

Blue-green Algae: A Primer on a Problem

AGRI-VIEWS

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Blue-green algae has been in the news, a lot, in recent weeks and even recent years. We've seen issues locally at Milford Lake. We've seen major issues in Lake Erie and this year in Florida. We've even had livestock producers that have had farm ponds with blue-green algae issues over the years. Since this is a problem that isn't going to go away soon, I thought it might be helpful to have a brief introductory course on blue-green algae!

Blue-green algae aren't algae at all. They are actually several different species of photosynthetic cyanobacteria that live in water. Cyanobacteria are bacteria capable of photosynthesis. They are in every body of water in the state as they are naturally occurring. This isn't like an insect that has blown in from somewhere else that we can exterminate. Cyanobacteria have always been here and always will be! Most of the time the cyanobacteria population stays fairly well in control thanks to natural forces including green algae and other natural controls.

The problem comes from the fact that cyanobacteria can produce toxins that can sicken and kill animals and sometimes even people. The toxins are often released as the bacteria die. Under certain conditions the blue-green algae organisms experience a population explosion forming what are called blooms or large colonies that are very visible as scum on the water's surface. The water in areas of blooms can change color, often being a bluish green color (the most common) but other colors can appear depending on the particular cyanobacteria species involved.

These blooms, sometimes called harmful algal blooms or HABs are most likely under high temperatures, stagnant water, lack of wind disturbance and elevated levels of nutrients in the water. These blooms can move around on a body of water depending on how the wind is blowing as well as the geography of the shoreline, inlets, etc. The blooms often have a very distinctive odor to them. You can have an algal bloom without high levels of toxins, you can have high levels of toxins when there is no evidence of a bloom. But often if you see a bloom, high levels of toxins will soon be present if they aren't already. Pockets of water that contain very high levels of toxin can be a few feet from water that has very low concentrations.

Different animal species and even different individuals are going to have different reactions to varying levels of the toxin. Cattle usually tend to avoid algal blooms while dogs seem to be attracted to them. Toxin can cause skin irritation, it can irritate the eyes, it can impact the respiratory system, it can cause issues with internal organs. The level of toxins needed to have these impacts varies depending on the species or individual.

A blue-green algae problem is not a quick and easy fix. If we are seeing global warming, then we can expect to see more problems from this. Elevated levels of nutrients, especially phosphorus and nitrogen, can certainly make algal blooms worse. Clearer water is going to be more of a problem because clear water allows the sunlight to penetrate deeper in the water and allow for more cyanobacteria growth. Muddy lakes are less likely to have issues than clear lakes. To be very honest, it will take years, if not decades to reduce nutrient levels. Cities and agricultural will equally share in the responsibility to reduce the runoff of nutrients from farms, sewer discharge and storm water discharge from lawns. It won't be easy, but advances can be made!