

Cyanobacterial Blooms: Frequently Asked Questions

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Algal bloom or cyanobacterial blooms?

What is an algal bloom?

An algal bloom is a rapid increase in the density of algae in the water. A rapid increase of cyanobacteria in the water is often called an algal bloom because cyanobacteria used to be called “blue-green algae.” Most governmental agencies no longer use “blue-green algae” and call these cyanobacterial blooms, harmful cyanobacterial or algal blooms.

What causes cyanobacteria to bloom?

Cyanobacteria blooms can occur when environmental conditions are favorable for abundant growth in lakes and reservoirs, these conditions include warmer temperatures, lots of light, more nutrients (such as phosphorus and nitrogen), and calm water. Cyanobacteria also live-in rivers, where they require clear, flowing water.

What do cyanobacterial and algal blooms look like?

A [quick guide](#) comparing the appearance of non-toxic green algae, aquatic plants, and potentially toxic cyanobacterial blooms can be helpful in determining if there is a bloom. Pictures of Idaho blooms can be found on the Idaho [DEQ cyanobacteria website](#).

How can I tell if a bloom is caused by cyanobacteria?

Confirmation of cyanobacteria is done in a laboratory, but citizens can help monitor water using simple tests that indicate further evaluation in a laboratory. Monitoring methods include visual tests such as the [“stick” or “jar” test](#).

Are all algal or cyanobacterial blooms harmful?

No, not all blooms are harmful. Blooms can be harmful when they produce toxins (poisons) that can make people and animals sick. Blooms can also be harmful by creating areas of low oxygen, making it impossible for aquatic life to survive. When public health agencies talk about a harmful bloom, they mean harmful to human and animal health.

Cyanobacterial blooms in Idaho

How do I find out where there are cyanobacterial blooms in Idaho? How do I know if a cyanobacterial bloom is harmful?

Idaho has insufficient resources to monitor all bodies of water in Idaho for blooms. We rely on anyone visiting Idaho’s lakes and rivers to let Idaho Department of Environmental Quality when they see a potential bloom. A potential bloom map based on satellite images and calculations of the number of cells in large water bodies can be found on the [DEQ Cyanobacteria Harmful Algal Blooms](#) page and the [EPA CyAN Web APP](#). The data are usually updated every 3 to 4 days. These maps indicate where sampling might be needed to determine if a harmful cyanobacterial bloom is occurring.

If sampling indicates that the cyanobacteria are producing toxins at a level considered a threat to human health, a [recreational water health advisory](#) may be issued.

How do I report a suspected cyanobacterial bloom?

There are three ways to report a suspected bloom:

- Use the [Report A Bloom](#) form, near the bottom of the [DEQ Cyanobacteria Harmful Algal Blooms](#) page. Please place a location on the map and add photos of the water. Photos are useful for pre-screening potential blooms.
- Email algae@deq.idaho.gov with a description of the potential bloom. Please include the water body's name, the location of the bloom, and attach photographs,
- Call the [DEQ regional office](#) for the region the lake is in.

How long after water sampling before toxin test results are available?

It depends on when samples were collected, which laboratory the samples are being sent to, and which tests are being done. Determination of which species are present, 3-4 business days; determination of concentration of which type of toxin, 2-4 business days; detection of the genes that produce toxin, 4 business days.

Cyanotoxins and human health

What amount of cyanobacterial toxin (cyanotoxin) in the water is considered a threat to human health?

Recreation Water

The DHW and DEQ toxicologists and the local public health district environmental health directors established recommended concentrations for two cyanotoxins in recreational water, at or below which public health should be protected. That concentration, measured in parts-per-billion, for microcystins is 4 micrograms per liter ($\mu\text{g/L}$) and for cylindrospermopsin, 8 $\mu\text{g/L}$. A contact recreation advisory is recommended if those levels are exceeded for one day. Protective levels of other cyanotoxins in recreational water have not been established and the Environmental Protection Association (EPA) is currently studying these toxins and their potential to harm people and animals. The World Health Organization recommends for recreational water, an anatoxin-a level less than 60 micrograms per liter.

Public Drinking Water

In Idaho, cyanotoxins are not required to be monitored in public drinking water systems. However, DEQ does encourage systems that use surface water to establish a monitoring and response plan in case their source water has a bloom occur. Most surface water treatment can safely remove cyanobacterial cells and toxins. There can be exceptions depending on the treatment type and the amount and type of toxin present.

Idaho follows EPA's 10-day health advisory levels for drinking water contaminated with the cyanotoxins Microcystin and Cylindrospermopsin. EPA is currently gathering data to determine an advisory level for Anatoxin-a. A 10-day health advisory means that people drinking the water with the toxin at or less than the advisory level within a 10-day period are unlikely to suffer from adverse health effects. Children under 6 years old should not drink the water if microcystins are over 0.3

µg/L (micrograms per liter) or cylindrospermopsin over 0.7 µg/L. Anyone over 6 years of age should not be drinking water with microcystins over 1.6 µg/L or cylindrospermopsin over 3.0 µg/L.

What are the signs and symptoms of cyanotoxin poisoning in people?

