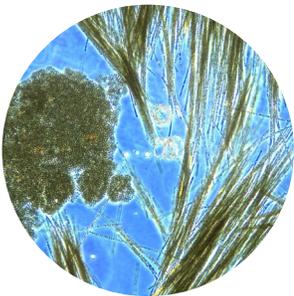


Harmful Algal Blooms and Blue-green Algae

Harmful Algal Blooms (HABs) is an issue of growing concern here in Missouri and across the nation. Because these growths of algae and bacteria in waterways can present a variety of public and environmental health concerns, it is important for the public to be more aware of and better informed about HABs. The following information is intended to provide a basic understanding of what HABs are, where they can be found and how to identify them. Also included are crucial facts about the different risks that HABs can present, how to avoid exposure, the different symptoms of exposure and steps to take if a person or animal is showing signs of exposure.



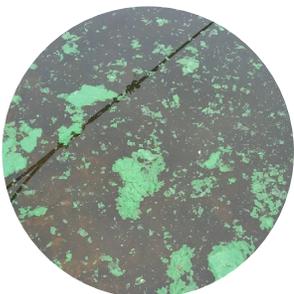
What are algae?

Algae are mostly aquatic, plant-like organisms that can range in size from microscopic to giant kelp found in the ocean. Algae are photosynthetic organisms, meaning they use sunlight to process food and produce oxygen. In aquatic ecosystems, algae play a major role not only by producing oxygen but making up the base of the food chain.



What are HABs?

Excessive growths of algae are called algal blooms. This excessive growth can actually reduce or eliminate oxygen in the water as the overgrowth consumes more oxygen than the photosynthesis process can produce. This can lead to illnesses or death of large numbers of fish. These blooms are considered harmful when they have detrimental effects on human, livestock or pet health, or on aquatic ecosystems.

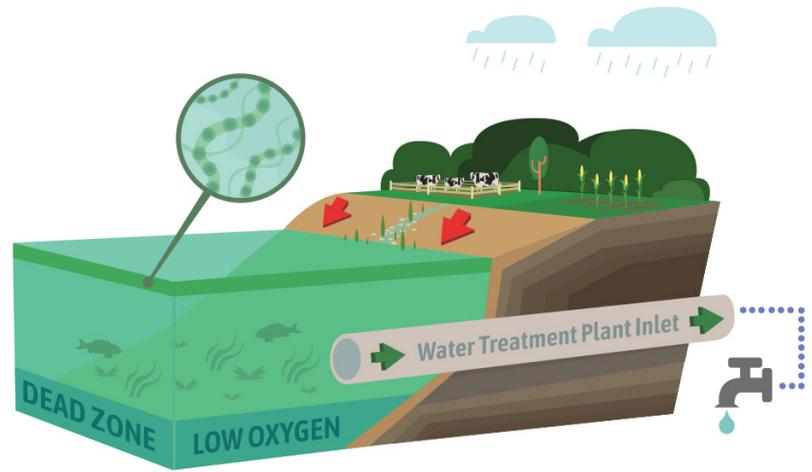


What are blue-green algae?

Blue-green algae are not actually algae, but a type of bacteria called cyanobacteria. But like algae, these bacteria can “bloom” when the conditions are right. Cyanobacteria are especially concerning because they are capable of producing toxins that can be harmful, even lethal, to humans, livestock and pets if they come into contact with polluted water or drink contaminated water.

What causes HABs?

Blooms occur when weather conditions and an overabundance of nutrients (nitrogen and phosphorus) in a waterbody create the perfect environment for rapid growth. A growing concern nationwide, nutrient pollution is caused by excess nitrogen and phosphorus in the air and water. While these nutrients are natural parts of aquatic ecosystems, when a wide range of human activities cause too much nitrogen and phosphorus to enter the environment, the air and water can become polluted.



Nutrient pollution has impacted our waterways for the past several decades, causing serious public and environmental health issues and impacting the economy. Too much nitrogen and phosphorus in the water causes algae to grow faster than ecosystems can handle. Sources of nutrient pollution include wastewater and runoff from farm fields and lawns. HABs typically appear during summer and early fall when the weather is warm and water temperatures are high. However, if conditions are right, algal blooms can occur any time of the year.



Where are HABs found?

HABs can be found throughout Missouri. Lakes or ponds are the most likely waterbody to experience blooms, but they can also occur in slow-moving or pooled streams.

How do I identify a HAB?

Not all algae blooms are toxic. Unfortunately, you cannot tell if an algae bloom is toxic just by looking at it. Higher levels of toxins are typically associated with algae blooms that appear as thick foam or scum on the water's surface. Their color can vary from bright green and blue-green, to white, red or yellowish-brown. The water may look like pea soup or the surface may look as if paint has been spilled on it. As the cyanobacteria begin dying and decomposing they may release an unpleasant odor similar to rotting plants. If you come across areas of thick algae, avoid water contact and keep pets out of the water as well. If you are unsure if the water is safe, the best rule of the principle to follow is, "When in doubt, stay out!"

What kind of toxins do cyanobacteria produce?

A wide variety of cyanobacteria species produce poisons known as cyanotoxins and some even produce more than one type of cyanotoxin. Scientists do not fully understand what causes cyanobacteria to produce toxins. It could be an environmental change or a natural need to out-compete other organism in the waterbody for food or light. The most common toxins produced in Missouri are microcystins, cylindrospermopsin, anatoxins and saxitoxins. To learn more about these toxins, visit the [EPA Overview of Cyanotoxins page](#).

