



Axel, a 16-month old black lab came into contact with a HAB near the Dexter Reservoir in Oregon. Axel later collapsed and was taken to a veterinarian. Despite treatment, Axel died five hours later. Photo courtesy of his owner, Jerry Benedick via KVAL.com.

## Questions?

Mark Malchoff, Aquatic Resource Specialist  
 Lake Champlain Sea Grant  
 136B Hudson Hall  
 Plattsburgh State University of NY  
 101 Broad Street  
 Plattsburgh, NY 12901-2681  
 Ph: 518-564-3037  
 mark.malchoff@plattsburgh.edu



Funding for the development and printing of this publication was provided by the National Oceanic and Atmospheric Administration Center for Sponsored Coastal Ocean Research, and the National Sea Grant College Program.

**Acknowledgements:** Angela Schambaugh, VTDEC; Jesse Lepak, NYSG; Dr. Karyn Bischoff, Cornell University Veterinary College; Scott Kishbaugh, NYSDEC; John Wickham, NOAA National Ocean Service; Dr. Greg Boyer, SUNY ESF; Dr. Chris Gobler, SUNY Stony Brook School of Marine and Atmospheric Sciences (SoMAS); Dr. Lesley V. D'Anglada, USEPA; and Marti Martz, Pennsylvania Sea Grant.

Content for this brochure was adapted from "Dogs and Harmful Algal Blooms (HABs)," a New York Sea Grant (NYSG)-produced brochure that can be viewed at: [www.nyseagrant.org/habs](http://www.nyseagrant.org/habs)  
 This brochure is available at: [www.uvm.edu/seagrant/](http://www.uvm.edu/seagrant/)

Revised April 2018

## How to reduce risk of poisoning by cyanobacterial toxins?

- Learn to recognize cyanobacteria so you know when it is safer to let your dog in the water (see images on websites listed as resources)
- Keep your dog on a leash near shorelines.
- If you see evidence of cyanobacterial blooms, don't let your dog wade, drink the water, or eat/walk in beach debris.
- If your dog is exposed to a suspected toxic algal bloom remove them immediately from the contaminated water.
- Don't let your dog lick their fur or paws after getting out of the water.
- Rinse/wash your dog thoroughly with fresh water from a safe source if available (e.g., bottled water or water from a garden hose). Otherwise use a towel or rag to remove algal debris.
- Use rubber gloves during pet cleaning, if possible.
- Dry your dog thoroughly with a clean towel or rag.
- Wash your hands with fresh water.
- Watch closely for symptoms described in this brochure.
- Notify the appropriate agency if you observe a suspected HAB.

## What are the economic costs of dog poisonings from HABs?

**Veterinary treatment:** U.S. dog owners spend \$800/yr for normal veterinary check ups. With HABs becoming more frequent these expenses could increase. A dog with HAB poisoning may require a week or more of care.

**Waterfowl hunting:** The US Fish and Wildlife Service estimates that each waterfowl hunter spends about \$700/yr, totaling \$900 million (\$20 M in New York) in hunting-related expenses (including dog outfitting). A typical retriever dog can also cost \$500 to \$2000 or more. HAB outbreaks can also sicken/kill waterfowl, reducing hunting effort and expenditures.

## More information on cyanobacteria:

- **VT Dept of Health:** [www.healthvermont.gov/health-environment/recreational-water/cyanobacteria-blue-green-algae](http://www.healthvermont.gov/health-environment/recreational-water/cyanobacteria-blue-green-algae)
- **VTDEC:** <http://dec.vermont.gov/watershed/lakes-ponds/learn-more/cyanobacteria>
- **Lake Champlain Committee:** [www.lakechamplaincommittee.org/lcc-at-work/algae-in-lake/](http://www.lakechamplaincommittee.org/lcc-at-work/algae-in-lake/)
- **NYSDEC:** [www.health.ny.gov/environmental/water/drinking/bluegreenalgae.htm](http://www.health.ny.gov/environmental/water/drinking/bluegreenalgae.htm)
- **Lake Champlain Basin Program:** [www.lcbp.org/water-environment/data-monitoring/](http://www.lcbp.org/water-environment/data-monitoring/)

## View current bloom status:

- **NY HABs Notification:** [www.dec.ny.gov/chemical/83310.html](http://www.dec.ny.gov/chemical/83310.html)
- **VT Cyanotracker:** <https://apps.health.vermont.gov/vttracking/cyanobacteria/2017/d/index.html>

## Report possible HABs:

- **VTDEC:** email [BloomAlert@vermont.gov](mailto:BloomAlert@vermont.gov) (24/7) or 1-800-439-8550 (9am-5pm). Please include photos and location.
- **NYSDEC:** [www.dec.ny.gov/chemical/77118.html](http://www.dec.ny.gov/chemical/77118.html) An online reporting form is available at: [www.dec.ny.gov/water/pdf/algaereportform.pdf](http://www.dec.ny.gov/water/pdf/algaereportform.pdf)
- **NYS Dept of Health:** email [harmfulalgae@health.ny.gov](mailto:harmfulalgae@health.ny.gov) or contact the local health department at: [www.health.ny.gov/contact/contact\\_information/](http://www.health.ny.gov/contact/contact_information/)



Photo by Corrina Parnapy.

# KEEPING DOGS SAFE FROM HARMFUL ALGAL BLOOMS (HABs)



Dogs love to frolic in water, but may be at health risk from cyanobacterial toxins. Sadly, the number of dog poisonings from these toxins is on the rise. Photo by Mark Malchoff.

Harmful algal blooms (HABs) are overgrowths of cyanobacteria (blue-green algae) that cause water quality problems in lakes and ponds. They can sometimes produce potent toxins that can poison people, pets, waterfowl and livestock. Because HABs are increasing in many areas, the number of dog poisonings from cyanobacterial toxins is also on the rise.

