LEVEL news

Volume 31 | Number 6 | June 2023

Great Lakes – St. Lawrence River Water Levels

All lakes remain above average to start the summer

During May, the Great Lakes Basin experienced the following:

- The mean monthly water levels of all the Great Lakes were above average. It is worth noting that Lake Superior experienced its fourth highest average water levels for May and its fifth highest beginning of June water level.
- The water supply conditions (a combination of the precipitation, evaporation, and runoff) experienced by all the lakes were much lower than the previous month. Only Lake Superior water supplies were close to average while the other lakes were either dry or very dry.
- May precipitation amounts were much less than average for Lakes Michigan-Huron and Erie, while Lakes Superior and Ontario saw precipitation below average.
- Due to the generally dry conditions in the basin, all the lakes rose less than their average rises for May and it is possible that some of the lakes may have already reached their annual peaks.

Great Lakes water level information:

May 2023 monthly mean levels

Lake	Level[a]	Compared to May monthly average (1918–2022)	Compared to May 2022	Compared to record high (1918-2022)	Notes
Superior	183.67 m	30 cm above	22 cm above	10 cm below	fourth highest on record
Michigan–Huron	176.68 m	17 cm above	8 cm below	69 cm below	-
St. Clair	175.45 m	30 cm above	5 cm below	53 cm below	-
Erie	174.65 m	32 cm above	1 cm below	43 cm below	-
Ontario	75.36 m	33 cm above	19 cm above	44 cm below	-

[a]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 all lakes typically continue their seasonal rise into summer.

With water levels remaining above average in all 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.

Later in this issue, we summarize the seasonal Great Lakes level declines over this past season.

Great Lakes water level information:

May lake level changes[a]

Lake	May lake level change	May monthly average change (1918-2022)	Compared to average May change (1918-2022)	Notes
Superior	8 cm rise	10 cm rise	less than average rise	-
Michigan–Huron	6 cm rise	9 cm rise	less than average rise	-
St. Clair	no change	7 cm rise	much less than average rise	-
Erie	1 cm decline	5 cm rise	less than average rise	-
Ontario	4 cm rise	9 cm rise	less than average rise	-

[a] 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-June level[a]					
Lake	**Level[a,b]**	**Compared to June beginning-of-month average (1918–2022)**	**Compared to June 2022**	**Compared to record high (1918-2022)**	**Notes**
Superior	183.68 m	26 cm above	14 cm above	14 cm below	fifth highest on record
Michigan–Huron	176.69 m	15 cm above	11 cm below	75 cm below	-
St. Clair	175.44 m	27 cm above	6 cm below	56 cm below	-
Erie	174.62 m	27 cm above	5 cm below	51 cm below	-
Ontario	75.30 m	23 cm above	15 cm above	59 cm below	-

[a] At the beginning of June, all of the Great Lakes were at least 48 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/

[b] 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 is currently well above its average level and is expected to remain so under most water supply conditions. If there are very wet water supply conditions, lake levels could approach record highs in mid to late summer, while very dry conditions could result in lake levels approaching average.

Lake Michigan-Huron is expected to remain above average under most water supply conditions; it would take very dry conditions to bring the level below average by the end of the summer.

Lake Erie is also expected to stay above average under most water supply scenarios.

Lake Ontario is above average and is expected to remain so under typical water supply conditions within the next few months. Water levels are expected to decrease, even under wetter than average water supply conditions, however, drier than average conditions may result in lake levels falling 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.

May basin statistics			
Lake	**Precipitation (percentage of LTA) [a,b]**	**Net basin supply (probability of exceedance) [c,d]**	**Outflows (percentage of LTA)[a]**
Superior	72%	46% (average)	138%
Michigan-Huron	56%	72% (dry)	110%
Erie (including Lake St. Clair)	43%	78% (very dry)	112%
Ontario	76%	64% (dry)	118%

[a] As a percentage of the long-term average (LTA).
[b] Environment and Climate Change Canada – Canadian Precipitation Analysis System
[c] <5% extremely wet; <25% very wet; <45% wet; 45-55% average; >55% dry; >75% very dry; >95% extremely dry.
[d] 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 figures contained in this report are provisional and are subject to change. Data are calculated from the best available observations at the time of posting.

Safe Boating Week 2023

May 20th to the 26th was the Canadian Safe Boating Council's (CSBC) Safe Boating Awareness Week. Each year, the week provides the opportunity to bring boating safety awareness to millions of Canadians. Here are the CSBC's top five messages for this boating season:

1. Wear Your Lifejacket: over 80% of drownings occur when boaters are not wearing lifejackets or are not wearing them properly.
2. Boat Sober: never boat under the influence.
3. Take a Boating Course: anyone operating a powered recreational vessel should have their Pleasure Boat Operator Card.
4. Be Prepared, You and Your Vessel: do your research and make sure you and your boat are ready for your planned activities.
5. Be Cold Water Safe: be aware of the dangers of cold water and always wear your lifejacket.

For more detail information, please visit the CSBC website: Safe Boating Awareness Week (csbc.ca).

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

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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En162-1E-PDF
ISSN 1925-5713
EC23052