

SUMMARY

The rocks and soils that are the foundation of our environment leave an imprint on the chemistry of our water and our lives. This chemical landscape reflects a combination of natural history and cumulative human impacts, and presumably has an influence on biodiversity and human health.

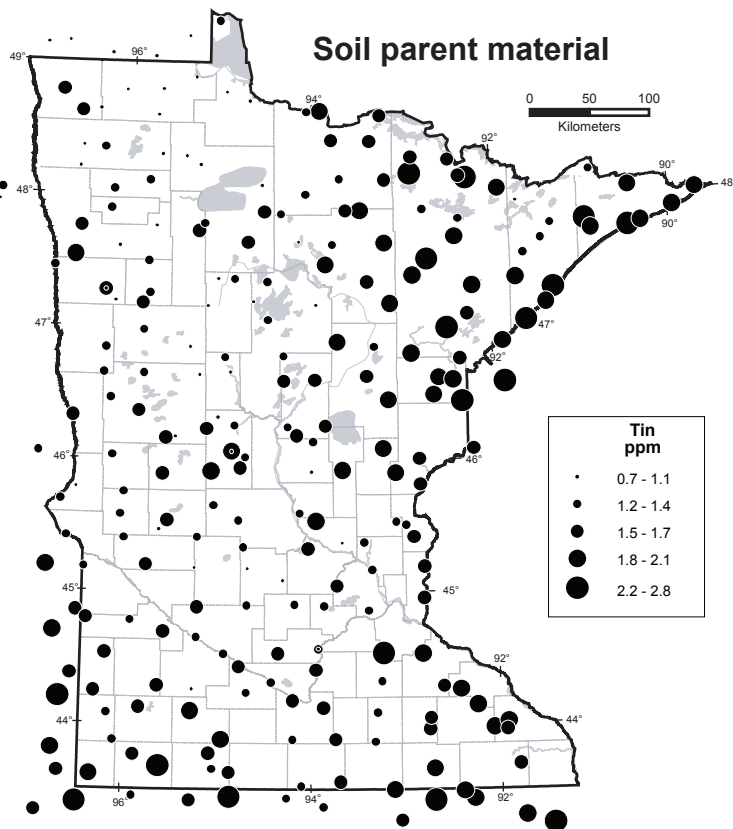
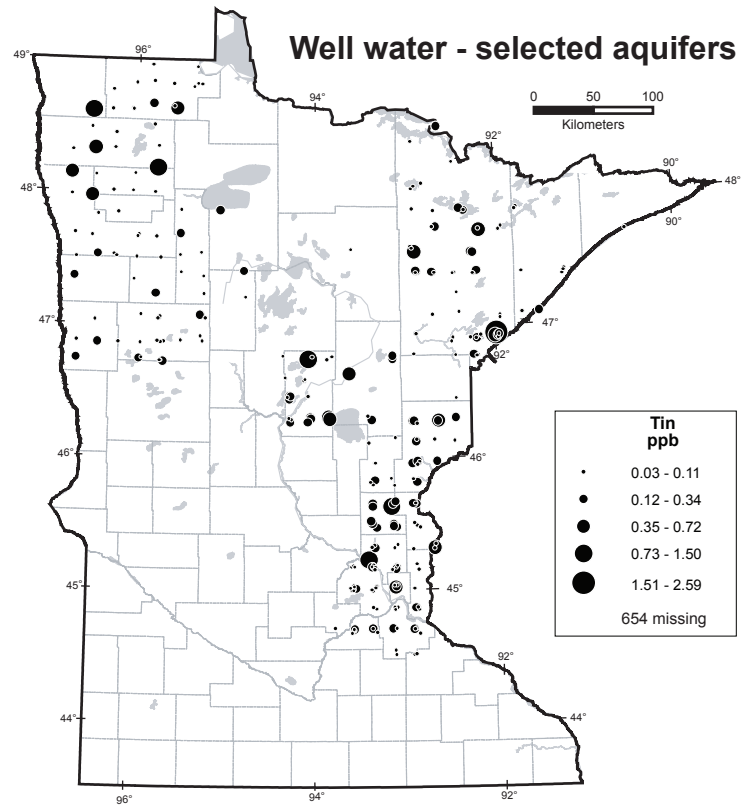
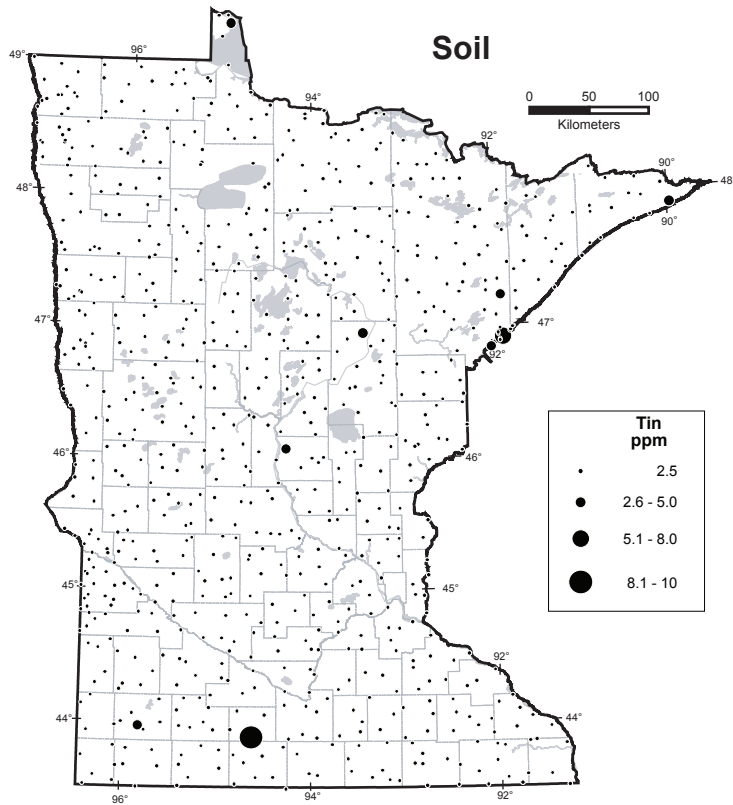
Understanding this landscape requires geochemical mapping. The Minnesota Geological Survey and the Minnesota Pollution Control Agency (MPCA), in cooperation with the United States Geological Survey (USGS) National Geochemical Survey, have assembled the Minnesota Geochemical Database; a collection of maps and tables that show selected statewide geochemical data. Construction of the database was funded by the Minnesota Minerals Coordinating Committee.

Soil, soil parent material, and well water were analyzed following USGS, Environmental Protection Agency, and Geological Survey of Canada protocols. The 1,352 points on the soil map show combined results from soil in the top 0.2 meter and at about 0.5 meter depth, as well as stream sediments. Soil and some stream sediments were collected in 2004 and 2005. Most stream sediments were collected in 1979, mainly from western Minnesota under the National Uranium Resource Evaluation program, and were reanalyzed in 2005. Soil data were averaged; values below detection were set to half the detection limit. The soil parent material map shows results from 250 till samples from 1 to 2 meters depth. The analyzed size fraction for soils was <2 millimeters and for soil parent materials was <63 microns. The well water map shows results from MPCA sampling and analysis from 954 water wells that sampled 14 selected aquifers between 1993 and 1996. Map classes are based on natural groupings in the data using the natural breaks method. Class boundaries were established by the mapping software at relatively large jumps in the data values.

The geochemical database is both statewide and multi-level, providing a regional context for exploration and environmental management efforts. Additional geochemical information is available for specific areas. Users of this map are referred to an accompanying report for more detailed information about data collection and limitations.

