calcium analysis. For the past several years, the results have been fairly predictable, following a similar pattern each year. However, in 2015, there was a dramatic increase in the amount of phosphorus found in the samples collected from the north end of the North Branch. This increase in phosphorus is especially disturbing, as the lake has now crossed the line from being **mesotrophic** (10 - 20 µg/L total phosphorus - susceptible to moderate algal blooms) to being **eutrophic** (over 20 µg/L total phosphorus - exhibiting persistent, nuisance algal blooms).

I will discuss these results in more detail, but first some background information about phosphorus and the Lake Partner water sampling program.

Lake Partner Program

The Lake Partner Program is a province-wide, volunteer-based, water-quality monitoring program. Volunteers collect monthly water samples and make water clarity observations on their lakes. This information allows for the early detection of changes in the nutrient status and/or the water clarity of the lake due to the impacts of shoreline development, climate change and other stresses.

Volunteer involvement requires the collection of one sample each month (May-Oct). These samples are then sent to the Dorset Environmental Science Centre for analysis. In addition, volunteers also make water clarity observations using a Secchi disk.

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For the past several years, three volunteers have been making these monthly measurements:

- Heidi Linley: North Branch, South End
- Duncan Sinclair: North Branch, North End, and
- Ralph Wirsig: South Branch, South End

In 2015, I began collecting an additional sample on the South Branch, just south of the Narrows. All these sample locations are shown on the above map, as well as 2 additional samples that will be added in 2016.

Thanks to the efforts of these volunteers, we can look at some of the longer-term trends in total phosphorus.



Total Phosphorus

Total phosphorus concentration measurements are used to interpret nutrient status in Ontario lakes, since phosphorus is the element that controls the growth of algae in most Ontario lakes. Increases in phosphorus will decrease water clarity by stimulating algal growth. In extreme cases, algal blooms will affect the aesthetics of the lake and/or cause taste and odour problems in the water.

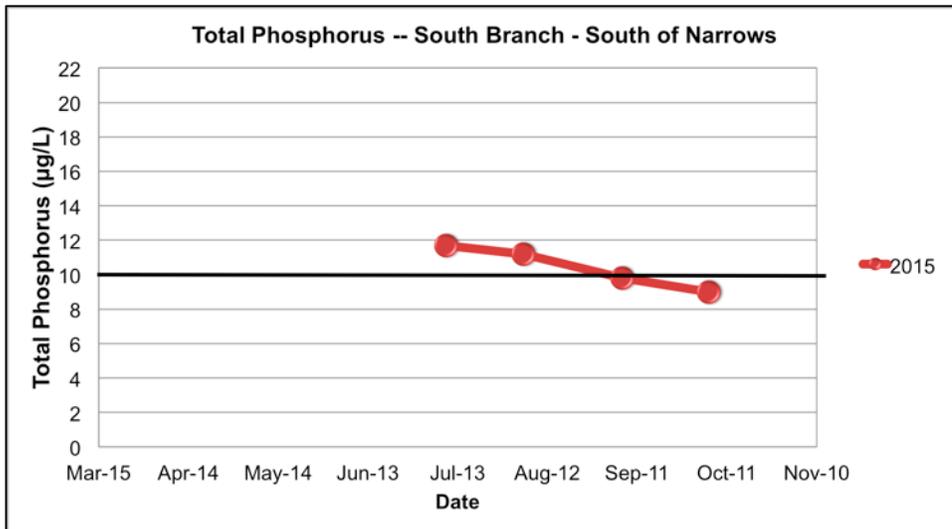
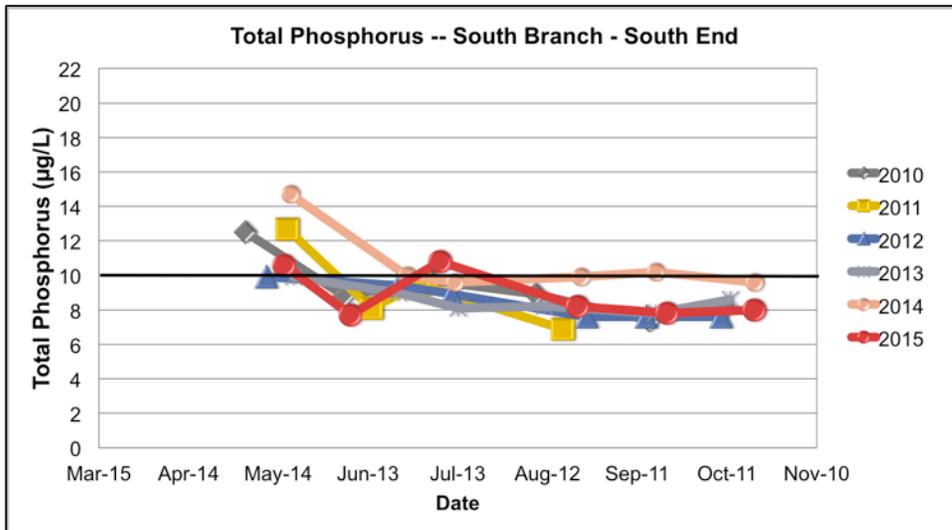
Lakes are generally divided into 3 categories based on their phosphorus content.