Many symptoms of cyanotoxin poisoning are like other common illnesses, like food poisoning and sun exposure. The signs and symptoms people experience depend on which toxin(s) they were exposed to, how much they were exposed to and for how long, and the way in which they were exposed. Children and dogs are more susceptible to poisoning than adults. Some commonly reported symptoms following specific toxin exposures are listed below:

- Microcystins: abdominal pain, nausea, vomiting, headache, diarrhea, sore throat, blistering around the mouth, and pneumonia.
- Cylindrospermopsin: gastrointestinal symptoms, including vomiting and bloody diarrhea, as well as fever and headache.
- Anatoxin-a: neurologic symptoms, including numbness, tingling, burning sensation, drowsiness, salivation, and speech disturbances

The cyanobacteria cells themselves, even if not toxic, can irritate skin and cause rash or redness and itchiness that may be confused with swimmer's itch.

Can my healthcare provider test me to see if my illness is from cyanotoxin poisoning?

There is no commercially available test for cyanotoxins in humans. Some tests may be available at research laboratories. Diagnosis is typically made by clinical signs and symptoms and exposure history.

How do you track human illness from cyanotoxins in Idaho?

We monitor for human illness in three ways:

- Daily reports during cyanobacterial bloom season from our regional poison center on calls related to cyanobacterial bloom exposure.
- Review of emergency department visit data contributed for syndromic surveillance.
- Reports submitted by healthcare providers or public health officials on cases that meet criteria defined by CDC in Table 2 of "One Health Harmful Algal Bloom System (OHHABS) – Harmful Algal Bloom (HAB) Event and Case Definitions" at <https://www.cdc.gov/habs/pdf/ohhabs-case-and-event-definitions-table-508.pdf>.

Is cyanotoxin poisoning in humans a reportable condition in Idaho?

Yes, cyanotoxin poisoning may be reported under [IDAPA 16.02.10.260](#), extraordinary occurrence of illness or [IDAPA 16.02.10.270](#), food poisoning, foodborne illness, and waterborne illness.

Private water systems

My private water intake is in a lake or river that has a cyanobacterial harmful algal bloom. Can I boil the water to make it safe?

NO! Boiling does not make the water safe – it can make the water more dangerous. Boiling the water releases the toxins from inside the cyanobacteria cells and concentrates the toxin.

What can I do if my private water intake is in a lake or river that has a cyanobacterial harmful algal bloom?

Private drinking water intakes and in-home treatment systems are not regulated. If you are unsure whether your in-home treatment system is designed to reduce or eliminate cyanotoxins, you should use an alternative source of drinking water and water for cooking. Showering may be a risk, depending on the concentration of cyanotoxin in the water. Showering can aerosolize toxins potentially leading to inhalation exposure.

A longer-term solution is point-of-entry (whole house) or point-of-use (individual taps) treatment. Installation should be done by a professional and water tested after treatment has been installed to verify the treatment is effective.

The Ohio Department of Health has a fact sheet on [treatment of private pond water for drinking](#).

Dogs

Is it safe for my dog to go in the water when there is a cyanobacterial harmful algal bloom?

No. Dogs are more likely to be exposed to cyanotoxins from drinking contaminated water, swallowing water while swimming and retrieving a ball or stick, and from licking cyanobacteria from their fur. Some animals will be exposed by eating mats of cyanobacteria or dead animals, such as fish, found near the bloom or by retrieving waterfowl that might have cyanobacteria on their feathers after swimming through a bloom. Carry clean, potable water for your dogs to drink when recreating around a body of water with a cyanobacterial bloom and keep them on-leash if they can't resist eating tempting items.

What should I do if my dog goes into the water where there is a bloom?

Immediately wash the dog off with clean water. Call your veterinarian, or the ASPCA Animal Poison Control Center at 1-888-426-4435 or the Pet Poison Helpline at 1-855-764-7661 (note there is a fee for these calls). Dogs can become sick within minutes to hours after exposure. Signs of cyanotoxin poisoning depend on the types of toxin and how the dog was exposed. Do not call Idaho Department of Environmental Quality or Idaho public health officials for diagnosis of your dog's illness or advice on caring for your dog – you will be referred to your veterinarian or the above call lines.

My dog got sick or died after swimming in a lake or river. Will Idaho public health agencies, Idaho Department of Environmental Quality, or the agency managing a lake pay for testing my dog?

No. Testing of pets is the responsibility of the owner. There are no commercially available tests for detection of cyanotoxin in dogs. Idaho public health agencies test water when there is a suspected harmful cyanobacterial bloom. Report suspected cyanotoxin poisoning to the Idaho Department of Environmental Quality through the DEQ [Report a potential bloom](#) link.

My dog died suddenly after going in a lake. What could have caused that besides a cyanotoxin?

Some causes of death after a dog goes in the water are hyponatremia (low sodium), also known as "water intoxication," hypothermia, and hyperthermia. Signs of these conditions can resemble cyanotoxin poisoning.

