

Western Lake Erie HAB Seasonal Forecast

2023-06-29

Summary:

NOAA NCCOS and partners forecast a smaller than average cyanobacterial harmful algal bloom (HAB) in western Lake Erie this summer, with a severity of ~3 and a potential range between 2-4.5. We expect the bloom to be less severe than last year (severity of 6.8). The spring has been dry with low phosphorus loads into the lake, with most of the load occurring in March. July may see more normal rainfall, which could increase the bloom severity to 4.5. The severity is based on the quantity (biomass) of the bloom over a sustained 30 day-period. The forecast bloom severity depends on input of total bioavailable phosphorus (TBP) from the Maumee River from March 1-July 31, and uses forecasts of Maumee River discharge from the National Weather Service - Ohio River Forecast Center (through July) and phosphorus loads determined by the Heidelberg University National Center for Water Quality Research. Models used in the forecast are provided by NOAA's NCCOS, the University of Michigan, Stanford University, and the Carnegie Institute for Science. An updated forecast will be provided in late-July.

The bloom varies in size and location due to wind, with a bloom peak typically in August or September. While toxicity varies throughout the bloom, toxins often concentrate in surface scums during calm weather. People and pets should not swim in areas with scum. Information on the location and intensity of the bloom can be found at [NOAA's Lake Erie Harmful Algal Bloom Forecast](#). For additional information on safe recreation, please visit [Ohio EPA's webpage on HABs](#).

Forecasted Bloom Severity

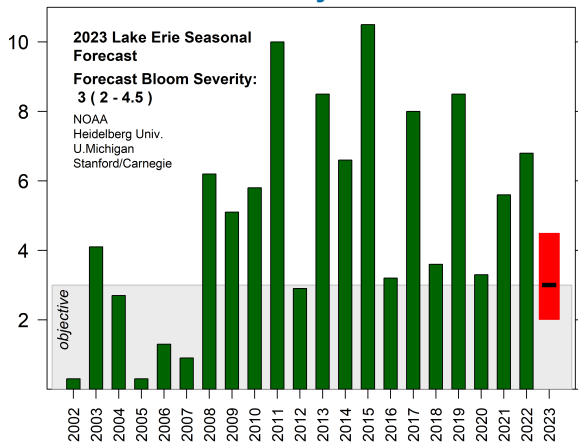


Fig. 1. Bloom severity forecast compared to previous years. The wide red bar is the likely range of severity based on the different models used and reflect uncertainty in the July TBP load. A severity below 3 is the goal of the Great Lakes Water Quality Agreement (GLWQA).

Cumulative Total Bioavailable Phosphorus

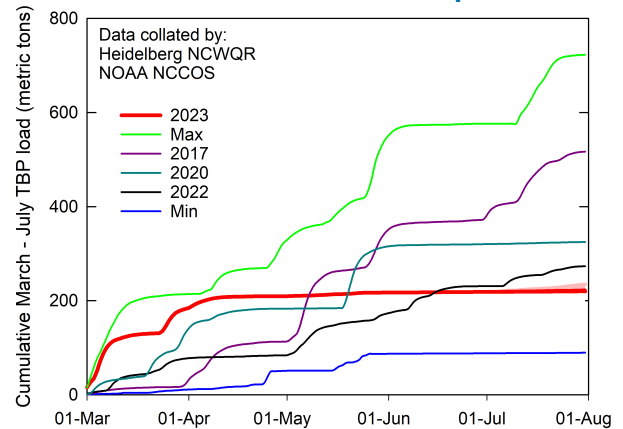


Fig. 2. Cumulative TBP loads for the Maumee River (Waterville, OH). Each line denotes a different year. 2023 is in red: the solid line is the measured load to June 26th; light red shows the possible max. The July TBP load will have the greatest impact on bloom severity, and could push the bloom severity of the maximum value (4.5).

Total Bioavailable Phosphorus

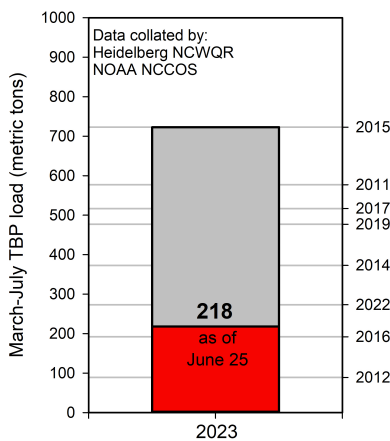


Fig. 3. Total bioavailable phosphorus (TBP) load accumulated from the Maumee River near Waterville, OH to date. The right axis denotes the TBP load from selected previous years.

Potential Bloom Severity

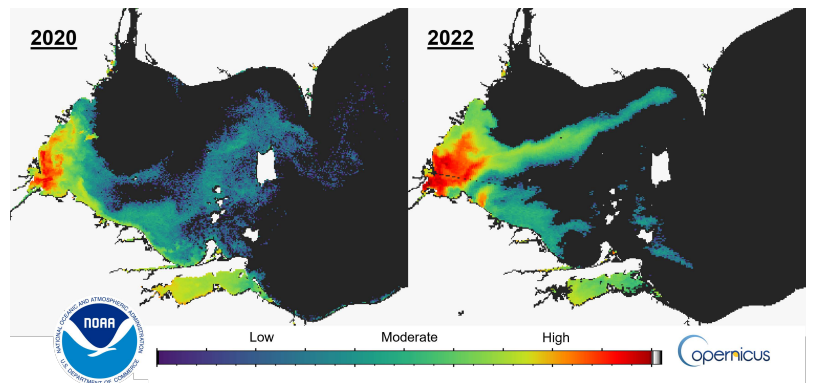


Fig. 4. The maximum bloom severity in 2020 (Aug. 21-31) and 2022 (Aug. 10-19). 2023 may be similar to 2020 and smaller than 2022. Bluish-green to dark blue indicates low cyanobacterial concentrations. Sandusky Bay has a different type of cyanobacteria that typically does not form scum.

For more information visit: coastalscience.noaa.gov/science-areas/habs/hab-forecasts/lake-erie/ or ncwqr.org/

Questions? Contact: hab@noaa.gov

1305 East West Hwy, Rm 8110
 Silver Spring, Maryland 20910
 240.533.0300 | coastalscience.noaa.gov

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