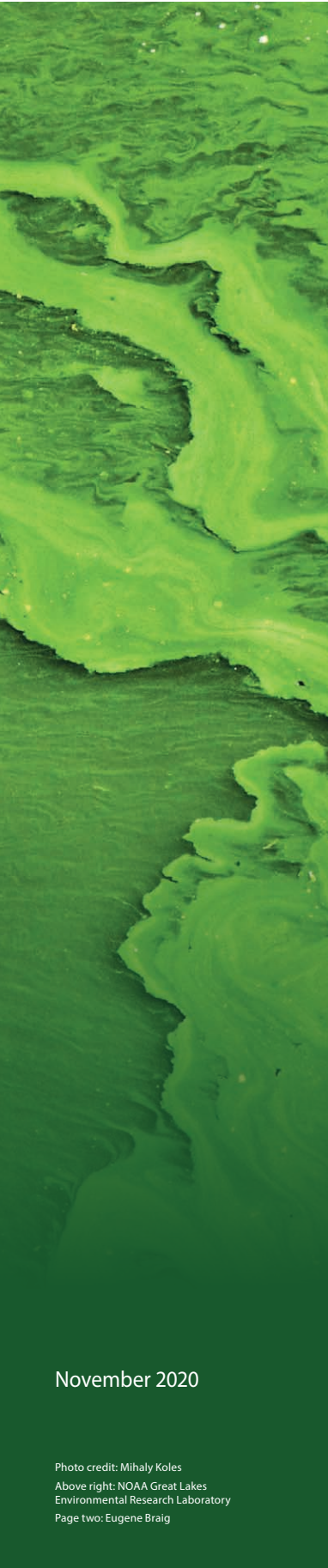




# Harmful Algal Blooms: What You Should Know



Have you ever seen something that looks like paint floating on the water? Cyanobacteria, commonly referred to as blue-green algae or harmful algal blooms (HABs), can often appear this way. They tend to be green in color but can be blue-green, black, or even red. They are not new to freshwater; in fact, they have been on earth for nearly 3.5 billion years, and they have been making headline news for over a decade and longer. These organisms are not true algae, although in water, they are similar in appearance. Like algae, they photosynthesize and produce oxygen. They do not, however, provide the benefits that true algae offer, such as serving as a food source for millions of small organisms who, in turn, feed larger species.

Cyanobacteria are common in nature and often increase drastically in late summer and early fall. Many of these blooms are capable of producing toxins. While algae can also cause blooms, the majority are not toxic.



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## Why Do HABs Occur?

HABs are occurring more frequently worldwide. Increased nutrient runoff, particularly phosphorous and nitrogen from land application of fertilizers, animal waste, soil runoff, septic systems, and municipal sources, encourages these blooms. Growth is intensified by warm water temperatures, sunlight, and calm conditions. General climate predictions of increased temperatures and more frequent, large precipitation events will stress landscapes and further increase the likelihood of runoff. This will lead to more algal blooms and increase the likelihood of HABs.

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## What is the Problem with HABs?

Recreation, land value, drinking water, and human and animal health can all be negatively impacted by HABs. In 2014, HABs in Lake Erie affected the Toledo, Ohio drinking water supply, causing officials to ban tap water usage for drinking, cooking, and bathing for several days. In water bodies such as Lake Erie and the Gulf of Mexico, hypoxic zones, areas in the water nearly depleted of oxygen, have intensified as a result of the increased incidence of HABs and their subsequent death and decomposition. This process has resulted in aquatic habitat shifts, aquatic species death, and a downturn for commercial and sports fishing and the tourism economy.

There are over 80 known toxins produced by different HABs that affect the liver, the nervous system, or skin of both humans and animals, depending on the type. Some of the more common genera in freshwater systems that can produce these toxins include *Microcystis*, *Planktothrix*, *Oscillatoria*, *Dolichospermum/Anabaena*, *Microseira/Lyngbya* and *Aphanizomenon*.

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## Are HABs Regulated?

The U.S. Environmental Protection Agency (USEPA) and World Health Organization (WHO) have developed guidelines for some HAB toxins. Drinking water health advisories for two of the toxins referred to as microcystins and cylindrospermopsin have been established. However, there are neither federal regulations in place under the Clean Water Act nor enforceable standards under the Safe Drinking Water Act. Of note, the USEPA has listed several cyanotoxins on the most current Contaminant Candidate Lists. This list identifies contaminants that may require regulation under the Safe Drinking Water Act.



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## What Are States in the North Central Region Doing to Combat HABs?

State health, natural resources, environmental protection, and agricultural agencies often take the lead on HAB issues with support from university researchers and extension professionals. Each state's collective capacity and responsibility varies across the North Central Region and generally depends on the frequency and severity of HABs in their respective state. Using a more collaborative approach that includes university researchers, extension professionals, and state health and environmental agencies can be effective at addressing complex issues associated with harmful algal blooms.

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## What Messages Can You Share with Audiences?

Key facts and messages about HABs may vary depending on the audience. The following bullets indicate the type of information that can be helpful.

### WHAT EVERYONE NEEDS TO KNOW ABOUT HABs

- HABs in the North Central Region are mainly caused by several types of cyanobacteria, commonly referred to as blue-green algae.
- Not all cyanobacteria produce toxins, but if and when they do, the toxins can cause mild to serious health issues in humans and animals.
- Occurrences and severity of HABs may increase with warmer temperatures and increased phosphorus runoff from land application of fertilizers and animal waste, soil runoff, bank erosion, and municipal sources.
- Decrease nutrient applications – especially phosphorus – near water bodies as HABs need them to grow.
- Do not feed waterfowl, such as ducks and geese, as their excrement may increase nutrient input into the water body.

### WHAT ENGAGED CITIZENS CAN DO TO HELP COMBAT HABs

- Know which labs, universities, or state agencies in your area can help in identifying whether an algal bloom is harmful.
- Encourage forums that involve researchers, agency personnel, practitioners, farmers, and riparian and other landowners to discuss how HABs can be managed or prevented.
- Collaborate with lake associations and water citizen groups to post signage about HABs if they routinely occur and are not well-publicized by state or local agencies.

### WHAT WATER PROFESSIONALS CAN DO

- Identify and report the presence of HABs to help determine their patterns of occurrence and alert the public when a concern arises. To help in this effort, the Centers for Disease Control and Prevention has launched the One Health Harmful Algal Bloom System (OHHABS), a voluntary reporting system available to all state and territorial health departments to help track HAB occurrences.
- Seek research opportunities to further knowledge on predicting and controlling HABs and determine the environmental drivers of HABs and toxin production.
- Affiliate with relevant professional organizations, and keep up to date on your state's monitoring and reporting efforts.



NORTH CENTRAL REGION  
WATER NETWORK

This factsheet was developed by the Algal Bloom Action Team, a collaboration of water professionals, researchers, and educators from the national network of Water Resources Research Institutes, the North Central Region Water Network, and Cooperative Extensions from the 12 states in the North Central Region of the United States.

More information at:  
[northcentralwater.org/habproject](http://northcentralwater.org/habproject)