- **Oligotrophic** (less than 10 µg/L total phosphorus): These are dilute, unproductive lakes that rarely experience nuisance algal blooms.
- **Mesotrophic** (between 10 and 20 µg/L total phosphorus): These lakes show a broad range of characteristics and can be clear and unproductive at the bottom end of the scale or susceptible to moderate algal blooms at concentration near 20 µg/L.
- **Eutrophic** (over 20 µg/L total phosphorus): These lakes exhibit persistent, nuisance algal blooms.

South Branch

The following two charts show the total phosphorus in Buck Lake at the two sample points on the South Branch. The black line on each chart at 10 µg/L highlights the limit at which our lake water quality is considered good.

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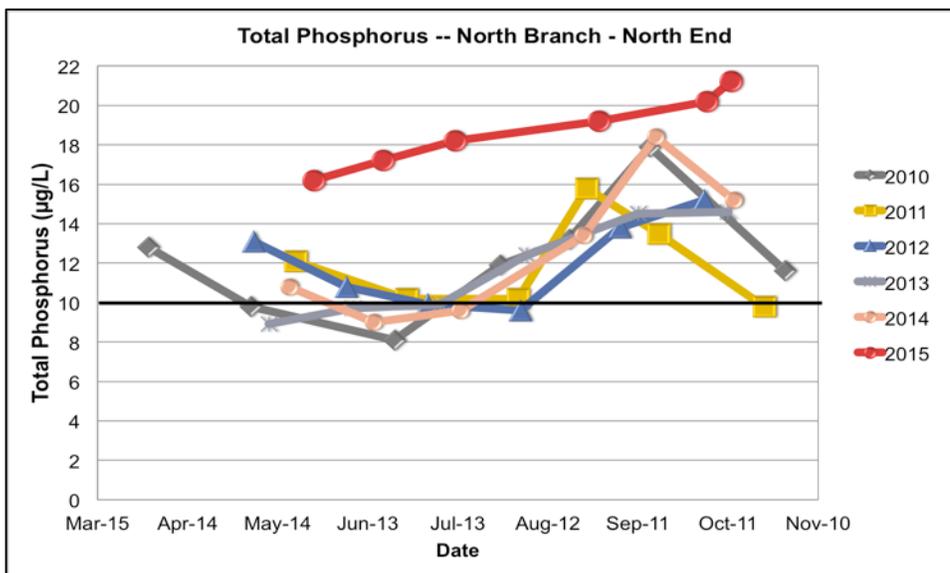
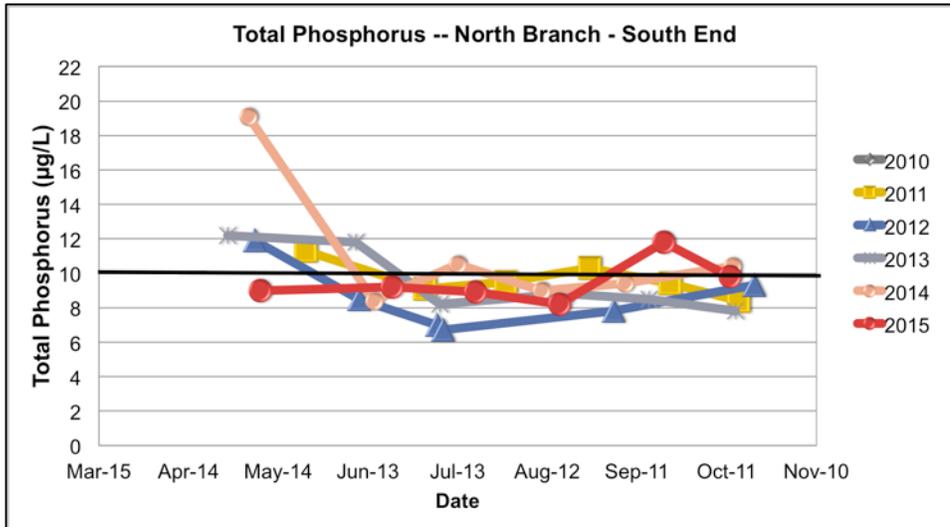
The total phosphorus results for the sample from the south end of the South Branch shows little change from previous years, and in fact, was generally better (lower in phosphorus) than in 2014.

