

Western Lake Erie Harmful Algal Bloom Season Projection

03 August 2022, Projection 08



The Western Lake Erie HAB Early Season Projection gives an estimate of potential bloom severity based on measurements and forecasts of river discharge and phosphorus loads through July. The severity of the western Lake Erie cyanobacterial HAB depends on input of total bioavailable phosphorus (TBP) from the Maumee River from March 1–July 31. TBP is the sum of dissolved phosphorus and the portion of particulate phosphorus available for HAB development.



This updated forecast reflects measured July TBP loads, which were greater than the TBP forecast we used for the seasonal forecast. Therefore, we now expect a bloom with a severity of 4.5 with a range up to 5.5 due to model uncertainty. Locally generated rainfall was greater than normal in July. The bloom started in early July and can effectively use the TBP loads from July.

Blooms that do form will move with the wind and change over time; we will provide information on the presence and location of the bloom throughout the summer. The TBP loads are projected using Heidelberg University data and river forecasts from the National Weather Service Ohio River Forecast Center (through July).

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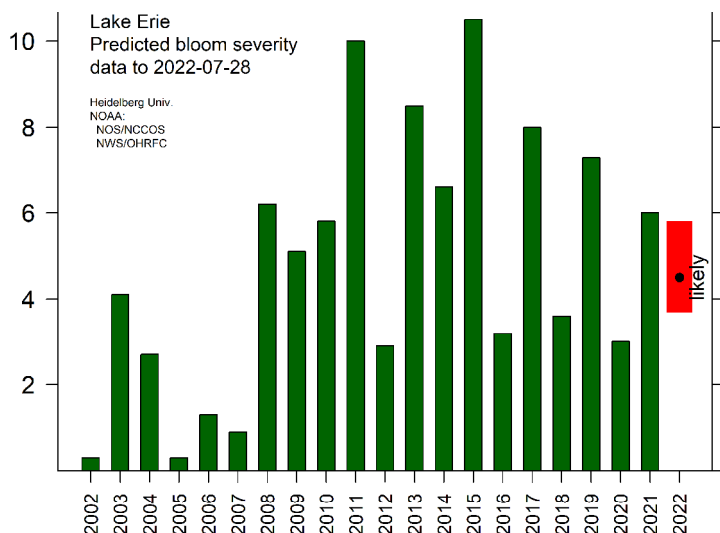


Figure 1. Projected bloom intensity as compared to previous years. The wide, bright red bar is the likely range of severity based on limits of model uncertainty.

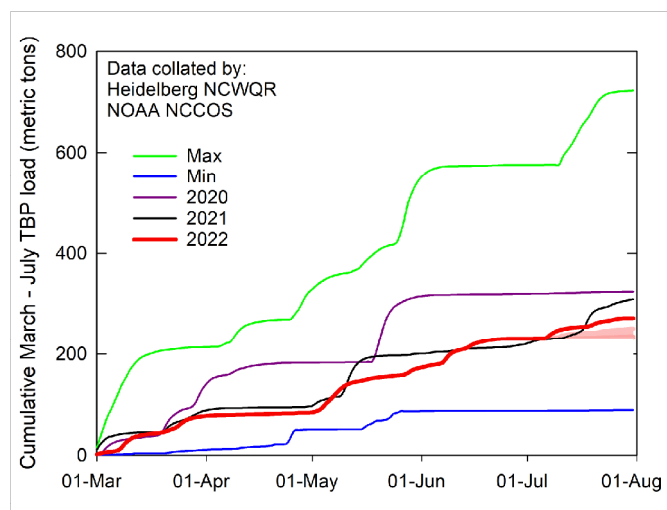


Figure 2. Cumulative total bioavailable phosphorus (TBP) loads for the Maumee River (based on Waterville, OH). Each line denotes a different year. 2022 is in red: the solid line is the measured load to July 31st; the pink area shows the likely range as forecasted on June 28th. Overall, there was greater TBP loading in July than expected from the end of June forecast.

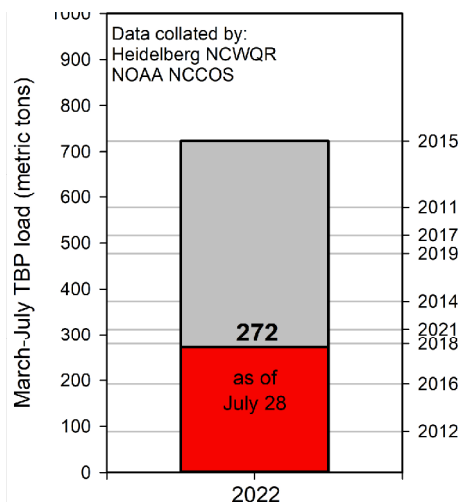


Figure 3. Total bioavailable phosphorus (TBP) load accumulated from the Maumee River near Waterville, OH to date. The right axis denotes the TBP load from selected previous years.

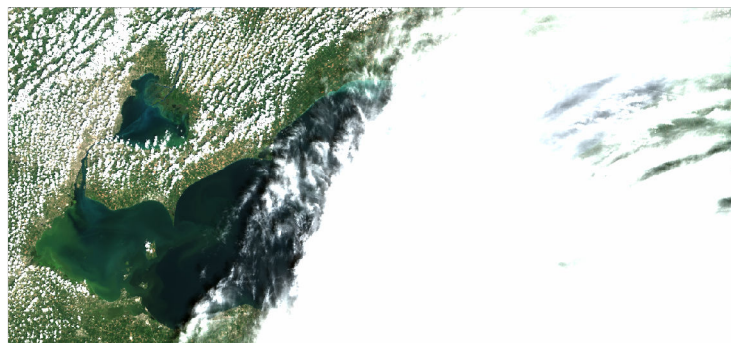


Figure 4. True color image of Lake Erie on 31 July 2022 derived from the Copernicus Sentinel-3b satellite. Greener waters in the western Lake Erie basin indicate a cyanobacterial bloom. Clouds obscure imagery in central and eastern Lake Erie.