

Lake Erie Harmful Algal Bloom Early Season Projection

National Centers for Coastal Ocean Science and Great Lakes Environmental Research Laboratory

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The severity of the western Lake Erie cyanobacterial harmful algal bloom (HAB) is dependent on input of bioavailable phosphorus, particularly from the Maume River during the loading season (March 1-July 31). This product provides an estimate based on a combination of measurements to date and model predictions into July. The seasonal forecast will be made in early July with more data and a comprehensive set of models.



This spring, the Maume has had an average river load. Precipitation over the next six weeks is expected to be close to normal, in contrast to the extremely wet June that occurred in 2015. The current projection is for a bloom that is milder than last year. The projection will be updated weekly with new data and weather models through June.

Total bioavailable phosphorus (TBP) is the sum of dissolved phosphorus (which is ~100% available for HAB development), and the portion of particulate phosphorus that is available for HAB development. The TBP loads are projected to June 29th using river forecasts from the National Weather Service Ohio River Forecast Center, and to the end of the loading season using past data.

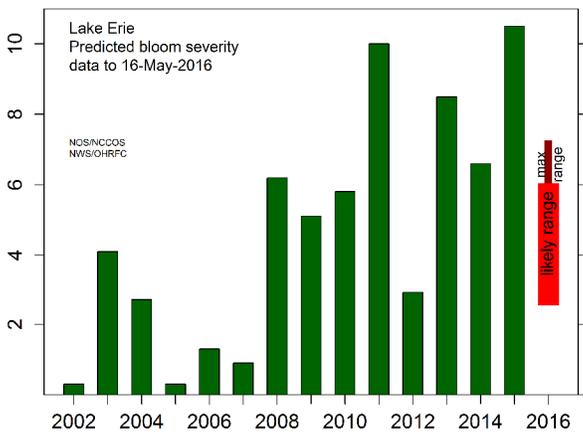


Figure 1. Projected bloom compared to previous years. The wide bar is the likely range of severity based on data from the last 15 years. The narrow bar is the potential range of severity. Given the high discharge expected this week, the maximum potential severity should be considered possible.

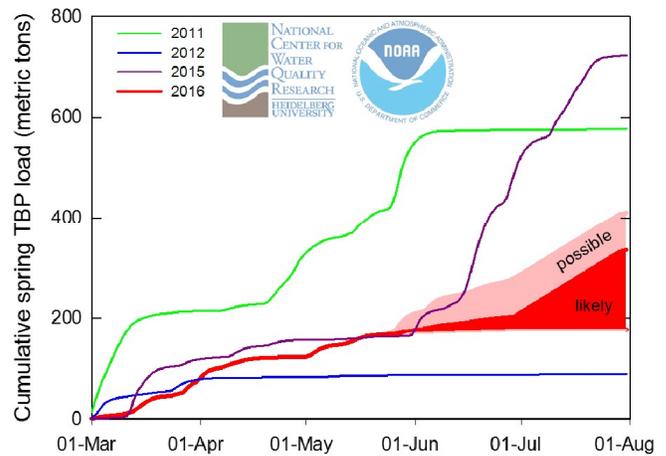


Figure 2. Cumulative total bioavailable phosphorus (TBP) loads for the Maume River (based on Waterville). Each line denotes a different year. 2016 is in red, the solid line is the measured load to May 15th, the likely range for the remainder of the loading season in red area and possible range in light red area. Loads likely to be lower than either 2011 or 2015.

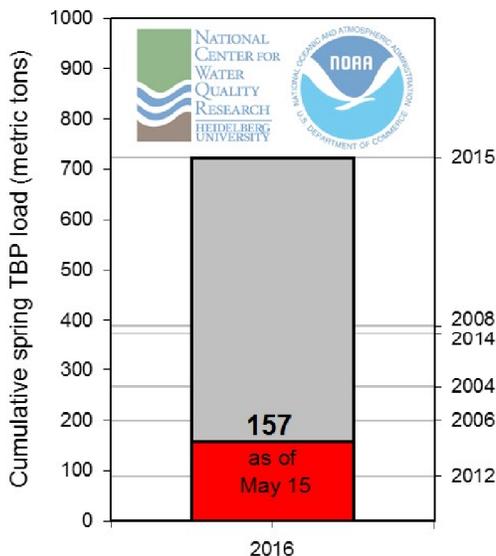


Figure 3. Total bioavailable phosphorus (TBP) load accumulated from the Maume River near Waterville to date. The right axis denotes the TBP load from select previous years. Current loads have surpassed 2012, but remain far lower than previous years.



Figure 4. True color image from May 16, 2016 taken by MODIS on NASA's Terra satellite. Strongly westerly winds over the weekend stirred up (resuspended) sediment in the western basin and along the Ohio coast. These winds also pushed the Maume River plume (dark brown) south and east.