


State of Sandy Lake (Bedford, NS)

A scenic landscape photograph of Sandy Lake in Bedford, New Brunswick. The foreground shows a green canoe with a yellow interior and a wooden paddle resting inside, floating on the water near a rocky shore. The water is calm, reflecting the sky and the surrounding forest. The middle ground is dominated by a dense forest of trees, some of which are in vibrant autumn colors of red, orange, and yellow, while others are still green. The background shows a clear blue sky with large, fluffy white clouds. The overall scene is peaceful and natural.

**Presentation by David Patriquin
to Halifax North West Community Council
June 12, 2023**

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Forests and surface waters of Sandy Lake & Environs (Bedford, Nova Scotia)

A Natural History Perspective



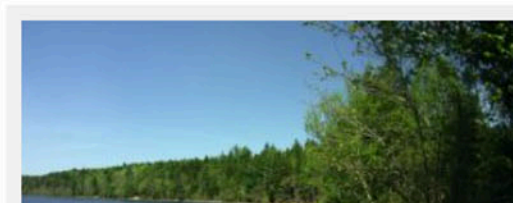
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Voices of spring by the shore and in the forest at Sandy Lake (Bedford) 30May2023

Posted on June 2, 2023 by admin

At times, it is completely silent by the water and in the forest by Sandy Lake, but not on May 30, 2023.

