

# Lake Erie Harmful Algal Bloom Early Season Projection

28 June 2016, Projection 07



The severity of the western Lake Erie cyanobacterial harmful algal bloom (HAB) depends on the load of bioavailable phosphorus, particularly from the Maume 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 announced on July 7 in a 10 am press conference, with more data and a comprehensive set of models, to be made available at a public webinar at 2 pm EDT on July 7th. Please visit the following Ohio Sea Grant site to register for the webinar and see list of speakers: <http://ohioseagrant.osu.edu>.



To date this spring, the Maume has had an average river discharge. This has been modulated by relatively dry early June and the moderately intense storm last week. Typical relatively low summer flow is expected to continue, although the possibility of another storm next week increases the uncertainty of the projected bloom severity. Accounting for these factors, we continue to project a smaller bloom than the last three years. We again note that forecasts 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 July 31st using river forecasts from the National Weather Service Ohio River Forecast Center.

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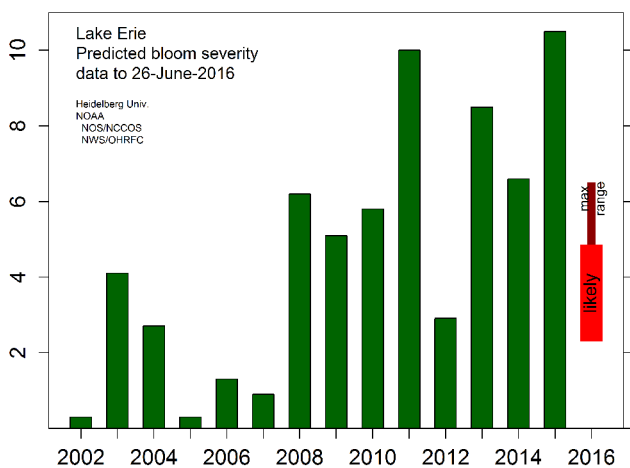


Figure 1. Projected bloom compared to previous years. The wide bar is the likely range of severity based on the models. The narrow bar is the potential range of severity. The range has changed on the low end, as a moderate bloom becomes a possibility. The June and July loads are lower than the last three years.

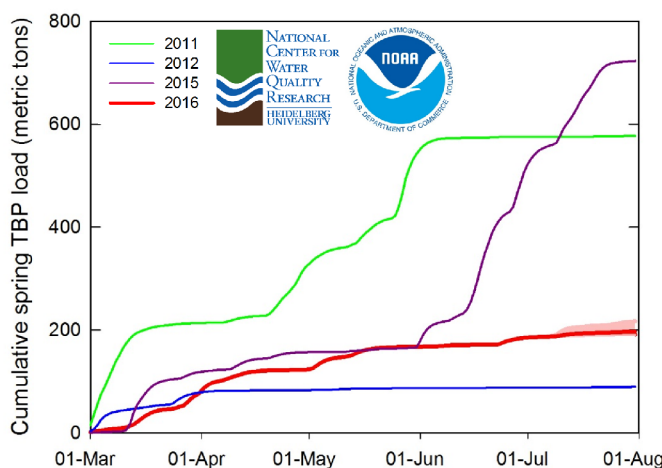


Figure 2. Cumulative total bioavailable phosphorus (TBP) loads for the Maume River (based on Waterville). Each line denotes a different year. 2016 is in red, the solid line is the measured load to June 26th, the likely range for the remainder of the loading season in red area and possible range in light red area. Loads are highly unlikely to approach those of 2011 or 2015.

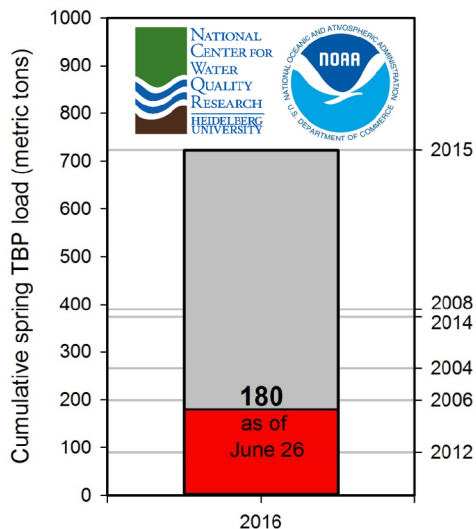


Figure 3. Total bioavailable phosphorus (TBP) load accumulated from the Maume River near Waterville to date. The right axis denotes the TBP load from select previous years. Current loads have surpassed 2012, but remain far lower than several recent years.



Figure 4. True color image from June 27, 2016 taken by MODIS on NASA's Aqua satellite. The brighter areas in the western basin are caused by sediment in the water. The Maume River is brighter from sediment it is carrying as a result of rain last week, this sediment is just entering the lake. Most of the lake is relatively clear now. Sandusky Bay has cyanobacteria, which is an annual occurrence.