

Nova Scotia Department of Natural Resources
Mineral Resources Branch
Open File Map ME 2011-019

Chloride in Groundwater from Bedrock Aquifers in Nova Scotia

G. W. Kennedy and D. Finlayson-Bourque

Scale 1:500 000
0 25 50 km
Halifax, Nova Scotia
2011



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New
Brunswick

Prince Edward
Island

Gulf of
St. Lawrence

Northumberland Strait

St. Georges Bay

Chedabucto Bay

Tor Bay

Atlantic Ocean

Bay of Fundy

St. Marys Bay

Dugby County
Yamouche County

Lake
Majnoon

Windsor

St. Margaret's Bay

Halifax Harbour

Halifax

St. John's

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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 (NSGCD). The NSGCD 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 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.

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 Keppie (2000) for Hopper et al. (2002), and modified by G. W. Kennedy 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 Gavin Kennedy, Danielle Finlayson-Bourque, Brian Fisher and Angie Ehler of the Nova Scotia Department of Natural Resources, Mineral Resources Branch, 2010. The GIS databases and map were developed using ArcGIS 9.3.

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 Her Majesty the Queen in Right of the Province of Nova Scotia. The NSTDB is available from Service Nova Scotia and Municipal Relations (SNMRL), Land Information Services Division (LIS), 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 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

Health Canada 2010: Guidelines for Canadian Drinking Water Quality, Summary Table; available online at http://www.hc-sc.gc.ca/whl-sent/pub/water-eau/2010-sum_guide/index-eng.php.

Hopper, D. B., Bonner, F. J., Fisher, B. E. and Murphy, A. N. (compilers) 2002: Mineral resource land-use (MRLU) maps; Nova Scotia Department of Natural Resources, Minerals and Energy Branch, Open File Map ME 2000-004 (series of 98 maps); scale 1:50 000; available online as DP ME 47, version 2, 2002, at <http://www.gov.ns.ca/natr/mesb/download/dp043.asp>.

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. and Drage, J. 2008: Groundwater regions map of Nova Scotia; Nova Scotia Department of Natural Resources, Open File Map ME 2008-003, scale 1:500 000; available online as Digital Product DP ME 426, at <http://www.gov.ns.ca/natr/mesb/download/dp043.asp>.

Keppie, J. D. (compiler) 2000: Geological map of the Province of Nova Scotia; Nova Scotia Department of Natural Resources, Minerals and Energy Branch, Map ME 2000-001, scale 1:500 000; available online as DP ME 43, version 2, 2006, at <http://www.gov.ns.ca/natr/mesb/download/dp043.asp>.

Nova Scotia Department of Natural Resources 2010: Nova Scotia groundwater chemistry database; available online as part of <http://gis4.natr.gov.ns.ca/website/sgroundwater/>.

Acknowledgments

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Legend

Water Chemistry - Chloride (mg/L)

- < 125 mg/L
- 125 - 250 mg/L
- 250 - 500 mg/L
- > 500 mg/L

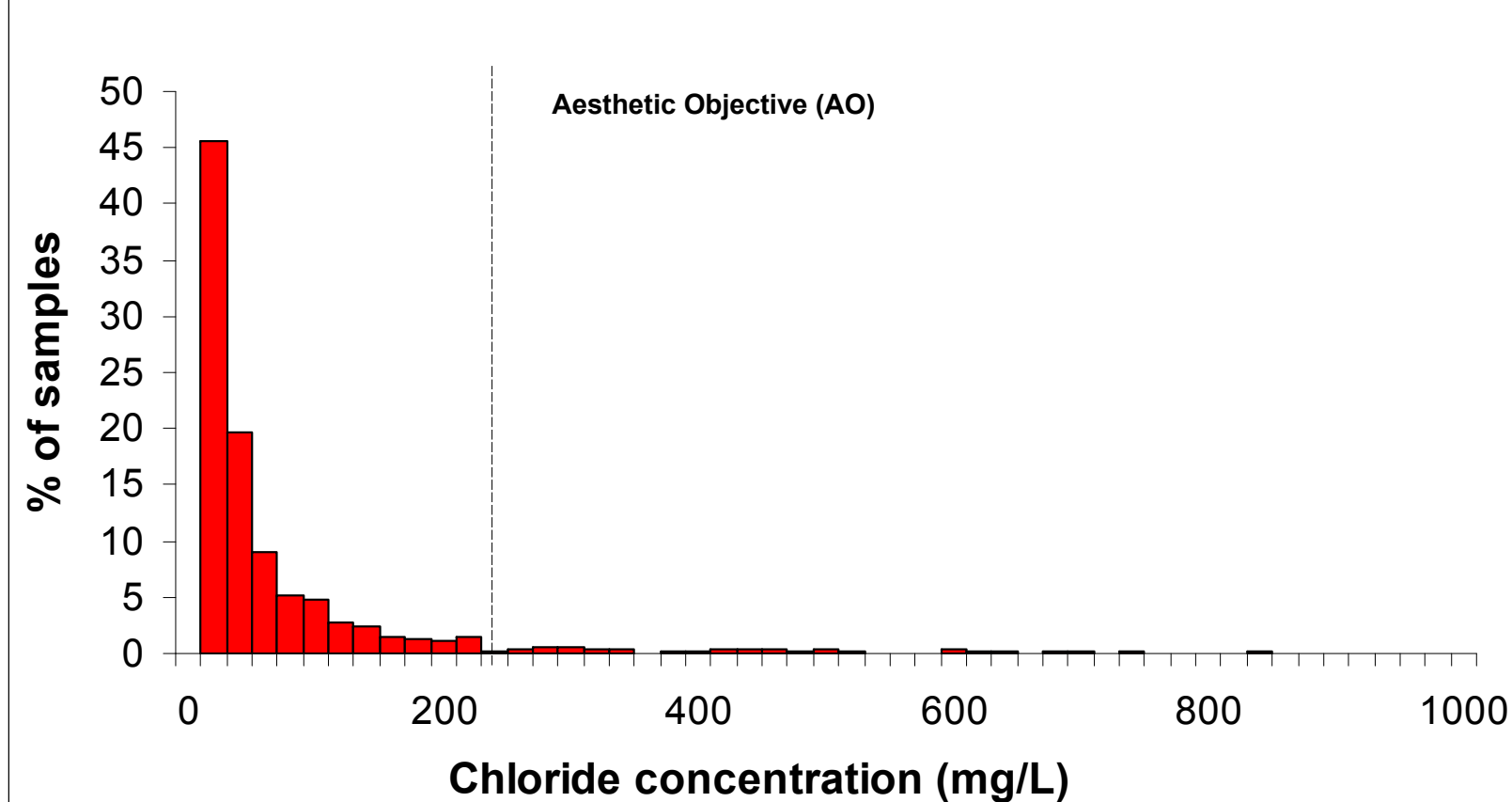
Groundwater Regions

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

- Primary watershed boundary
- Groundwater region boundary

- Roads (primary, secondary)
- Rivers/streams
- Coastline
- County boundary
- Lakes

Distribution of chloride levels



Parameter	Value	Unit
Number of Samples:	1074	-
Maximum Concentration:	3880	mg/L
Median Concentration:	24	mg/L
Mean Concentration:	68.9	mg/L
Typical Detection Limit:	1	mg/L
Proportion Below Typical Detection Limit:	0.1	%
Aesthetic Objective (AO):	250	mg/L
Proportion Exceeding AO:	5.0	%

Results below detection limit were assigned a level of 1/2 of the detection limit