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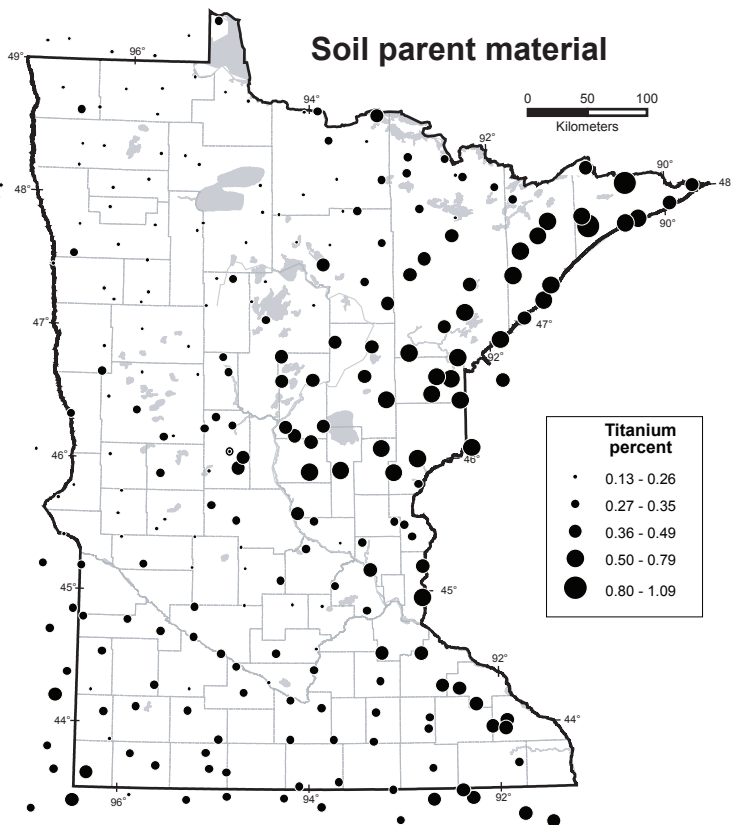
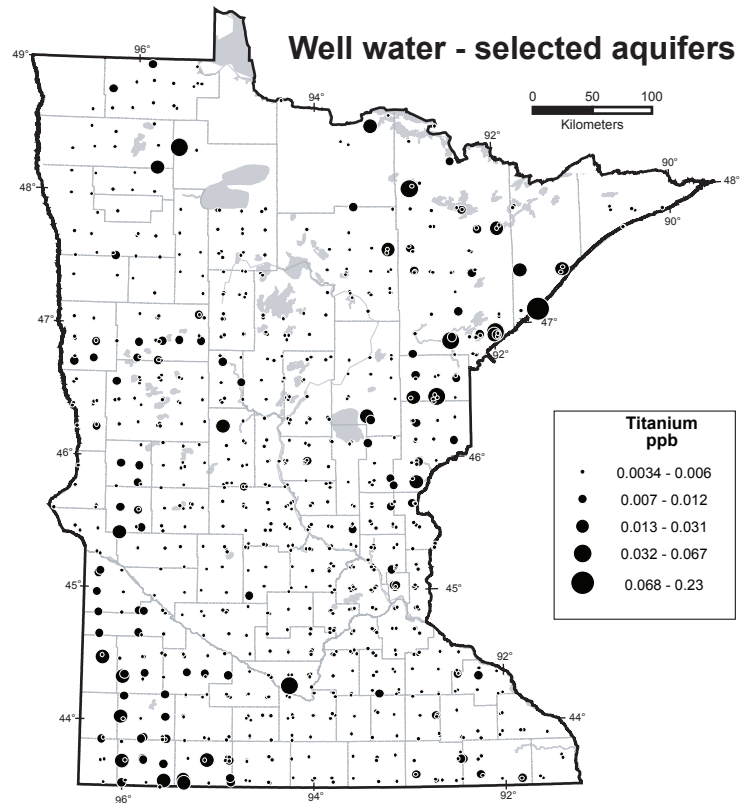
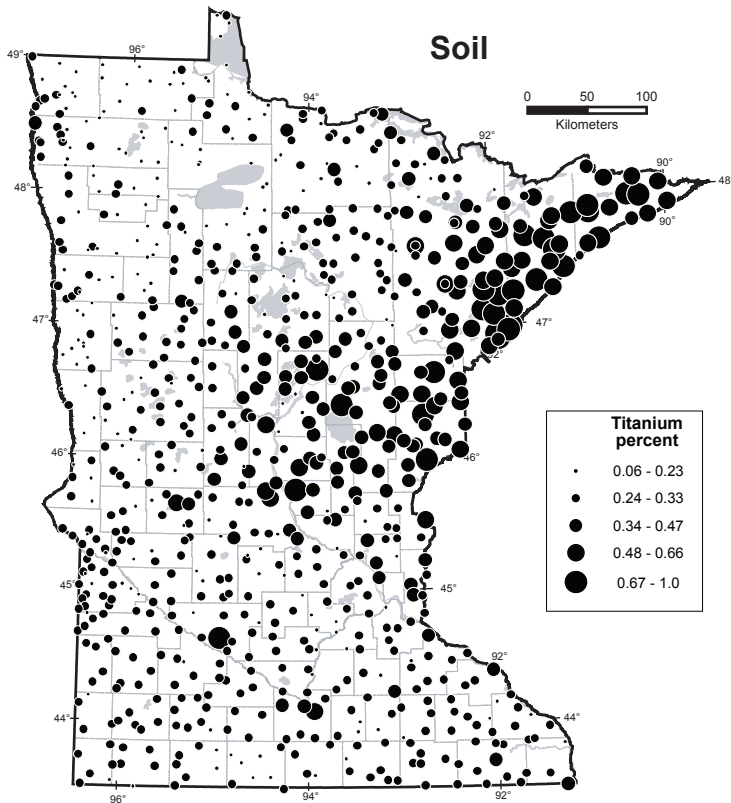
