Supporting Datasets

Water quality data is of limited use on its own. To make sense of information such as chemical concentrations and measured discharges, scientists rely on supporting datasets to provide context for these parameters. Is the observed discharge high or low *for a river of this size*? Can the observed metal concentrations be explained by *the lake's size* or *geology*?
For these reasons, we've taken the first step in identifying some supporting datasets that may provide useful context to the water quality and water quantity data you will be working with. You are welcome to use these datasets or others of your choosing. However, you are not expected to use these or any other supporting data if your problem statement and solution do not require it.

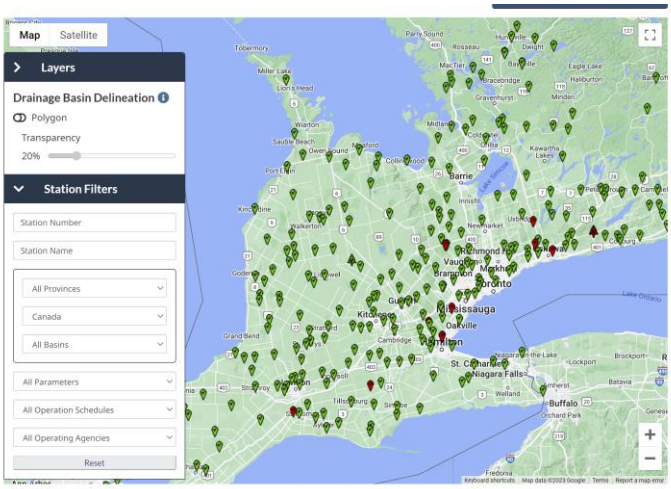
GIS

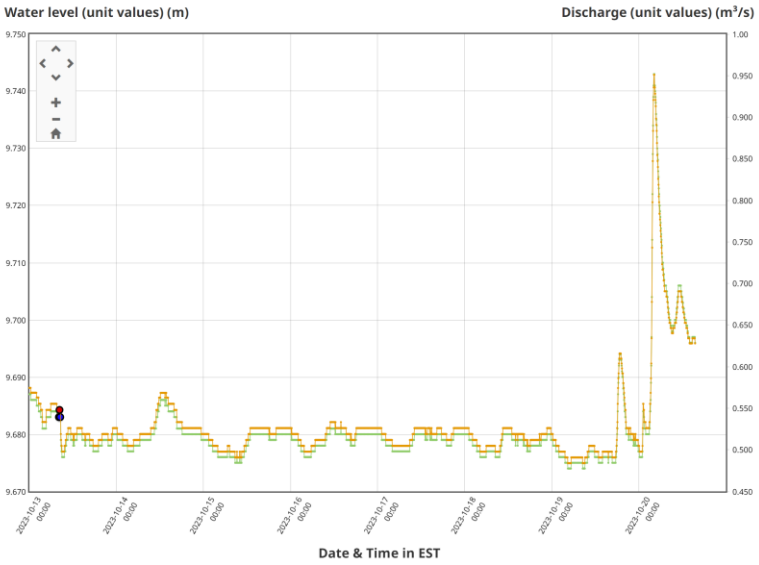
Most of the datasets provided here are geospatial datasets and require the use of a GIS software. If you do not already have access to a GIS software, QGIS is a free and open source GIS application compatible with Windows and MacOS. For those familiar with JavaScript, Google Earth Engine is another viable alternative which provides many of its own datasets as well.

Topography, Hydrology, and Morphology

Lakes, Rivers and Glaciers in Canada - CanVec Series - Hydrographic Features - Open Government Portal
The CanVec series is a project to provide topographic feature layers for land, water, and infrastructure features across Canada. The Lakes, Rivers and Glaciers dataset provides high resolution vector layers for all water features country wide.

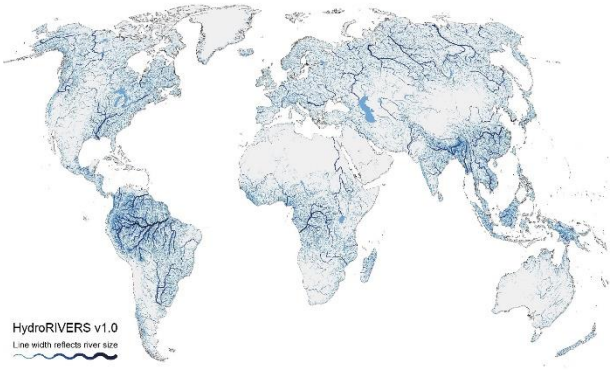
Real-Time Hydrometric Data - Water Level and Flow - Environment Canada (ec.gc.ca)
Environment and Climate Change Canada maintains over 2000 hydrometric stations across the country, many of which provide real-time water level and discharge data.





