

Blue-Green Algae (Signature)

Situation

Cyanobacteria, often referred to as “blue-green algae,” are common in public and private lakes, ponds, and other natural or man-made water bodies. Blooms of cyanobacteria, called harmful algal blooms, or HABs, are capable of producing dangerous toxins. This causes health and safety concerns for Kansas citizens, their pets, and livestock. Environmental conditions, both those we can manage and those we cannot, contribute to blue-green algae problems. When temperatures stay high in eutrophic water bodies for a period of time, cyanobacteria concentrations tend to increase rapidly, more often in late summer and early fall, causing potential for toxic releases and cyanobacteria blooms. HABs are generally caused by increases in nutrients (particularly phosphorus and nitrogen from surface runoff, soil and nutrient leeching from agricultural systems or municipal sewage wastes), warm water temperatures, sufficient light penetrating deeper in water, and calm weather conditions.

HABs usually do not persist; and rain, heavy winds or cooler temperatures may inhibit or break up blooms, mixing the bacteria into the water body within a few days. Water quality conservation practices on agricultural land can reduce the likelihood of toxin production and HABs. Erosion control, soil quality restoration, and nutrient management practices on both urban and rural landscapes are the best defenses against excessive nutrient losses and, thus, can be primary prevention strategies for HABs. In addition, they can provide additional benefits to the landowner as well as helping retain valuable topsoil. Kansas citizens should be aware of the risks associated with cyanobacteria growth, expose to toxins, and use available resources to make informed water-use decisions.

Public Value

Awareness and understanding the risks associated with cyanobacteria in public and private water bodies, toxins caused by blue-green algae and harmful algal blooms (HABs) are important for the health and safety of Kansas residents and guests. Nutrient management best practices can reduce the frequency of blue-green algae issues and concerns.

Outcomes

Short-Term (Knowledge)

1. Participants will learn what blue-green algae is and what makes it harmful to humans and other animals.
2. Participants will understand public lake harmful algal bloom (HAB) designations of watch, warning and hazard.
3. Participants will learn about environmental conditions that favor or contribute to blue-green algae blooms. They will learn which conditions can be impacted by management.
4. Participants will learn about blue-green algae sampling and testing, including laboratory test options and visual jar and stick tests.
5. Participants will learn about ongoing mitigation research.

Indicators

1. Increased participation in blue-green algae programming.
2. Knowledge and awareness gains documented by blue-green algae program evaluation instrument(s)

Medium-Term (Behavior)

1. Participants will use the public lake harmful algal bloom (HAB) designations of watch, warning and hazard to protect themselves and their pets from HABs. List is available online at <https://www.kdheks.gov/algae-illness/>.
2. On private water bodies, participants will utilize observation and environmental conditions to evaluate the likelihood of blue-green algae and HABs.
3. Participants will test for blue-green algae when suspected using proper sampling procedures.
4. Participants will implement best management practices to reduce nutrient runoff into water bodies.

Indicators

1. Citizens will more often avoid public water bodies for in-water recreation and fishing during harmful algal blooms (HABs) warning and hazard designations and be observant and careful during watches and at other times, particularly in the summer.
2. Number of blue-green algae tests conducted by K-State Veterinary Diagnostic Lab.
3. Number of blue-green algae visual jar or stick tests reported to K-State Research and Extension offices.
4. Strategic water quality conservation practices observed and/or reported near water bodies prone to harmful algae blooms (HABs.)

Long-Term (Change in Condition)

1. Nutrient runoff into water bodies will be reduced.
2. Kansas citizens, pets or livestock will be safe from blue-green algae toxins.

Indicators

1. Fewer harmful algal blooms (HABs) in both private and public water bodies will occur.
2. No Kansas citizens, pets or livestock will become seriously ill or die from blue-green algae toxins.

Outputs

1. PowerPoint presentation and speakers notes for agent presentations on blue-green algae.
2. Make KDHE visual jar and stick test factsheet more readily available. https://www.meadowlark.k-state.edu/docs/livestock/blue_green%20algae_jar_Test.pdf
3. "Fill in relevant information" press release for agents to send to media when harmful algal blooms (HABs) are likely/detected in the area.
4. Update "Identification and Management of Blue-green Algae in Farm Ponds" (MF-3065) if needed.