When I took my usual walking route by



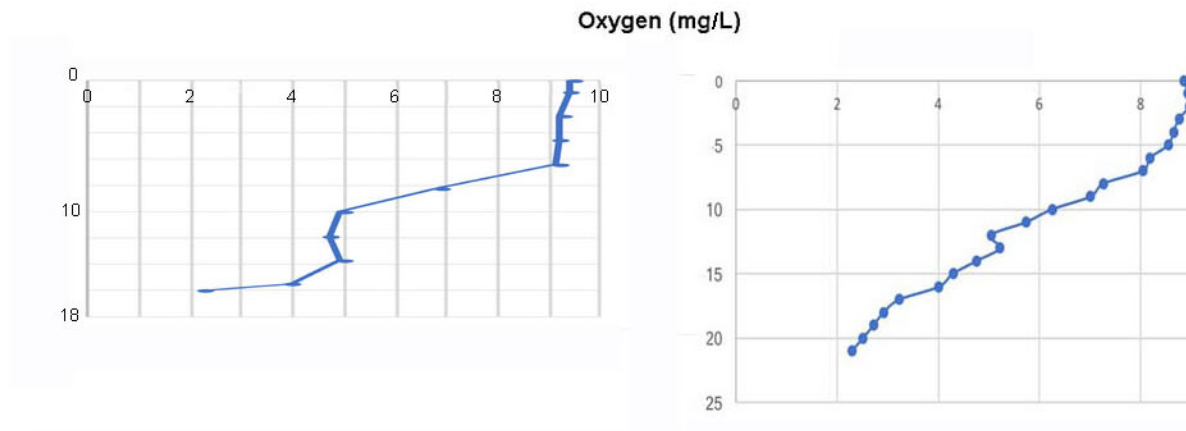
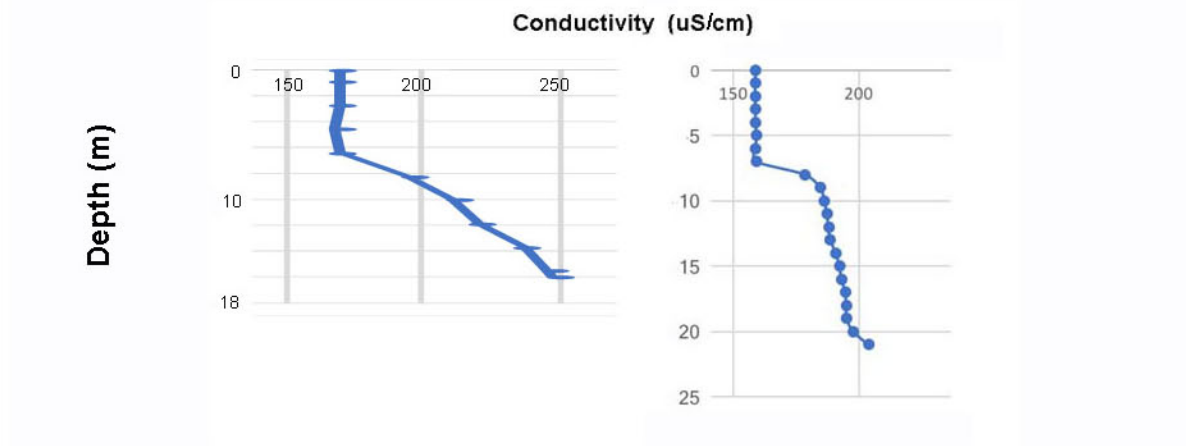
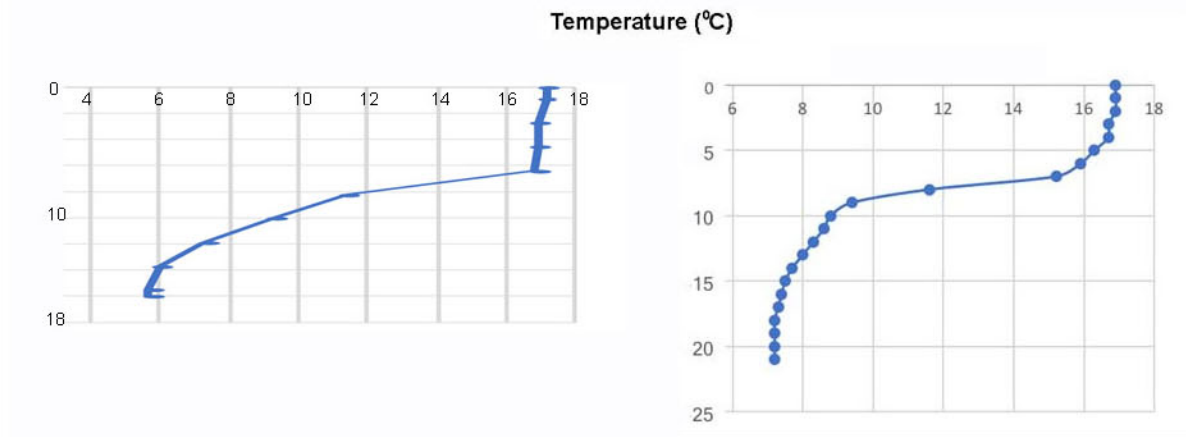
