Great Lakes Environmental Research Laboratory

The National Oceanic and Atmospheric Administration Great Lakes Environmental Research Laboratory (NOAA GLERL) provides science-based information to coastal constituents and federal, state, and international decision and policy makers. NOAA GLERL research is at the forefront of understanding natural hazards such as severe waves, storm surges, and ice; harmful algal blooms; ecosystems and foodweb interactions including the threat and impact of aquatic invasive species; changes in lake water levels; and regional effects related to climate variability.

With its main laboratory located in Ann Arbor, Michigan, a field station strategically positioned along the shores of Lake Michigan in Muskegon, Michigan, and research vessels deployed throughout the basin, NOAA GLERL research directly supports a multi-billion dollar economy of recreation, tourism, maritime navigation, fisheries, drinking water quality, and residential and commercial property, throughout the Great Lakes region.

Vision: A trusted scientific enterprise to advance observation, modeling, understanding, and prediction of the Great Lakes and coasts to sustain resilient ecosystems, communities, and economies.

Mission: Conduct integrated scientific research on the Great Lakes and coastal ecosystems; develop and transition products and services; and share knowledge and information to advance science, service and stewardship.

For additional information, please contact:
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NOAA GLERL provides the nation with advancements in:

**Harmful Algal Blooms (HABs) Research**
Harmful algal blooms can be a symptom of degrading water quality, and can result in unsafe conditions for humans and aquatic life. The NOAA Great Lakes Harmful Algal Blooms (HABs) program is a collaborative effort among public, private, and academic institutions to understand and predict HABs through an integrated approach. NOAA GLERL research on the formation, extent, duration, and toxicity of HABs is used to create products for stakeholders, coastal communities, and the public for making important decisions, such as managing drinking water treatment plants. For more, visit NOAA GLERL’s Harmful Algal Blooms research homepage at [www.glerl.noaa.gov/res/HABs_and_Hypoxia](http://www.glerl.noaa.gov/res/HABs_and_Hypoxia).

**Great Lakes Water Levels Modeling and Forecasting**
The Great Lakes comprise the largest freshwater lake system by surface area on the planet. Water levels of the lakes fluctuate dramatically in response to a variety of factors. NOAA GLERL research on water levels in the Great Lakes analyzes components of the Great Lakes water cycle (runoff, over-lake precipitation, over-lake evaporation) to improve models, which are used by agencies and businesses in the navigation and power generation industries to inform water management and operations decisions. For more, visit NOAA GLERL’s Great Lakes Water Levels research homepage at [www.glerl.noaa.gov/data/wlevels](http://www.glerl.noaa.gov/data/wlevels).

**Ice Modeling and Forecasting**
The amount of ice cover, as well as how long it remains on the lakes, varies from year to year. Ice cover plays an important role in climate patterns, lake water levels, water movement patterns, water temperature structure, and spring plankton blooms. NOAA GLERL scientists analyze, monitor, and predict ice cover on the Great Lakes. Understanding the major effects of fluctuations in ice cover is crucial because these impact a range of water-dependent industries—from hydropower, to the fishing industry, to shipping and recreation. For more, visit NOAA GLERL’s Great Lakes Ice Cover research homepage at [www.glerl.noaa.gov/data/ice](http://www.glerl.noaa.gov/data/ice).

**Invasive Species Research**
The economic and ecological health of the Great Lakes continues to be threatened by the impacts of invasive species, including zebra mussels, quagga mussels, and Asian carps. NOAA GLERL research on invasive species focuses on understanding how these species impact the Great Lakes ecosystem and interact with other stressors, such as nutrient runoff. GLERL research informs management decisions that support coastal infrastructure, water dependent industries, fisheries, and recreational use. To find out more about NOAA GLERL’s long-term research on invasive species in the Great Lakes, visit [www.glerl.noaa.gov/res/projects/ecoDyn](http://www.glerl.noaa.gov/res/projects/ecoDyn).