

NOAA Western Lake Erie Harmful Algal Bloom Seasonal Forecast

09 July 2020



NOAA and our research partners forecast that western Lake Erie will experience a harmful algal bloom (HAB) of cyanobacteria this summer that is smaller than in 2019 but larger than the relatively moderate bloom in 2018.

We expect this year's bloom to have a severity index of 4.5, but this could range between 4 and 5.5. The severity index is based on the quantity (biomass) of the bloom over a sustained period. The largest blooms, 2011 and 2015, were 10 and 10.5, respectively. The 2019 bloom had a severity of 7.3. The size of a bloom does not necessarily indicate how toxic it is. The toxins in a large bloom may not be as concentrated as in a smaller bloom. However, the typical cyanobacteria, *Microcystis*, forms scums that will pose a toxin risk, and people and pets should not swim in areas with scum.



The bloom varies in size and location through the summer and early fall. Winds are a key factor in determining where the bloom will go. Many areas of the lake will be safe to enjoy through the summer. NOAA's daily satellite imagery for Lake Erie (go.usa.gov/xfC8q) and the twice-weekly bulletins will give current information on the bloom.

Nutrient load data for the forecast came from Heidelberg University, with additional input from NOAA's Ohio River Forecast Center. The forecast models are run by NOAA's National Centers for Coastal Ocean Science, the University of Michigan, North Carolina State University, Stanford University, and the Carnegie Institution for Science. For additional information for safe recreation, check Ohio EPA's site on harmful algal blooms: epa.ohio.gov/HAB-Algae.

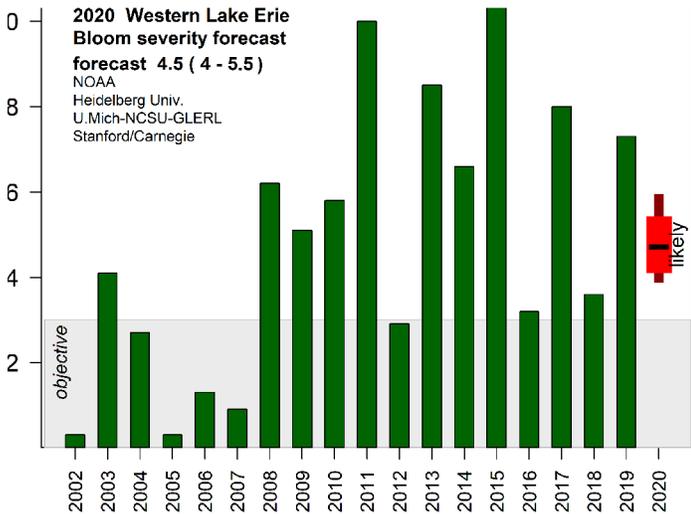


Figure 1. Bloom forecast compared to previous years. The wide bar is the likely range of the combination of models that were applied, the narrow bar indicates possible range. A severity below 3 is the goal of the Great Lakes Water Quality Agreement (GLWQA).

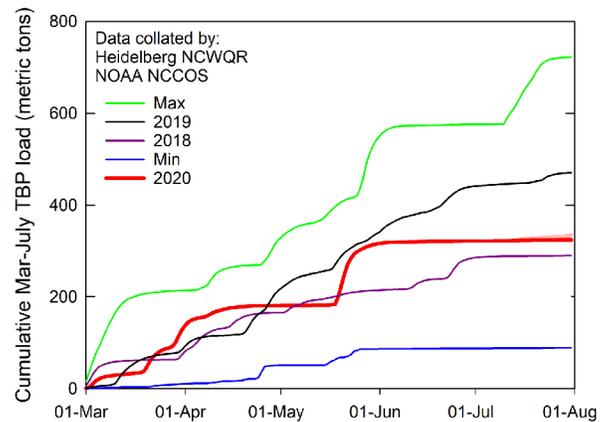


Figure 2. Cumulative total bioavailable phosphorus (TBP) load for the Maumee River at Waterville. Each line denotes a different year. 2020 is shown in red, with the forecast range to August 1 shown in pink. The TBP load over the remainder of July will have a negligible impact on the bloom size.

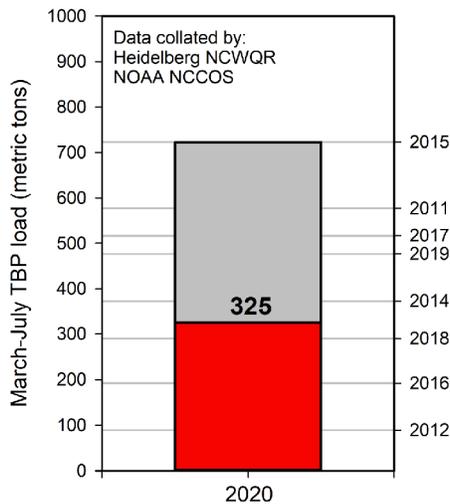


Figure 3. Total bioavailable phosphorus (TBP) load accumulated from the Maumee River near Waterville to date. The right axis denotes the TBP load from selected previous years.

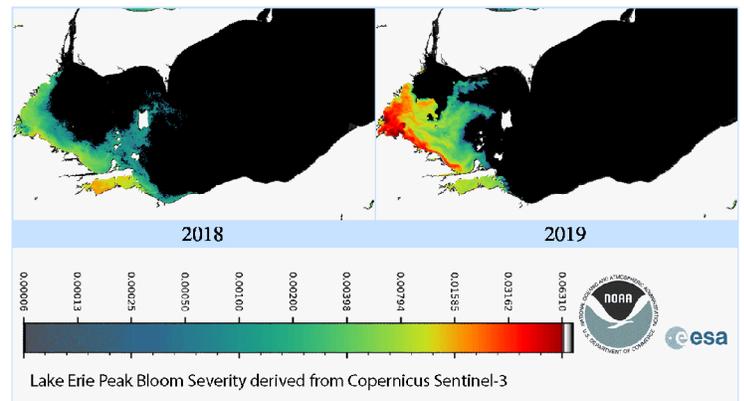


Figure 4. The maximum bloom intensity in 2018 (Aug 21-31) and 2019 (Aug 1-10) collected with Copernicus Sentinel-3 data. The blooms in these years should bracket the 2020 bloom. Red areas (seen in the western basin in 2019) were most prone to scum. Blue indicate low concentrations, which would have been barely noticeable by eye. Sandusky Bay had different cyanobacteria (*Planktothrix*), which does not produce scum.