Only 4 samples were collected in 2015 for the new location just south of the Narrows on the South Branch. So far, the results for this location are slightly higher than the other South Branch sample. However, more years of data will be needed before any detailed comparisons can be made.

North Branch

While the South Branch showed little change from previous years, the North Branch is a different story. The following charts show the total phosphorus for the two sample locations on the North Branch.

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In general, the samples from the south end of the North Branch are below 10 µg/L total phosphorus, which is considered good. The data from the north end of the North Branch, however, presents a much more worrisome picture. Although the total phosphorus has always been higher than at the south end, particularly in September and October, there was a huge jump in the 2015 results, which has the lake association very concerned. We are quite alarmed by the size of the increase and also by the fact that it did not begin to drop off at the end of the summer as in previous years.

When I first saw the results, I checked with Duncan Sinclair who collects the sample to see if anything had changed. Duncan has been collecting this sample for many years, and he confirmed that there was absolutely no change in how he collected the samples in 2015. With that possibility ruled out, it was time to think about other possible explanations for the change.

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As you know, the North Branch is a long narrow body of water with a fair amount of development at the north end and less development towards the south end. The water in this branch flows from south to north and empties into the South Branch through the culvert. Currently we have little information about how the phosphorus content changes between these two existing samples points. To help with this, Donna Neumann has agreed to begin collecting a third sample on the North Branch approximately halfway between the two other locations.

The lake association is still determining what additional actions should be taken this year to further investigate the source of the increased phosphorus. Possible actions include:

- Additional water samples
- Survey of land use and septic tank age/condition on the North Branch
- Investigation of any significant changes and/or development on the North Branch in 2015
- Education on reducing phosphorus runoff from lake front property

We are also looking to Buck Lake residents and cottagers for any ideas or suggestions to deal with the issues of phosphorus in the lake. If you have any comments or suggestions, please contact us at info@bucklake.ca

What Can I Do?

Although one person cannot “fix” the phosphorus problem, many small actions can make a big difference. Some of the most important things that lake front property owners can do to reduce the impact of their property on the lake’s water quality include:

- **Reduce or Eliminate Fertilizer Use**
Remember that what goes on your property goes into the lake! That includes fertilizers applied near the water. Rain and irrigation carry these fertilizers into the water and encourage the rapid growth of aquatic plants and algae. For every pound of phosphorus in the water, 500 pounds of aquatic vegetation are produced!
- **Maintain Your Septic System**
Pumping out your septic tank on a regular basis is critical to reducing nutrient flows into lakes. The frequency of your pump-outs will vary based on the size of your tank, your family size, and the number of appliances you use. As a general rule, pumping your septic tank every 2 to 3 years is a good practice.
- **Leave a Wide Strip of Deep-rooted Plants along the Shoreline**
Instead of planting and mowing grass, plant wildflowers, ornamental grasses, shrubs or trees. These plantings absorb and filter runoff that contains nutrients and soil, as well as provide habitat for wildlife.

All of the data from the Lake Partner Program is available online. To access all the sampling results [click here...](#)



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Local Entrepreneur Makes a Pitch to Dragons Den

CBC's Dragons Den producers were in Kingston on February 26, 2016 interviewing local businesses and entrepreneurs for a possible spot on the show.

Here is Ralph Wirsig's recount of his adventure.

I decided I would be remiss if I did not take advantage of this rare marketing opportunity to spread the word. As I told the Dragons Den producers, 2015 sales of over \$40 k were more than double 2014 sales, which were 50% above 2013 – with essentially no advertising.

Note that this is just an audition and the chances of going farther are probably quite slim. To date, I have sold close to 500 KayaArms in Canada (about 20 on Buck Lake) and the US (about

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70%) and one to Australia with inquiries from New Zealand, France and Bahamas but shipping costs on an individual item is the killer. 20 KayaLegs (a relatively new product) have sold in Canada and the US. Both KayaArm and KayaLeg are patented in Canada and the US.

The KayaArm Idea: It began with my wife taking a spill into Buck Lake at our home while attempting to exit her kayak. In order for her to enter/exit safely I would need to hold the kayak. I felt there must be a better way. I came up with an idea; built a prototype; my wife successfully tested it; found nothing like it on the market; filed for patents in Canada and US; perfected the design; and went commercial.