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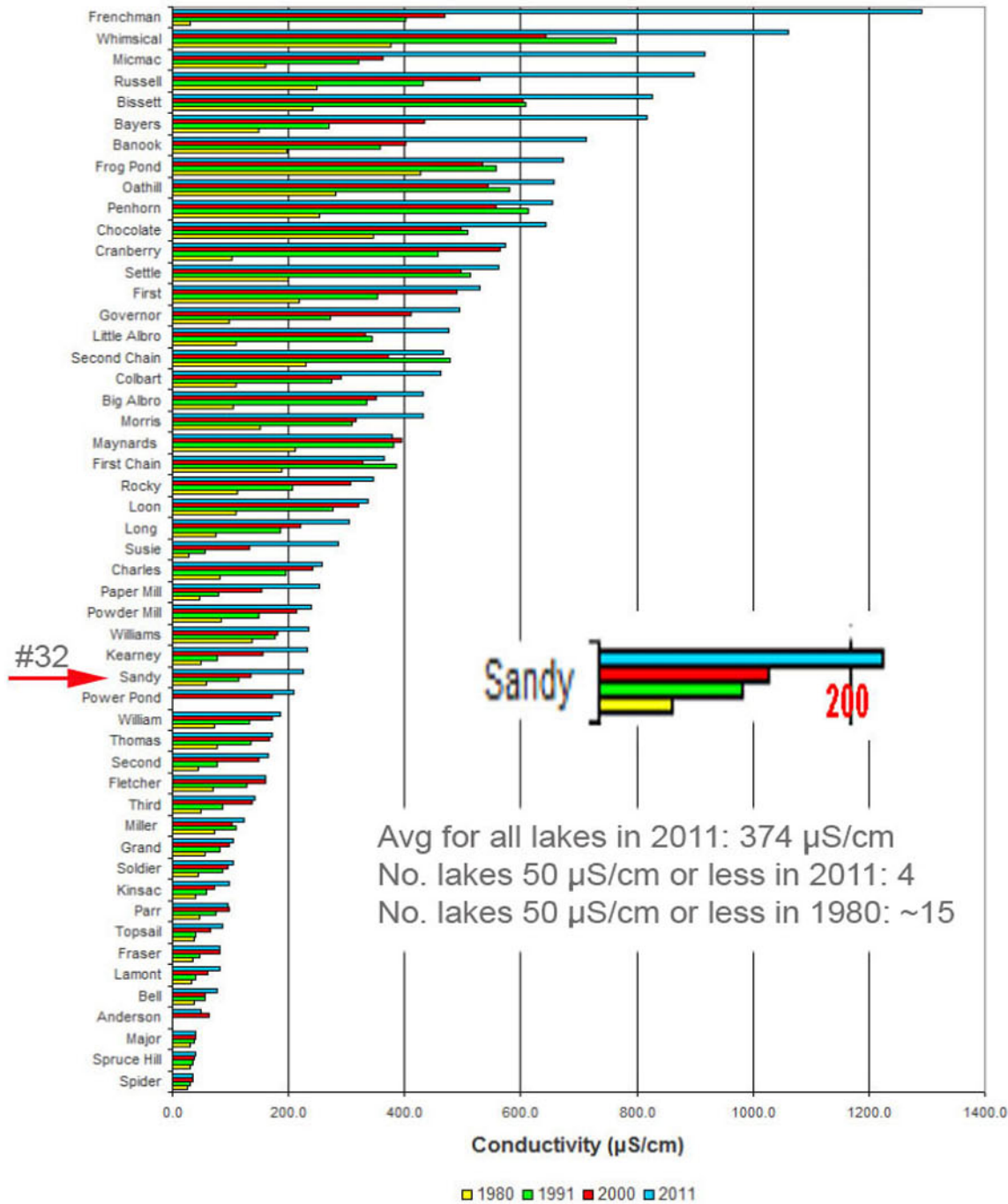
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October 3, 2017