When dogs ingest large quantities of water very quickly, such as when retrieving or diving, sodium levels in the blood can be diluted, but sodium in cells stays high. This causes water to enter the cells in large amounts, causing the cells to swell. When brain cells swell, signs may be loss of coordination, lethargy, bloating, vomiting, glazed eyes, excessive salivation, difficulty breathing, seizures, and coma.

Idaho waters can be very cold. When dogs spend too much time in cold water, their body temperature can become abnormally low (hypothermia). Signs of hypothermia in a dog include a low energy level, shivering, pale skin, stiff muscles, low blood pressure, shallow breathing, and fixed, dilated pupils.

Hyperthermia is when the body temperature significantly exceeds the normal range. Dogs that are exercised too long in hot weather can get hyperthermia. Signs of hyperthermia include excessive panting, collapse, vomiting, lack of coordination, excess saliva, seizures, or diarrhea. Less common signs include lack of energy, muscle tremors, loss of consciousness, bleeding from the nose, swollen tongue, head tremors, and vocalizing.

Causes of sudden death in dogs are most frequently undetected cancer, cardiac disease, stomach dilation or torsion, and food aspiration.

Outdoor recreation

Is it safe to fish in waters with a cyanobacterial harmful algal bloom?

It is best to avoid direct contact with water affected by a bloom. If you choose to fish in affected water, wear protective clothing such as gloves or waders, and wash your hands thoroughly with clean water.

There have been no reports of people becoming sick from eating fish caught during a bloom. Information about the risk of eating fish from affected waters is limited. However, fish fillets are less likely to accumulate toxins compared to other parts of the fish. If you decide to eat fish from affected waters:

- Remove the fat, skin, and organs before cooking or freezing, and only eat the muscle tissue.
- Avoid cutting into organs.
- Rinse the fillets with clean water before cooking or freezing.

What precautions should I take when using power boats where a recreational water health advisory is in place?

Inhalation from boat spray is a lower risk exposure than swallowing contaminated water; however, high-speed water activities such as water skiing, wakeboarding, or powerboating should be avoided because these activities can increase accidental ingestion through falling in the water and can aerosolize the water, making it easier to inhale the cyanotoxins.

What precautions should I take if sailing or paddling where there is a cyanobacterial bloom?

If sailing, sailboarding, or undertaking any other activity likely to involve accidental water immersion, wear clothing that is close fitting in the openings. The use of wet suits for water sports may result in a greater risk of rashes because cyanobacterial material in the water trapped inside the wet suit will be in contact with the skin for a long time. After coming ashore, shower or wash yourself to remove

cyanobacterial material. Wash and dry all clothing and equipment after contact with cyanobacterial blooms or scum.

Disposal of cyanobacterial material

What is the best way to dispose of cyanobacterial filaments, scum, and mats? Is it safe to compost them? Bury or burn them?

Removal of the cyanobacterial filaments, scum, and mat from a body of water does not remove the toxin from the body of water. This layer is a collection of proteins and dead cells which builds up and are left behind on the top layer of the surface and wash up on the shoreline. If the mat/scum layer is removed from the shoreline, it should be disposed of as hazardous waste at the local landfill. Do not dispose of in a regular garbage container and do not compost the mat/scum layer.

When handling the cyanobacterial surface mat/scum layer, wear protective equipment, including gloves and an N95 mask. The mask and gloves should be disposed of or rinsed with clean water after use.

Resources for more information

Recreational Water

Safe Water (Idaho Dept. of Health and Welfare)

<https://healthandwelfare.idaho.gov/health-wellness/environmental-health/safe-water>

Cyanobacteria Harmful Algal Blooms (Idaho Dept. of Environmental Quality)

<https://www.deq.idaho.gov/water-quality/surface-water/cyanobacteria-harmful-algal-blooms/>

Harmful Algal Bloom (HAB)- Associated Illness (CDC)

<https://www.cdc.gov/habs/index.html>

Cyanobacterial Harmful Algal Blooms (CyanohABs) in Water Bodies (EPA)

<https://www.epa.gov/cyanohabs>

Toxic cyanobacteria in water – second edition. A guide to their public health consequences, monitoring and management (World Health Organization)

<https://www.who.int/publications/m/item/toxic-cyanobacteria-in-water--second-edition>.

Laboratories that Analyze for Cyanobacteria and Cyanotoxins (EPA).

<https://www.epa.gov/cyanohabs/laboratories-analyze-cyanobacteria-and-cyanotoxins>

Blue-Green Algae Products and Microcystins (FDA)

<https://www.fda.gov/food/natural-toxins-and-mycotoxins/blue-green-algae-products-and-microcystins>

Public Drinking Water Resources

Contaminants in Drinking Water (DEQ)

<https://www.deq.idaho.gov/water-quality/drinking-water/contaminants-in-drinking-water/>

Interstate Technology and Regulatory Council



<https://hcb-1.itrcweb.org/>

Managing Cyanotoxins in Public Drinking Water Systems (EPA)

<https://www.epa.gov/ground-water-and-drinking-water/managing-cyanotoxins-public-drinking-water-systems>

Drinking Water Factsheets and FAQs (EPA)

<https://www.epa.gov/ground-water-and-drinking-water/harmful-algal-blooms-and-cyanotoxins-drinking-water-factsheets-and>