

A teal groundwater monitoring station is mounted on a wooden post in a field of autumn foliage. The station has a teal box and a vertical pipe. The background shows trees with yellow and orange leaves.

Data Interpretation Guide:

UNDERSTANDING GROUNDWATER LEVELS

A guide to what the data is, what it means, and how to use it responsibly.

WHAT THIS DATA IS

Groundwater level data records the elevation of water measured in ambient observation wells. It tells us whether groundwater at a specific place is rising, falling, or staying relatively stable, and how that changes over time.

Values shown represent groundwater relative to mean sea level. Hydrographs display the daily mean groundwater level (red line), shown in relation to the historical minimum and maximum levels recorded for that calendar date (blue range) at that location.

WHY THIS DATA IS COLLECTED

Groundwater level data is collected to help understand how groundwater systems behave over time and how they respond to natural conditions. Monitoring groundwater levels supports the sustainable management of Nova Scotia's water resources by:

- Tracking seasonal and long term changes in groundwater storage
- Identifying responses to precipitation, drought, and recharge conditions
- Supporting water supply planning, environmental protection, and policy decisions
- Providing baseline information to help assess future changes related to land use or climate

WHERE THE DATA COMES FROM

The data is collection by Nova Scotia Environment and Climate Change through a network of groundwater observation wells across the province. Monitoring has been carried out for several decades, with some wells providing records since 1966 and others added more recently. Water levels are measured using automated instruments and verified with periodic manual measurements. Observation wells are standalone wells used solely for monitoring purposes and are not directly influenced by water usage. The network is designed to capture groundwater conditions in a range of geological and geographic settings, but it does not represent every local aquifer.

WHAT THE DATA CAN TELL YOU

Groundwater level data can be used to identify:

- Seasonal patterns such as typical rises in spring recharge and declines during dry periods
- Medium-term responses to rainfall, snowmelt, or drought
- Long-term trends, including gradual increases or decreases over many years
- Relative conditions (higher or lower than normal) at a specific monitoring location
- The data helps place current groundwater conditions in a historical context

WHAT THE DATA CANNOT TELL YOU

Groundwater level data alone cannot:

- Indicate groundwater quality or contamination
- Represent conditions at nearby private wells or across an entire community
- Determine the cause of a water level change without additional data
- Predict future groundwater levels on its own
- Confirm whether a specific human activity is responsible for observed changes

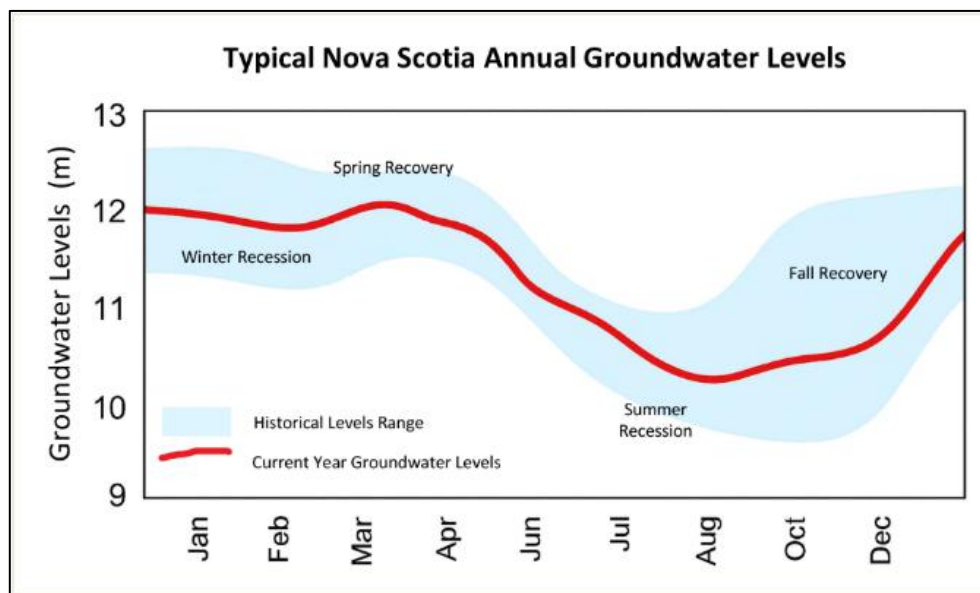
How to Interpret the Data

When viewing groundwater level data:

- Focus on trends over time, rather than individual measurements
- Compare similar time periods (for example, one spring to another)
- Be aware of natural variability, which can be large even in healthy systems
- Consider recent weather conditions and seasonal timing

Use caution when comparing different wells, as precipitation patterns, geology and well depth can vary significantly, and these may have an effect on the water level response over time.