September 30, 2019

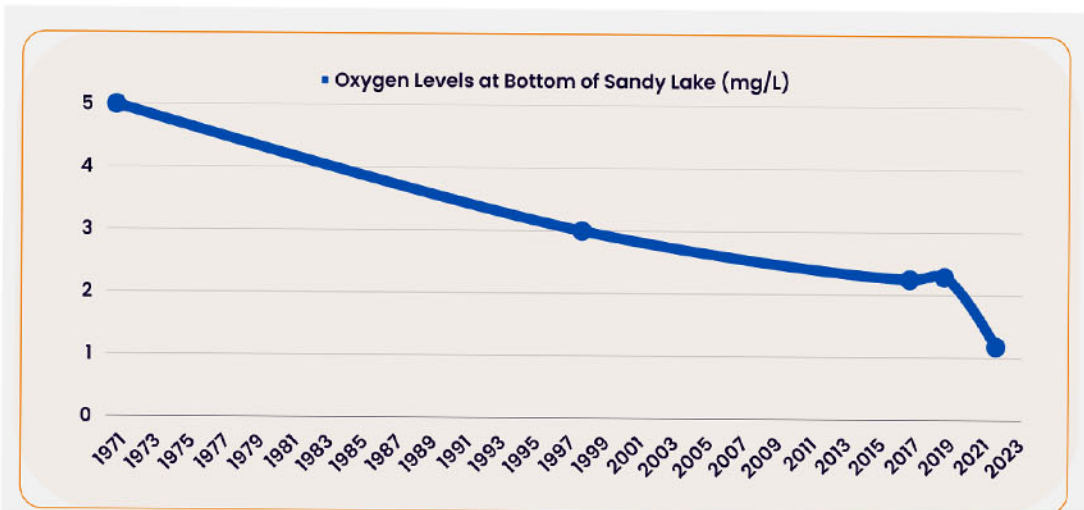
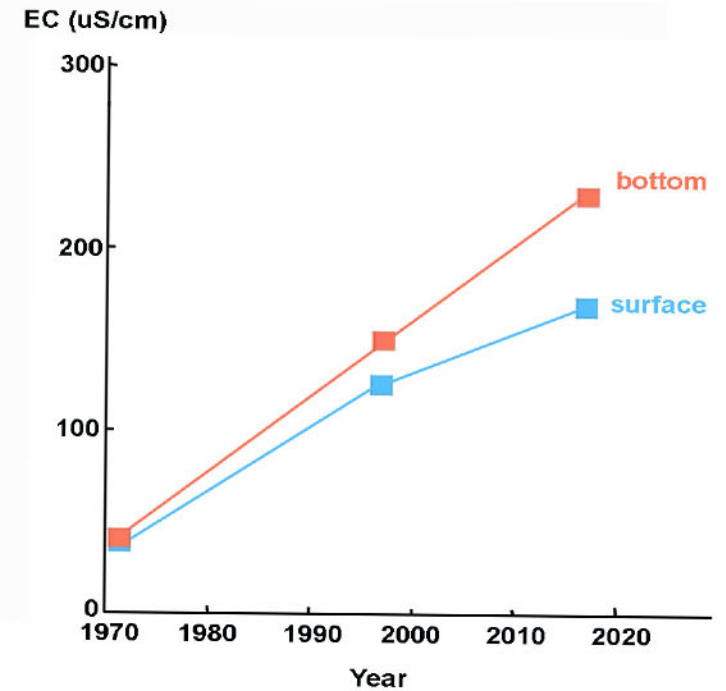
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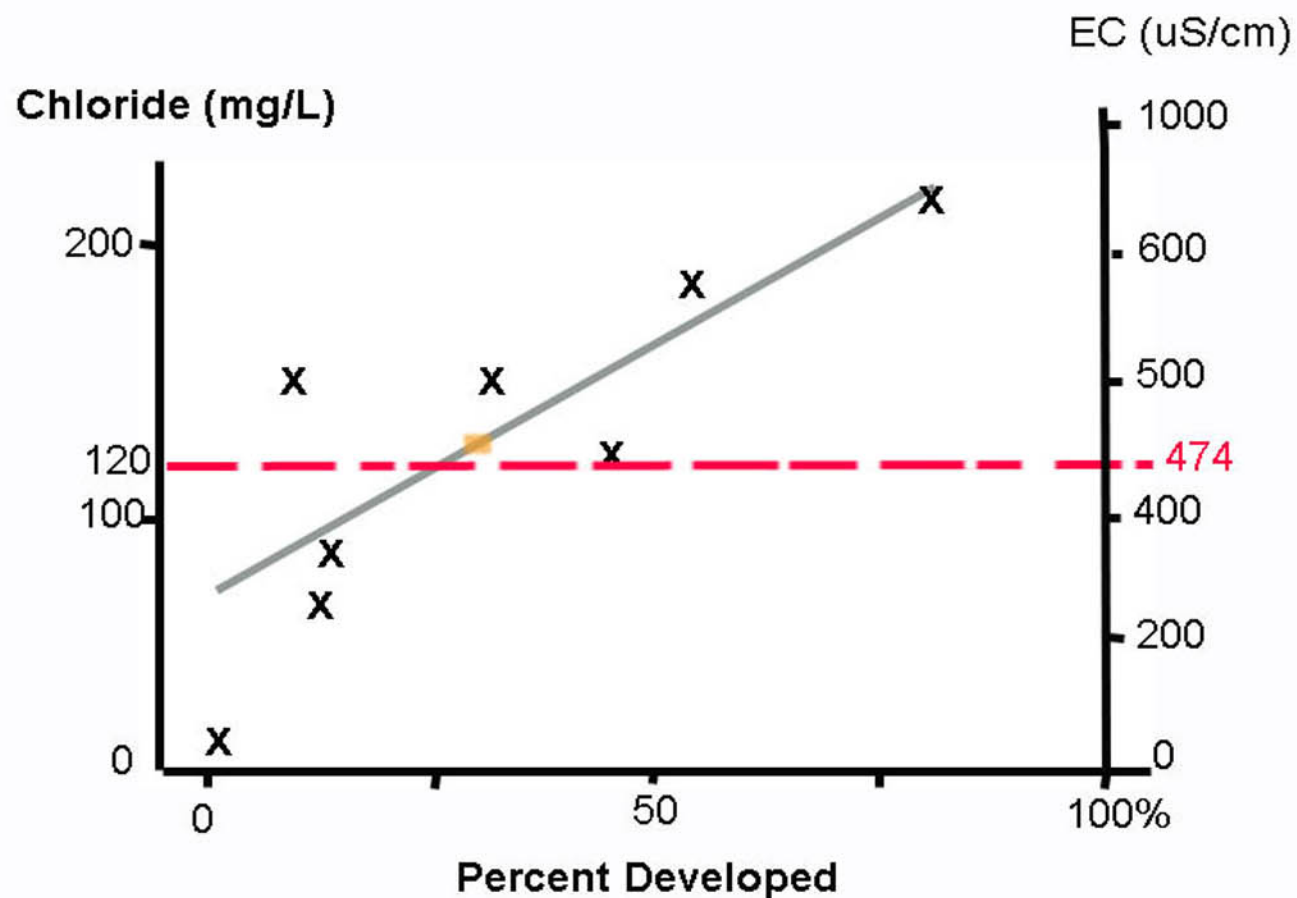
Historical EC values for selected Halifax-area lakes including Sandy Lake (enlarged in inset). Modified from Clement, P.M. & D.C. Gordon. 2019, Fig. 5

