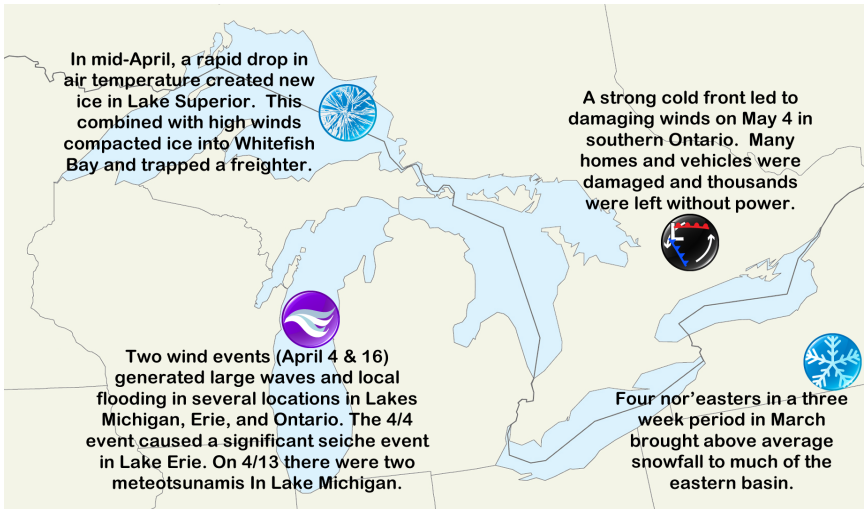
Quarterly Climate Impacts and Outlook

Great Lakes Region

June 2018

Great Lakes Significant Events – *for March - May 2018*



Several strong low pressure systems in March and April brought with them near-to-record-breaking cold temperatures as well as late season winter precipitation events. By contrast, May saw above-normal conditions for the majority of the basin.

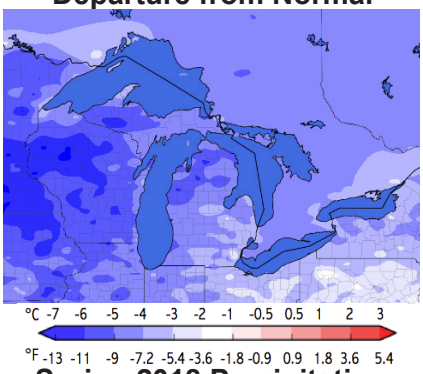
In mid-April, a strong low pressure system created a mixture of hazardous weather conditions to southern Ontario. Multiple hours of freezing rain and ice pellets were reported leading to hazardous traveling conditions. Other locations saw more than 40 cm (16 in) of snowfall. Gusts of up to 90 km/h (56 mi/h) left more than 120,000 homes without power.

Several strong nor'easters brought late season snow and damaging winds to much of the eastern portion of the basin. Erie, PA experienced 91 cm (36 in) of snow for the month of March, breaking the previous record. Across the basin, anomalously cold conditions in April broke both daily and monthly records including the record for the coldest April on record for both Wisconsin and Michigan. In southern Ontario, most locations were in their top 5 coldest Aprils on record over the past 100 years. The below-normal April temperatures gave way to above-normal temperatures in May that broke records across the basin including Buffalo, NY which saw its warmest May on record.

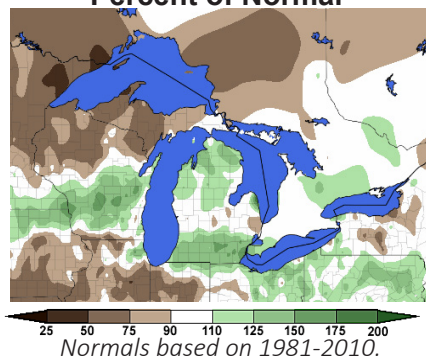
Regional Climate Overview – *for March - May 2018*

Precipitation and Temperature

April 2018 Temperature Departure from Normal



Spring 2018 Precipitation Percent of Normal



Normals based on 1981-2010.

March temperatures ranged from 3°C (5°F) below normal to 2°C (4°F) above normal. April was much below normal, ranging from 7 to 2°C (13 to 4°F) below normal. May was warmer, ranging from 2°C (4°F) below normal to 6°C (11°F) above normal. This led to a temporary surge in Great Lakes water surface temperatures. The contrasting months balanced out the average spring temperatures, which ranged from 2°C (4°F) below normal to 1°C (2°F) above normal.

In March, all lake basins except Erie received less than 25% of their normal precipitation. April precipitation ranged from only 45% of normal in the Lake Superior basin to 138% of normal in the Lake Huron basin. May precipitation ranged from near to below-normal. Overall, spring precipitation was below to near normal over all basins.

