

# Lake Erie Harmful Algal Bloom Early Season Projection

NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE AND THE NATIONAL CENTER FOR WATER QUALITY RESEARCH

## 19 May 2015, Projection 01

The severity of the western Lake Erie cyanobacterial harmful algal bloom (HAB) is dependent on phosphorus inputs from March 1st through July 31st, called the loading season. This new experimental product projects the bloom severity based on the combination of measurements of discharge and phosphorus loading from the Maumee River for the loading season to date with historical records from past years to estimate the remainder of the loading season.

Based on 10 weeks of data (March 1- May 3), the extensive severe blooms observed in 2011 and 2013 are not projected to occur this year. The current load is below that of 2014 at this time. However, there is still a large uncertainty in the projection because the loading season is only about halfway through. This uncertainty will reduce over time as the loading season progresses.

This experimental product uses the Maumee River phosphorus load data from Heidelberg University's [National Center for Water Quality Research](#) and the western Lake Erie bloom severity models by NOAA's [National Center for Coastal Ocean Science](#).

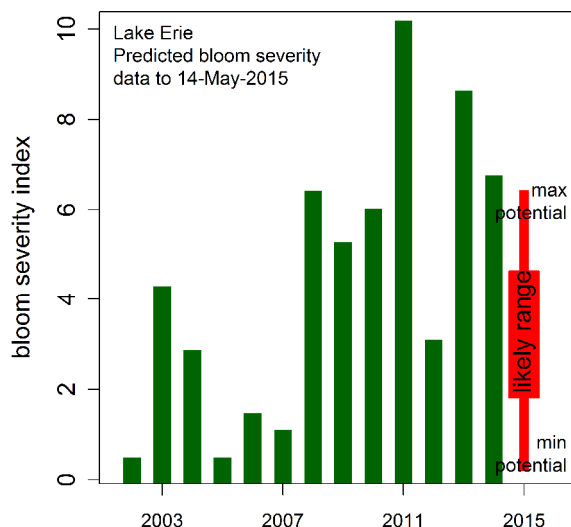
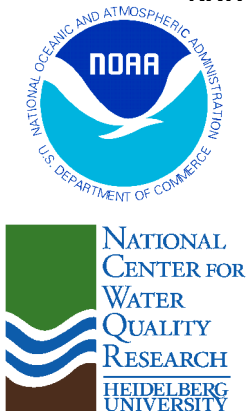


Figure 1. Projected bloom compared to previous years. The wide bar is the likely range of severity based on data from the last 15 years. The narrow bar is the potential range of severity, indicating a 2014 sized event remains possible.

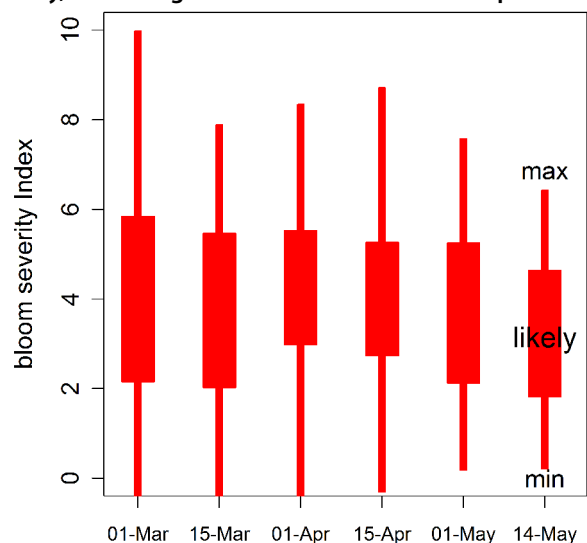


Figure 3. Loading season projections for 2015 starting March 1st, where a bloom severity of 10 indicates the record-breaking bloom of 2011. There have been fewer large runoff events in 2015 thus far compared to past years resulting in a decrease in the maximum potential bloom severity.

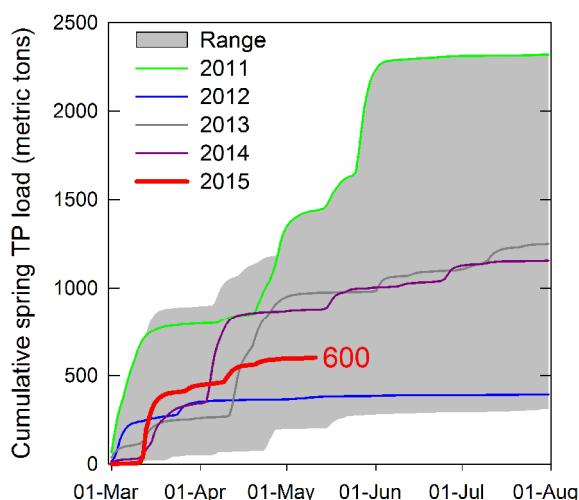


Figure 2. Cumulative total phosphorus (TP) from March 1- July 31 compared to the range from 2000-2014 (gray) and the most recent past years. The red line and text denotes the current 2015 measurements. Large load events can occur from May to July.



Figure 4. A MODIS Terra Truecolor image from April 24, 2015 shows a plume of brown water from the Maumee River on the Ohio coast caused by recent rainfall. Tan water is sediment stirred up by wind.