

Western Lake Erie Harmful Algal Bloom Early Season Projection

20 June 2019, Projection 07



The severity of the western Lake Erie cyanobacterial harmful algal bloom (HAB) is dependent on input of bioavailable phosphorus from the Maume River during the loading season (March 1-July 31). This product gives an estimate of potential bloom severity based on a combination of measurements to date and forecasts of phosphorus loads into July. The final seasonal forecast will be made on July 11 using the measured phosphorus loads for the spring.

We still project that the bloom will have a severity greater than 7 (much greater than 2018), which has not changed since last week. The maximum severity includes the possibility of additional rain events over the next several weeks. Any bloom that develops will change with time and move with the wind. Severity forecasts do not indicate toxicity.



Total bioavailable phosphorus (TBP) is the sum of dissolved phosphorus and the portion of particulate phosphorus available for HAB development. The TBP loads are projected based on Heidelberg University data, river forecasts from the National Weather Service Ohio River Forecast Center (through early July), and previous years to the end of July.

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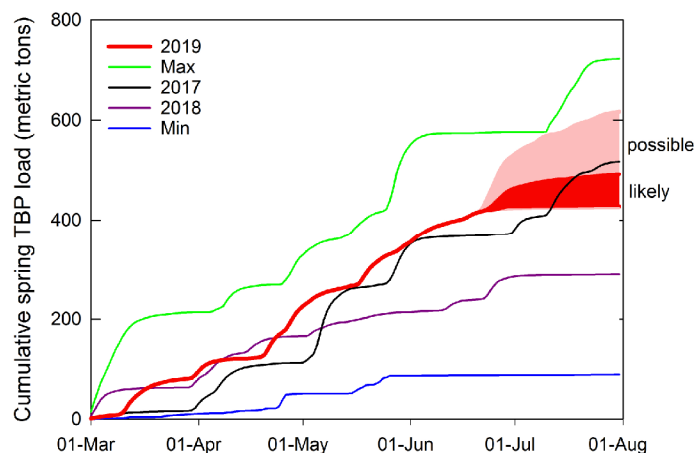
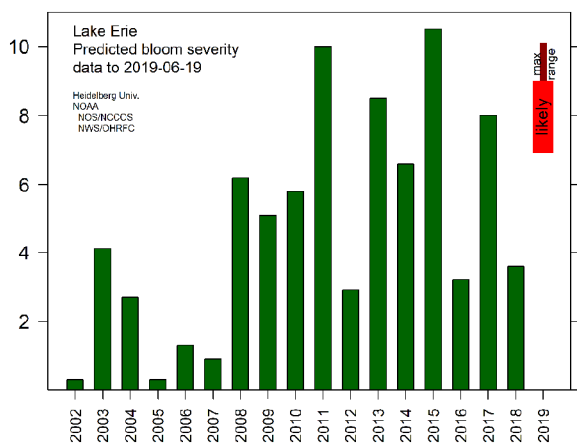


Figure 1. Projected bloom compared to previous years. The wide bar is the likely range of severity based on limits of model uncertainty. The narrow bar is the potential range of severity. Because the forecast uses modeled discharge for a month, there is uncertainty in maximum bloom severity.

Figure 2. Cumulative total bioavailable phosphorus (TBP) loads for the Maume River (based on Waterville). Each line denotes a different year. 2019 is in red, the solid line is the measured load to June 19th, the red area shows the likely range for the remainder of the loading season, and the light red shows the possible range.

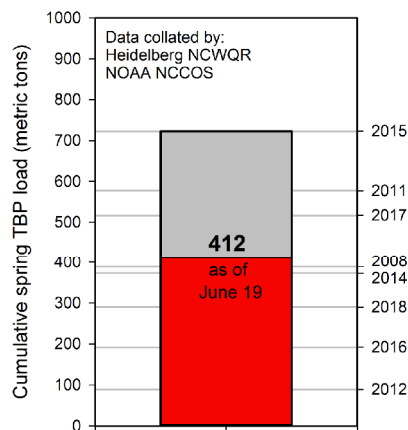


Figure 3. Total bioavailable phosphorus (TBP) load accumulated from the Maume River near Waterville to date. The right axis denotes the TBP load from selected previous years. Loads through June 19 exceed 2014.



Figure 4. True color image on 14 June 2019 derived from OLCI on Copernicus Sentinel-3a satellite. There have been many cloudy days. A plume of sediment from the Maume River causes the tan color in the western basin. Most of the central basin has relatively low amounts of sediment in the water, although some sediment is seen close to the coast.