

Cyanobacteria and Public Health in Massachusetts



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Overview

- Health Effects from HABs
- CDC Cooperative Agreement
- Environmental Surveillance
- Public Health Surveillance/Outreach
- 2009 and 2010 Health Effects
- Plans for 2011 Season
- Questions?

Health Effects from Freshwater HABs

- Contact with HABs can cause skin, eye, and ear irritation, itching, and rashes. Ingestion of small amounts may cause GI symptoms.
- Some HABs are capable of producing harmful toxins. Ingesting large amounts of these toxins can cause neurological or liver damage.
- Inhaling aerosols containing cyanobacteria can cause respiratory irritation, particularly in asthmatics and other sensitive individuals.

CDC Cooperative Agreement

- In 2008, MDPH/BEH was one of 10 state agencies awarded funding from CDC to conduct HAB monitoring and surveillance.
- MA is the only New England state.
- Evaluate potential health impacts from HABs by collecting and analyzing environmental and health data.
- CDC is interested in both human and animal health data (e.g., fish kills, pet poisonings).

HAB Advisory Process



MA Dept. of Public Health guidelines for cyanobacteria (blue-green algae) in recreational waters have been exceeded. A public health advisory has been issued for this waterbody.



▪ Water that looks like the pictures above may contain algae capable of producing toxins that can be dangerous to humans and pets.

▪ People and pets should avoid contact in areas of algae concentration- even on shore.

▪ Do not swallow water and be sure to rinse off after contact.

For further information call MDPH at 617-624-5757 or visit www.mass.gov/dph/environmental_health

- Advisory warning against water contact issued based on the following criteria:
 - Visible scum present
 - Cell count >70,000 cells/milliliter
 - Microcystin toxin concentration >14 parts per billion (ppb)

Environmental Surveillance

- Routine Monitoring
 - Locations with known history
- Bloom Response Sampling
 - Respond to bloom reports



Routine Monitoring Sampling

- MDPH collects samples on a weekly basis for a minimum of 12 weeks at five locations.
- Locations chosen based on past bloom history as reported to MDPH.
- Samples tested for:
 - Cyanobacteria count & ID
 - Microcystin
 - Water quality parameters
 - Total phosphorus, TSS, TKN, chlorophyll a, nitrate/nitrite, ammonium, dissolved oxygen, etc.

