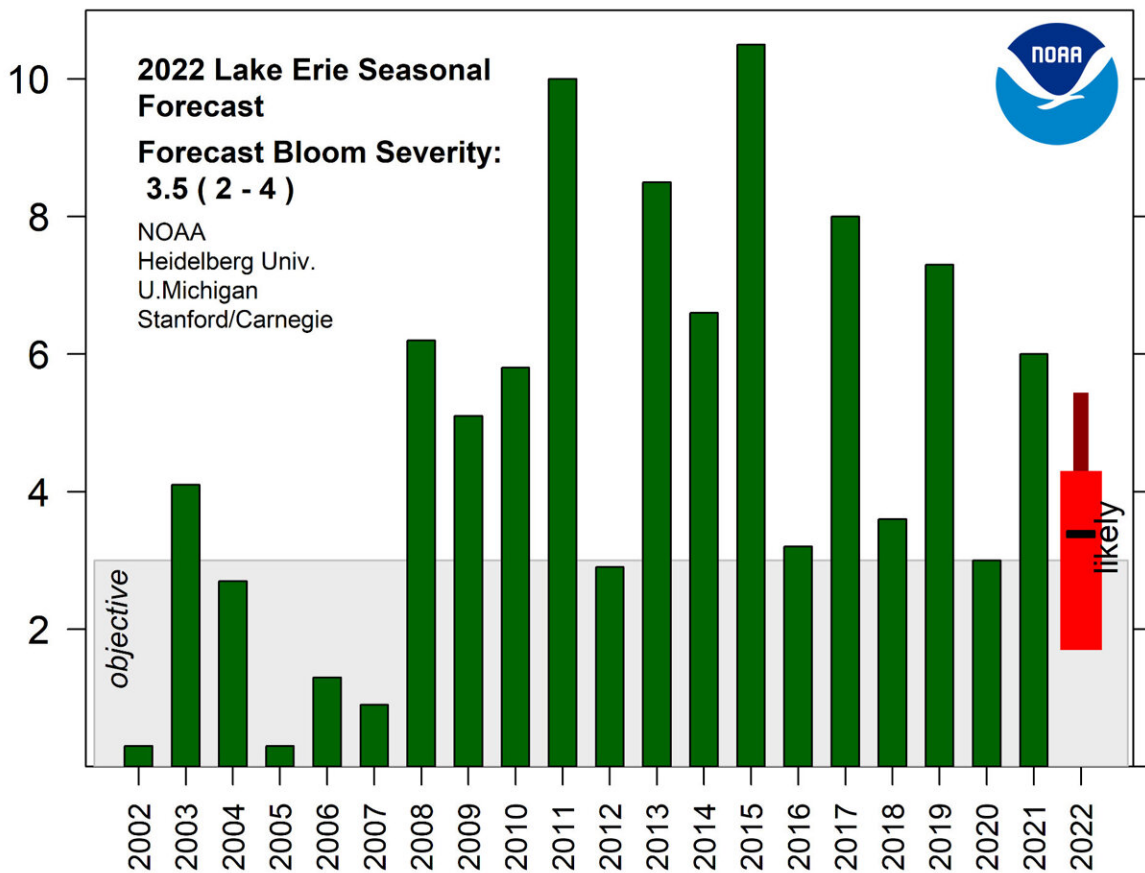


Below-average harmful algal bloom predicted for western Lake Erie

July 1 2022



Bloom severity index for 2002-2021, and the forecast for 2022. The index is based on the amount of biomass over the peak 30-days. Credit: NOAA

NOAA and its research partners are forecasting that western Lake Erie will experience a smaller-than-average harmful algal bloom (HAB) this summer, which would make it less severe than 2021 and more akin to what was seen in the lake in 2020.

This year's bloom is expected to measure 3.5, with a potential range of 2–4 on the severity index—whereas last year's bloom was measured at a 6.

