Nova Scotia Department of Natural Resources and Renewables
Geoscience and Mines Branch, Geological Survey Division

Open File Map ME 2023-1

Lithium in Groundwater from Bedrock Aquifers in Nova Scotia

J.O. Edosa

Scale 1:500 000

25 0 25 50 km

Halifax, Nova Scotia
2023

NOVA SCOTIA

Gulf of St. Lawrence

Prince Edward Island

New Brunswick

Northumberland Strait

Bay of Fundy

Minas Basin

Atlantic Ocean

St. Mary's Bay

Lobster Bay

Mahone Bay

Halifax Harbour

St. Margarets Bay

St. Georges Bay

Bras d'Or Lake

Chedabucto Bay

Tor Bay

St. Anns Bay

Aspy Bay

Sable Island

Map Notes

This map is one in a series of maps showing the distribution of selected water chemistry parameters at a scale of 1:500 000.

The source of the groundwater chemistry data is the Nova Scotia Groundwater Chemistry Database (NSGCDB). The NSGCDB was compiled from various federal, provincial, and municipal groundwater chemistry data sources, including well water quality monitoring data from government buildings, and Nova Scotia Environment and Climate Change groundwater chemistry data from registered public drinking water supplies, pumping tests, municipal groundwater systems, and provincial observation wells. The data presented on this map do not include known contaminated sites and likely represent naturally occurring conditions. Distribution of the data is spatially heterogenous.

Sedimentary, Carbonate/Evaporite, Volcanic, Plutonic, and Metamorphic Groundwater Regions

The boundaries of the various bedrock groundwater regions were based on the dominant lithology, which was interpreted from Fisher and Poole (2006) and Hopper *et al.* (2002), and modified by Kennedy *et al.* (2008) for the Groundwater Regions Map of Nova Scotia. For example, the boundaries of the Carbonate/Evaporite Groundwater Region generally correspond to the boundaries of the Windsor Group, although the Windsor Group also includes other rock types, such as sedimentary bedrock units.

GIS databases, cartography, and reproduction by Joseph Edosa and Angie Barras of the Nova Scotia Department of Natural Resources and Renewables, Geoscience and Mines Branch, Geological Survey Division, 2023. The GIS databases and map were developed using ArcGIS® 10.8.1 and ArcGIS Pro 3.1.1

Universal Transverse Mercator Projection (UTM), Zone 20, Central Meridian 63°00' West. North American Datum (NAD) 1983 Canadian Spatial Reference System (CSRS) 98.

Base and digital data derived from the Nova Scotia Topographic Database (NSTDB). Copyright His Majesty the King in Right of the Province of Nova Scotia. The NSTDB is available from the Department of Service Nova Scotia and Internal Services, Nova Scotia Geomatics Centre (NSGC), Amherst, Nova Scotia.

Disclaimer

The information on this map may have come from a variety of government and nongovernment sources. The Nova Scotia Department of Natural Resources and Renewables does not assume any liability for errors that may occur. This map is intended for use at the published scale of 1:500 000.

Selected References

Fisher, B.E., and Poole J.C., 2006. DP ME 43, version 2, digital version of Nova Scotia Department of Natural Resources Map ME 2000-1, geological map of the Province of Nova Scotia, scale 1:500 000, compiled by J.D. Keppie, 2000; Nova Scotia Department of Natural Resources, Digital Product ME 043, version 2. http://www.novascotia.ca/natr/meb/download/dp043.asp

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Keddie, A., 2006. Groundwater quality in Nova Scotia; B. Sc. thesis, Department of Earth Sciences, Dalhousie University, Halifax, Nova Scotia, March 2006.

Kennedy, G.W., Drage, J., and Fisher, B.E., 2008. DP ME 428, version 1, digital version of Nova Scotia Department of Natural Resources Open File Map ME 2008-3, groundwater regions map of Nova Scotia, scale 1:500 000; Nova Scotia Department of Natural Resources, Digital Product ME 428, version 1; http://www.novascotia.ca/natr/meb/download/dp428.asp

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Sharma, N., Westerhoff, P., and Zeng, C., 2022. Lithium occurrence in drinking water sources of the United States; Chemosphere. https://doi.org/10.1016/j.chemosphere.2022.135458

Acknowledgments

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Legend

Water Chemistry - Lithium (µg/L)

- ≤ 10 µg/L
- 10 - 20 µg/L
- 20 - 40 µg/L
- > 40 µg/L

Groundwater Regions

- Sedimentary
- Carbonate/Evaporite
- Volcanic
- Plutonic
- Metamorphic

Primary watershed boundary

Groundwater region boundary

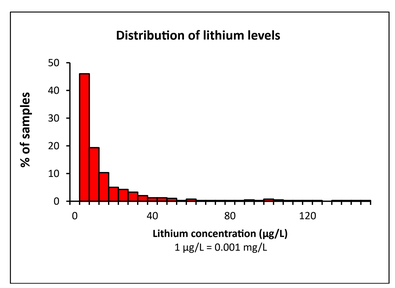
Roads (primary, secondary)

Rivers/streams

Coastline

Boundary (county, inter-provincial)

Lakes



Parameter	Value	Unit
Number of Samples:	398	n/a
Maximum Concentration:	398	µg/L
Median Concentration:	8	µg/L
Mean Concentration:	19	µg/L
95th Percentile Concentration:	65	µg/L
Maximum Acceptable Concentration (MAC):	n/a	n/a

Lithium analyses with a laboratory detection limit ≤1 µg/L were used in the map