GLERL
Great Lakes Environmental Research Laboratory

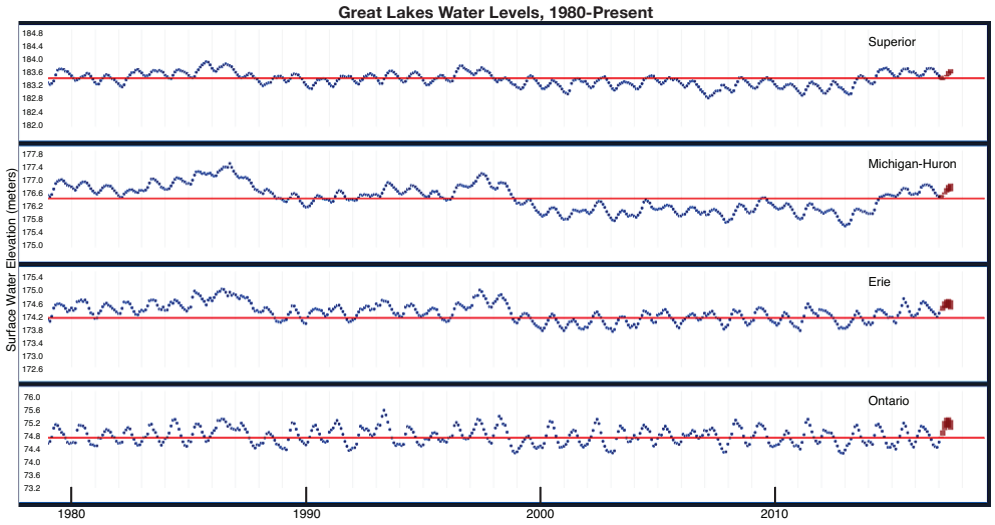
Changing water levels can have both positive and negative impacts on water dependent industries such as commercial shipping. Seen here, a large cargo vessel waits in the Poe Lock in Sault Ste Marie, Michigan. NOAA water level data plays a critical role in the operation of the locks. Credit: U.S. Army Corps of Engineers, Michelle Briggs.

Great Lakes Water Levels - February 2017

The Great Lakes, their connecting waterways, and their watersheds, comprise the largest lake system on the planet. The monthly, seasonal, and annual average surface water elevations of the lakes fluctuate in response to a variety of factors. Changing water levels can have both positive and negative impacts on water dependent industries such as shipping, fisheries, tourism and coastal infrastructure such as coastal roads, piers, and wetlands. NOAA Great Lakes Environmental Research Laboratory (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 industry for water management planning.

What are current Great Lakes water levels?

Periods of high or low levels for several years at a time are a normal feature of Great Lakes water levels dynamics. For most of the Great Lakes (all but Lake Ontario), water levels have been above average since fall of 2014. Although water levels are not currently near the record highs of the mid 1980's and late 1990's, along the shores of Lakes Superior, Michigan, and Huron they are high relative to the long period of extreme low levels that ended in 2013. Current, historical, and projected water levels can be viewed using the Great Lakes Water Level Dashboard at www.glerl.noaa.gov/data/dashboard.



