Great Lakes Water Levels and Coastal Impacts

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Great Lakes Water Levels: Historical
Great Lakes Water Levels: Current

New record high water levels were set in lakes Superior, St. Clair, Lake Erie, and Ontario.

Prior records were set in May 1986 for lakes Superior, St. Clair, and Erie. May 2017 for Lake Ontario.

Source: US Army Corps of Engineers
Great Lakes Water Levels: Inputs and Outputs

Note all basins except Lake Superior had an increase in precipitation

Note all basins are close to or above 100% of their average precipitation for the year

Source: US Army Corps of Engineers

Office for Coastal Management
Great Lakes Water Levels: Coastal Impacts

- Shoreline Erosion
- Increased sediment transport in the littoral zone
- Alterations to stream and river mouths
- Damage to coastal infrastructure
- Flooded marinas and docks
- Hazards to navigation
- Loss of coastal terrestrial and wetland habitat
- Shrinking beaches for recreational use
- Increased impacts when storms move through
Lake Superior Water Levels: Storm Impacts

AN ANGRY LAKE SUPERIOR

Today through This Evening

Highest Wind Gusts Today (mph)

14’ to 18’ Waves

12’ to 16’ Waves

GALE WARNING

• Gale-force winds and near storm-force gusts today through this evening.

IMPACTS

• Isolated tree damage and power outages near the lake.
• Flooding, erosion, and damage to shoreline.
• Difficult travel for high-profile vehicles on high bridges between Duluth and Superior.

Increased water and wave action for 24 hours.

Approximate change of 15 inches in 30 hours.

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Lake Superior Water Levels: Storm Impacts

October 2018, Gale Warning. Canal Park, Duluth, MN
Source: WDIO HarborCam

March 1975, Blizzard causes flooding. Canal Park, Duluth, MN
Source: Duluth News Tribune

Office for Coastal Management
Digital Coast

Adapting Stormwater Management for Coastal Floods
Provides guidance and methods to identify current and future coastal flood risk, examine impacts on stormwater systems, and explore appropriate actions to respond

Additional Data Needs and Information for a Community Risk and Vulnerability Assess...
Provides information, data, and topics for consideration during community risk and vulnerability discussions

Advancing Preparedness of Climate Change Impacts on Coastal Communities in the Mid...
Documents an assessment of climate change impacts on the Mid-Atlantic region and suggestions for addressing those impacts at a state and regional scale

Building Ecosystem Services Conceptual Models
Facilitates development of evidence-based ecosystem services conceptual models and the use of these models in federal decision-making

Building Higher and Stronger to Prepare for Future Storms
Learn about strategies for incorporating stricter floodplain building standards as residents recover from a major storm

Building Risk Communication Skills
Increases understanding of risk response and helps participants connect with diverse audiences to motivate action to reduce risk (1-day course)
Lake Superior Water Levels: Impacts

Red denotes areas that fall between record high and record low water levels. This does not take into account seiche and storm impacts.

Decrease in beach area.

Impact to wetland areas.
Questions/Comments/Concerns

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