

Lake Erie Harmful Algal Bloom Early Season Projection

1, June 2016, Projection 03

The severity of the western Lake Erie cyanobacterial harmful algal bloom (HAB) depends on the load of bioavailable phosphorus, particularly from the Maumee River during the loading season (March 1-July 31). This product provides an estimate of the bloom severity 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 Maumee has had an average river load. Precipitation over the next six weeks is expected to continue to be close to normal. The current projection is a smaller bloom than the last three years. Estimates of toxicity are not currently possible.

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. The projection will be updated weekly with new data and weather models through June.

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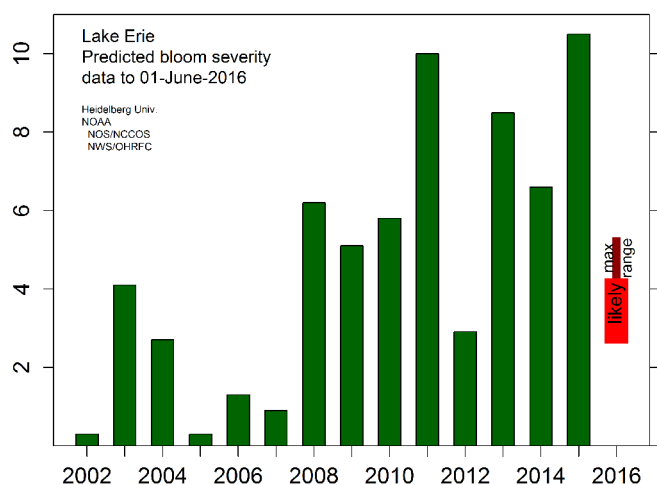


Figure 1. Projected bloom compared to previous years. The wide bar is the likely range of severity based on the models. The narrow bar is the potential range of severity. The range has decreased since last week, owing to convergence in the weather models.

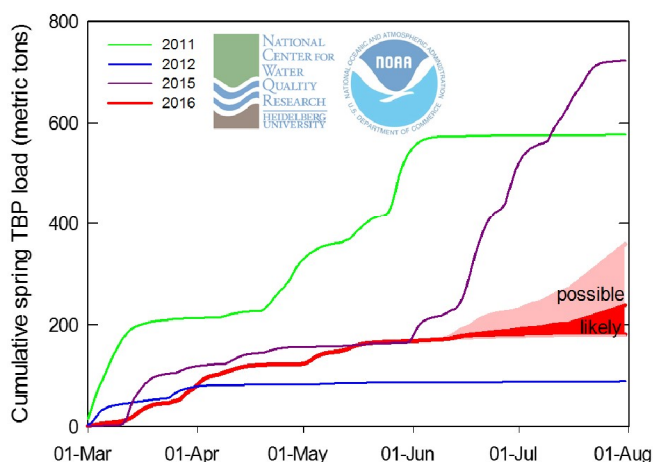


Figure 2. Cumulative total bioavailable phosphorus (TBP) loads for the Maumee River (based on Waterville). Each line denotes a different year. 2016 is in red, the solid line is the measured load to May 15th, the likely range for the remainder of the loading season in red area and possible range in light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

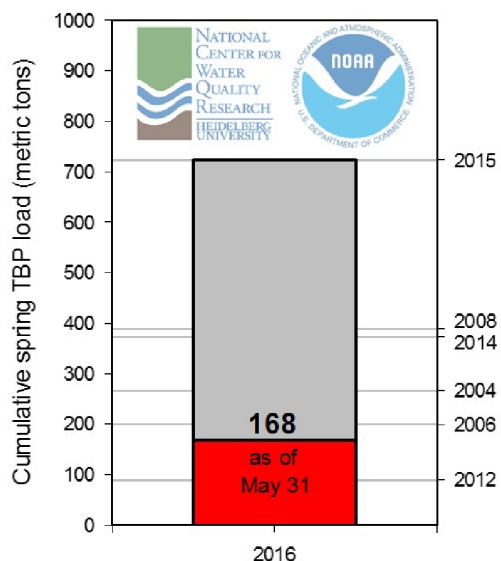


Figure 3. Total bioavailable phosphorus (TBP) load accumulated from the Maumee River near Waterville to date. The right axis denotes the TBP load from select previous years. Current loads have surpassed 2012, but remain far lower than previous years.

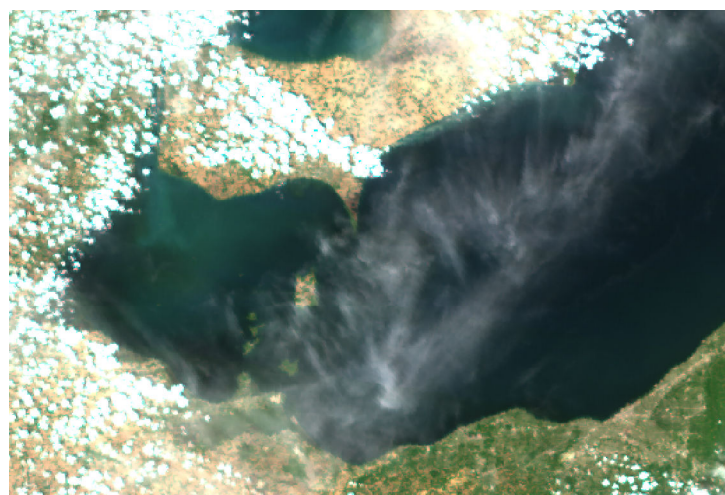


Figure 4. True color image from May 30, 2016 taken by MODIS on NASA's Terra satellite. The western basin has moderate color from some sediment in the water and from the normal (harmless) spring algal bloom.