

TOXIC ALGAE FACT SHEET

Department of Environmental Quality

September 30, 2016

WHAT ARE ALGAE?

Algae are small, often microscopic plants, which lack specialized structures like leaves, stems, and roots.

ARE ALL ALGAE TOXIC?

No. In Montana, only certain species of blue-green algae are capable of producing toxins, and even these species are harmless most of the time.

WHAT ARE BLUE-GREEN ALGAE?

Blue-green algae are the most primitive form of algae, similar in structure to bacteria. Algae are microscopic organisms, which are common in surface waters and wet areas throughout Montana.

WHERE ARE TOXIC BLUE-GREEN ALGAE FOUND?

Potentially toxic blue-green algae occur throughout Montana in any standing bodies of water exposed to the sun, e.g., lakes, reservoirs, stockponds, and roadside ditches. They normally are not found in rivers, streams, springs, irrigation canals, or wells.

WHAT CONDITIONS FAVOR THE GROWTH OF TOXIC BLUE-GREEN ALGAE?

Potentially toxic blue-green algae prefer warm, clear waters that are rich in plant nutrients, especially phosphorus.

WHAT SPECIES OF BLUE-GREEN ALGAE ARE TOXIC?

In Montana, only one species of blue green algae--Anabaena flos-aquae--has ever been documented as a toxin producer. Two other species common tin Montana--Aphanizomenon flos-aquae and Microcystis aeruginosa-- have produced toxins elsewhere.

WHAT IS AN ALGAE BLOOM?

An algae bloom is a rapid and massive buildup of algae cells that imparts a green color to the water. Sometimes the algae can be further concentrated along the shore by wind and wave action.

WHAT CONDITIONS LEAD TO BLOOMS?

Blue-green algae blooms can occur anytime from May through October, but they normally occur during the hottest part of the summer-June, July, and August.

WHAT DOES A BLOOM LOOK LIKE?

A bloom of potentially toxic blue-green algae appears as "pea soup," "grass clippings," or "green latex paint." The algae usually are suspended in the water column or aggregated into floating mats; they do not grow from the bottom as do mosses or "water weeds."

HOW DO I KNOW IF A TOXIN IS PRESENT?

There is no way to tell for sure if the water is toxic unless some of it is actually injected into an experimental laboratory animal. Harmless strains of potential toxin-producing algae look the same as deadly strains under a microscope. A toxin will impart no distinguishing odor, test, or color to the water in which it is dissolved.

CAN WATER BE TREATED TO REMOVE THE TOXIN?

Conventional treatment and disinfection afforded most public drinking water supplies are not effective in removing or deactivating blue-green algae toxins. Water that is free of blue-green algae may not be free of the toxin. Boiling is similarly ineffective.

WHAT ANIMALS ARE SUSCEPTABLE TO THE TOXIN?

Essentially, all warm-blooded animals are susceptible to blue-green algae toxins, including people, waterfowl, furbearers, game and non-game animals, livestock, poultry, and household pets.

ARE FISH AFFECTED?

Fish kills associated with algae blooms are most likely due to depletion of dissolved oxygen rather than the toxic blue-greens, although fish kills resulting directly from algae toxins have been reported.

ARE FISH FROM ALGAE-INFESTED WATERS SAFE TO EAT?

Although fish taken from waters infested with toxic algae are not likely to cause secondary poisoning if eaten in moderation, they may taste "weedy." It is advisable to shun fish taken from such waters, particularly if they appear sickly or sluggish.

HOW MANY KINDS OF ALGAE TOXINS ARE THERE?

There are two basic kinds of algae toxins: (1) the milder peptide type is rarely fatal but may produce liver damage and general long term debility; and (2) the more potent alkaloid type is usually fatal within a short time.

WHAT ARE THE SYMPTONS OF TOXIC ALGAE POISONING?

The peptide toxin may produce diarrhea, nausea, cramps or general lethargy and unthriftiness in animals. The alkaloid toxin may cause staggering, muscle spasms, labored breathing, or convulsions. A very rigid neck is characteristic at death; death is caused by respiratory arrest. In people who unwittingly ingest the toxin, sensations of numbness, dizziness, tingling, and fainting may be manifest.

IS THERE AN ANTIDOTE?

There is no antidote known to be effective at counteracting the effects of the toxin once it has been ingested.

IS THERE ANY WAY TO CONTROL TOXIC ALGAE?

The time to control a toxic algae bloom is before the bloom develops. Assuring that fertilizers, animal wastes and other sources of nutrients do not reach the water is the best preventative. The county extension agent, NRCS office or conservation district can assist landowners in finding best management practices that address the specific needs of their operations.

If you have additional questions or want more information on toxic blue-green algae, contact the Montana Department of Environmental Quality, 1520 e. 6th Ave, PO Box 200901, Helena MT 59620-0901, or telephone (406) 444-0831 or (406) 444-5320.