

Blue-Green Algae/Cyanobacteria Harmful Algal Blooms (HABs)

What are Blue-Green Algae?

Cyanobacteria, often called blue-green algae, are bacteria that are naturally found in Ohio lakes, ponds, and slow-moving streams. Although many species of algae do not produce toxins, some species of blue-green algae can cause Harmful Algal Blooms (HABs). HABs can produce neurotoxins (which affect the nervous system) and hepatotoxins (which affect the liver). These toxins can potentially impact the health of people who come into contact with water where HABs are present in high numbers.

Why does massive growth of Blue-Green Algae occur in the environment?

Under the right water conditions, usually in the warmer months, the number of these blue-green algae can dramatically increase or “bloom.” Some blooms can be visible as thick mats or scum on the surface of the water, while others can be present without visible surface scum. The mats or scum can vary in color and could be bluish-green to red in color.

It is important to note that not all “blooms” produce toxins. Scientists do not fully understand what causes the same species of algae to trigger toxin production during one bloom and not produce toxin during the next.

Blue-green algae need warm temperatures, sunlight, phosphorus, and nitrogen to reproduce. Phosphorus and nitrogen are commonly found in animal and human waste and in fertilizers. Some common ways for phosphorus and nitrogen to enter lakes and streams are from agricultural and residential lawn runoff, improperly functioning septic systems, and erosion of nutrient-rich soil.

Can you get sick from exposure to Blue-Green Algae (cyanobacteria toxins)?

Yes, you can get sick from exposure to cyanobacteria toxins. But getting sick will depend on the type of cyanobacteria, the levels in the water, and the type of contact you had with this “algae.” Read more about this on the next page.

Can the cyanobacteria toxins be released to the outside air and pose a health hazard?

The chemical toxins produced by these blue-green algae do not volatilize (change from a liquid to a gas) and they are not released as vapors to the outside air. However, recreational activities like power boating, water-skiing, jet-skiing and tubing can whip up the surface of the water and create aerosols – toxin-containing water droplets – that can be inhaled or ingested, potentially resulting in negative health effects. Other activities that have the potential to aerosolize the lake water include using the water to spray lawns/gardens and irrigate golf courses.

Are the odors associated with Blue-Green Algae hazardous to my health?

Some of the blue-green algae produce an odor-generating byproduct named geosmin. The human nose is extremely sensitive to geosmin and is able to detect it at concentrations at very low levels. These odors are not chemically toxic but do have a very unpleasant smell that can cause sensitive individuals to become nauseated (upset stomach, vomiting) and have headaches.

What is the safe level for algal toxins in water?

The World Health Organization set guidelines for microcystin toxin (a toxin produced by cyanobacteria) at 1 part per billion (ppb) in drinking water and 20 ppb for recreational waters. Currently, no similar guidance exists for the other toxins produced by cyanobacteria.

How do you come in contact with Blue-Green Algae and HABs?

- Ingesting (drinking) untreated water or incidentally swallowing water that comes from a contaminated lake or reservoir.
- Skin contact by wading, swimming, or other activities in contaminated waters.
- Inhaling aerosolized water droplets (mist) from activities such as jet-skiing, power boating, tubing, or water skiing.
- The incidental swallowing or inhalation of aerosolized water droplets when watering lawns, gardens or golf courses with contaminated water.

This fact sheet is intended to be a simplified and shorter version of the available information on HABs.

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Blue-Green Algae/Cyanobacteria Harmful Algal Blooms (HABs) *continued*

What types of health problems can people and pets experience from exposure to high concentrations of HABs?

- **Skin contact** may cause rashes, hives, or skin blisters (especially on the lips and under swimsuits).
- **Inhaling water droplets/mist** can cause runny eyes and noses, a sore throat, asthma-like symptoms, or allergic reactions.
- **Swallowing contaminated water** can cause:
 - Acute (immediate), severe diarrhea and vomiting
 - Liver toxicity (abnormal liver function, abdominal pain, diarrhea and vomiting)
 - Kidney toxicity
 - Neurotoxicity (weakness, salivation, tingly fingers, numbness, dizziness)
 - Difficulties breathing, death

Is it safe to eat fish caught from HAB-contaminated water?

Some studies have shown that cyanotoxins can accumulate in fish in waters with high toxin levels. While there have been no confirmed reports of cyanotoxin-related human health effects related to fish consumption, there are few data on cyanotoxins on which to base judgments about health risk. Should you decide to consume fish, you would do so at your own risk, and should remove intestines, fat and skin, consuming only the fillet.

For more information:

- www.cdc.gov/hab/ ...for general information
- www.odh.ohio.gov/features/odhfeatures/algalblossoms.aspx ...for fact sheets or to report a bloom or an illness
- www.epa.ohio.gov/dsw/HAB.aspx ...for specific lake toxin sampling data and links to other states
- www.ohiodnr.com/tabid/22957/default.aspx ...for current advisories for state-owned bodies of water

How to protect yourself, your family, and your pets from exposure to HABs:

- Don't swim, water-ski, or boat in areas where the blooms are occurring. Avoid direct contact with the lake water or water spray from the lake.
- Don't water lawns, gardens, or golf course with water from HAB-contaminated lakes or ponds.
- Report unpleasant tastes or smells in your drinking water to your local water utility.
- Follow posted water body closures announced by state agencies or local public health authorities.

How to treat people or animals that have been exposed to HAB toxins:

- If you do come into contact with the HAB-contaminated water, rinse off with clean, fresh water as soon as possible.
- Pets that have been swimming in an area with an algae bloom may ingest significant amounts of toxins by licking their fur after leaving the water. Thoroughly rinse off your pets with clean, fresh water.
- Seek medical treatment ASAP if you think you, your pet, or your livestock might have been poisoned by toxic HABs.
- Remove people from the exposure and treat the symptoms.



Sources: U.S. Departments of Health and Human Services Centers for Disease Control and Prevention, Ohio Department of Health, Ohio Environmental Protection Agency, and Ohio Department of Natural Resources as of October 2010.