[HydroRIVERS (hydrosheds.org)]

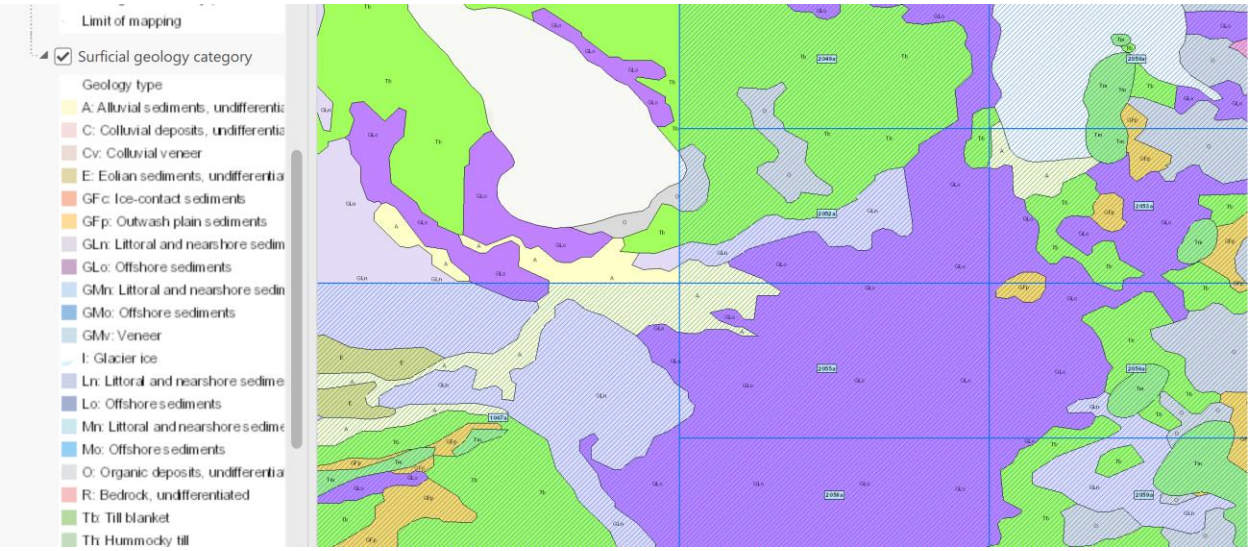
The HydroSHEDS project provides data on rivers and watersheds around the globe - including watershed delineations, flow direction, average discharge and more - all derived from remote-sensing data.



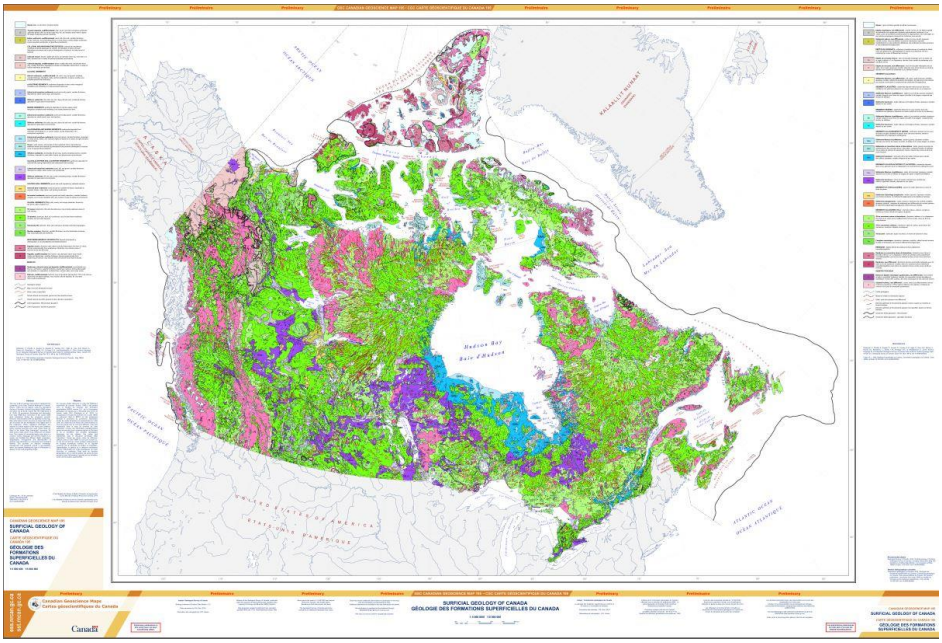
Geology

Geology can be an important determinant of water chemistry, especially in areas where human contamination of water bodies is minimal. Below are some geological datasets, supplied by the government of Canada, and spanning the entire country.

[Open Canada - Surficial Geology - Geospatial Data & Metadata (need GIS software to work with it)]



[NRCAN Geoscan - Surficial Geology of Canada - Map Image/PDF & Metadata (click to download high res)]



Land Cover

[2020 Land Cover of Canada - Open Government Portal]

Remote Sensing Data

[EOSDIS Worldview (nasa.gov)]
EOSDIS Worldview is a spatial data dashboard powered by NASA which allows you to explore dozens of pre-calculated remote sensing data layers.

[ArcGIS Living Atlas of the World]
Requires access to ArcGIS - not compatible with open-source development

[Google Earth Engine]
Data accessed via a javascript API. Access to the API requires registration and approval with GEE.

Other Geospatial Data

[Geospatial Data Extraction (canada.ca)]