The index is based on the bloom's biomass—the amount of algae—during the peak 30 days of the bloom. An index above 5 indicates more severe blooms. Blooms over 7 are particularly severe, with extensive scum formation and coverage affecting the lake. The largest blooms occurred in 2011, with a severity index of 10, and 2015, with a severity index of 10.5.

"Toxic algae affect not only the health of people and marine ecosystems, but also the health and vibrancy of local and regional economies," said Nicole LeBoeuf, Assistant Administrator for NOAA's National Ocean Service. "Like with the weather, environmental forecasts are an important tool that can empower communities to more effectively prepare for these events and are a huge part of NOAA's service to the nation."

Lake Erie blooms consisting of cyanobacteria, or blue-green algae, are capable of producing microcystin, a known liver toxin which poses a risk to human and wildlife health. Such blooms may force cities and [local governments](#) to treat drinking water, close beaches and can harm vital local economies by preventing people from fishing, swimming, boating and visiting the shoreline.

The size of a bloom isn't necessarily an indication of how toxic it is. For example, the toxins in a large bloom may not be as concentrated as in a

smaller bloom. Each algal bloom is unique in terms of size, toxicity and ultimately its impact on local communities.

"With ten years of experience with forecasts we understand more about the blooms, including evidence that big river discharge events in mid-summer may matter more than we thought," said Richard Stumpf, Ph.D., NOAA's National Centers for Coastal Ocean Science's (NCCOS's) lead scientist for the seasonal Lake Erie bloom forecast. "They create more uncertainty, but our models are improving as a result. We will also have to watch to see if these events become more common in the future."

NCCOS's [Lake Erie Harmful Algal Bloom Forecast website](#) provides predictions and visualizations of the bloom's location and movement on the lake's surface as well as where the bloom is located within the water column. This information is especially helpful to water treatment plant operators, because intake structures are usually located below the surface, so the risk of toxins in their source water may be greater when these cells sink.

"The NOAA HABs forecast is a great example of how our partners, like Heidelberg University, Ohio Sea Grant, and Ohio State's Stone Laboratory, can work together with NOAA to bring critical research and expertise to our local coastal communities," said Christopher Winslow, Ph.D., director of Ohio Sea Grant and Stone Laboratory.

Forecast details

NOAA expects a start of the visible bloom in mid-to-late-July. The duration of the bloom depends on the frequency of wind events in September, which cannot be predicted this far in advance. The bloom will remain mostly in areas of the Western basin. The Central and Eastern basins of the lake are usually unaffected, although localized blooms may occur around some of the rivers after summer rainstorms.

July is expected to have [average rainfall](#), but there is still large uncertainty. Larger rain events could result in increased river flow, and a higher severity index.

NOAA will issue a seasonal forecast update in late July based on observed rainfall in the basin. Recent research has found that a long-term increase in the frequency of heavy rainfall events due to [climate change](#) may be causing more runoff during spring and summer months because the soil has less time to absorb the rain. Combined with the increase in bioavailable phosphorus concentration in the early 2000s (as a result of changes in agricultural practices), this rainfall trend may explain the higher-than-average phosphorus loads each spring over the last 14 years.

The Lake Erie [forecast](#) is part of a NOAA Ecological Forecasting initiative that aims to deliver accurate, relevant, timely and reliable ecological forecasts directly to coastal resource managers, public health officials and the public. In addition to the early season projections from NOAA and its partners, NOAA also issues HAB forecasts during the bloom season. These forecasts provide the current extent and 5-day outlooks of where the [bloom](#) will travel and what concentrations are likely to be seen, allowing local decision-makers to make informed management decisions. NOAA is actively developing tools to detect and predict how toxic blooms will be.

Provided by NOAA Headquarters

Citation: Below-average harmful algal bloom predicted for western Lake Erie (2022, July 1) retrieved 21 June 2024 from <https://phys.org/news/2022-07-below-average-algal-bloom-western-lake.html>

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