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## **Cyanobacteria Harmful Algal Blooms Response Protocol**

The following protocol is in place for the response to a complaint or an observation of a possible harmful algal bloom in any body of water in the City of Easthampton.

### **General Information**

When a dramatic increase in a cyanobacteria population occurs, this is called harmful algal blooms (HABs), or more accurately, cyanobacterial HABs (CyanoHABs). It often results in the waterbody turning bright green or blue-green and forms a surface scum or a discoloration of the water column. They often look like pea soup or spilled, blue or green paint; however, the color can also vary. CyanoHABs can cause dissolved oxygen (DO) swings that may result in plant and animal die-off, taste and odor issues, and can cause potential public health issues from the cyanotoxins they may release.

Health concerns associated with CyanoHABs vary depending on the type of cyanobacteria, the route of exposure, and the amount of cyanotoxins present. Ingestion is the primary concern since ingesting small amounts of cyanobacteria or cyanotoxin can cause gastrointestinal symptoms while larger amounts may cause liver or neurological damage. Contact with cyanobacteria can cause skin or eye irritation. Inhaling water spray containing cyanobacteria can cause asthma-like symptoms. Small children and pets are more susceptible to the effects of cyanotoxins than adults.

### **Response Protocol & Procedures**

These protocols and procedures are based on recommendations from the Massachusetts Department of Public Health (MDPH). These recommendations are subject to change. If at any time these recommendations change at the state level, the city will follow the most current recommendations.

1. A complaint is received, or a noticeable scum layer is observed by a member of the Easthampton Health Department, on any body of water in Easthampton.

**If the body of water is Nashawannuck Pond or Rubber Thread Pond, by request, a member of the Nashawannuck Pond Committee will be notified immediately once a complaint is received.**

2. A representative from the Easthampton Health Department will respond to the body of water as soon as possible and will take photos of the body of water.

3. As recommended by the MDPH, photos will be sent to MDPH/BEH using the online form found here: <https://redcap.link/HAB-Report-Form>. MDPH/BEH staff will evaluate the bloom report and provide guidance on how the BOH should proceed.

4. MDPH will recommend issuing a **Public Health Advisory** for cyanoHABs at recreational freshwater locations when at least one of the following criteria is met:

- A visible cyanobacteria scum or mat is evident
- Total cell count of cyanobacteria exceeds 70,000 cells/ml
- Concentration of the toxin microcystins exceeds 8 µg/L
- Concentration of the toxin cylindrospermopsin exceeds 15 µg/

If the Massachusetts Department of Public Health (MDPH) recommends issuing a Public Health Advisory, a representative from the Easthampton Health Department will post signage at all entry points to the affected water body. The signage must include the following:

- **Date** the advisory is posted
- **Contact information** for the posting authority
- **Advisory language** (as provided or reviewed by MDPH), clearly warning against contact with the water
- **Guidance for pet owners**, recommending that pets who enter the water be rinsed off immediately

5. Information regarding the advisory/closure of the body of water will be posted on the Easthampton Facebook Page, local media contacts will be notified via e-mail, Department Heads in the City will be notified via e-mail, and a Code Red call may be requested through the Mayor's Office.

6. Per the MDPH, in order to lift the advisory, testing shall only take place once the scum layer has visibly cleared. The advisory will be lifted once two tests, taken at least one week apart, are below the cell counts set forth by the MDPH. The Health Department will notify the MA DPH once the body of water has visibly cleared to commence testing. The MDPH, depending on available resources, will come out and test the body of water. If the first sample is below the cell counts required, a second test will be taken, one week later. If the MDPH is unable to test for the city, the Health Department will consult with the MDPH regarding when the advisory can be lifted

**Nashawannuck Pond:** If the body of water is Nashawannuck Pond, the committee has the ability to contract out private testing of the body of water, if desired. Testing shall be completed by a licensed laboratory. Laboratories authorized to complete this testing can be found here: <https://www.mass.gov/info-details/cyanobacteria-and-or-cyanotoxins-contract-services-list>

All protocol set forth by the state shall be followed such as where on the body of water to retrieve samples from, how to properly collect samples, when to sample (sampling only once the body of water is clear), the minimum number of samples required (receiving two samples below the guideline level, one week apart), etc.

to recommend rescinding the advisory. The advisory will not be lifted without prior approval from the Easthampton Health Department.

### **Cell Count Requirements for Lifting Advisory:**

DPH guidelines for cyanobacteria cell counts shall be followed. These recommendations are subject to change. Please consult with the Easthampton Health Department for the most current guidelines

- o MDPH believes that the current literature supports the use of a cell count guideline of 70,000 cells/mL in order to prevent adverse health effects from exposure opportunities to cyanobacteria and related toxins during algal blooms.
- o If the cell count exceeds 50,000 cells/mL, toxin testing of lysed cells should be done to ensure that the guideline of 14 ppb is not exceeded. The lysing should consist of three freeze and thaw cycles.
- o If either the cell count exceeds 70,000 cells/mL or the toxin level of lysed cells meets or exceeds 14 ppb, post an advisory against contact with the water. The lysing should consist of three freeze and thaw cycles.
- o Because cyanobacteria can multiply extremely rapidly, frequency of follow-up testing may depend in part on weather conditions, e.g., predicted hot, dry, and calm conditions, all of which promote rapid cyanobacteria generation, may suggest more frequent testing than weekly.
- o Since decreasing cell counts indicate cell die-off and lysing cells release toxins, algal toxin concentrations in the water may rise for a period of time after cell counts decrease. Many factors (e.g., wind, rain, temperature) can affect the progression of die-off, which supports a measured approach for lifting an advisory similar to that of Oregon and Australia: advisories may be lifted after two successive and representative sampling rounds one week apart demonstrate cell counts or toxin levels below those at which an advisory would be posted.

Once two tests are taken, at least one week apart, and are below the above-noted cell counts, the advisory and postings will be removed. An update will be posted on the Easthampton Facebook Page, local media contacts may be notified via e-mail, Department Heads in the City will be notified via e-mail, and a Code Red call may be requested through the Mayor's Office.

For the most up-to-date cell count guidelines, please visit:

<https://www.mass.gov/info-details/guidelines-for-cyanobacteria-in-freshwater-recreational-water-bodies#guidelines-for-cyanobacteria-cell-counts->

### **Helpful Resources**

- [Cyanobacteria Information Guide](#)
- [Bloom Identification Photos](#)