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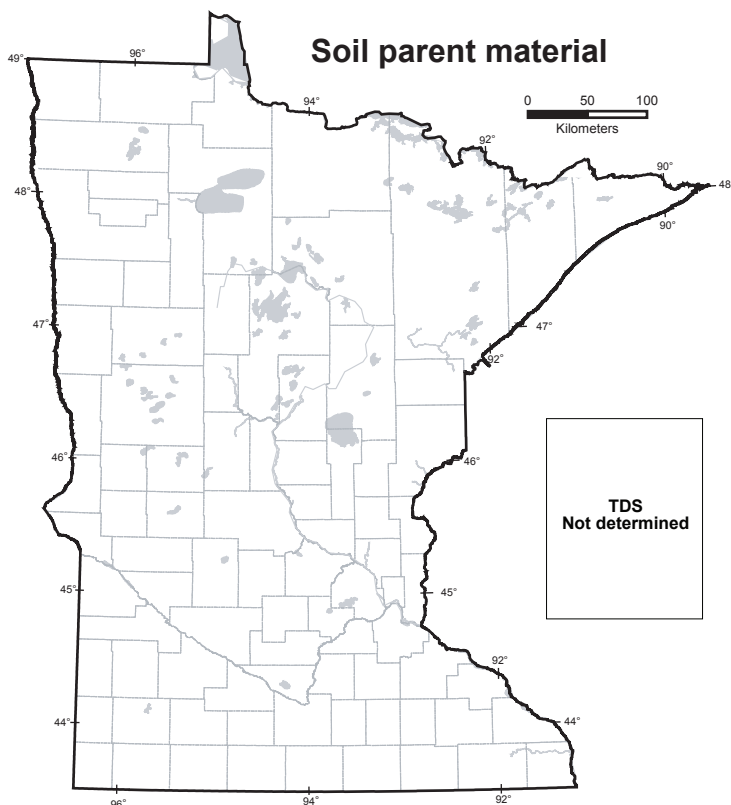
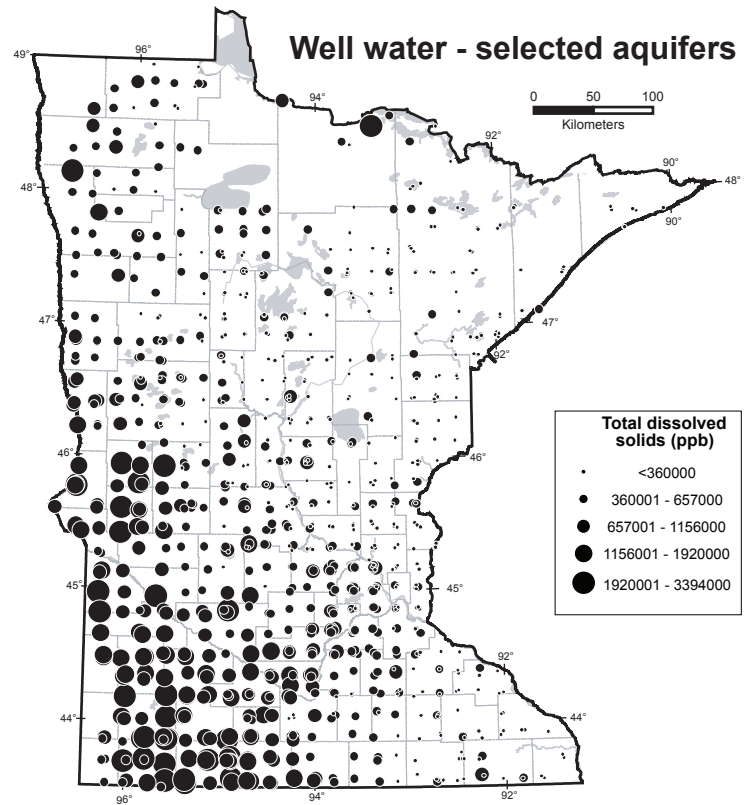
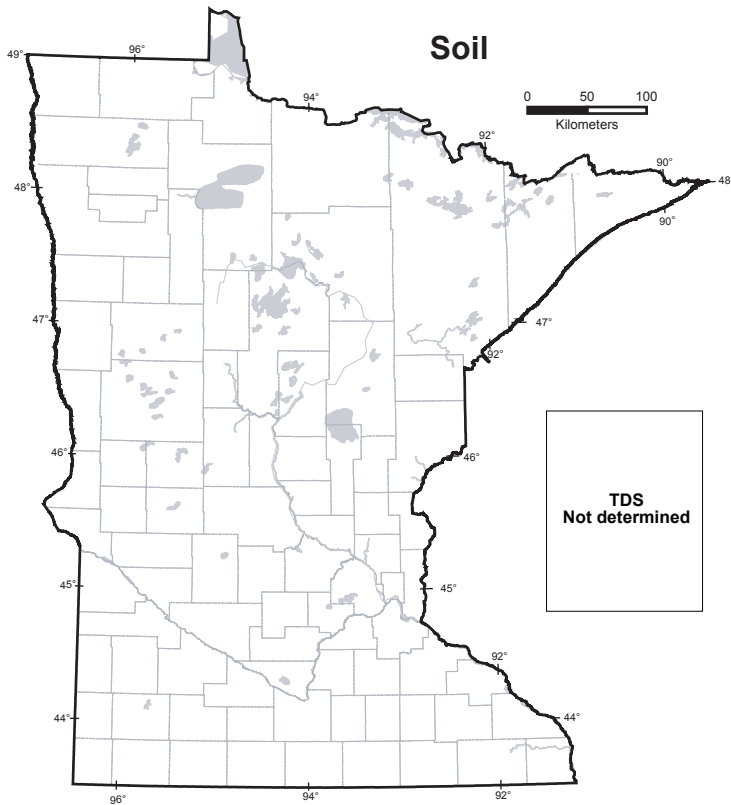
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Chemistry