

Great Lakes – St. Lawrence River Water Levels

Lakes Superior, Michigan-Huron, and Erie experience dry water supply conditions in September

In September, the Great Lakes Basin experienced the following:

- The mean monthly water level of Lake Superior was below average, while lakes Michigan-Huron, Erie, and Ontario were above average.
- Lakes Superior, Michigan-Huron, and Erie experienced very dry to dry water supply conditions, while Lake Ontario experienced wet water supply conditions (a combination of the precipitation, evaporation, and runoff).
- The Lake Superior, Michigan-Huron, and Erie Basins received approximately half of the average September precipitation. The Lake Ontario Basin received precipitation amounts closer to average.
- All the Great Lakes experienced an average or greater than average monthly decline.

Great Lakes water level information: September 2024 monthly mean levels					
Lake	Level ¹	Compared to September monthly average (1918 to 2023)	Compared to September 2023	Compared to record high (1918 to 2023)	Notes
Superior	183.45 m	10 cm below	18 cm below	41 cm below	-
Michigan–Huron	176.57 m	4 cm above	7 cm below	81 cm below	-
St. Clair	175.36 m	24 cm above	7 cm below	52 cm below	-
Erie	174.45 m	25 cm above	9 cm below	42 cm below	-
Ontario	74.78 m	3 cm above	16 cm below	63 cm below	-

¹Water levels are referenced to International Great Lakes (Vertical) Datum 1985 (IGLD85). For more information, please visit International Great Lakes Datum Update – Great Lakes Coordinating Committee at <https://www.greatlakescc.org/en/international-great-lakes-datum-update/>

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At this time of year, all the lakes are continuing their seasonal declines.

Low-lying areas are at risk for accelerated coastline erosion and flooding with water levels remaining above average on some lakes and with the increased possibility of large storms and stronger winds in the fall months. For current information and forecasts, please refer to the sources listed at the end of this newsletter.

Now that the Great Lakes have experienced their 2024 peak, we can look at how their seasonal rises compared to the average levels. Read more about it below.

Great Lakes water level information: September 2024 lake level changes¹				
Lake	September lake level change	September monthly average change (1918 to 2023)	Compared to average September change (1918 to 2023)	Notes
Superior	7 cm decline	1 cm decline	greater than average decline	-
Michigan–Huron	12 cm decline	6 cm decline	greater than average decline	-
St. Clair	8 cm decline	8 cm decline	average decline	-
Erie	11 cm decline	10 cm decline	greater than average decline	-
Ontario	16 cm decline	15 cm decline	greater than average decline	-

¹Lake level changes are based on the differences in levels at the beginning of the month, not the monthly average levels.

Great Lakes water level information: Beginning-of-October 2024 level ¹					
Lake	Level ^{1,2}	Compared to October beginning-of-month average (1918 to 2023)	Compared to October 2023	Compared to record high (1918 to 2023)	Notes
Superior	183.41 m	13 cm below	19 cm below	47 cm below	-
Michigan–Huron	176.52 m	3 cm above	8 cm below	97 cm below	-
St. Clair	175.34 m	28 cm above	2 cm below	62 cm below	-
Erie	174.41 m	26 cm above	6 cm below	48 cm below	-
Ontario	74.71 m	3 cm above	4 cm below	59 cm below	-

¹ At the beginning of October, all of the Great Lakes were at least 21 cm above their chart datum level. Chart datum is a reference elevation for each lake that provides more information on the depth of water for safe boat navigation on the lakes. For more information, please visit Low Water Datum – Great Lakes Coordinating Committee at <https://www.greatlakescc.org/en/international-great-lakes-datum-update/low-water-datum/>

² Water levels are referenced to International Great Lakes (Vertical) Datum 1985 (IGLD85). For more information, please visit International Great Lakes Datum Update – Great Lakes Coordinating Committee at <https://www.greatlakescc.org/en/international-great-lakes-datum-update/>

Water levels forecast

Lake Superior ended the month below its average level and is expected to remain below average under most water supply conditions.

Lake Michigan-Huron is expected to remain close to average under typical water supply conditions, while drier than average conditions would result in lake levels falling below average. On the other hand, wetter than average conditions would lead to continued higher than average levels within the next few months.

Lake Erie’s level is expected to stay above average under most water supply scenarios. It would take very dry water supply conditions for lake levels to fall below average by the end of the year.

Lake Ontario water levels are expected to remain near average under typical water supply conditions. However, wetter than average water supply conditions may result in above average lake levels, whereas drier than average water supply conditions would result in the level moving below average.

For more information on the probable range of water levels, consult <https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data/levelnews-great-lakes-st-lawrence.html#projection>.

For a graphical representation of recent and forecasted water levels on the Great Lakes, refer to <https://www.tides.gc.ca/en/monthly-water-level-bulletin-great-lakes-and-montreal-harbour>.

