

Community Information Release from the Greater Sudbury Watershed Alliance – February 2020

**High Salt Levels Recorded in Area Lakes**

**Human and Aquatic Life Threatened**

The Greater Sudbury Watershed Alliance (GSWA) has new data on the levels of sodium and chloride (two elements of road salt) in the City of Greater Sudbury (CGS) urban lakes, specifically Ramsey Lake; the drinking water source for approximately 40,000 Sudbury residents.

Recent samples<sup>i</sup> of tap water from locations in the CGS show considerable differences in levels of sodium and chloride, dependent on the municipal Drinking Water System intake site (Table 1).<sup>ii</sup>

Table 1: Sodium and chloride levels in tap water supplied by two CGS Drinking Water Systems

<b>Drinking Water System</b>	<b>Location</b>	<b>Sodium</b>	<b>Chloride</b>
<u>Wanapitei River *</u> Intake *flowing from Lake Wanapitei	Tim Hortons – Kingsway Avenue at Levesque Street	3.8 mg/L	3.7 mg/L
	Residence- Bellevue Avenue, Minnow Lake	4.2 mg/L	3.5 mg/L
	Bingo Hall- Notre Dame Avenue	4.5 mg/L	3.7 mg/L
	Public Water Source Tap - Bancroft Drive	4.4 mg/L	3.9 mg/L
<u>Ramsey Lake*</u> Intake * located at David St.	Health Science North – Ramsey Lake Road	54.9 mg/L	86.3 mg/L
	Canadian Tire – Algonquin Road, South End	52.7 mg/L	86.4 mg/L
	Seniors Retirement Residence - Copper Street	48.5 mg/L	76.6 mg/L
	Residence - Lakeview Drive off York Street	47.5 mg/L	90 mg/L
	Travel Lodge Restaurant - Paris St	50.9mg/L	80.5mg/L
	Public Water Source Tap - Countryside Arena	52.9 mg/L	79.4 mg/L
	Parkside/OAC and YMCA – Durham Street	50.3mg/L	86.2 mg/L

When water systems contain sodium concentrations higher than 20 mg/L, the Medical Officer of Health must be advised, who in turn notifies community physicians. For persons with chronic diseases requiring a sodium-restricted diet, the intake of sodium from drinking water could be significant.

Surface water samples were also tested from Ramsey Lake, Lake Nepahwin and Minnow Lake (Table 2).

Table 2: Sodium and chloride levels in surface water from three CGS Lakes

Location	Sodium	Chloride
Ramsey Lake: near Drinking Water System intake, David St.	56.4 mg/L	93.3 mg/L
Lake Nepahwin: Nepahwin Park beach, Paris St	97.0 mg/L	163.0 mg/L
Minnow Lake	95 mg/L	151 mg/L

The Canadian Water Quality Guideline for chloride levels to protect aquatic life is 120 mg/L<sup>iii</sup>. Especially important are zooplankton, a significant group of microscopic organisms that ‘graze’ on algae (including blue green algae). Recent evidence suggests that chloride may be more toxic to zooplankton in lakes on the Cambrian Shield. Therefore, a resilient aquatic ecosystem in all three sampled lakes may be threatened.

#### **Background and Reference Sources:**

Once salt enters the environment it dissolves in water, releasing sodium and chloride, both of which cannot economically be removed by any treatment method. Chloride is used as an indicator of increasing urbanization in a watershed, with a major source being run off from roadways and parking lots entering storm water drains and ultimately our urban lakes.

Currently there is no viable substitute for the salt required to keep local roadways bare as required by provincial legislation. However, reducing the amount of salt added to the environment is an important, appropriate and feasible response, and certified training programs (e.g. Smart about Salt®) are available to all road salt contractors.

The CGS has incorporated best practices in their Salt Management Plan that applies to all municipal maintained roads, sidewalks and parking lots, and have also indicated changes in snow removal procedures within the Ramsey Lake Watershed. However, a significant amount of road salt is applied to unregulated commercial or private parking lots and driveways. The CGS tried to improve the winter salting practices of private contractors by hosting two Smart About Salt® training sessions, but these were poorly attended. It is not unusual to see large chunks of road salt remaining on parking lots in Sudbury after the snow is removed.

What are the implications for CGS lakes as sodium and chloride levels continue to rise? The protection of Ramsey Lake, a significant drinking water source, should be of concern for all Sudbury residents. A decrease in

zooplankton populations associated with increasing chloride levels, combined with higher lake temperatures anticipated with climate change, could herald increasing algal blooms; leading not only to the Ramsey Lake drinking water system being threatened, but to urban lakes experiencing beach closures, compromised recreational opportunities, reduced property values and degradation of water quality measures.

To advance the agenda to preserve the water quality of our “City of Lakes”, the GSWA hosted a public Road Salt Discussion Forum in 2018 and continues to advocate for responsible application of salt as a de-icing agent. The GSWA has written letters to various government agencies expressing our concerns in this regard and suggesting that development in the watershed that would involve new and widened roadways and large parking lots be carefully considered.

We continue to consult with environmental experts and examine recent research findings that warn of the harmful effects of increased levels of salt (sodium and chloride) in our water environment. Those interested are invited to access relevant information through the links provide below.

**Contact:** Richard Witham, Chair, Greater Sudbury Watershed Alliance 705-522-9209

**Background and Reference Sources:**

<https://youtu.be/RERkpUwVtGQ>

<https://videostream.laurentian.ca/Mediasite/Play/5911633488754924b45a7dc8978b53011d>

<https://phys.org/news/2017-06-stormwater-retention-ponds-surface-road.html#jCp>

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<sup>i</sup> The test samples were taken by the Minnow Lake Restoration group located in the Ramsey Lake Watershed and analyzed by Testmark Laboratories in September and October of 2019.

<sup>ii</sup> The Ramsey Lake intake supplies approximately 40% of the City of Sudbury’s drinking water. The Wanapitae River intake supplies the remaining amount. Although the two systems are connected via the Ellis Reservoir, Ramsey Lake typically supplies the south, west and downtown areas of Sudbury with the Wanapitae River supplying Coniston, Wahnapitae, New Sudbury and parts of downtown Sudbury and Garson.

<https://sourcewatersudbury.ca/en/assessment-report.html>

<sup>iii</sup> Canadian Council of Ministers of the Environment. 2011. Canadian water quality guidelines for the protection of aquatic life: Chloride.