

Western Lake Erie HAB Seasonal Forecast

2024-06-27

Summary: NOAA NCCOS and partners forecast a moderate to larger-than-moderate cyanobacterial harmful algal bloom (HAB) in western Lake Erie this summer, with a severity ~5 and a potential severity range between 4.5–6. We expect the bloom to be similar in severity to 2023 (severity of 5.3). There is a low, but potential, risk of a heavy rainfall event in the next few weeks that might exceed normal July rainfall and associated runoff. In this case, the bloom may reach or possibly exceed the high end of the expected severity range (severity as high as 7), which would be more similar to the 2022 bloom (severity of 6.8).

The severity is based on the quantity (biomass) of the bloom over a sustained 30 day period. The predicted bloom severity depends on input of measured and forecasted total bioavailable phosphorus (TBP) from the Maume River for March 1–July 31, and uses forecasts of Maume 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 starting in August and continuing into 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 webpage](#). For additional information on safe recreation, please visit [Ohio EPA's webpage on HABs](#).

Predicted Bloom Severity

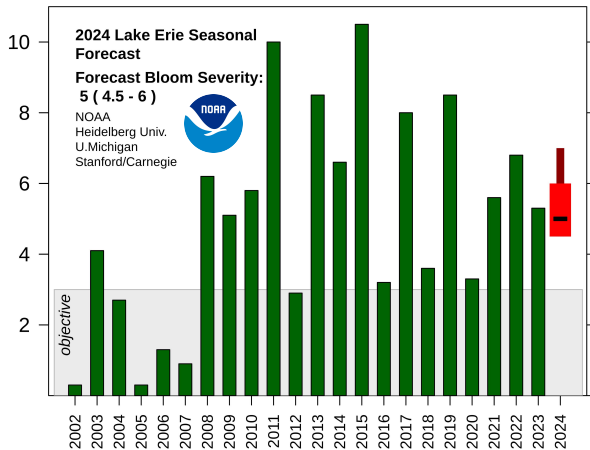


Fig. 1. Predicted bloom severity as compared to previous years. The wide red bar is the likely range of severity based on the limits of the forecast uncertainty (4.5-6), with a potential severity as high as 7 (thin red bar). The uncertainty in the bloom severity is due to the low, but potential, risk of a high flow event and associated TBP loads in the Maume River basin over the next few weeks.

Cumulative Total Bioavailable Phosphorus

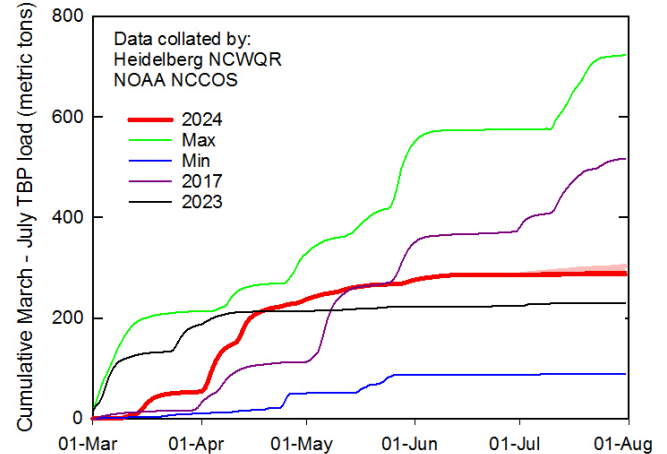


Fig. 2. Cumulative TBP loads for the Maume River (Waterville, OH). Each line denotes a different year or the min/max cumulative load since 2002. 2024 is in red; the solid line is the measured load to June 23; the red area shows the likely range for the remainder of the loading season; and the light red shows the uncertainty.

Total Bioavailable Phosphorus

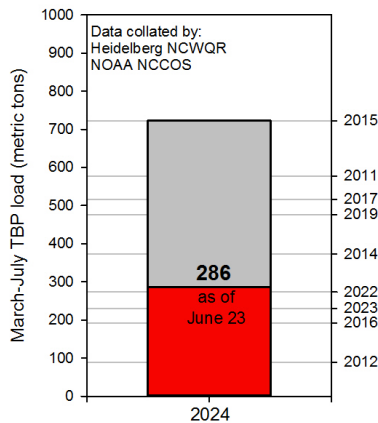


Fig. 3. Total bioavailable phosphorus (TBP) load accumulated from the Maume River near Waterville, OH to date. The right axis denotes the TBP load from selected previous years.

Satellite Image

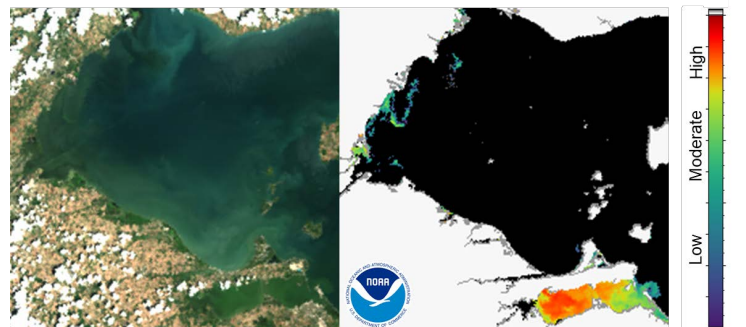


Fig. 4. True color image (left) and cyanobacteria index (CI, right) for western Lake Erie on 24 June 2024 derived from the Copernicus Sentinel-3b satellite. A small *Microcystis* bloom has started in Northern Maume Bay and offshore, just south of Monroe, MI. Sandusky Bay has a bloom of *Aphanizomenon*, another cyanobacteria, that generally stays in that bay.

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

Questions? Contact: hab@noaa.gov

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