Lake Erie Harmful Algal Bloom Seasonal Forecast

17 July, 2017

On July 13th, NOAA announced the harmful algal bloom forecast for cyanobacteria in western Lake Erie for summer 2017. A significant harmful algal bloom is expected, with an ensemble of models giving a mean severity index of 7.5, and a possible range between six and 9.5. An index above five indicates a potentially harmful bloom. The severity index is based on a bloom's biomass – the amount of the harmful cyanobacteria – over a sustained period. The largest blooms, 2011 and 2015, were 10 and 10.5. The severity of the bloom is not necessarily an indication of how toxic it is, and we are currently working on ways to forecast toxicity. The forecast is based on an ensemble of models made by the NOAA National Ocean Service's National Centers for Coastal Ocean Science, the University of Michigan, North Carolina State University, LimnoTech, Stanford University, and the Carnegie Institution for Science. The forecasts depend on phosphorus load measurements collected by the Heidelberg University National Center for Water Quality Research, with discharge data provide by the U.S. Geological Survey. For more information, see the news item:

https://coastalscience.noaa.gov/news/habs/large-summer-harmful-algal-bloom-predicted-lake-erie/

The regular "Lake Erie Harmful Algal Bloom Bulletin", issued twice weekly during the bloom is now an official NOAA product, a transfer from the experimental product of past years.

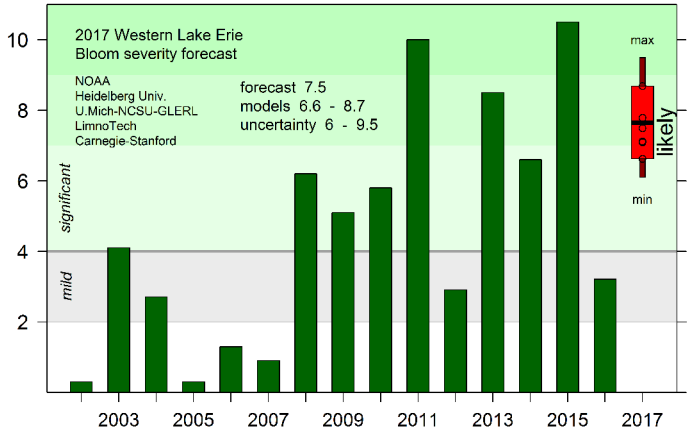

Figure 1. Bloom forecast compared to previous years. The wide bar is the range of severity captured by the ensemble of models (6.6 to 8.7). The narrow bar shows the potential uncertainty (or error) across the models (6 to 9.5).

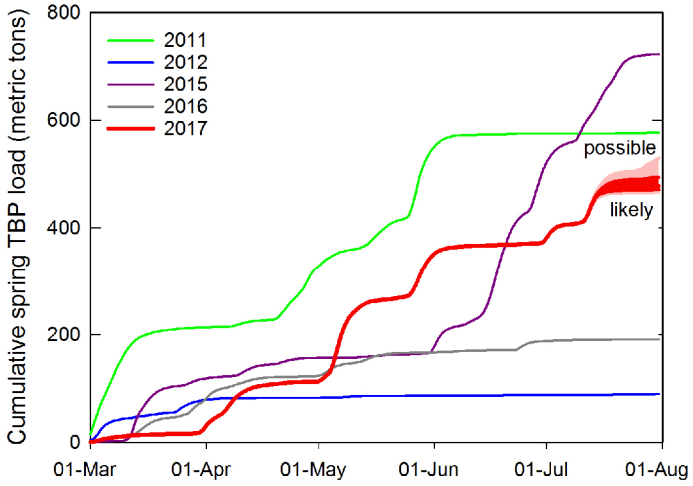

Figure 2. Cumulative total bioavailable phosphorus (TBP) loads for the Maumee River (based on Waterville). Each line denotes a different year. 2017 is in red through July 14, the solid line is the measured load. Loads over the remainder of July will have a negligible impact on the bloom size.

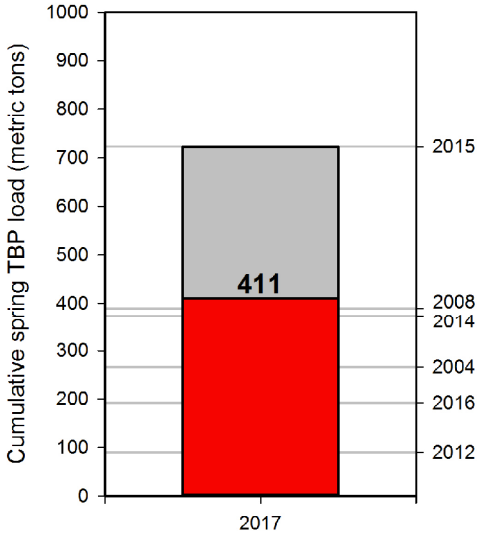

Figure 3. Total bioavailable phosphorus (TBP) load accumulated from the Maumee River near Waterville to date. The right axis denotes the TBP load from selected previous years.

Figure 4. True color composite image from July 15 & 16, 2017 derived from the Ocean Color Land Instrument on the Copernicus Sentinel-3 satellite (from EUMETSAT). The image shows a plume of sediment from the Maumee River that resulted from high flow that peaked on July 13.

For more information visit: http://www.ncwqr.org/ or http://coastalscience.noaa.gov/research/habs/forecasting/