Interpreting a groundwater level hydrograph:

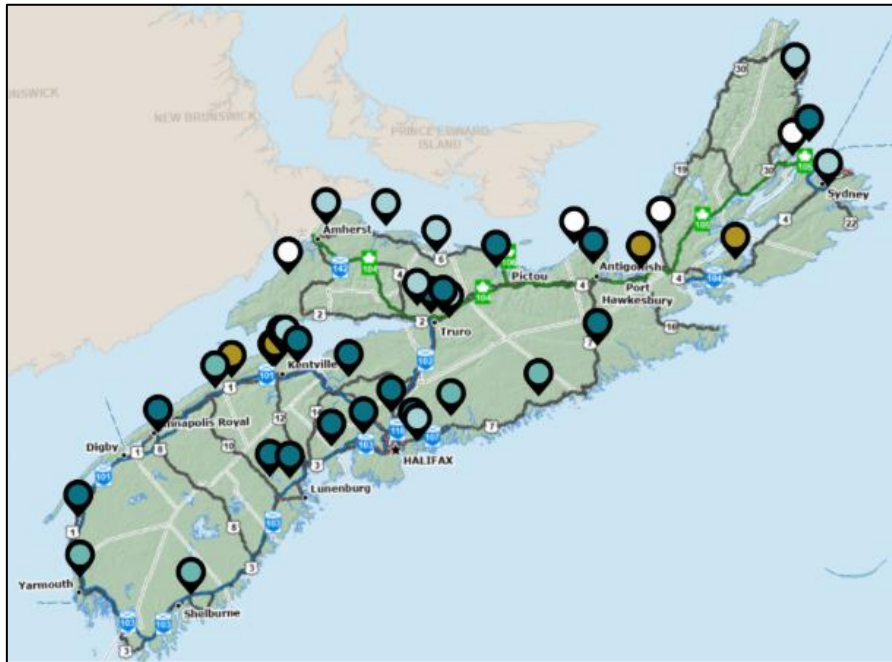


The chart above, known as a groundwater level hydrograph, shows some of the key features of hydrographs presented on this portal. To interpret an individual hydrograph you should know that:

- The blue shading is the historical range of water levels for the given time of year, from minimum to maximum
- The red line shows average conditions
- The hydrograph itself shows a typical seasonal response to precipitation recharge
- Recession (lower level) periods typically may occur in dry summer/fall months, but also in early winter

- Recovery periods (higher levels) typically occur during periods of increased precipitation, often in the late fall and spring months.

Interpreting the Comparative Groundwater Levels Percentiles Map:

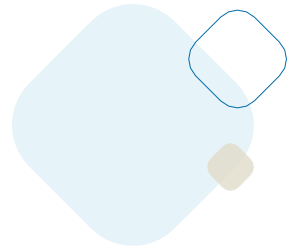


The map above compares current groundwater levels at each observation well with historical groundwater level records using percentile statistics. Only data that has undergone quality control is used to calculate percentile statistics.

Each well is coloured according to the percentile range in which the current daily average groundwater level falls (see legend at right). These percentile ranges are calculated individually for each well using the available historical data record.

	Much Above Normal (>90th Percentile)
	Above Normal (76th – 90th Percentile)
	Normal (25th – 75th Percentile)
	Below Normal (10th – 24th Percentile)
	Much Below Normal (<10th Percentile)
	Recent Data Not Available (> 14 days old)

The percentile categories indicate how current groundwater levels compare statistically with the historical range observed at each well. This historical range is also shown visually in the groundwater hydrograph (on page 2) as the blue-shaded seasonal band.



Important Limitations and Caveats

- Data coverage is site-specific and may not reflect local conditions elsewhere
- Some records contain data gaps due to equipment maintenance or access issues
- Older data may reflect past land-use or climate conditions that differ from today
- Observation wells may respond differently than nearby domestic or municipal wells

The data should always be interpreted within its geographic, hydrogeological and historical context.

Common Misunderstandings

- *"This shows groundwater availability for the community."* → The data represents conditions only at the observation well location
- *"Groundwater level equals well water supply."* → Water supply depends on many factors beyond groundwater level alone
- *"The data explains why levels changed."* → The data shows *what* happened, not necessarily *why*

Where to Learn More or Get Help

[Nova Scotia Department of Environment and Climate Change Groundwater Website](#)

[Nova Scotia Groundwater Levels Timelines Website](#)