

Western Lake Erie HAB Seasonal Assessment

2024-11-13

Summary: The 2024 western Lake Erie cyanobacterial bloom had a severity index (SI) of 6.6, which is moderately severe. The SI is determined from the amount of biomass observed over the peak 30-days of the bloom based on satellite imagery. This year, the *Microcystis* bloom started in late June along the Michigan coast, and was fully developed by early July. The bloom slowly intensified, increasing in size and becoming more severe, through July, before the bloom peaked in mid-August. The bloom decreased in intensity until mid-September. Cooler temperatures and elevated winds in late-September substantially reduced the *Microcystis* biomass, although some bloom patches continued until mid-October, before disappearing following seasonally cooler temperatures and mixing from stronger winds. Through the season, the bloom stayed closer to the U.S. coast, primarily from Monroe, MI to Port Clinton, OH.

The 2024 bloom (SI of 6.6; 550 square miles) was more intense than in 2023 (SI of 5.3; 312 square miles) and was closer in severity to 2022 (SI of 6.8; 416 square miles). The 2024 severity was slightly above the seasonal forecast (4.5-6; issued Jun. 27), which uses an ensemble of different models, each of which include phosphorus loading into the western basin during the spring and early summer (Mar.-Jul.). Since 2002, the 2024 bloom was the earliest bloom start (1 Jul. 2024), followed by 2018 and 2023. While the bloom was established early, the bloom maximum was observed in mid-August, similar to past years. However, unlike recent years, the bloom peak in August only lasted for about a week before decreasing in severity.

Bloom Severity

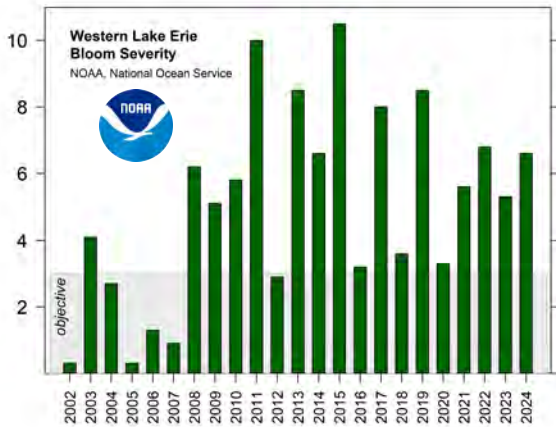


Fig. 1. Bloom severity index (SI) for 2002-2024. The SI is based on the amount of biomass over the peak 30-days. The 2024 bloom had a severity of 6.6. A severity below 3 is the goal of the Great Lakes Water Quality Agreement (GLWQA).

Cumulative Total Bioavailable Phosphorus

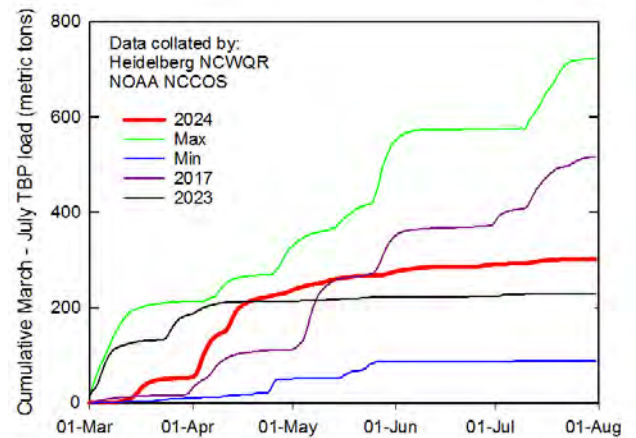


Fig. 2. Cumulative TBP loads for the Maume River (Waterville, OH). Each line denotes a different year. 2024 is in red. TBP loads in 2024 were above those observed in 2023.

Total Bioavailable Phosphorus

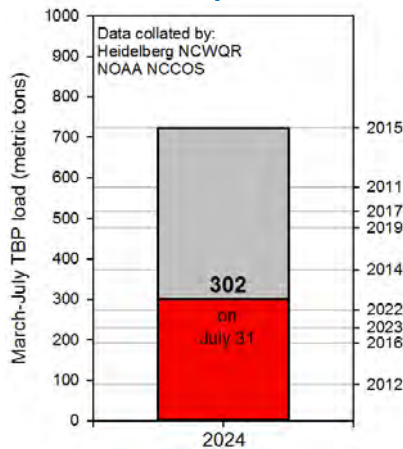


Fig. 3. Total bioavailable phosphorus (TBP) load accumulated from the Maume River near Waterville, OH from March-July 2021. The right axis denotes the TBP load from selected previous years.

Comparative Bloom Severity

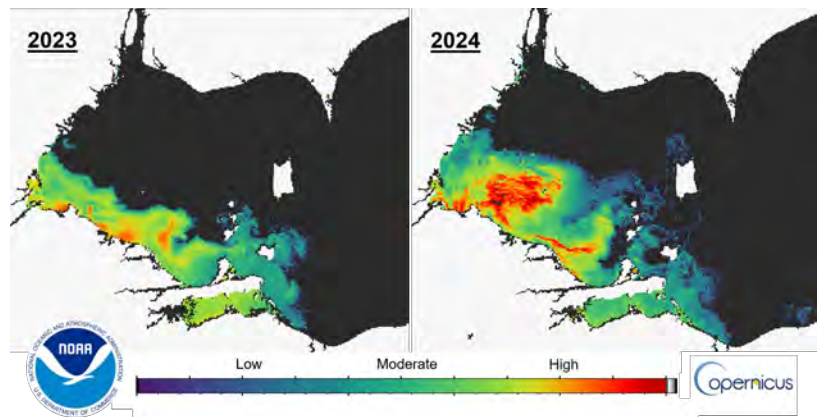


Fig. 4. The maximum bloom severity in 2023 (Aug. 10-19) and 2024 (Aug. 10-19). Bluish-green to dark blue indicates low cyanobacterial concentrations. Sandusky Bay has a different type of cyanobacteria that typically does not form scum.

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

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