Great Lakes Water Levels

Lake	End of May 2018 Compared to:		Change since March 1st	
	Average	2017	2018	Average
Sup.	+13 cm +5.1 in	-9 cm -3.5 in	-4 cm -1.6 in	+17 cm +6.7 in
Mich.-Huron	+46 cm +18.1 in	+12 cm +4.7 in	+19 cm +7.5 in	+24 cm +9.4 in
Erie	+57 cm +22.4 in	+4 cm +1.6 in	+30 cm +11.8 in	+32 cm +12.6 in
Ont.	+20 cm +7.9 in	-61 cm -24.0 in	+30 cm +11.8 in	+43 cm +16.9 in

All of the Great Lakes ended May with above normal levels for this time of year. After starting at near-record-high values, Lake Superior had relatively low water supplies over the past three months, ending May only 13 cm above normal. Lakes Michigan-Huron and Erie saw closer-to-normal water-level changes, leaving both lakes well-above-normal for the time of year. Lake Ontario saw a below-normal water-level rise since the beginning of March, leaving levels above average.

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Environment and Climate Change Canada / Environnement et Changement climatique Canada

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https://www.drought.gov/drought/resources/reports

Regional Impacts – *for March - May 2018*

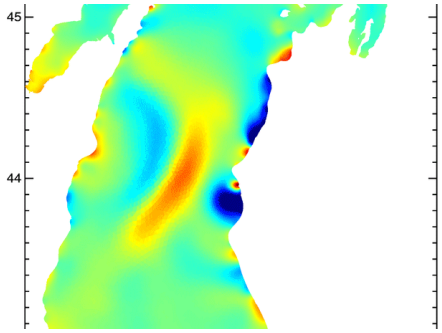
Seeding and emergence of many crops were delayed due to prolonged cold periods in March and April. This was a common theme across the agricultural industry as growing degree days stayed well behind normal conditions through April for most locations. Fortunately, above-normal temperatures in May allowed crop producers to make up for the delayed start.

Sporting events across the basin were affected by several large winter weather events in the early season. The Chicago Cubs were forced to postpone several early season games by up to three weeks due to snowcover. This tied a record for the most weather-related postponements through April. The Toronto Blue Jays home game against the Kansas City Royals was also postponed on April 16 due to ice accumulation causing damage to the roof of the stadium.

High water levels in Lake Erie broke seawalls just southwest of Detroit and flooded several neighborhoods. Grand Haven's South Pier construction project was delayed once again as a result of high water levels in Lake Michigan. On April 13, several strong thunderstorms pushed across Lake Michigan and created a pair of meteotsunamis. The large surge of water impacted large sections of the eastern coastline of Lake Michigan. One gauge in Ludington reported a water level rise of 46 cm (1.51 ft). Several docks were damaged along the coast near Manistee, Michigan as a result.

Buds on an apple tree

Rogers Centre, Toronto, ON. Roof was damaged in April due to Ice Accumulation.



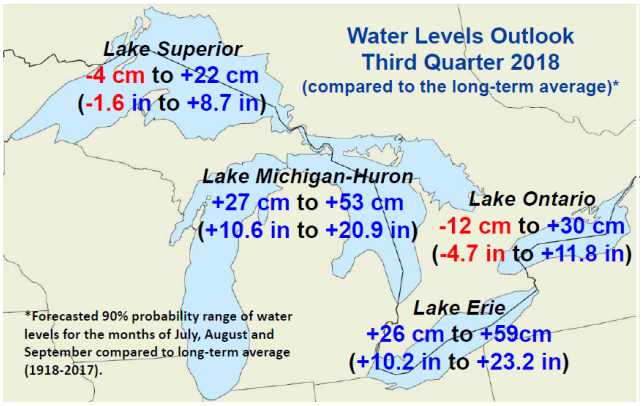
Meteotsunami on April 13 (red=above normal, blue=below normal water levels)

Regional Outlook – *for July - September 2018*

Temperature and Precipitation

Both American and Canadian forecasters predict above-normal temperatures for most of the Great Lakes basin in the July through September timeframe. At the same time, precipitation has been predicted to have an equal chance of being above, near, or below normal for the entire basin.

Great Lakes Water Levels



Lakes Superior and Michigan-Huron levels are expected to rise over the beginning of the third quarter but by the end of September all lake levels are entering their seasonal fall decline with normal water supply conditions. Lakes Michigan-Huron and Erie levels are likely to stay well above average, even if very dry conditions are encountered. Lakes Superior and Ontario levels could drop below average if drier-than-normal conditions occur, but are expected to stay above average levels with normal water supplies.

Harmful Algal Bloom

The harmful algal bloom (HAB) season in the Great Lakes typically peaks in the late summer. NOAA issues a Lake Erie HAB seasonal forecast in early July. Because conditions in the lake can change quickly, a HAB Bulletin is posted and distributed twice weekly from July to October.

Partners

- Midwestern Regional Climate Center
- Environment and Climate Change Canada
- Agriculture and Agri-Food Canada
- Northeast Regional Climate Center
- Great Lakes Region State Climatologists
- NOAA
  - NCEI
  - GLERL
  - Great Lakes Sea Grant Network
  - North Central River Forecast Center
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  - CPC
  - Office for Coastal Management
- GLISA
- US Army Corps of Engineers, Detroit District
- NIDIS
- USDA Midwest Climate Hub

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