What are the human health risks if exposed to a HAB?

You can become sick if you swallow, have skin contact with or inhale airborne water droplets while swimming, boating, waterskiing, tubing, bathing or showering in water contaminated with harmful algae. Skin irritation or rash is the most commonly reported health effect. Other symptoms can include diarrhea, stomach cramps, vomiting, dizziness, fainting, numbness, tingling and temporary paralysis. The most severe reactions occur when large amounts of water are swallowed.

Inhalation of aerosolized toxins may result in allergy- or asthma-like symptoms. Individuals with respiratory illnesses such as asthma or other respiratory diseases are more susceptible to breathing difficulties and may experience more severe symptoms.

What should I do if I am experiencing symptoms?

Seek medical attention if you are currently experiencing symptoms and suspect that you were exposed to HAB-contaminated water. You can also contact the 24/7 national Poison Help line at 800-222-1222 or online at [PoisonHelp.org](#). Notify assisting medical personnel that you may have been exposed to a HAB and provide a detailed description of your symptoms.

Should I report a human illness potentially caused by a HAB?

Yes. You can report any HAB-related human illness to your [local public health agency](#) or to the Department of Health and Senior Services (DHSS) 24/7 Public Health Emergency Hotline at 800-392-0272.

How can I keep myself and my family safe?

Before allowing children or pets to swim in public-access waterways, like those at parks and other recreation areas, check for posted water quality condition information. This information may also be found online, at the park office or posted at common access areas, such as bath houses or boat ramps. Also, educate yourself on harmful algal blooms and how to identify them. If the water doesn't look or smell right, or you suspect a HAB is occurring, avoid direct contact with the affected area.



Is it OK for my pets and livestock to enter and/or drink the water?

There have been cases in Missouri of HAB-related livestock and pet illness and death. If algae scum is floating on the water, block access to the affected water and provide another water source for them to drink or play in. If your animals come in contact with blue-green algae, wash them off with fresh water immediately.

To protect your pets, follow the same precautions for keeping people safe. You should also prevent your pets from drinking or playing in the water, or rolling in or eating any algae on the ground, even if it is dried. Dogs can also be affected by licking their fur after contacting algae scum.

If the affected waterbody is a farm pond or stream used for watering livestock, you should prevent the animals from accessing the water by temporarily fencing it off and providing another source of fresh drinking water.

What should I do if my pet or livestock have been in contact with affected waters?

The symptoms animals may experience will depend upon the type of toxin present and how the animal was exposed. The severity of the symptoms will depend upon the amount of toxin ingested, each animal's body size, the amount of food in the stomach and each animal's sensitivity level.

Common symptoms include drooling, vomiting, diarrhea, rash, difficulty breathing, general weakness, liver failure, seizures and difficulty standing or holding up the head. In the worst cases, animals may suffer convulsions and die. Symptoms generally begin minutes to hours after exposure to the toxins.

If you suspect that your pet or livestock have been exposed to or ingested HAB-contaminated water, immediately wash them off with fresh water and contact your veterinarian. Let your veterinarian know that your animal may have been exposed to blue-green algae or cyanobacteria.



Why are animals more susceptible to cyanobacteria toxins than humans?

Animals are more susceptible to algal toxins because they are more likely to drink, swim or play in contaminated water and they are not deterred by a bloom's unpleasant aesthetic appearance or smell of a bloom. They also tend to ingest a larger proportion of water or scum relative to their weight, making the toxic effects are more severe.

Do HABs affect aquatic life?

Any algae bloom can lead to low oxygen levels in the waterbody. This can lead to high mortality rates in fish, shellfish, invertebrates and plants. Dense blooms can affect the amount of light that can penetrate into the water, harming plants and other organisms living on the bottom.

Is it safe to eat the fish?

It is unknown if fish caught in HAB-affected waters pose human health risks. The fish also may have an undesirable taste. Because of the unknown risks, we recommend that you do not eat fish from affected areas for at least two weeks after the bloom visually dissipates. If you choose to eat them, be sure to remove all fat, skin and organs before cooking, because toxins are more likely to collect in these tissues. Always cook fish thoroughly.

How do I report a HAB?

There are three ways to report a HAB:

- Fill out the online [Suspected Harmful Algal Bloom \(HAB\) Notification Form](#)
- Call MoDNR's Environmental Response (EER) Spill Line at 573-634-2436
- Call DHSS's Public Health Emergency Hotline at 800-392-0272

How can I get more information or assistance?

More information and resources are available online at dnr.mo.gov/env/cyanobacteria.htm. The Missouri Harmful Algal Bloom Response Team is also available to assist landowners, park officials, city leadership, other lake managers and the public with concerns related to HABs. The team comprises staff from the departments of Natural Resources, Conservation, Health and Senior Services, and Agriculture. Contact any of the participating departments for assistance.

Missouri Department of Natural Resources

P.O. Box 176
Jefferson City, MO 65102
573-751-3443 or 800-361-4827

[Contact Us](#)

[Report an Environmental Concern](#)

Missouri Department of Conservation

2901 West Truman Blvd.
Jefferson City, MO 65102
573-751-4115

[Local MDC Contacts](#)

Missouri Department of Health and Senior Services Bureau of Environmental Epidemiology

PO Box 570
Jefferson City, MO 65102
573-751-6102 or 866-628-9891

Email: info@health.mo.gov

Missouri Department of Agriculture

PO Box 630
1616 Missouri Blvd.
Jefferson City, MO 65102
573-751-4211

Email: aginfo@mda.mo.gov