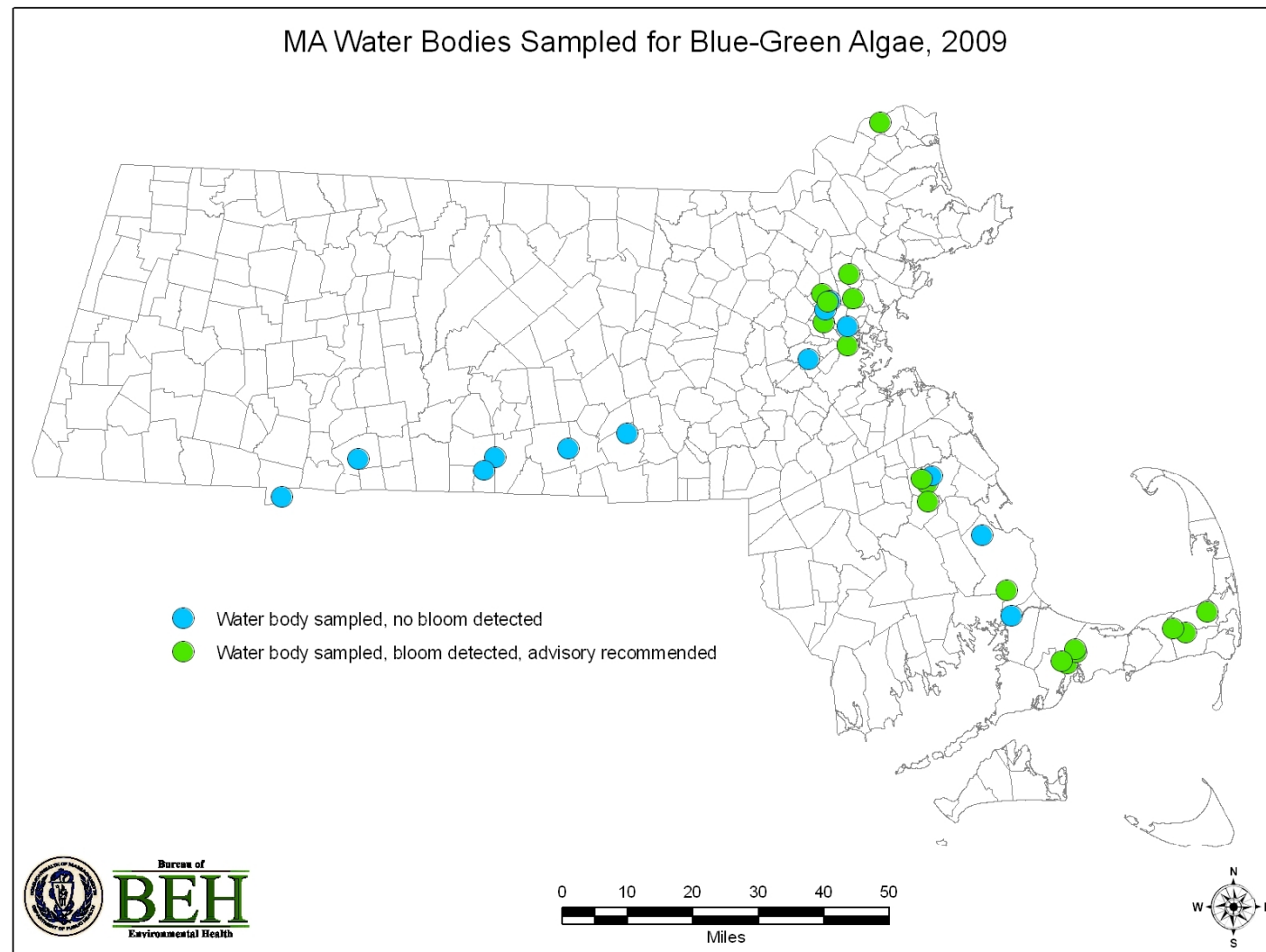
Bloom Response Sampling

- MDPH responds to all reports of blooms that are received
- Ask local health department or individual reporting the bloom to email photos of bloom before samplers are deployed
- Reports come from state environmental and local health officials, parks staff, residents, and watershed associations

2009 HAB Sampling

- In total, 151 water samples were collected at 32 waterbodies from June 18 to November 23.
- 21% of these samples exceeded the guideline level of 70,000 cells/ml, resulting in 24 separate advisories
- Samples were collected by MDPH staff, an MDPH contractor, and Massachusetts Department of Environmental Protection.

Map of Locations Tested in 2009



2010 HAB Sampling

- In total, 235 water samples were collected at 25 waterbodies from May 21 to December 13.
- 33% of these samples exceeded the guideline level of 70,000 cells/ml, resulting in 24 separate advisories
- Samples were collected by MDPH staff, an MDPH contractor, and Massachusetts Department of Environmental Protection.

Health Surveillance

- The public health goal of the project is to prevent exposures to HABs through recreational use, drinking water, or food contamination.
- MDPH has conducted illness surveillance to collect information on possible/actual health effects from exposure to HABs.
- Illness surveillance efforts were enhanced for the 2010 season.
 - Field Work
 - Pamphlet/Poster Development and Distribution

Field Work

- Two interns were hired to assist with human health surveillance efforts
- Visited waterbodies that were experiencing algae blooms
 - Spy Pond (Arlington)
 - Charles River (Boston)
 - Lake Attitash (Amesbury, Merrimac)
 - West Monponsett Pond (Halifax, Hanson)
 - Lovell's Pond, Middle Pond, Mystic Pond (Barnstable)
 - Sassaquin Pond (New Bedford)

Field Work (cont.)

- Interviewed people present at these waterbodies to determine if they came into contact with the water, and if so, if they were experiencing any health effects
- Distributed educational brochures and letters on the project to nearby homes

Pamphlet and Poster Development

- Educational brochure on HABs
 - Target audience included BOH and residents
- A pet health poster
 - Target audience included veterinarians

HARMFUL ALGAE BLOOMS IN FRESH WATER BODIES

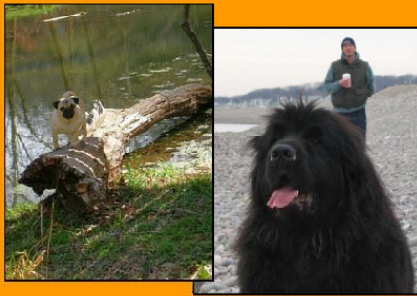


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Outreach To Veterinarians

Protect Your Pets from Harmful Algae Blooms



Blue-green algae can form harmful blooms in lakes, ponds, and rivers that make the water murky, and can sometimes make the water look like pea soup or paint. These blooms may produce toxins and could make pets and people sick.

- If you see water like this, do not allow your pet to swim in or drink the water.
- Rinse pets off immediately if they come into contact with an algae bloom.



Call your vet immediately if your pet has been around an algae bloom and shows symptoms such as vomiting, staggering, drooling, or convulsions.



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TTY: 617-624-5286
www.mass.gov/dph/environmental_health

- July 2010: mailed info on HAB project and a pet safety poster to all vet offices in MA
- MDPH wrote an article on HABs that will appear in the next MA Veterinary Medical Association newsletter (Spring 2011)

Outreach to Local Health

- In August 2010, letters were mailed to every local health department in MA.
- These letters described the project and provided contact information for reporting blooms and/or health effects.
- Copies of an educational brochure about HABs were also enclosed.

Outreach to Hospitals

- In August 2010 a letter was mailed to all hospital emergency departments located near active blooms
- An illness surveillance form to be used for reporting health effects was included with this letter

Outreach to Poison Control

- MDPH/BEH staff visited the Regional Center for Poison Control and Prevention (RCPCP) prior to the 2010 season
- A training was conducted to describe the symptoms frequently associated with exposure to HABs
- During the season, info on current blooms was shared with RCPCP
- A refresher training will be conducted prior to the 2011 season

2009 Health Effects



- One potential human illness – a six year old experienced coughing, a sore throat, ear pain, and pink dots on her body after swimming
- A fish kill (>50) at Lake Attitash in Amesbury and Merrimac

2010 Health Effects

- Freshwater mussel kills in two ponds in Barnstable. Toxin results are pending.
- Two dog deaths at Maudslay State Park in Newburyport



Plans for 2011 Season

- Continued active surveillance through field work
- Translate educational brochure and pet safety poster into additional languages
- Outreach to DCR state parks staff
- Additional training at RCPCP
- Post current advisories on MDPH website

Questions?

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