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Variable	1971	1998	2017	2019	2022
Temp (°C):					
Surface	21	22	17.1	16.9	24.7
Bottom	-	6	5.7	7.2	7.6
Conductivity (µS/cm)					
surface	37	125	169	159	209
bottom	39	146	248	204	229
Oxygen (mg/L)					
Surface	7.25	8.6	9.42	8.85	8.06
Bottom	5.0	3	2.25	2.29	1.18



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Graph adapted from Fig 6 in Scott et al., 2019.

The orange-filled rectangle shows where 30% Development (the approx. current level at Sandy Lake) would fit on the Scott et al., 2019 regression line relating chloride concentrations in the spring of 2013-2017 to the percent watershed developed for 9 Halifax lakes. EC values on the right correspond to the chloride values, based on the relationship given in AECOM (2020). The current spring EC value for Sandy Lake is approx 190 uS/cm. The CCME Guideline for long term exposure to chloride is 120 mg/L (the dashed red line). So if Sandy Lake behaves like the other lakes, it would achieve a steady state value just above 120 mg/L chloride – at the current level of development, higher if further developed.

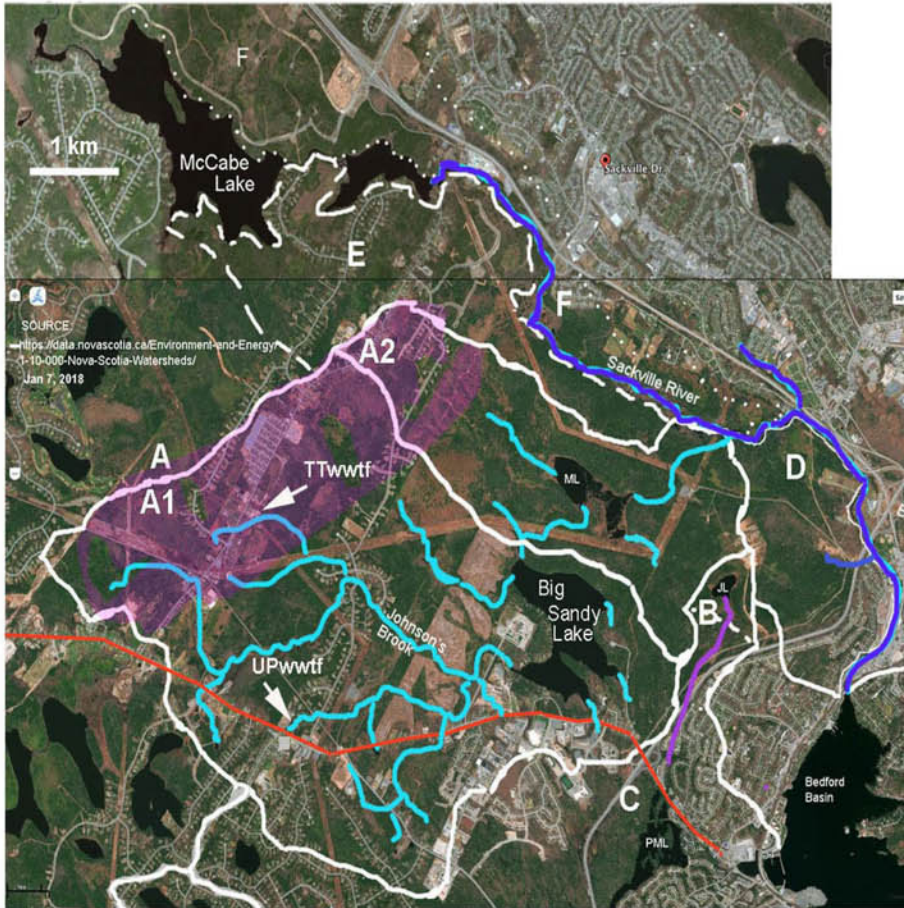
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Algal bloom at Sandy Lake Beach, 11:13 am on Aug 6, 2019

