

Western Lake Erie HAB Early Season Projection

Projection 04 - 2023-05-25

Summary:

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

With observations through May 23rd, we see a minor change in the forecast from previous weeks; predicting a small to moderate bloom that has a severity between 2.5-5.5. A smaller bloom (severity: 2.5-4), is expected if precipitation remains at or below average for the rest of the loading season (June-July). The range in forecasted severity reflects the uncertainty in forecasting precipitation, particularly for late June and July. We will continue to update the early season projection weekly and will issue a comprehensive seasonal forecast on June 29th. 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.

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Predicted Bloom Severity

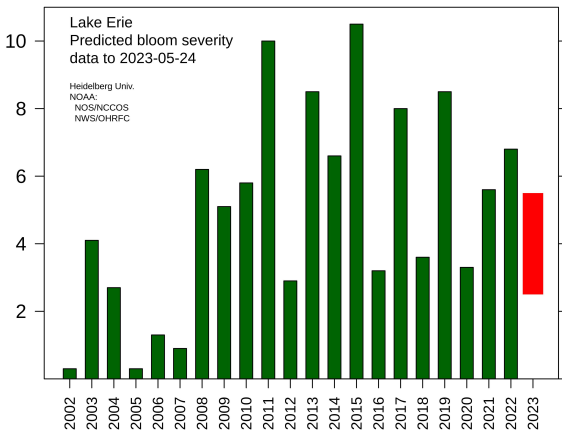


Fig. 1. Predicted bloom severity as compared to previous years. The wide red bar is the likely range of severity based on the limits of the forecast uncertainty. There is uncertainty in the bloom severity due to the river forecast and estimated TBP loads over the two month period.

Cumulative Total Bioavailable Phosphorus

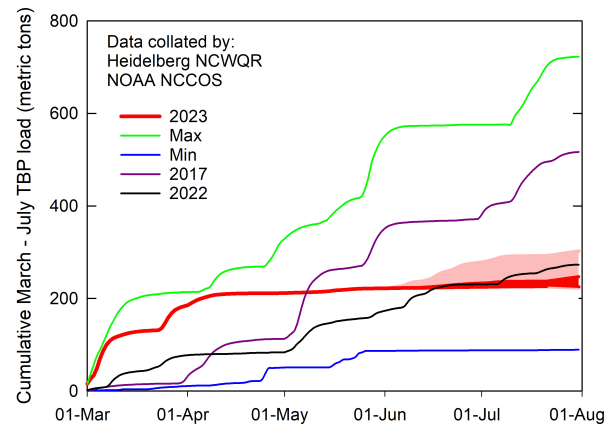


Fig. 2. Cumulative TBP loads for the Maume River (Waterville, OH). Each line denotes a different year or the min/max cumulative load since 2002. 2023 is in red: the solid line is the measured load to May 23rd; the red area shows the likely range for the remainder of the loading season; and the light red shows the possible range.

Total Bioavailable Phosphorus

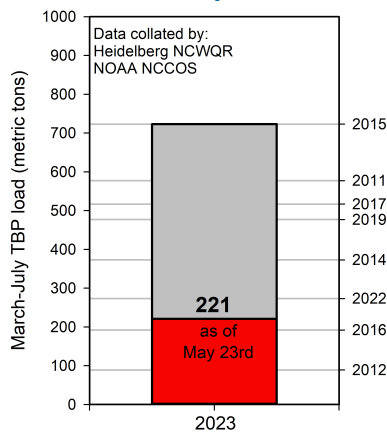


Fig. 3. Total bioavailable phosphorus (TBP) load accumulated from the Maume River near Waterville, OH to date. The right axis denotes the TBP load from selected previous years. Loads to date are above average due to high discharge in March.

Satellite Image - True Color

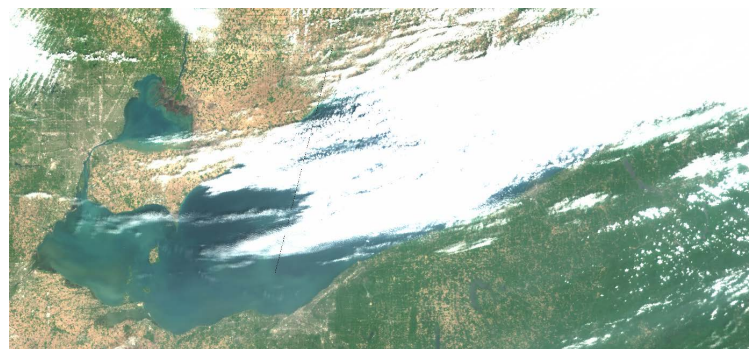


Fig. 4. True color image from 24 May 2023 derived from the Copernicus Sentinel-3b satellite. Brown, discolored water in Maume Bay and near the southern shore of western Lake Erie, is caused by the annual spring diatom bloom.

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

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