

Harmful algal blooms FAQ

The most frequently asked questions about toxic blue-green algae

State and local governments often receive calls regarding toxic algae from concerned citizens. The Minnesota Pollution Control Agency polled experts in lake ecology, epidemiology, and algae to get the answers. Harmful algae research is constantly evolving, and these answers represent the best available information as of summer 2018. Individuals are responsible for their own decisions to boat, swim, and otherwise enjoy lakes and streams.

What is a harmful algae bloom?

Blue-green algae (cyanobacteria) occur naturally in all waters in Minnesota, and generally do not cause any problems. However, under the right conditions — such as high temperatures, calm weather, and excess nutrients like phosphorus in the water — some planktonic (suspended) algae can grow very rapidly and form extremely high-density populations, or "blooms." Algae blooms can turn the water green and smelly, and contribute to fish kills by creating dead zones in the water. At times, algae blooms also produce toxins that pose serious health risks to people and animals. These blooms are referred to as harmful algal blooms (HABs).

Are the fish caught in an algae bloom safe to eat?

Use caution when eating fish caught in waters where an algae bloom may be occurring. Toxins from algae can accumulate in the entrails (guts) and occasionally in the muscles (fillet) of fish. Levels in fish depend upon the severity of the bloom. In general, fish caught in areas where major blue-green algae blooms occur may be safe to eat, as long as the guts are discarded. But the levels of algal toxins that accumulate in fillets is uncertain, so anglers may want to wait a week or two after algal blooms have dissipated to go fishing.¹

When is it safe to swim?

When in doubt, stay out! You can't tell if a blue-green algal bloom is toxic just by looking at it. People and animals should avoid contact with water that contains blue-green algae. Toxins can persist in the water after a bloom; watch for signs of recent blooms, such as green scum on the shoreline. In some instances, toxins are in the water before a bloom reaches its peak. If you or your pet go into water where there may be a bloom, rinse off with fresh water immediately afterwards.

Which lakes are safe for swimming?

Minnesota does not have a list of "safe" lakes for recreation. Blue-green algae occur naturally in all Minnesota lakes. Swimming in lakes with good water quality and relatively clear water will reduce your exposure to harmful algae. Swimming on the upwind side or middle of a lake can reduce exposure to blooms, which often occur on a downwind shore or in an isolated area (small bay). If a lake-wide bloom is occurring, keep out of the lake until conditions have improved.

Lakes may have swimmers itch or other waterborne diseases. See the [Minnesota Department of Health Recreational Water Illnesses webpage](#) for more information on how to reduce your risk to waterborne illnesses. See the [DNR web site](#) for information on swimmer's itch.

¹ Minnesota Department of Health, Fish Contaminant Program

When are blooms toxic?

You cannot look at a bloom and determine if it's toxic. In some blooms, the toxins are in the water prior to the appearance of a dense bloom. In general, if you have a dense surface scum or a well-dispersed bloom (spread throughout the water, top to bottom) toxins are likely in the water. Toxins are released as cells begin to die off and break open. Some harmful algae, such as *Cylindrospermopsis*, can release toxins into the water prior to dying, but that's not common in Minnesota.

How do I test a bloom to see if it's toxic?

Anyone can perform the [jar and stick tests](#), which can tell you if the algae you are seeing is likely to be a harmful algae bloom. These tests can't prove that algae is toxic. For more conclusive results, test strips are available and several labs will sample for algal toxins. It is important to note that conditions change rapidly, and just because one bloom produced toxins does not mean the next bloom will also be toxic.

Is algae more common in murky lakes than in clear lakes?

Harmful algal blooms can form in clear or murky lakes, but are more common in murky lakes. Excess phosphorus in the water promotes algae growth. Clear lakes tend to have less phosphorus, or have aquatic plants that use up phosphorus, so algae are less likely to appear. Murky lakes generally contain more nutrients like phosphorus, have fewer rooted plants to use the phosphorus, and warm up faster because the water is darker in color. However, harmful algae blooms are possible on clear lakes. Blue-green algae can control their buoyancy; water on the surface may be clear and the algae can be suspended lower in the water.

Can toxic algae be transported by boats, on docks, or by wildlife?

Yes, algae are easily transported. The green paint-like surface blooms and scums may stick to boats and trailers and move from lake to lake. They can also be transported on birds' feathers or on other animals, especially those with fur.

In addition, blue-green algae create cysts that remain viable after being dried for years. The cysts can be transported to other lakes and lead to new blooms. The toxins themselves likely break down upon drying, but this is not well researched yet. Several research groups are looking at how toxins are broken down and how the substances produced by the breakdown affect human health.

How do you get rid of algae blooms and their toxins?

There is no short-term fix for algal blooms. Algaecides will break the cells of the blue-green algae open, which releases the toxins into the water. A change from hot, dry, calm weather to rainy and windy conditions is often necessary to break up a bloom.

Once a toxic bloom has occurred, time, flushing, and sedimentation (dead algae settling on the bottom of the lake) are the most likely ways the toxin will go away. Different toxins persist in the water for varying amounts of time. Some are degraded by sunlight, while others are very persistent and can be detected in decades old sediment. Often in lakes that are part of chains, the toxins move downstream.

How can I reduce the occurrence of harmful algae blooms?

Any action that prevents phosphorus from entering lakes can help:

- [Sweep up grass clippings and leaves](#); keep them out of storm drains
- [Leave a natural buffer on your shoreline](#)
- [Properly maintain your septic system](#)
- Prevent erosion on your property
- Work with neighbors and upstream landowners on larger scale improvements

What do I do with scum on my shoreline?

Plant and algae material that washes up on shore can be disposed of like grass clippings and leaves at a compost site.² Check with your county for disposal options.

How do I know if a lake has excess nutrients, like phosphorus?

In Minnesota, if nutrients and other contaminants in a lake exceed state or federal standards, the lake is considered "impaired." Harmful algae blooms are more likely to occur in lakes with excess nutrients. The Minnesota Pollution Control Agency maintains a [list of impaired waters](#) in the state. Any lake on the Inventory Impaired Waters tab with an affected designated use of aquatic recreation is considered impaired for excess nutrients. You can also search for impaired waters using a [map](#).

Has a total maximum daily load been done?

The Inventory Impaired Waters tab of the [impaired waters list](#) notes if the U.S. Environmental Protection Agency has approved a total maximum daily load. You can also find the information by searching for your waterbody on the [Surface Water Data page](#) or by looking it up on the [Impaired Waters Viewer webpage](#).

Is my lake a local priority?

Check with your local county water resource management office. Each county, watershed district, or watershed management organization is required to have a local water plan. These plans often identify waters of local importance.

² Minnesota Pollution Control Agency, Solid Waste Management Program