

Nova Scotia Department of Natural Resources
Mineral Resources Branch

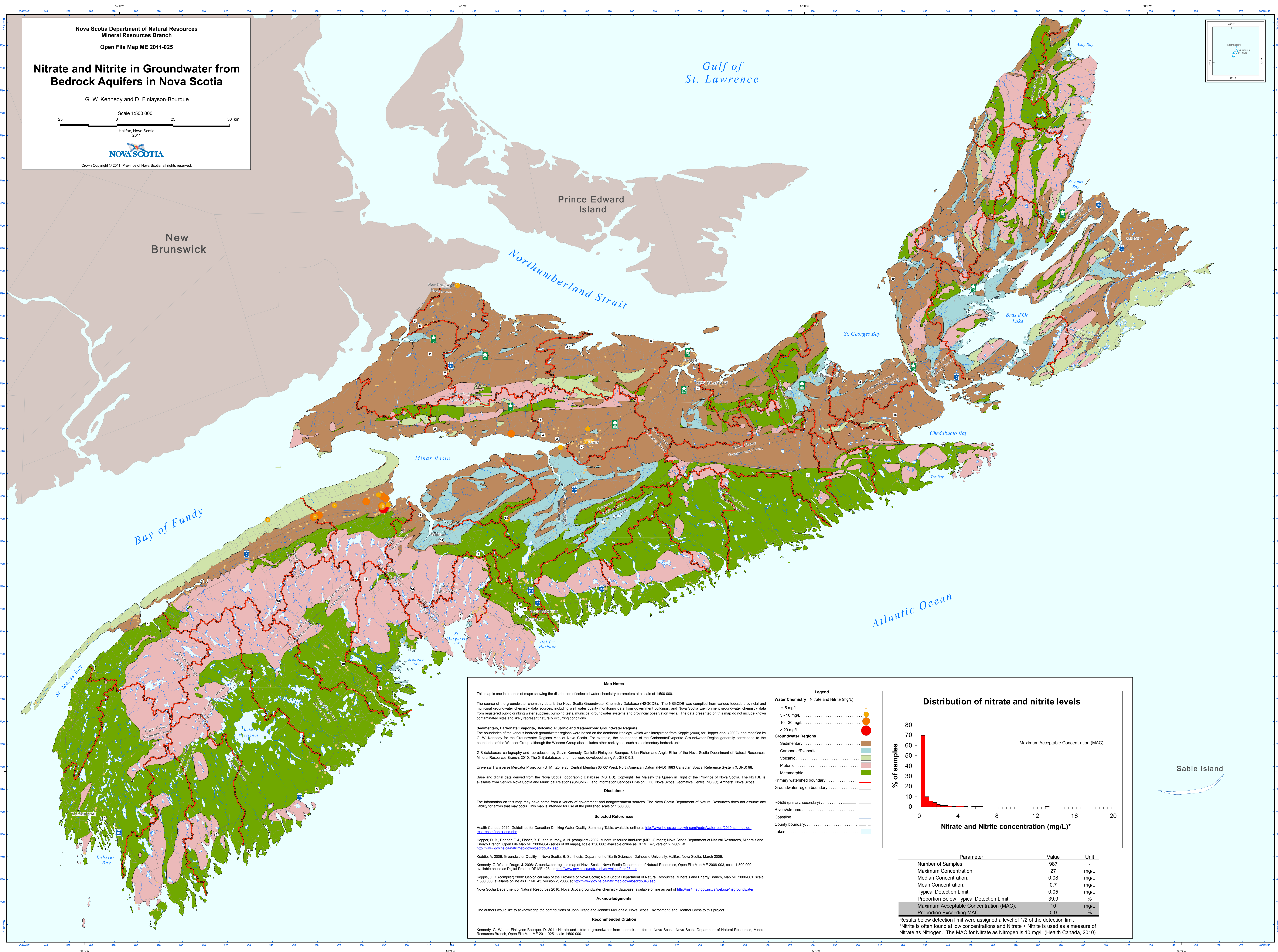
Open File Map ME 2011-025

Nitrate and Nitrite in Groundwater from
Bedrock Aquifers in Nova Scotia

G. W. Kennedy and D. Finlayson-Bourque

Scale 1:500 000
Halifax, Nova Scotia
2011


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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 (SNSMR), 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/whi-sent/pubs/water/ssw/2010-sum_guide-res_recom/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/nat/meh/downloaddp47.asp>.

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

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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/nat/meh/downloaddp43.asp>.

