

ANIMAL AND HUMAN HEALTH PREVENTION OPPORTUNITIES

Keep an Eye Out For Harmful Algal Blooms

Harmful algal blooms (HABs) can be found in bodies of water throughout Montana and pose a threat to Montanans, livestock, wildlife and domestic pets. HABs are the result of mass growth of cyanobacteria, a type of blue-green algae. Cyanobacteria are native to Montana among many other states and are common in streams and lakes. When cyanobacteria proliferate and grow rapidly they form “blooms” that can resemble spilled paint, pea soup, or grass clippings (Figure 1). It is important to understand how to identify HABs because cyanobacteria can produce toxins (cyanotoxins) which can sicken humans and even cause death in animals. In this issue of Montana One Health we will discuss the human and animal health implication of exposure to a HAB, how to report HABs, and how animal exposures are managed.

OVERVIEW

While HABs can occur year-round, they are most common in the summer when abundant sunlight and warm, stagnant water combine with high nutrient concentrations. There is no way to determine if a suspected bloom is toxic by looking at it. Cyanobacteria may be present without producing cyanotoxins at impactful levels. Cyanotoxins can also remain in the water column after a bloom has visibly dissipated. For these reasons, water quality sampling is required to determine toxicity. A “non-detect” result when testing for cyanotoxins means the water is safe at that time; however, if the cyanobacteria are present, toxin production may occur at any time. It is difficult to test cyanotoxins frequently enough to determine when conditions change. Therefore, the State HAB Team recommends caution whenever blooms are visibly present. Waters are generally expected to be clear of cyanotoxins after the bloom has visibly dissipated for two weeks. Individuals can submit photos of suspected HABs to HAB.mt.gov. The State HAB Program responds to reports of HABs by visually confirming the presence of cyanobacteria, providing easy-to-use water quality monitoring resources with instructions to local jurisdictions such as county health departments, and provides guidance for public outreach. When HABs occur on publicly accessible or high trafficked waters, the State HAB Program can also provide assistance with press releases and signage with the appropriate advisory level for the local jurisdiction to post near the bloom. Since 2018, the State HAB Program has responded to [118 reports of confirmed cyanobacteria blooms](#). The State HAB Program reminds Montanans: when in doubt, stay out!

ANIMAL HEALTH

Each summer, anecdotal reports of animal illness or death are associated with many HAB reports. Cyanobacteria found in Montana can produce hepatotoxins (e.g. microcystin) or neurotoxins (e.g. anatoxins). Signs of exposure to microcystin can occur within hours or days, and may include abdominal pain, loss of appetite, jaundice, dark or reduced urine, diarrhea, vomiting, liver damage, and hemorrhages. Signs of exposure to anatoxin can occur within minutes, and symptoms include numbness, tingling, stumbling, seizures, paralysis, disorientation, headaches, inactivity, elevated heart rate, dizziness, and respiratory failure. Anatoxin exposure is most commonly associated with animal death.

Pets, livestock, and wildlife can be exposed to cyanotoxins through ingestion of water containing the cyanotoxins, or ingestion of the cyanobacteria itself. Cyanotoxin poisoning can be easily confused with other conditions with similar symptoms, such as water intoxication. Unless a veterinarian performs a necropsy and detects

cyanotoxin in tissue samples, false diagnoses of cyanotoxin poisoning can raise unnecessary alarm and blame for unfounded water quality concerns. It is important that veterinarians collaborate with the State HAB Program before diagnosing cyanotoxin poisoning. The State HAB Program can help arrange water quality monitoring to confirm that the environmental conditions align with plausible cyanotoxin poisoning.

HUMAN HEALTH

The risk of ingesting cyanotoxins is particularly high for children playing in near-shore areas because these areas are also where scums tend to accumulate. Dermal irritation or allergic effects are possible from skin contact with cyanobacteria; however, the cyanotoxins are not likely to cross the skin barrier and enter the bloodstream. Inhalation and aspiration of toxin is also possible, especially through activities where the toxin is aerosolized, such as water skiing or splashing. Immediately rinse off skin with clean water if you suspect you or a dependent have come in contact with cyanotoxins. Intentional ingestion of lake or stream water used for drinking or cooking is another possible exposure pathway.

HUMAN HEALTH continued

Camping filters, tablets, and boiling water will not remove cyanotoxins and may in fact concentrate the toxins. There is insufficient information to determine the risk of consuming fish caught in waters with toxigenic cyanobacteria. At a minimum, the fish should be rinsed with potable water and the organs should be removed and discarded prior to cooking fillets. If you believe you or a dependent have been exposed to cyanotoxins, contact a doctor immediately.

Take-aways

ANIMAL HEALTH

- Pets, livestock, and wildlife are primarily exposed to cyanotoxins through ingestion.
- Livestock water sources should be monitored closely. If a bloom is detected, use an alternative water source until the bloom has visually dissipated for at least 2 weeks, or until cyanobacteria is confirmed to be absent through visual assessment.
- Cyanotoxin poisoning can be confused with other causes of illness or death. Veterinarians should coordinate with the State HAB Program to confirm that environmental conditions are plausible before issuing a cyanotoxin poisoning diagnosis.
- If you suspect a harmful algal bloom may be present, submit a report with a photo to HAB@mt.gov.

HUMAN HEALTH

- The risk of ingesting cyanotoxins is particularly high for children playing in or near-shore areas.
- If you suspect you or a dependent have come in contact with cyanotoxins, immediately rinse off skin with clean water, submit a report to HAB.mt.gov, and if symptoms develop contact your doctor immediately.
- Health care providers should also report suspected cyanotoxin exposure to the State HAB Program (HAB.mt.gov).



Figure 1. Characteristics of Harmful Algal Blooms include the appearance of grass clippings (left) or spilled paint (right). Bright blue coloration (center) is common, but a variety of colors is possible, including green, white, brown and red.

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