of Soil and Well Water in Minnesota

Total Dissolved Solids



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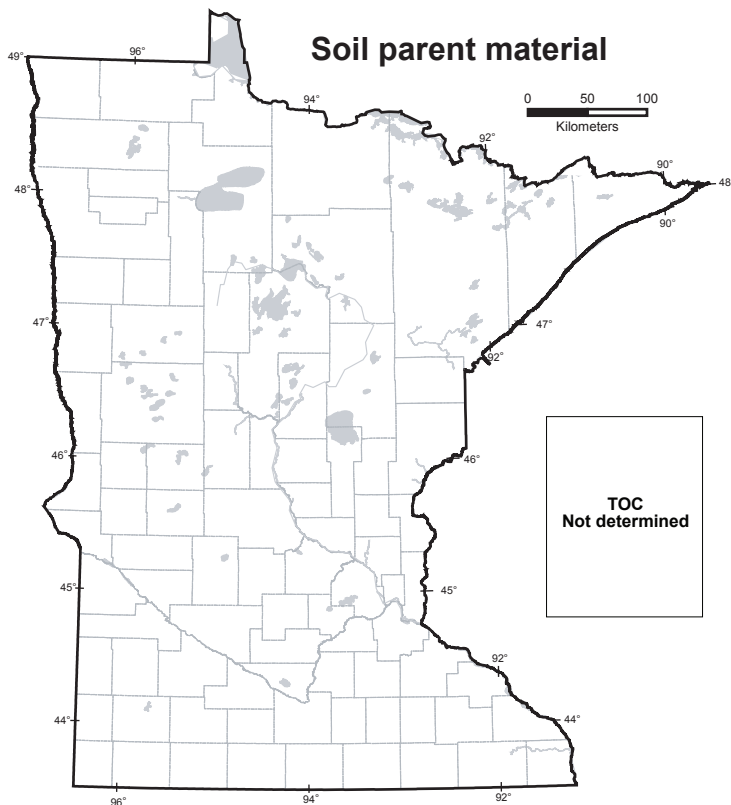
