Otty Lake Water Levels and the Health of Otty Lake – March 2010

Recently the OLA has had questions about high lake water levels and their impact on the health of the lake from some lake residents living in the south-western areas of Otty Lake. Other lake residents may have similar questions and the OLA Board of Directors offers the following comments. We also encourage lake residents to keep the OLA informed about what is happening in your area of the lake community.

The issue of “high” or “low” water levels is one that the Otty Lake Association has considered on a regular basis over many years and one about which shoreline residents of Otty have various opinions. While some have expressed their concern about “high” water levels, others have been equally concerned about periods of “low” levels.

Recognizing that this has been an area of concern to members of the Otty Lake community, over the years there have been many discussions at OLA Board Meetings, AGMs, through the newsletters and recently as part of the lake planning process during the development of the Report on the State of Otty Lake and its Watershed. The lake association has consulted with the Otty Lake community, the Rideau Valley Conservation Authority, the Ministry of Natural Resources and Fisheries and Oceans Canada to try to best understand what influences the water levels and health of Otty Lake.

Lake Water Levels and Lake Health

One question that has been raised is whether higher water levels will impact negatively on the removal of nutrients from the lake.

The understanding of the Board of the Otty Lake Association is that lake water levels will not affect the rate of removal of nutrients from the lake . Otty Lake is essentially a headwater lake, with some flow from small upstream lakes such as McLaren and Rock. The area of Otty Lake is about 13 % of its watershed. As Otty is a large volume lake, the amount of time taken for the exchange of lake water is large, estimated to be between 3 to 4.5 years. Hence the removal of nutrients in the lake has to be considered over this longer timeframe rather than on a seasonal basis.

The amount of water that enters the watershed is dependent on precipitation. A portion of the water in the watershed and the lake evaporates or is absorbed by plants and into the ground. The remainder flows through the outlet, Jebbs Creek. If the lake level is lowered or raised by changing the conditions of Jebbs Creek, it will have a negligible effect on the lake area. Consequently it will have little or no impact on the amount of water that evaporates or is absorbed by plants or into the ground. After a brief period for the lake to stabilize to the new level, outflow will continue at more or less the same rate as previously depending on how much precipitation and subsequent inflow there is. Hence the amount of water passing through Jebbs Creek over any longer timeframe will remain the same, irrespective of lake water levels. As a result, the lake level will not affect the rate of removal of nutrients from the lake.

If you examine the Creek in the summer, the flow is typically very slow as evaporation is the highest. This is often what lake residents witness. On the other hand you will find the flow rates during the late fall to spring are relatively large. The Otty Lake Association has been monitoring the flow of Jebbs Creek at the bridge on County Road #1 for many years.

Weather

As reported in a June 1998 Captain Otty's Log article, Otty Lake Water Levels and Jebbs Creek, in the 2005 Water Levels and Otty Lake Health Report to the Membership prepared by the OLA Environment Committee and in the 2007 Report on the State of Otty Lake and its Watershed, the weather has significant impact on Otty Lake water levels. Hot, dry and windy weather can result in lower lake levels due to increased evaporation from the lake surface and reduced water input. When the weather is cool, overcast and rainy, lake levels are higher. The year 2008 had the highest annual precipitation, measured at the Drummond Centre weather station, since its inception in 1984. Precipitation in 2009 was again above average.

Green Algae

There have been questions about the "green slime" seen in the early summer and a suggestion that this was a product of the lake not being able to flush itself through Jebbs Creek. The "green slime" normally seen in the lake in the early summer is a form of algae. It is not caused by the lake needing to be able to flush itself through Jebbs Creek. It occurs when there is a lot of rain washing nutrients from the land into the water. It flourishes in the cooler damp weather we often have early in the year. In 2009 this kind of weather continued well along into the summer and residents at Otty and many other local lakes reported significant blooms of slimy green algae on their lakes for several weeks not just early in the season.

Many lake communities were concerned about the extensive algal blooms in Eastern Ontario lakes last summer. In response, RVCA and several other agencies (Cataraqui Region Conservation Authority, South Nation Conservation, Parks Canada, Ministry of the Environment [Kingston Office] and the Lanark, Leeds and Grenville Health Unit) have formed a working group to work together to study and develop a more stream-lined response to such algal blooms to help lake communities understand what they are seeing on their lakes.

There is something that we can all do to help reduce the amount of green algae we see in Otty Lake. We can reduce the nutrients getting into the lake. We can do this by avoiding the use of fertilizers, by using phosphate free soaps, by ensuring our septic systems are working properly and by establishing healthy shoreline buffer strips to help filter what enters the lake.

Beavers

In 2009 the major land owners bordering Jebbs Creek (Rideau Valley Conservation Authority at the Perth Wildlife Reserve and Millar Brooke Farm) regularly breached beaver dams and trapped beavers along

their areas of the Creek. We understand that they will continue with this practice. However, Jebbs Creek is a natural habitat for beavers and beavers will regularly re-colonize a suitable waterway. We will

Impact on Shorelines and Shoreline Structures

Several decades ago, during periods of low water levels, man-made structures such as permanent docks and boat houses were constructed in some areas along the Otty Lake shoreline. Today we realize that such structures cannot adapt to natural fluctuations of lake water levels and will always be challenged in times of high water levels. As well, these structures do harden the shoreline. Hardened shorelines deflect wave energy instead of absorbing it – the energy is deflected to the sides passing the erosion problem on to neighbouring sites and down, scouring away any sediment or plant life near the base of the wall. For these reasons the lake association and organizations such as the MNR and RVCA now recommend docks with adjustable legs that can be adapted to changing water levels and cause minimal damage to fish and shoreline habitat.

Monitoring

The Otty Lake Association is monitoring closely the potential impact of water levels on trees along the lake shoreline. When concerns about high water levels were brought to the attention of the OLA Board of Directors last summer, observations were made all along the shoreline of Otty Lake. For the most part, the higher water levels did not seem to be having a negative impact on the shoreline but we did document areas where trees were impacted and reported our observations to the RVCA. Monitoring of the lake shoreline will continue.

The Otty Lake Association and its many volunteers continues to do its best to support all members of the Otty Lake community and help ensure the long-term health of Otty Lake.