RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

FACT SHEET

Office of Water Resources **October 2011**

Blue-Green Algae (Cyanobacteria)

Blue-green algae, also known as cyanobacteria, are naturally found in many freshwater ecosystems. A combination of excess nutrients, sunlight and high temperatures can lead to a rapid increase in blue-green algae, called a "bloom." Blue-green algae blooms may look or smell bad, inhibit recreational activities or negatively affect water quality and other aquatic organisms. Some species of blue-green algae can also produce toxins. These toxins are released when algae die-off or are ingested, posing a threat to human and animal health. Humans whose skin has come into contact with toxic blue-green algae can develop rashes, blisters and hives, and eye and nose irritations. If swallowed, humans may experience diarrhea, vomiting or neurotoxicity. Humans exhibiting neurotoxicity may feel numb lips, tingling in fingers and toes, and dizziness. Pets, livestock and waterfowl that ingest water with blue-green algae toxins can also experience sickness, paralysis or even death. Neurotoxicity in animals is characterized by salivation, weakness, staggering, difficulty breathing, and convulsions. If these symptoms are experienced or observed in pets and children after contact with a blue-green algae bloom, consult a medical professional.

Figure A. Blue-green algae may make the water look like pea soup

Figure B. Blue-green algae may make the water look cloudy with a green tint.

Figure C. Film on surface of water can look like spilled paint

Figure D. Duckweed plants may appear as a film on the surface but are not algae

How to tell if there is an algae bloom

Blooms of blue-green algae generally occur in late summer into the early fall when water temperatures are warmest and algae have an abundance of sunlight and nutrients available. There are no visual properties of a blue-green algae bloom that indicate the algae are producing toxins. Blue-green algae blooms generally have the following properties:

- Blooms are generally bright green or blue-green in color, but may be brown, red or purple.
- Water may appear cloudy or look like thick pea soup (Figure A & B) and may produce an odor.
- A slick film or colored streaks may cover the surface of the water like spilled paint (Figure C).
- Duckweed and watermeal are small, native, floating plants that may appear similar to an algae bloom from a distance (Figure D), but closer inspection of a bloom will look like Figures A, B, &C.
- The color of the bloom may give clues to the type of algae, but confirmation of blue-green algae can only be identified under a microscope. Water samples should be tested for toxin presence.

Common plants and other algae mistaken for blue-green blooms

Blooms of algae (Figure E) should not be confused with duckweed (*Lemna minor*) or watermeal (*Wolffia* sp.), very small, common, floating, native plants (Figures F & G). Duckweed and watermeal may often be found in the same locations as algae and thrive in similar conditions. Each individual duckweed or watermeal plant is clearly visible to the naked eye (Figure G), whereas individual algal cells are microscopic. A handful of duckweed and watermeal may feel like a handful of cornmeal. When an algae "bloom" is stirred with a stick, algal cells appear to dissolve in water like Kool-aid® or clump like hair (Figure H), while duckweed and watermeal will remain tiny solid bits floating on the surface. Blue-green algae (cyanobacteria) are microscopic cells and colonies may appear as small chunks in the water, but they do not form long thread-like strands like other types of filamentous algae (see Figure H).

Figure E. Thick green foam may wash ashore during a bloom

Figure F. It may be difficult to differentiate between an algae bloom and duckweed (pictured)

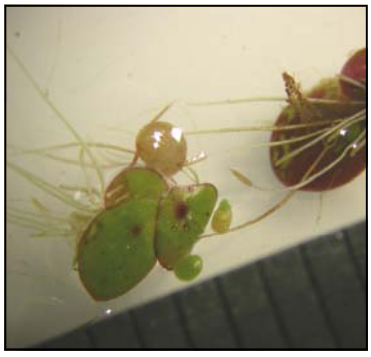

Figure G. Individual duckweed plants against a ruler

Figure H. Filamentous green algae accumulating on a paddle

Avoid exposure to blue-green algae toxins!

Not all species of blue-green algae produce toxins. Sometimes those species that can produce toxins may not. It is only possible to determine if toxins are present with laboratory tests. If a blue-green algae bloom is observed, it is best to take caution and stay out of the water to avoid any potential exposure to toxins.

- **People, pets and livestock should avoid contact with water that is discolored or has scum on the surface.** Colors can include shades of green, blue-green, yellow, brown or red. If contact does occur, wash yourself and animals with soap and water or rinse thoroughly with clean water to remove algae.
- **Never drink untreated surface water, whether or not algae blooms are present.** Untreated surface water may contain other bacteria, parasites or viruses, as well as algal toxins, that all could cause illness if consumed.
- **If you treat and use your pond/lake water, do not drink it during an algae bloom** because in-home treatments such as boiling and disinfecting water with chlorine bleach or UV and other water filtration units do not protect people from blue-green algal toxins.
- **If washing dishes in untreated surface water is unavoidable, add a small amount of bleach or rinse dishes with bottled water.** We don't know if water containing low levels of blue-green algal toxins could leave residues on dishes, but this precaution may help reduce possible exposures. The safest option is to abstain from using the surface water until clean water is available.

Where can I find more information or report a bloom?

More information regarding cyanobacteria blooms can be found at:
http://www.dem.ri.gov/ or http://www.health.ri.gov/
To report a suspicious algae bloom, contact RIDEM at (401)222-4700