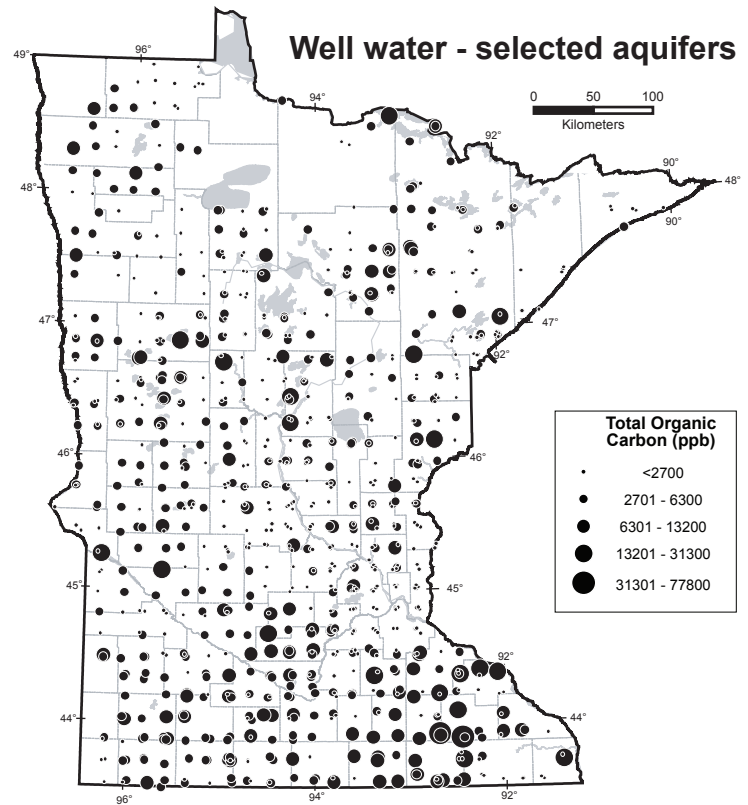
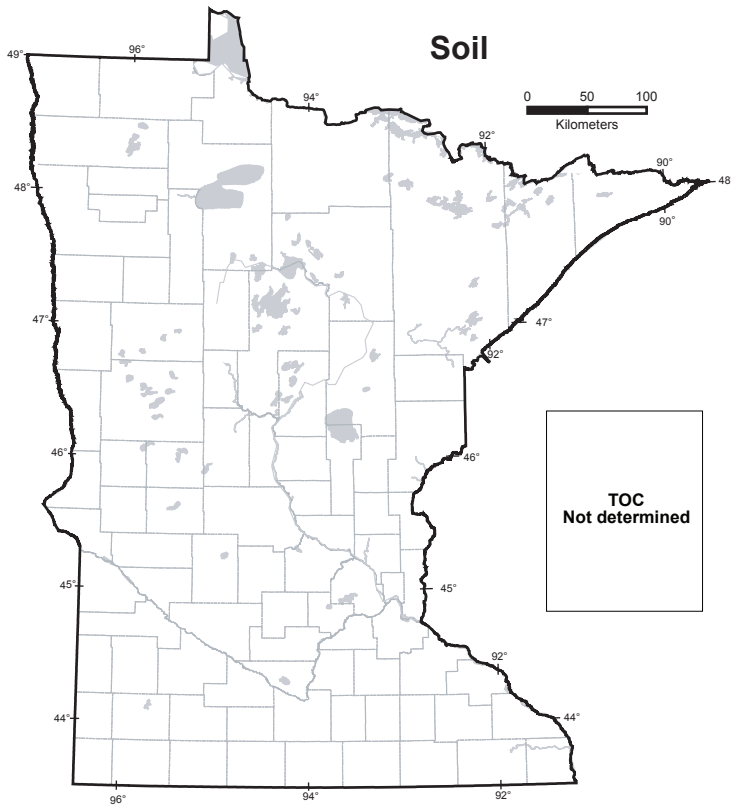
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Total Organic Carbon



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