To preserve patentability, it is necessary to prevent public disclosure of the idea until a patent application is filed. Working confidentially can preserve public non-disclosure in-house or signing non-disclosure agreements with outside individuals or companies you choose to work with. I choose in-house fabrication and testing which was easy in the case of initial wooden prototypes for KayaArm but when it came to an aluminum prototype I purchased an aluminum welder and learned how to weld aluminum for the first time.

The KayaLeg Idea: Given that KayaArm can be used only with a dock I wanted to come up with a portable device for kayak stabilization at entry/exit at a shore or dock where there is no KayaArm. After successful demonstration of a basic idea, I made a series of prototypes, which evolved into a commercial design. I applied for patents in both Canada and the US.

Both KayaArm and KayaLeg are unique kayak (or canoe) stabilization devices for easy, safe and convenient entry and exit. KayaArm is designed for use with a dock.

KayaLeg is offered currently as an aftermarket device for attachment to and use on existing kayaks. The ultimate offering would be as a built-in device into the kayak at manufacturing.



Ralph Wirsig (Ralph is a past BLA Board member, long standing member of BLA and an advertiser)



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Township News

On Saturday April 2nd, Loughborough District councilor, Ross Sutherland, hosted an open meeting to discuss township issues in Harris Hall in Perth Road. Several members of the Buck Lake community attended the meeting. The following issues concerning Buck Lake were discussed.

30 Metre Setback from Lakes: The Township is currently reviewing the policy for older buildings that are closer than 30 metres (100 feet) from the shoreline. Currently these buildings are allowed to continue and be fixed up if they do not increase in size. The issue is, what to do with buildings that are damaged or allowed to deteriorate?

The Township's policy has been if they were damaged by unforeseen circumstances, for example by fire or a falling tree, then a similar sized building could be rebuilt. This has been a very rare occurrence and in the few times it has happened most owners have wanted to expand their building so a new site has been chosen. When someone has wanted to rebuild their structure from the ground up, the practice has been to permit this only if it is setback 30 meters, or they can apply for a variance if for a closer site if there is no suitable building site 30 meters back from the lake.

This practice has been challenged recently and the planning department has recommended that the ambiguity in the zoning bylaw be changed to say that if the walls come down then the new structure has to be moved back. While that would be the overriding principle of the proposed changes, the property owner could apply to the Committee of Adjustment for a closer building site. These changes would encourage owners to keep their buildings in good repair as this is an uncontested way of maintaining a home close to the water.

The Committee of Adjustment is a committee of Councilors and Township residents with a long history of responding reasonably to the individual property owners circumstances within overall Township priorities. Council has deferred the issue for two months to obtain a more detailed legal opinion and gather more community input.

During the meeting, Ross reassured those present that in cases where there is no suitable site further back from the lake, buildings would be allowed to be rebuilt on the existing footprint.

There was also some discussion of a proposed 90 metre setback that was reported in the local newspapers. Ross indicated that this was misreported. It was not a setback, but merely a requirement for an environmental impact study, which is no change from existing policy.

Buck Lake Boat Launch: Upgrading and repairs to the boat launch are scheduled for the summer of 2016.

Pickle Ball Courts: The paved parking lot at Harris Park is not satisfactory as it needs to be level and has many uneven spots that make it too dangerous. Kathy Wirsig suggested that there is an area behind Harris Hall that would be an ideal spot.

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Friends of the Lake Walks

May 4, 2 pm: Hike at Barb Wilson's acreage
August 10, 10 am: Cat Trail
September 14, 10 am: Slide Lake loop

QUBS Seminars

As part of their community outreach program, the Queen's University Biological Station (QUBS) holds a seminar every Wednesday at 7:00 pm. The talks are held in the Conference Room in the R.J. Robertson Biodiversity Centre just off Opinicon Road. All are welcome! The first two talks for the 2016 season are:

- 4 May – Chris Elvidge, Carleton University, Environmental Factors Shape the Five Personality Axes
- 11 May – Gerg Bulté, Carleton University, The Sex Life of the Northern Map Turtle: What Goes on Above and Below the Surface.

We are so fortunate to have such a world-class research centre nearby. These weekly talks are well worth attending and provide an opportunity to learn a bit more about QUBS and the research that goes on there. For more information: <http://www.queensu.ca/qubs/>

In order to promote the spirit of Buck Lake People, we invite your comments and suggestions for newsletter articles or announcements. Mail to: info@bucklake.ca

Lake Plan link: [Lake Plan Web Version](#)

“New” Renew your Buck Lake Association membership on line. A receipt will be emailed to you to confirm your payment. A service provided by FOCA: <http://foca.on.ca/product/buck-lake-association/>



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