



Blue-Green Algae

Office of Water Quality
Watershed Assessment and Planning Branch

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Description:

- Blue-green algae, also known as cyanobacteria, are a group of photosynthetic bacteria found in a wide range of water bodies throughout Indiana, the United States, and the world.
- When certain temperature and water conditions coincide, periods of significant algae growth, or algal “blooms”, may occur – commonly from May to October in Indiana.
- Factors promoting algal growth include sunlight, warm weather, low turbulence, and nutrient sources such as phosphorus and nitrogen. Still, some types of algae prefer turbid, or cloudy, water with low levels of light.
- Water containing high levels of blue-green algae may appear greenish in color and, occasionally, some shades of blues, browns and even white. Some appear to have a thick, paint-like scum on the surface.
- Blooms may appear for only a few hours or remain unchanged for weeks, depending on water and wind conditions.
- There are many types of freshwater blue-green algae, and some are capable of producing toxins. The mechanisms for toxin production are not well known. Toxins may be produced as part of the natural growth process of the algae and be excreted into the water.

Environmental Impacts:

- All Indiana lakes contain algae; however, the concentration and type of algae varies greatly.
- When algal blooms die off, they sink to the bottom. The degradation of this organic matter consumes available oxygen in the water. In some high concentrations, the depletion of oxygen may be great enough to result in fish kills.
- In extremely rare instances, toxin-producing blue-green algae have resulted in the sickness or death of other animals, including livestock and dogs.
- Blue-green algae, can produce toxins that may impact recreational waters. Humans who swim in water that contains high concentrations of cyanobacteria or cyanobacterial toxins may experience gastroenteritis, skin irritation, and allergic responses. For more information about human health effects of blue-green algae visit:
<https://www.cdc.gov/healthcommunication/toolstemplates/entertainment/tips/AlgalBlooms.html> Some blue-green algae blooms can create an earthy or musty smell in lakes and reservoirs. In some cases, taste and odor from algal blooms can impair drinking water supplies that use a surface water source. Taste and odor compounds are not known to be harmful, and treated water is safe to drink.

IDEM's Role:

- The Indiana Department of Environmental Management (IDEM) is responsible for protecting our environment through the monitoring and managing of Indiana's water quality.
- IDEM manages water quality, including public drinking water supplies, through the regulation of point and non-point sources of pollution that run into waterways, monitoring of permit compliance, enforcing protective regulations, and implementing various prevention programs.
- IDEM samples selected swimming areas at some state parks and state recreation areas for cyanobacteria and their toxins May through August of each year. IDEM scientists take water samples, identify types of blue-green algae, and analyze for four algal toxins: microcystin, cylindrospermopsin, anatoxin-a, and saxitoxin.
- The Indiana Department of Natural Resources (DNR) advises the public of the blue-green algae threat through signs at the swimming areas and on the DNR website for the properties being sampled. Together with the DNR, the Indiana State Department of Health (ISDH) and the Indiana State Board of Animal

Citizen's Role:

- Citizen involvement is a vital component in the effort to manage algae blooms.
- There are a number of actions every citizen can take to reduce the influx of nutrients into the watershed and improve overall water quality:
 - Do not over fertilize. Most established lawns need few nutrients to be healthy.
 - Check soil nutrient levels prior to applying garden fertilizer to ensure correct application. Soil test kits can be purchased from some local hardware stores and through online distributors.
 - If applying fertilizer, use phosphorus-free lawn fertilizers. Lawn-fertilizer packaging is labeled with three (3) numbers for nutrient content. Look for a zero (0) as the middle number (phosphorus content) to indicate phosphorus-free fertilizer.
 - Do not fertilize up to the edge of a waterway. Check with your local government for any specific setback requirements.
 - Do not dispose of grass clippings or leaves in or near a waterway.
 - To prevent nitrogen input from human waste, have your septic system inspected and tank pumped out at least every two years.
 - If conducting land disturbing activity, prevent soil and organic matter from washing into waterways, as soil can carry nutrients into the waterway.
- Public health officials suggest avoiding contact with waters visibly impacted by algae, and showering or bathing with warm, soapy water after recreating in reservoirs, lakes, rivers, and streams.
- Veterinarians recommend not allowing pets and livestock to drink or swim in waters visibly impacted by algae.

More Information:

- For more information on the most recent levels of blue-green algae, blue-green algae toxins (if any), environmental impacts, health guidelines, and other information, please visit www.algae.IN.gov.