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

Acknowledgments

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Recommended Citation

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Legend

Water Chemistry - Nitrate and Nitrite (mg/L)

- < 5 mg/L
- 5 - 10 mg/L
- 10 - 20 mg/L
- > 20 mg/L

Groundwater Regions

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

Primary watershed boundary

Groundwater region boundary

Roads (primary, secondary)

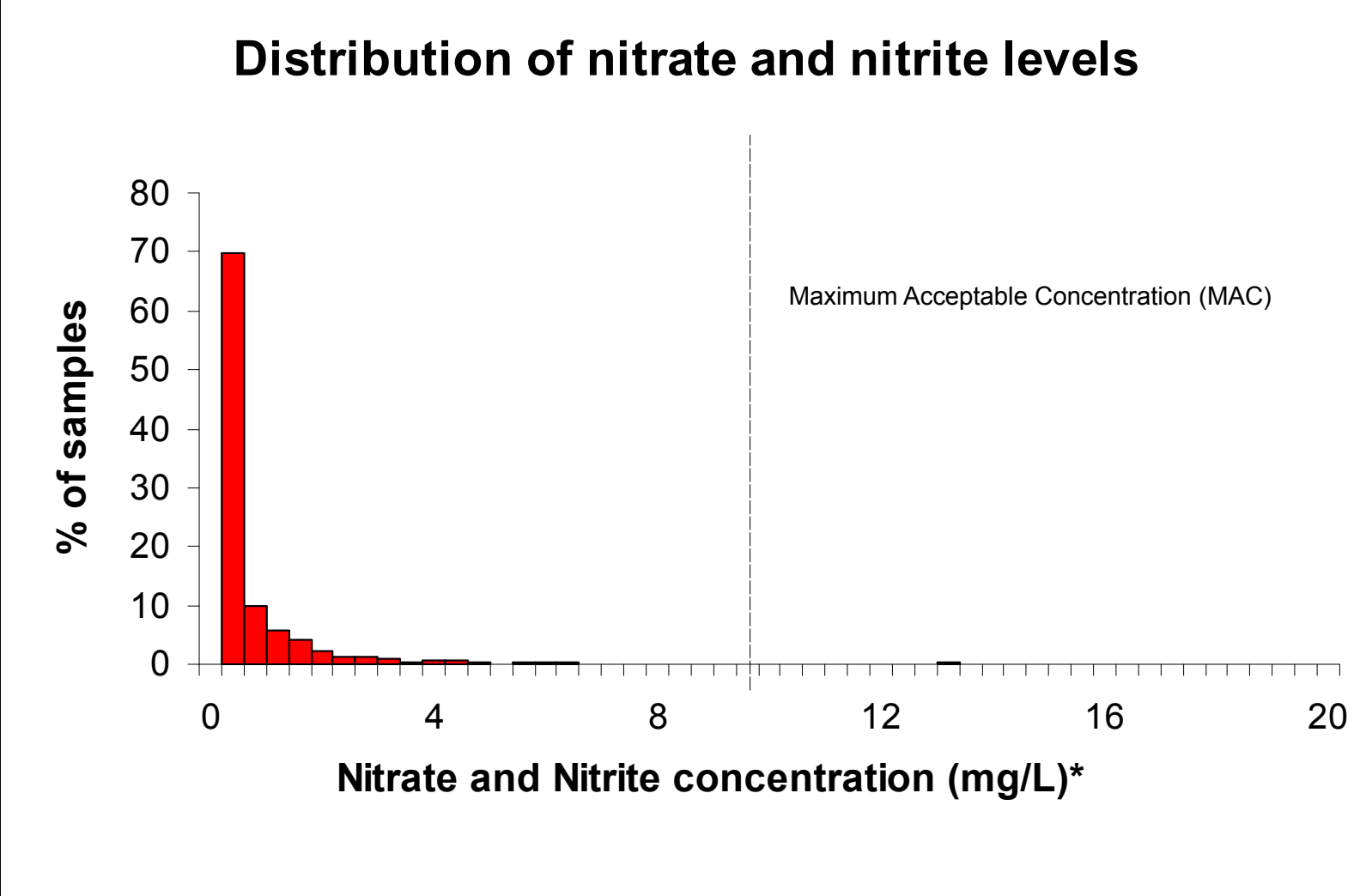
Rivers/streams

Coastline

County boundary

Lakes

Distribution of nitrate and nitrite levels



Parameter	Value	Unit
Number of Samples:	987	-
Maximum Concentration:	27	mg/L
Median Concentration:	0.08	mg/L
Mean Concentration:	0.7	mg/L
Typical Detection Limit:	0.05	mg/L
Proportion Below Typical Detection Limit:	39.9	%
Maximum Acceptable Concentration (MAC):	10	mg/L
Proportion Exceeding MAC:	0.9	%

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

*Nitrite is often found at low concentrations and Nitrate + Nitrite is used as a measure of Nitrate as Nitrogen. The MAC for Nitrate as Nitrogen is 10 mg/L (Health Canada, 2010)