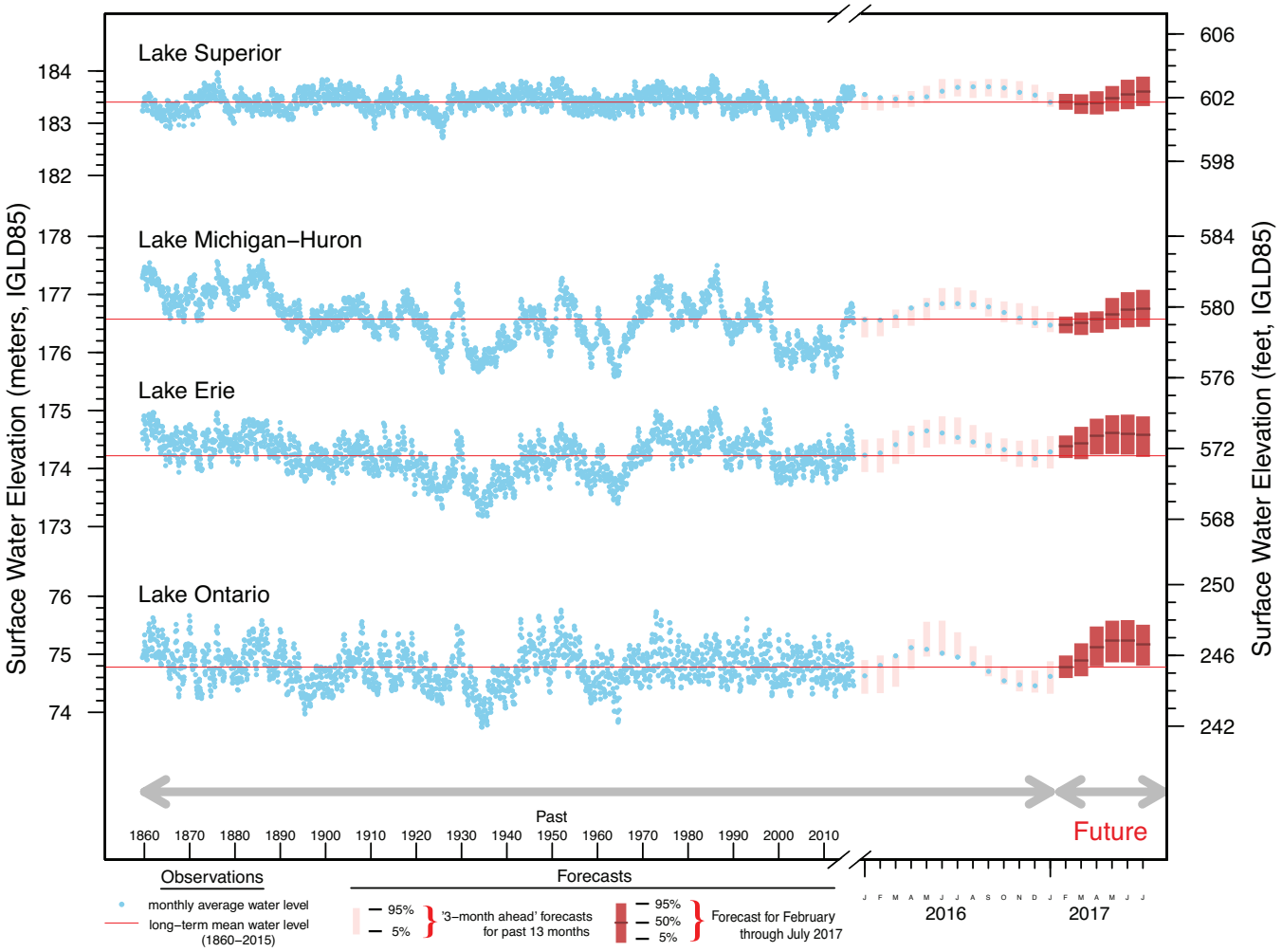
Monthly lakewide average water levels (blue dots) from 1980-present. The solid red lines show long-term averages from 1918-2016. The U.S. Army Corps of Engineers 6-month forecast is shown as dark red probability bands on the far right, see back for more detailed forecast.

FOR MORE INFORMATION

Drew.gronewold@noaa.gov	Historical water level dynamics, seasonal projections	734-741-2444
Eric.j.anderson@noaa.gov	Hourly and daily water level forecasts	734-741-2293
Brent.lofgren@noaa.gov	Multi-decadal water level projections	734-741-2383

The current outlook for Great Lakes water levels - February 2017

The official 6-month forecast generated by the U.S. Army Corps of Engineers on February 6 indicates that the water levels of all of the Great Lakes are expected to follow their typical seasonal trends near or above average levels, into summer of 2017. The forecast suggests that levels on Lakes Superior, Michigan, and Huron may peak at slightly lower levels than last year; Lake Erie levels to stay about the same; and levels on Lake Ontario to be higher than last summer. The Corps' forecast is coordinated with Environment and Climate Change Canada each month. *(www.lre.usace.army.mil/Missions/GreatLakesInformation/GreatLakesWaterLevels/WaterLevelForecast/MonthlyBulletinofGreatLakesWaterLevels.aspx).*



The uncertainty expressed in the forecast shown above is based on observed weather patterns and Great Lakes water levels, along with NOAA Climate Prediction Center's regional forecasts. The 5% and 95% bands are expected to contain the observed water level 90% of the time.

How are water levels predicted in the Great Lakes?

Forecasts of Great Lakes monthly-average water levels are based on computer simulation models, including some from NOAA GLERL, along with more than 100 years of data from past weather and water level conditions. The official 6-month forecast is produced each month through a binational partnership between the U.S. Army Corps of Engineers and Environment and Climate Change Canada. NOAA GLERL's research on the water balance of the Great Lakes plays an important role in improving these forecasts. The most important variables are over-lake precipitation, over-lake evaporation, and runoff. NOAA GLERL is doing cutting-edge research through modeling and observations to better quantify over-lake evaporation—the most uncertain aspect of predicting lake levels. The sum of these variables ("net" supply of water to the basin) is routed through the lakes and connecting channels to produce a probabilistic water level forecast.

National Oceanic and Atmospheric Administration
Great Lakes Environmental Research Laboratory
4840 S. State Rd. Ann Arbor, MI 48108
www.glerl.noaa.gov

Connect with us!