

# Harmful Algal Blooms (HABs)

## DISEASE IN ANIMALS

Proliferation of some blue-green algae (cyanobacteria) can produce toxins that can cause illness and death in both humans and animals. Cyanobacterial blooms form in warm, slow-moving waters that are rich in nutrients such as fertilizer runoff or septic tank overflows. Blooms, which can look like colorful foam, scum or mats on water, most often occur when the water temperature rises. Blooms can occur in marine, estuarine, and fresh waters, but the blooms of greatest concern are the ones that occur in fresh water, such as drinking water reservoirs or recreational waters. The algae can produce multiple toxins and they are primarily classified as either neurotoxins or hepatotoxins.

**Transmission:** An exposure to an algal bloom includes having had known contact with water or scum, having ingested water or scum, or having eaten any dead animal near a body of water with an algae bloom.

**Clinical signs:** Onset of illness to these toxins is rapid, from minutes to hours with anatoxin or saxitoxin (neurotoxins) and from hours to days with hepatotoxins such as microcystin. In animals such as cattle, sheep, horses, pigs and dogs, there may be clinical signs and clinicopathologic data suggestive of liver failure if algal poisoning is caused by microcystin. In such cases, the liver may be enlarged or contain areas of hemorrhage, accompanied by hepatocellular necrosis. Other algal toxins, such as anatoxins, may result in no gross or microscopic morphologic lesions. Clinical signs of acute toxicity include vomiting, weakness, paralysis, rash, seizures or sudden death.

**Diagnostics:** Tests for toxins are performed by a very few laboratories. Testing vomitus or stomach contents from affected animals are most available. The Ohio Department of Agriculture (ODA) can perform histopathology on sections of formalin-fixed liver, kidney and brain tissue to support a diagnosis. Contact ODA prior to necropsy for specifics.

### **Case classification (CDC, 2010):**

- **Possible:** Exposure to water from a confirmed algal bloom and onset of associated signs within a reasonable time after exposure and exclusion of other causes of illness.
- **Probable:** Meets possible case criteria and there is laboratory documentation of HAB toxins in the water.
- **Confirmed:** Meets criteria of a probable case and there is documentation of HAB toxin in a clinical specimen taken from the case subject or from the meal remnant.

**Reporting:** Although not required, reporting of any illness among domestic animals that have had exposure to waters where an algal blooms is suspected is encouraged. Contact the ODA, Division of Animal Industry at (614) 728-6220 or (800) 300-9755 and the [local health department](#) from the jurisdiction where the exposure occurred. This information may be helpful in identifying harmful algae blooms so the public can take steps to prevent exposure to themselves and other animals.

Unusual mortality and morbidity in wildlife should be reported to the [county wildlife officer](#) or to the Ohio Department of Natural Resources at (614) 265-6300 or (800) 945-3543.

## DISEASE IN HUMANS

**Human illness:** Humans who drink or swim in water that contains high concentrations of cyanobacteria or cyanobacterial toxins may experience gastroenteritis, skin irritation, neurologic symptoms, allergic responses or liver damage. Humans who eat shellfish containing toxins produced by these algae may experience neurologic symptoms such as tingling fingers or toes, and gastrointestinal symptoms. Children are at higher risk than adults for illness from toxic HABs because they weigh less and can get a relatively larger dose of toxin.

**Personal protection:** Do not swim, water-ski, or boat in areas where the blooms are occurring. Avoid direct contact with the lake water or aerosolizing the water. Do not water lawns, gardens, or golf course with water from HAB-impacted lakes or ponds. Follow posted water body closures announced by state agencies or local public health authorities. After contact with HAB-contaminated water, rinse off with clean fresh water as soon as possible. When rinsing off animals exposed to HABs, cover exposed skin and avoid aerosolization of water.

**Reporting:** Individuals with suspect illness associated with a HAB can be voluntarily reported to the local health department. Two or more human cases are required to be reported as an outbreak.

## **FOR MORE INFORMATION**

### **General**

[Harmful Algal Blooms - Protect Your Health](#)

[ODH: Blue-Green Algae/Cyanobacteria \(HABs\)](#)

[Ohio EPA: HABs and Algal Toxins](#)

[CDC Table of HAB toxins, signs in animals and humans](#)

### **Disease in Animals**

[EPA Protect Your Pets and Livestock, Harmful Algal Blooms, HABs can be deadly to pets and livestock](#)

### **Human illness**

[ODH Health Care Provider Reference](#)

[CDC Harmful Algal Blooms \(HABs\)](#)