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Watersheds & Streams



A1 Sandy Lake and A2 Marsh Lake are in the Sandy Lake subwatershed of the Sackville River watershed. E South McCabe Lake and F North McCabe Lake subwatersheds also lie in the Sackville River watershed. B Jack Lake subwatershed of C Papermill Lake watershed. The purple-highlighted area contains bedrock with acid-generating potential. TTwtf: Timber Trails and UPwtf: Uplands Park waste water treatment facilities. Turquoise-highlighted streams are the major streams in the Sandy lake subwatershed as identified in the AECOM 2014 Report.

Significant wetland on headwaters that could be lost to development.



The wetland NIA1 (No Information Available - as cited on NS Provincial Landscape Viewer), more recently known as "Walters Marsh", would, according to scenarios cited in AECOM (2014), be eliminated and replaced by residential landscape.

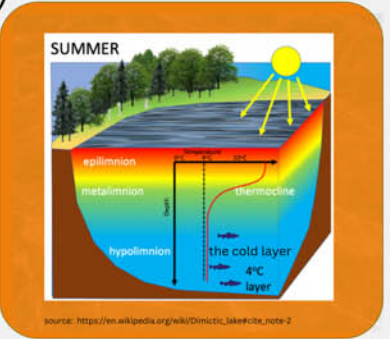
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Sandy Lake is a deep “dimictic” lake, meaning that it “thermally stratifies” in winter and summer.

In summer, cold water is retained in the deep layer, warmer water sits at the top, and a zone of temperature change occurs between these two layers.

The deep layer provides a cool summer refuge for salmonids, including trout and the Atlantic salmon which are now coming back to the Sackville River Watershed

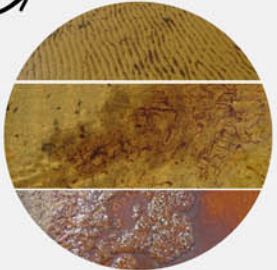
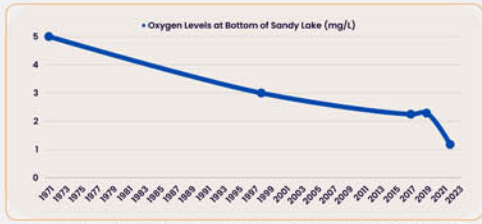


Excessive inputs of organic materials and phosphorus (P) result in “eutrophication.” Oxygen in the deep layer of the lake declines to levels inhospitable to salmonids. Also, low oxygen stimulates the release of P from sediments, further accelerating eutrophication.



There have been early warning signs that the lake is in trouble, notably an intense algal bloom in 2017, and a BGA (blue-green algae) warning in 2022.

Observations by retired biologist David Patriquin, indicate deepwater oxygen levels in late summer are now falling to very low levels. Salmonoids requires oxygen levels above 5mg/L.



Sandy Lake beach on August 6, 2019

Salt in the lake (from winter salting) has been increasing and further threatens lake health.



Remedial actions are required NOW to reverse the current degradation. For details, consult www.versicolor.ca/SLWQ

A major development in the area of headwaters west of Sandy Lake is clearly incompatible with maintaining valued recreational and ecological qualities of Sandy Lake.

For more information, visit <https://sandylake.org/>