GREAT LAKES WATER LEVELS

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The impacts of high water levels have been felt across the basin.
The Great Lakes Basin

- 14,000 miles of shoreline
- 95,000 square miles of water
- 200,000 square miles of land
- 8 States & 2 Provinces

Outflow regulation
Daily Average Water Levels Based on Lake-Wide Average Network

- **Lake Superior**: Duluth, Marquette, Pt. Iroquois, Thunder Bay, Michipicoten
- **Lakes Michigan-Huron**: Harbor Beach, Ludington, Mackinaw City, Milwaukee, Tobermory, Thessalon
- **Lake St. Clair**: St. Clair Shores, Belle River
- **Lake Erie**: Toledo, Cleveland, Port Stanley, Port Colborne
- **Lake Ontario**: Oswego, Rochester, Toronto, Kingston, Port Weller, Cobourg
FACTORS IMPACTING WATER LEVELS

- Inflow from Upstream Lake
- Evaporation
- Precipitation
- Runoff
- Net Basin Supply
- Outflow
ANNUAL WATER LEVELS AND THE HYDROLOGIC CYCLE

WINTER
- Snow accumulation

SPRING
- Snow melt, rainfall, increased runoff

SUMMER
- Increased sunshine warms lake water

FALL
- Increased evaporation
Great Lakes Water Levels (1918–2020)

- Monthly Mean Level
- Long Term Average Annual

Decade plus of low water with record lows

Record rise and record highs

The monthly average levels are based on a network of water level gages located around the lakes. Elevations are referenced to the International Great Lakes Datum (1953).

Water levels have been coordinated through 2019. Values highlighted in gray are provisional.
WHY ARE LEVELS SO HIGH? – WET PATTERN

Last 3 years (2017-2019), exceptionally wet for the Great Lakes Basin.

NOAA National Centers for Environmental Information, Climate at a Glance
6-MONTH FORECAST (JUNE-NOVEMBER)

- 2019 Records
- 2020 Provisional Record

Projected Levels (dashed green line):

- In period of seasonal rise
- May 2020 level was 5 inches below May 2019 level.
- Forecast to be 3 to 7 inches below record high levels over next 6 months.

6-MONTH FORECAST (JUNE-NOVEMBER)

LAKES MICHIGAN-HURON WATER LEVELS - JUNE 2020

• 2019 Records
• 2020 Provisional Record

Projected Levels (dashed green line):

• In period of seasonal rise
• May 2020 level was 8 inches above the May 2019 level.
• Forecast to be 2 to 5 inches above record high levels through August, near its record high in Sept., and 7 to 9 inches below record high levels in Oct. and Nov.

6-MONTH FORECAST (JUNE-NOVEMBER)

• 2019 Records

• 2020 Provisional Record

Projected Levels (dashed green line):

- In period of seasonal rise
- May 2020 level was 4 inches above the May 2019 level.
- Forecast to be less than 1 inch above record high June level, 1 to 2 inches below record highs from July to Sept., and 7 to 9 inches below record high levels in Oct. and Nov.

6-MONTH FORECAST (JUNE-NOVEMBER)

LAKE ERIE WATER LEVELS - JUNE 2020

- 2019 Records
- 2020 Provisional Record

Projected Levels (dashed green line):

- In period of seasonal rise
- May 2020 level was 1 inch above the May 2019 level.
- Forecast to be 2 to 4 inches below record high levels June through Sept. and 9 inches below record high levels in Oct. and Nov.

6-MONTH FORECAST (JUNE-NOVEMBER)

- **2019 Records**
- **2020 Provisional Record**

**Projected Levels (dashed green line):**

- Likely reached its peak level and will begin its seasonal decline.
- May 2020 level was 13 inches below the May 2019 level.
- Forecast to be 14 to 23 inches below record high levels, but 9 to 11 inches above average levels over the next 6 months.

# WATER LEVEL RESOURCES

## GREAT LAKES WATER LEVEL RESOURCES AND CONTACT INFORMATION

### Websites

<table>
<thead>
<tr>
<th>Description</th>
<th>URL</th>
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<tbody>
<tr>
<td>USACE Detroit District</td>
<td><a href="https://www.lrei.usace.army.mil">https://www.lrei.usace.army.mil</a></td>
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<tr>
<td>Connecting Channels Forecast (channel depths for next month)</td>
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<tr>
<td>Water level observations</td>
<td><a href="https://www.lrei.usace.army.mil/Missions/Great-Lakes-Information/Water-Level-Data">https://www.lrei.usace.army.mil/Missions/Great-Lakes-Information/Water-Level-Data</a></td>
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<tr>
<td>Historical Data (long term average, maximum, and minimum Great Lakes water levels)</td>
<td><a href="https://www.lrei.usace.army.mil/Missions/Great-Lakes-Information/Historical-Data">https://www.lrei.usace.army.mil/Missions/Great-Lakes-Information/Historical-Data</a></td>
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<td>Water Level Summaries (lake-by-lake summaries of recent conditions)</td>
<td><a href="https://www.lrei.usace.army.mil/Missions/Great-Lakes-Information/Water-Level-Summaries">https://www.lrei.usace.army.mil/Missions/Great-Lakes-Information/Water-Level-Summaries</a></td>
</tr>
<tr>
<td>Great Lakes Update Articles (periodic publications on various Great Lakes topics)</td>
<td><a href="https://www.lrei.usace.army.mil/Portals/69/docs/Great-Lakes-Update-Newsletters">https://www.lrei.usace.army.mil/Portals/69/docs/Great-Lakes-Update-Newsletters</a></td>
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### Contact Information

- **Water level forecasts**
  - John Allis, Chief Office of Great Lakes Hydraulics and Hydrology (313-226-2137)
  - Deanna Apps (313-226-2979)
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