Bureau of Environmental Health and Radiation Protection

"To protect and improve the health of all Ohioans

Harmful Algal Blooms (HABs)

DISEASE IN ANIMALS

Public Health Issue

In the summer of 2010, several of Ohio's inland lakes experienced cyanobacteria blue-green algae blooms, commonly referred to as Harmful Algal Blooms (HABs). Proliferation of some blue-green algae (cyanobacteria) can produce toxins that can cause illness and death in both humans and animals.

Cyanobacteria blooms form in warm, slow-moving waters that are rich in nutrients from fertilizer runoff or septic tank overflows. Blooms can look like colorful foam, scum or mats on water and most occur when the water temperature rises. Blooms can occur in marine, estuarine, and fresh waters, but the blooms of greatest public health concern are the ones that occur in fresh water, especially drinking water reservoirs and recreational waters.

Depending on the genera, water conditions, and other factors; neurotoxins, hepatotoxins, cytotoxins, dermatotoxins and gastrointestinal toxins can be produced by cyanobacteria. These toxins are released to the water as the bacteria die.

During a 2010 outbreak, Ohio Department of Health (ODH) received reports of illness from persons who had contact with HAB-contaminated waters and/or reports of pet illness and death after dogs swam and/or drank water from these lakes. Water samples from various Ohio lakes detected the presence of microcystin, anatoxin-a, cylindrospermopsin and saxitoxin.

Both humans and animals can experience illness from exposure to these toxins during recreational activities and other water uses and should be avoided during a bloom. Animals are not hesitant about swimming in or ingesting water from algal blooms and they are exposed to HAB toxins primarily by ingesting HAB contaminated waters; eating blue-green algae on the beach; or when licking fur when self-grooming after swimming.

Disease in Animals

Transmission: An exposure to a HAB 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 valuable. 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.

Reporting Animal Illness:

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 Ohio Department of Agriculture (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.

HAB-related animal illness report form: http://www.odh.ohio.gov/~/media/ODH/ASSETS/Files/eh/HABs/HABanimalillnessreportingform.pdf

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.

How can I keep my family, pets and livestock safe?

- Keep people, pets and livestock out of water with blooms. *"When in doubt, keep them out."*
- Don't let pets or people swim in areas where the blooms are occurring – avoid direct contact with the lake water or aerosolizing the water, (water-skiing, high-speed boating, tubing, etc.).
- Keep livestock fenced out of water with algae blooms.
- If your pets do enter the water, be sure to rinse them off with clean, fresh, HAB-free water so they do not lick algae off their fur or skin where toxins may be present.
- Do not let your pet eat algae off the beach as toxins may be present.
- 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.

How to treat animals that have been exposed to HAB toxins:

- If you or your pet comes into contact with the HAB-contaminated water, rinse off with clean, fresh water as soon as possible.
- Pets that have been swimming in an area with an algae bloom may ingest significant amounts of toxins by licking their fur after leaving the water. Thoroughly rinse of your pets with clean, fresh, HAB-free water.
- Seek medical treatment ASAP if you think you, your pet, or your livestock might have been poisoned by toxic HABs.

References - For More Information:

CDC:

- CDC Harmful Algal Blooms

ODH:

- Harmful Algal Blooms (HABs) – ODH HABs public health documents

Ohio EPA:

- Ohio Algae Information for Recreational Waters – One-stop shop for current Ohio HAB activities
- Harmful Algal Blooms - Protect Your Pets and Livestock
- HABS can be deadly to pets and livestock

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