



Experimental Lake Erie Harmful Algal Bloom Bulletin

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2016 Bloom Analysis. The *Microcystis* cyanobacteria bloom in 2016 was mild compared to the last few years, with a severity index of 3.2, much lower than the 10.5 record observed in 2015. In the western Lake Erie basin, the bloom biomass was more toxic than in 2015, but less than half the toxicity of 2014. In contrast, because of the relatively mild bloom, areas of scum were fewer, less dense, and less toxic in 2016 than in either 2014 or 2015.

This bloom had a “double peak”, one in August, followed by a decrease in biomass, then a brief reappearance in late September. This differs from the typical year in which the bloom grows through August to a peak in early September and then gradually decreases through September. Isolated pockets of *Microcystis* also persisted into October.

The bloom was milder than the forecast severity of 5.5, but within the range of uncertainty of all the models (3-7). The models primarily use the phosphorus load from the Maumees River. However, the models also included residual internal load of phosphorus in the lake, particularly a residual from the Maumees River’s record spring phosphorus load in 2015. This additional phosphorus used in the models was greater than the apparent residual internal load, leading to model forecasts of greater bloom severity than were observed.

--Stumpf, Wynne, Davis, Dupuy

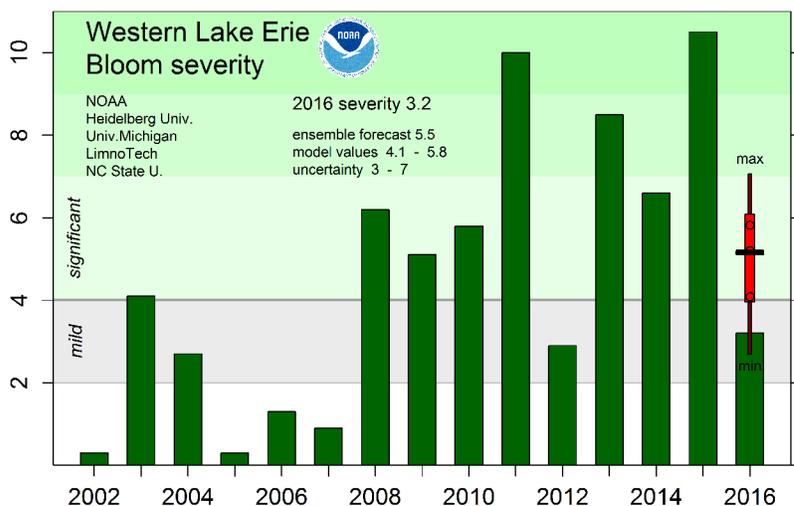


Figure 1. Bloom severity index for 2002-2016, and the forecast for 2016. 2011 is 10, 2015 is 10.5. The index is based on the amount of biomass over the peak 30-days. The 2016 bloom had a severity of 3.2, between 2003 and 2004.

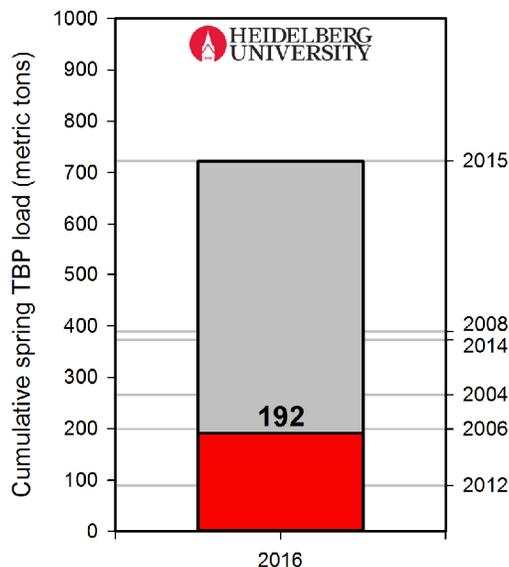


Figure 2. Total bioavailable phosphorus from the Maumees River for 2016 compared to some other years. Data collected by Heidelberg University.



Figure 3. The *Microcystis* cyanobacteria bloom in western Lake Erie on 20 September 2016 taken by the MODIS sensor on NASA’s Terra satellite. Scum areas were found mostly in the green colored water through the center of the western basin and around Pelee Point. Patches of scum were also present within the greenish white area closer to Ohio. Sediment (gray blue) from Lake St Clair is seen entering the lake from the Detroit River. Sandusky Bay is green with predominately *Plantothrix* cyanobacteria. Resuspended sediment is bright white on the Ontario coast near Long Point.
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