This brochure will help you understand the risks and how to recognize if your dog may have been poisoned by toxins. It will also provide you with information to help keep your canine companions safe around local waterways, at the beach or when waterfowl hunting.



## When are HABs most likely to occur?

- During/after periods of warm, sunny and calm conditions during summer and fall
- At water temperatures of 60-86°F
- After large storms when stormwater runoff brings nutrients into lake and ponds

## What do HABs look like?

- HABs look foamy or like pea soup or spilled paint-colored water
- HABs are most often green to blue-green colored, occasionally red or brown, and sometimes white, when a bloom is ending
- HABs form scums or floating mats that can wash up and accumulate on shore

## What is most important to know about toxins?

- Toxins are not always present in cyanobacterial blooms
- When present, toxins are colorless, powerful, and can be fast-acting
- Toxins have no known antidotes
- Toxins are released as cyanobacteria die and decompose



A cyanobacterial bloom in Mmissisquoi Bay of Lake Champlain. It is impossible to tell visually, by taste or by odor whether such a bloom is toxic (a HAB). Water samples must be analyzed for the presence of toxins. Photo by Quebec MDDELCC and LCBP.

- Liver, nerve, and skin cyanobacterial toxins all exist
- State agencies collect water samples from many lakes and ponds to determine cyanobacterial toxin concentrations and post results on their websites
- When toxin concentrations are unknown (i.e., in lakes that are unmonitored or before test results are available), pet owners should err on the side of caution and keep dogs out of the water when suspicious looking blooms appear
- Report suspected HABs to local health departments or state natural resource agencies.

## How are dogs exposed to toxins?

Dogs are much more susceptible than humans to cyanobacterial toxin poisoning because they are often attracted to algal scum odors, and can be exposed by drinking contaminated water, eating washed up mats or scum of toxic cyanobacteria, and having skin contact with water. After leaving the water, dogs can also be poisoned by grooming their fur and paws.

## Is there a “safe” level of toxin exposure for dogs?

Dog health risks depend on the type of toxin, toxin concentrations, amount of toxin consumed, size of the dog, and length of time a dog is exposed. The California Dept of Environmental Protection estimated health risks for 40 lb dogs exposed to both liver and nerve toxins in water and in algal debris. They estimated a dog that size could ingest up to 2 quarts of lake water and 1 pound of algae per day through drinking, grooming and eating.

Toxin concentrations are reported in parts-per-billion or (ppb). 1 ppb is roughly the same concentration as 1 drop of ink in an in-ground swimming pool. Low level exposure can occur at toxin concentrations as low as 2 ppb (see table). High level exposure, at which health effects can be seen within 24 hours, can occur at toxin concentrations as low as 100 ppb. Health effects can be delayed when a dog has longer or repeated exposure to lower toxin

| Common Signs of Cyanobacterial Toxin Poisoning in Dogs and Health Risks* |  |   |                      |
|--|--|---|----------------------|
|  | Liver Toxins   | Nerve Toxins  | Skin Toxins          |
| <b>Common Signs of Cyanobacterial Poisoning</b>                          | - repeated vomiting (green liquid)<br>- diarrhea or bloody stool<br>- loss of appetite, anorexia<br>- jaundice (yellowing of eye whites, gums)<br>- abdominal swelling; may be tender to the touch<br>- bluish coloration of skin<br>- dark urine or reduced/no urine output | - stumbling, seizures, convulsions, paralysis<br>- excessive salivation/drooling<br>- disorientation, inactivity or depression<br>- elevated heart rate, difficulty breathing | - skin rashes, hives |
| <b>Immediate Danger</b><br>(signs within 24 hours)                       | >100 ppb toxins  | >100 ppb toxins   | no data              |
| <b>Delayed Effects</b><br>(signs after prolonged or repeated exposure)   | >2 ppb toxins  | >2 ppb toxins   | no data              |

\*Source: California Environmental Protection Agency, Dept. of Environmental Protection: [https://www.waterboards.ca.gov/water\\_issues/programs/peer\\_review/docs/calif\\_cyanotoxins/cyanotoxins053112.pdf](https://www.waterboards.ca.gov/water_issues/programs/peer_review/docs/calif_cyanotoxins/cyanotoxins053112.pdf)

concentrations over 15% of its lifetime. Smaller dogs (less than 40-lb) are expected to have a higher health risks at these toxin concentrations.

## What are signs of possible cyanobacterial toxin poisoning in dogs?

If your dog has been swimming in a lake or pond with a suspected or identified HAB, closely monitor them for signs of poisoning. These signs can occur within 30 minutes to a few hours after exposure. In severe cases, dogs can show signs of poisoning within a few minutes and can die within an hour of toxin exposure. Common signs of cyanobacterial toxin poisoning in dogs are listed in the table below. These signs may not always appear together.

## What if your dog has been exposed to cyanobacterial toxins?

Seek immediate veterinary care or contact a pet poison hotline if you suspect cyanobacterial toxin poisoning in your dog. Untreated, such poisonings are usually fatal. Even in cases where a poisoned dog receives prompt veterinary care, the outlook is often poor and the dog may not fully recover. Veterinary care can last a few days to several weeks.

## 24-Hour Pet Poison Hotlines

- **Animal Poison Control Center:** (800) 213-6680. \$59 per incident fee [www.petpoisonhelpline.com](http://www.petpoisonhelpline.com)
- **ASPCA:** (888) 426-4435. \$65 consultation fee [www.aspc.org/pet-care/animal-poison-control](http://www.aspc.org/pet-care/animal-poison-control)
- **Cornell Veterinary Emergency:** (607)-253-3060.