LEVEL news

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Great Lakes – St. Lawrence River Water Levels

Lake Superior Experiences Record June Rise Due to Very Wet Water Supply Conditions

During the month of June, the Great Lakes Basin experienced the following:

- The mean monthly water level of Lake Superior was slightly below average, while Lake Michigan-Huron was above average. Lake Erie remained well above average, while Lake Ontario was below average.
- Lakes Superior and Michigan-Huron experienced very wet water supply conditions (a combination of the precipitation, evaporation, and runoff), Lake Erie experienced average conditions, while Lake Ontario received wet water supply conditions.
- June precipitation amounts were higher than average for all lakes.
- Lake Superior experienced its fifth largest June water level rise on record. Lakes Michigan-Huron and Erie experienced a higher-than-average monthly rise, while Lake Ontario rose when it typically declines at this point in the year.

Great Lakes water level information:

June 2024 monthly mean levels

Lake	Level[1]	Compared to June monthly average (1918–2023)	Compared to June 2023	Compared to record high (1918-2023)	Notes
Superior	183.44 m	2 cm below	24 cm below	40 cm below	-
Michigan–Huron	176.66 m	9 cm above	2 cm below	78 cm below	-
St. Clair	175.46 m	25 cm above	same	56 cm below	-
Erie	174.62 m	25 cm above	2 cm above	52 cm below	-
Ontario	74.94 m	12 cm below	30 cm below	97 cm below	-

[1]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/

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This is the time of year when the water levels of Lakes Superior and Michigan-Huron are typically still rising, and when both Lake Erie and Ontario have peaked or will soon peak and have begun their seasonal decline.

With water levels remaining above average on some lakes and the possibility of large storms and winds, low-lying areas are at risk for accelerated coastline erosion and flooding. For current information and forecasts, please refer to the sources listed below.

Rip currents can be dangerous hazards while swimming anywhere in the Great Lakes, find out more information about them below.

Great Lakes water level information:

June 2024 lake level changes[1]

Lake	June lake level change	June monthly average change (1918-2023)	Compared to average June change (1918-2023)	Notes
Superior	15 cm rise	8 cm rise	greater than average rise	fifth largest rise on record
Michigan–Huron	8 cm rise	5 cm rise	greater than average rise	-
St. Clair	6 cm rise	4 cm rise	greater than average rise	-
Erie	2 cm rise	1 cm rise	greater than average rise	-
Ontario	1 cm rise	1 cm decline	rise instead of decline	-

[1]Lake level changes are based on the differences in levels at the beginning of the months and not the monthly average levels.

Great Lakes water level information: Beginning-of-July 2024 level[1]					
Lake	Level[1,2]	Compared to July beginning-of-month average (1918–2023)	Compared to July 2023	Compared to record high (1918-2023)	Notes
Superior	183.52 m	2 cm above	17 cm below	33 cm below	-
Michigan–Huron	176.70 m	11 cm above	1 cm above	75 cm below	-
St. Clair	175.54 m	33 cm above	6 cm above	50 cm below	-
Erie	174.65 m	28 cm above	7 cm above	53 cm below	-
Ontario	74.95 m	11 cm below	25 cm below	95 cm below	-

[1] At the beginning of July, all of the Great Lakes were at least 32 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 just above its average level and is expected to remain near average under typical water supply conditions. If there are very wet water supply conditions, lake levels could move further above average, while very dry conditions would result in lake levels moving below average.

Lake Michigan-Huron is expected to remain above average under typical water supply conditions, although wetter than average conditions could result in a further increase. Drier than average conditions could result in lake levels falling below average within the next few months.

Lake Erie is expected to stay well 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 or slightly below average under typical water supply conditions. Wetter than average water supply conditions may result in above average lake levels, while drier than average water supply conditions would result in the level remaining 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.

June 2024 basin statistics			
Lake	Precipitation-percentage of LTA (1981 – 2010) [1,2]	Net basin supply (probability of exceedance) [3,4]	Outflows (percentage of LTA)[1]
Superior	165%	9% (very wet)	94%
Michigan-Huron	155%	20% (very wet)	104%
Erie	136%	53% (average)	106%
Ontario	116%	43% (wet)	105%

[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 are subject to change. Data are calculated from the best available observations at the time of posting.

Be aware of rip currents when swimming in the lakes

Rip currents can occur in the Great Lakes whenever waves push water toward the shore. Breaking waves create a buildup of water along the shoreline that at some point needs to flow back toward the lake. Rip currents can develop where there is a low point in the lake bottom just offshore, such as a sand bar or rock reef, which funnels the water back toward the lake. Rip currents can be dangerous as they can pull even strong swimmers out into deep water. However, contrary to popular belief, rip currents do not have an undertow and will not pull swimmers underwater.

Understanding rip currents and the conditions that cause them to form can help make it possible to avoid them altogether or for strong swimmers to safely exit them. To help make your summer activities around the Great Lakes safe and enjoyable, please look for further information on Great Lakes rip currents here: Lean about hurricanes: hazards and impacts at https://www.canada.ca/en/environment-climate-change/services/hurricane-forecasts-facts/learn/hazards-impacts.html#curr

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/lsbc, 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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