



# Toxic Algae (Cyanotoxins) in Montana

## Frequently Asked Questions

### *What are algae?*

Algae are small, often microscopic plants, which lack specialized structures like leaves, stems, and roots.

### *Are all algae toxic?*

No. In Montana, only certain species of blue-green algae are capable of producing toxins, and even these species are harmless most of the time.

### *What are toxic algae?*

Cyanotoxins, such as microcystins or cylindrospermopsin, are produced by cyanobacteria, commonly referred to as blue-green algae. Cyanobacterial blooms are a specific type of growth which is sometimes referred to more generally as harmful algal blooms, or HABs. However, the presence of cyanobacteria does not necessarily mean that cyanotoxins are being produced, and cyanotoxins may be present after cyanobacteria are no longer observed.

### *Where are toxic blue-green algae found?*

Cyanobacteria are naturally-occurring photosynthetic bacteria found in many habitats (including recreational waters). Potentially toxic blue-green algae occur throughout Montana in any standing bodies of water exposed to the sun, e.g., lakes, reservoirs, stockponds, and roadside ditches. They normally are not found in rivers, streams, springs, irrigation canals, or wells.

### *What conditions favor the growth of toxic blue-green algae?*

Certain environmental conditions, such as elevated levels of nutrients, warmer temperatures, still water, and plentiful sunlight can promote the growth of cyanobacteria to higher densities, forming cyanobacterial blooms. Such blooms may result in higher concentrations of cyanotoxins.

### *What species of blue-green algae are toxic?*

In Montana, only one species of blue green algae--Anabaena flos-aquae--has ever been documented as a toxin producer. Two other species common to Montana--Aphanizomenon flos-aquae and Microcystis aeruginosa-- have produced toxins elsewhere.

### *What is an algae bloom?*

An algae bloom is a rapid and massive buildup of algae cells that imparts a green color to the water. Sometimes the algae can be further concentrated along the shore by wind and wave action.

### *What conditions lead to blooms?*

Blue-green algae blooms can occur anytime from May through October, but they normally occur during the hottest part of the summer-June, July, and August.

### *What does a bloom look like?*

A bloom of potentially toxic blue-green algae appears as "pea soup," "grass clippings," or "green latex paint." The algae usually are suspended in the water column or aggregated into floating mats; they do not grow from the bottom as do mosses or "water weeds."

The following photos show visual signs of cyanobacterial blooms, including surface water discolorations, scum or mat-like accumulations along the surface, and a fish kill.



### *What are the Health Risks from Cyanobacteria and Cyanotoxins?*

Exposure to cyanobacteria and their toxins may occur by ingestion of toxin-contaminated water or food, including fish, and during recreational activities (for example, swimming or waterskiing) in a water body with elevated cyanobacteria or cyanotoxin levels. Exposure to cyanobacteria while in recreational waters may cause skin irritations, including a rash, hives, or skin blisters. Adverse effects from exposure to cyanotoxins include liver and kidneys toxicity and neurological, reproductive, and gastrointestinal effects. Some developmental effects have also been observed from exposure to microcystins.

Animals such as pets, livestock, and wildlife may also be exposed to cyanotoxins if they drink water from toxin-contaminated water bodies, lick their fur after swimming in such waters, or consume toxin-containing algal scum or mats. Health effects from cyanotoxin exposure in animals can include vomiting, diarrhea, seizures, and death.

### *How do I know if a toxin is present?*

The presence of cyanobacteria does not necessarily mean that cyanotoxins are being produced, and cyanotoxins may be present after cyanobacteria are no longer observed. Caution and avoidance are always recommended when blue-green algae are observed.

### *Can water be treated to remove the toxin?*

Conventional treatment and disinfection afforded most public drinking water supplies are not effective in removing or deactivating blue-green algae toxins. Water that is free of blue-green algae may not be free of the toxin. Boiling is similarly ineffective.

### *What animals are affected by the toxin?*

Essentially, all warm-blooded animals are susceptible to blue-green algae toxins, including people, waterfowl, furbearers, game and non-game animals, livestock, poultry, and household pets.

### *Are fish affected?*

Fish kills associated with algae blooms are most likely due to depletion of dissolved oxygen rather than the toxic blue-greens, although fish kills resulting directly from algae toxins have been reported.

### *Are fish from algae infested water safe to eat?*

Toxic algal blooms pose an unknown health risk to humans through fish consumption; some have been shown to accumulate in internal organs. It is advisable to shun fish taken from such waters, particularly if they appear sickly or sluggish.

### *Is there any way to control toxic algae?*

The time to control a toxic algae bloom is before the bloom develops. Assuring that fertilizers, animal wastes and other sources of nutrients do not reach the water is the best preventative.

### *What should the public do if they see a bloom?*

Members of the public, and their pets or livestock, should limit their contact with the water once a bloom is suspected or observed. Members of the public should also comply with relevant signage posted by local authorities or contact the water body manager, the local public health agency or their state program responsible for responding during cyanobacterial bloom events if signage is not already posted.

You can report a bloom at [hab.mt.gov](http://hab.mt.gov)