

Western Lake Erie HAB Early Season Projection

Bulletin 03 - 2024-05-16

Summary: The Western Lake Erie HAB Early Season Projection provides an estimate of potential *Microcystis* harmful algal bloom (HAB) severity. The projected severity depends on input of total bioavailable phosphorus (TBP) from the Maumee River during the loading season (Mar. 1-Jul. 31), and uses a combination of measurements (USGS) and forecasts of Maumee River discharge from the National Weather Service - Ohio River Forecast Center (through Jul.) and TBP loads measured by the Heidelberg U. National Center for Water Quality Research.

With observations through May 14 we predict a potential severity range of 4.5-8, which is a slightly larger range than last week. We continue to expect a moderate to larger than moderate summer bloom, but uncertainty in predicted rainfall over the next two weeks has increased the high end of the forecasted severity range. We will continue to adjust the severity range over the next two weeks, after we see the TBP load that results from the upcoming rain events. If close to average rainfall occurs in May and June, we expect a severity closer to 5, similar to the 2023 bloom. If higher than average rainfall continues through May and June, the bloom severity may be higher (~7-8), greater than 2022.

The range in forecasted severity reflects the uncertainty in forecasting precipitation, particularly through June and July. We will update the early season projection weekly with new information, and will issue a comprehensive seasonal forecast on Jun. 27. Any bloom that does develop will change throughout the summer and move with the wind and currents; we will provide information on the presence and location of the bloom throughout the summer via forecasts that are [posted daily on the web](#), and emailed to subscribers weekly.

- A. Hounshell, C. Owens, R. Stumpf, J. Noel, A. DaSilva (NOAA), & L. Johnson (Heidelberg University)

Predicted Bloom Severity

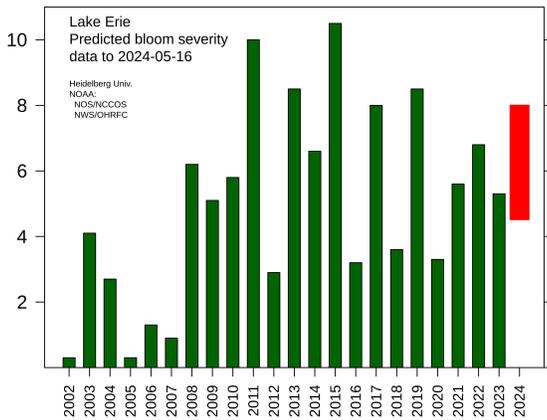


Fig. 1. Predicted bloom severity as compared to previous years. The wide red bar is the likely range of severity based on the limits of the forecast uncertainty (4.5-8). There is uncertainty in the bloom severity due to the range in estimated Maumee River flow from the river forecast and subsequent TBP loads in June and July.

Cumulative Total Bioavailable Phosphorus

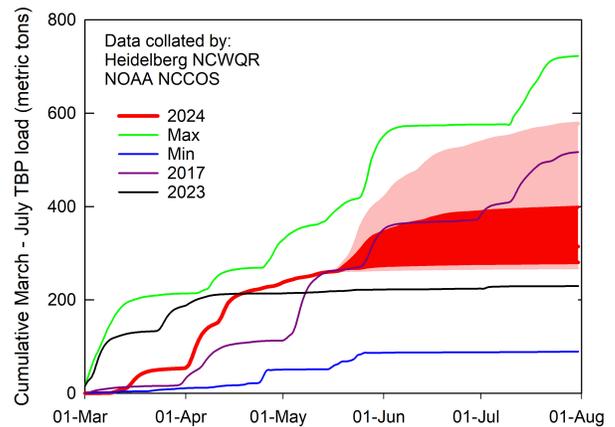


Fig. 2. Cumulative TBP loads for the Maumee River (Waterville, OH). Each line denotes a different year or the min/max cumulative load since 2002. 2024 is in red: the solid line is the measured load to May 14; the red area shows the likely range for the remainder of the loading season; and the light red shows the possible range.

Total Bioavailable Phosphorus

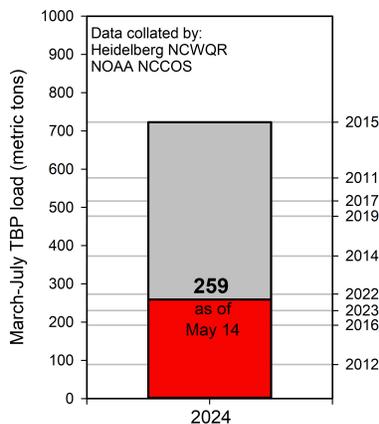


Fig. 3. Total bioavailable phosphorus (TBP) load accumulated from the Maumee River near Waterville, OH to date. The right axis denotes the TBP load from selected previous years.

Satellite Image - True Color



Fig. 4. True color image for 13 May 2024 derived from the Copernicus Sentinel-3b satellite. Discolored, brown water along the southern shore of western Lake Erie is due to sediment (tan color) and the annually occurring spring diatom bloom (khaki color).

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
coastalscience.noaa.gov