September 2024 basin statistics			
Lake	Precipitation- percentage of LTA (1981 to 2010) ^{1,2}	Net basin supply (probability of exceedance) ^{3,4}	Outflows (percentage of LTA) ¹
Superior	44%	93% (very dry)	94%
Michigan-Huron	44%	91% (very dry)	105%
Erie	44%	72% (dry)	103%
Ontario	82%	37% (wet)	106%

¹ As a percentage of the long-term average (LTA).
² Environment and Climate Change Canada – Canadian Precipitation Analysis System. For more information, please visit: <https://www.canada.ca/en/environment-climate-change/services/climate-change/canadian-centre-climate-services/display-download/technical-documentation-regional-precipitation-analysis.html>
³ <5% extremely wet; <25% very wet; <45% wet; 45-55% average; >55% dry; >75% very dry; >95% extremely dry.
⁴ Please refer to the LEVELnews “What is net basin supply” (<https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data/levelnews-great-lakes-st-lawrence.html#projection>) for a description of net basin supply.
Note: The data contained in this report are provisional and is subject to change. Data are calculated from the best available observations at the time of posting.

Summary of the 2024 seasonal rise

The timing of the seasonal rise varies from lake to lake. Lake Superior typically experiences its peak levels in late summer or early fall, whereas Lakes Michigan-Huron, Erie, and Ontario peak slightly earlier in mid-summer (June or July). Lake Superior has now likely seen its highest level of the season, while the other lakes are continuing their seasonal descent. So, with all the lakes past their peaks, we can now look at how the seasonal rise through the spring and summer in the lakes compared to their averages.

Lake	Average seasonal rise (1918 to 2023)	2024 seasonal rise
Superior	31 cm	30 cm
Michigan– Huron	32 cm	33 cm
Erie	44 cm	35 cm
Ontario	59 cm	43 cm

Lake Superior experienced a close to typical rise this year, but peaked in July, which is earlier than its typical peak in late summer or early fall. Lake levels have remained close to or less than average since the beginning of 2024.

Lake Michigan-Huron experienced close to its typical rise and peaked in July, which is its typical peak timing. The lake levels have remained above average throughout 2024.

Lake Erie experienced a bit less than its usual seasonal rise and peaked in July, which is typically when it peaks. Lake Erie levels started the year above average and have remained well above average throughout 2024.

Lake Ontario levels experienced less than its average seasonal rise and had a slightly delayed peak in August, which is later than its typical peak in July. Lake Ontario water levels have fluctuated slightly above and slightly below average throughout 2024.

Overall, all the lakes saw relatively typical seasonal rise patterns, except for Lake Superior, which peaked in July, and then experienced a rapid decrease in lake levels for the rest of the summer and early fall.

Flood Information

With water levels remaining high on some lakes, there is a high risk of flooding. Great Lakes water levels are difficult to predict weeks in advance due to natural variations in weather. To stay informed about Great Lakes water levels and flooding, visit the Ontario flood forecasting and warning program website at <https://www.ontario.ca/flooding>.

Additional information can also be found at <https://www.ijc.org/en/labc>, and <https://ijc.org/en/loslrb>.

Information on current water levels and marine forecasts

Monthly levels: A monthly water level bulletin, produced by Fisheries and Oceans Canada, is available at <https://www.tides.gc.ca/en/monthly-water-level-bulletin-great-lakes-and-montreal-harbour> and click on the link “[Full Monthly Water Level Bulletin for the Great Lakes and Montréal Harbour \(PDF\)](#)”. This publication is intended to complement the information provided by LEVELnews on a monthly basis.

Daily levels: Current daily lake-wide average levels of all the Great Lakes are available at <https://lre-wm.usace.army.mil/reports/greatLakes/greatLakesLevelsThisMonth/greatLakesLevelsThisMonth.html>. The daily average water level is an average taken from a number of gauges across each lake and is a good indicator of the overall lake level when it is changing relatively rapidly due to recent high precipitation.

Hourly levels: Hourly lake levels from individual gauge sites can be found at the Government of Canada Great Lakes Water Level Gauging Stations website at <https://canada-preview.adobecqms.net/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data.html>. These levels are useful for determining real-time water levels at a given site, however, it should be noted that they are subject to local, temporary effects on water levels such as wind and waves.

Marine forecasts: A link to current Government of Canada marine forecasts for wave heights for each of the Great Lakes can be found at <https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data.html> under the “Wave and wind data heading”. Current marine forecasts for Lakes Superior, Huron, Erie and Ontario are available by clicking on the link of the lake in which you are interested. To view a text bulletin of recent wave height forecasts for all of the Great Lakes, click on the “Text bulletin wave height forecasts for the Great Lakes and St. Lawrence River” link.

FOR MORE INFORMATION:

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Boundary Water Issues

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