

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

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Environmental Health Section

EHS Circular Letter #2012-56

To: Local Health Directors and Chief Sanitarians

From: Brian Toal, Supervising Epidemiologist 4
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Date: September 24, 2012

Subject: Information on Blue-Green Algae (Cyanobacteria) Blooms in Freshwater Lakes and Ponds

The purpose of this letter is to alert you to the issue of blue-green algae (cyanobacteria) blooms in freshwater lakes and ponds and to provide you with advice regarding how to ensure protection of public health when a bloom impacts a lake or pond. At this time, DPH is not issuing official guidance to Local Health Departments regarding inspection or response programs for blue-green algae blooms. Rather, DPH is providing you with background information in case you are confronted with a situation similar to the recent Lower Bolton Lake algae bloom (discussed below). As you will see in the attached materials, many other states have issued official guidance on the public health response to blue-green algae, but even their guidance does not reach the level of regulation. DPH is working with the Department of Energy and Environmental Protection (DEEP) to determine if an official guidance document is needed for Connecticut. We will keep you informed of our progress in this area.

You may have seen recent media coverage of the blue-green algae bloom in Lower Bolton Lake, located in Bolton CT. On August 23, 2012, the Eastern Highlands Health District issued a Public Health Advisory cautioning against direct contact with the lake water by people and pets. The advisory was issued based on the presence of large numbers of blue-green algae cells that can produce toxins and the overall appearance of the water. These toxins can present a public health concern.

Blue-green algae are naturally present in all lakes and ponds. However, a combination of conditions (warm water, high nutrients, calm, sunny days) is typically necessary in order for the algae to multiply rapidly, creating a visible, green color (blooms). Blooms most often occur in the late summer or early fall. Blue-green algae blooms can make the water appear cloudy, look like thick pea soup, or create a surface film similar to spilled paint. There may also be a thick mat or foam when a bloom washes onto the shore.

Some types of blue-green algae produce toxins. Common species that produce toxins in Connecticut are *Mycrocystis* and *Anabaena*. However, even the types of blue-green algae that are known to produce toxins may not produce them under all conditions. When toxin-producing algae die and break down, toxins can be released into the water. The highest concentrations of toxins may be found in dense blooms



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and shoreline scums. Toxins can remain in the water for a period of time after the algae have broken down and are no longer visible.

There are a variety of health effects that can be caused by coming into contact with water containing blue-green algae toxins. Human exposure most commonly occurs from recreation activities (swimming, wading, jet/water skiing) in lakes that are impacted by blue-green algae toxins. Exposure can also occur if lake water is used for drinking, showering or lawn watering. Possible health symptoms from exposure to water containing blue-green toxins are summarized below:

- Contact with water can cause skin and eye irritation.
- Ingesting small amounts of toxins can cause gastrointestinal symptoms.
- Ingesting large amounts of toxins may cause liver or neurological damage.
- Inhaling water spray containing toxins can cause asthma-like symptoms.

Exposure to pets and livestock is also a potential concern. Livestock and pet deaths from ingesting algal toxins have been documented in New England and elsewhere in the US. Blue-green algae toxins do not readily bioaccumulate in fish tissue. However, fishing in lakes heavily impacted by a blue-green algae bloom is usually discouraged by health officials because of the possibility of incidental water contact during fishing. There is also evidence that blue-green algae does not readily migrate in groundwater. This means that it is generally not necessary to advise residents with private wells near an impacted lake to test their well water for toxins. It should also be noted that boiling the water will not render the toxin harmless.

Connecticut currently has no state-wide monitoring program for blue-green algae or blue-green algae toxins in CT's lakes and ponds. There is also no state-wide protocol for evaluating potential public health impacts from the presence of blue-green algae or toxins. As stated previously, CT DPH is currently evaluating the need for statewide guidance for CT.

At Lower Bolton Lake, guidelines and protocols from the Massachusetts Department of Public Health were used to effectively evaluate algae and toxin testing data and protect the public from exposure. The MA Guidelines contain health-based action levels for blue-green algae cell counts and toxin concentrations in lake water. These action levels can be used to determine whether it is appropriate to issue a public health advisory for a lake and when it is safe to lift the advisory. There are also many resources available for visual identification of blue-green algae blooms, testing procedures for algae and toxins, as well as analytical methods and laboratories. The CT DPH laboratory currently does not have the capability to analyze water for blue-green algae or toxin, but there are private laboratories that do have this capability. The recent public health response in Bolton has generated public health advisory language and signage that can be used as a resource by other health departments should the need arise.

If you receive a complaint about a water body with algae or blue-green algae specifically, you can use the resources listed below to initiate an investigation. The Vermont guidance document has good pictures and simple steps you can use to visually identify a possible blue-green algae bloom. The VT and MA guidance documents can be accessed using the links provided at the end of this letter and are also attached. If you think that a blue-green algae bloom is occurring there are a few steps you may take.

1. Call for assistance:

- CT DPH Environmental and Occupational Health Assessment Program: (860) 509- 7740
- CT Department of Energy and Environmental Protection: (860) 424-3716 for questions about water quality assessment and management options.

- CT DPH Recreation Program: (860) 509-7296

2. If a visual assessment finds large amounts of blue green algae in an area used for swimming, consider issuing an advisory warning against swimming and other contact with the water pending the results of microscopic water tests for blue-green algae. Algae tests are described below. Sample signage for posting an advisory is attached to this letter.
3. Water testing may be conducted to confirm that the visible algae are blue-green algae species capable of producing toxins (such as *Anabaena*, *Mycrocystis*, *Aphanizomenon*). These microscopic tests are relatively easy and fast. DPH can help you find private labs capable of such testing.
4. Testing for toxins is not always needed to issue an advisory. However once a water body has been posted with swimming precautions, toxin testing may be needed in order to determine when the water is safe for swimming and other uses. This is because the toxins produced by blue-green algae are released after the cells die. Therefore, after a bloom has died off, the water could look clear of algae but still contain unsafe levels of toxins. There are private labs that can test for these toxins and DPH can help you find such labs.

As stated previously, CT DPH is working with CT DEEP to determine if statewide guidance is needed for the public health response to blue-green algae. If you receive a complaint about blue-green algae, you can access the guidance documents using the links below and follow the simple steps detailed in this letter.

Links to Guidance in Vermont and Massachusetts:

Vermont Guidance: http://healthvermont.gov/enviro/bg_algae/documents/BGA_guide.pdf

Massachusetts Guidance: <http://www.mass.gov/eohhs/docs/dph/environmental/exposure/protocol-cyanobacteria.pdf>

<http://www.mass.gov/eohhs/docs/dph/environmental/exposure/algae/algae-fresh-water-brochure.pdf>

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