RECREATIONAL WATER SEASON UPDATES

MDPH Community Sanitation Program / MHOA Annual Spring Workshops

April 2022

Topics

Bathing Beaches

- Exceedances of water quality criteria
- Beach postings
- Sampling locations
- Program updates for 2022
- Beach season reminders

Cyanobacteria Harmful Algal Blooms (CyanoHABs)

- Cyanobacteria background
- BOH responsibilities
- Evaluating blooms & issuing public health advisories
- DPH resources


Bathing Beaches

Exceedances of WQ Criteria

Single Sample Exceedance

- When an exceedance occurs, one of two actions must be taken:
  - Resample that day
  - Post that day

- Most beaches can stay open after their first exceedance, provided a re-sample is collected the same day notification comes in

DPH Beach Water Quality Criteria (cfu/100ml)

Beach Type	Indicator	Single Sample	Geomean
Marine	Enterococci	104	35
Freshwater	Enterococci	61	33
	E. coli	235	126

Post-After-1 List

Approx. 5% of beaches (~50) are required to post after a single bacteria exceedance

- History of consecutive exceedances
- Insufficient data

Exceedances of WQ Criteria

Geometric Mean Exceedance

- Calculate using the most recent 5 samples
- Beach must be posted after **any** exceedance of the geometric mean standard.

DPH Beach Water Quality Criteria (cfu/100ml)

Beach Type	Indicator	Single Sample	Geomean
Marine	Enterococci	104	35
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Beach Postings

Posting Signs

- Must be posted at **all** entrances
- Must contain:

WARNING! NO SWIMMING
SWIMMING MAY CAUSE ILLNESS

  - Graphic (see right)
  - Reason for posting
  - Date issued
  - BOH contact information

Notification

- Postings must be reported to DPH during the season, regardless of posting reason
- **NEW -** Online posting notification form: https://redcap.link/beach_posting_form

Sampling Locations

Q: What determines if a beach should be sampled at multiple locations?

A: Additional sample locations may be needed when beaches have:

- Features that influence hydrodynamics (mixing)
  - Jetties
  - Groins
  - Embayments
  - Peninsulas

- Pollution sources impacting particular location
  - Sewer outfall pipe
  - Stream or channel
  - Res/Com development

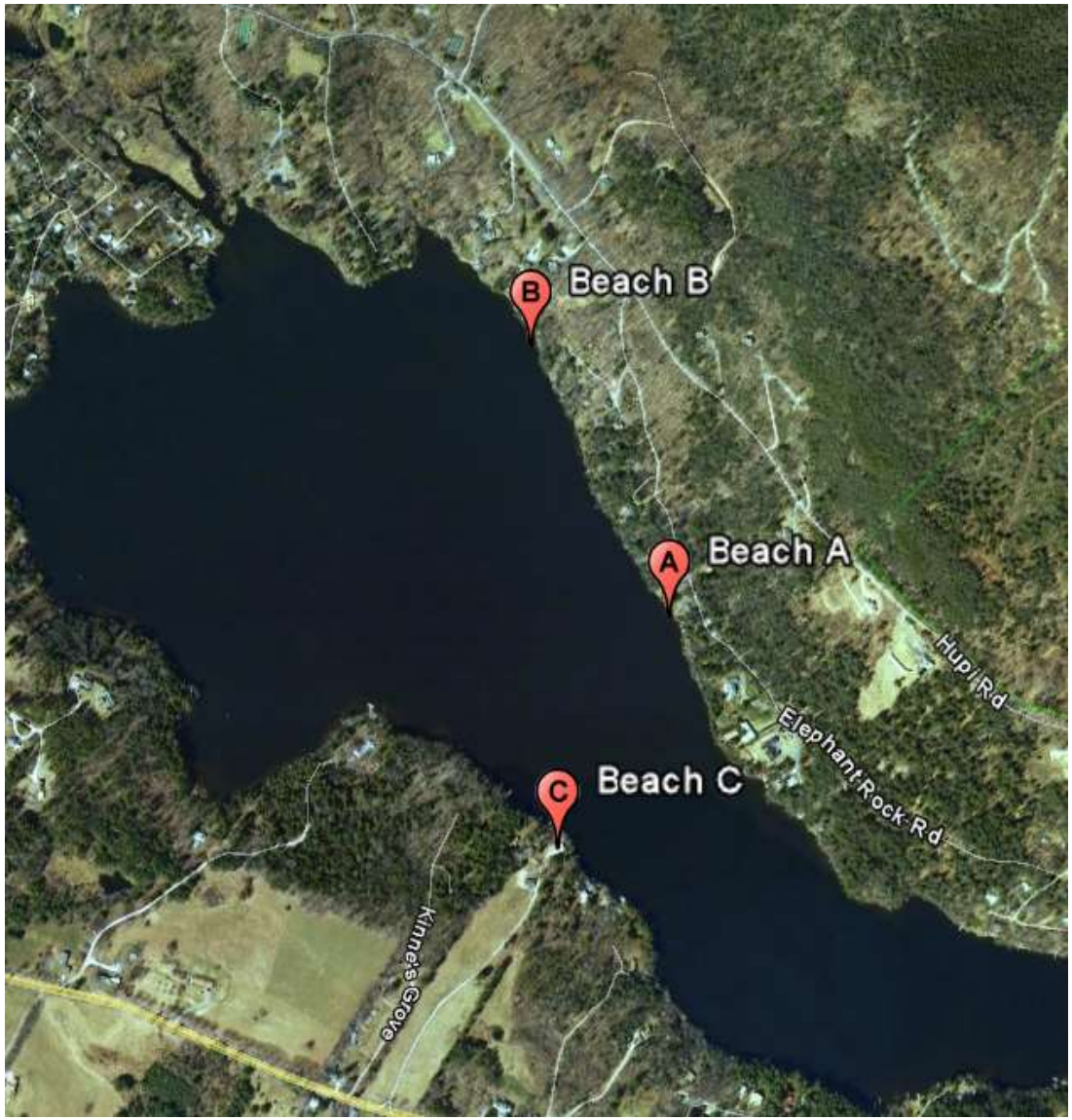
- No specific requirement based on beach length

Sampling Locations

Q: If two beaches are right next to each other, can they take one sample?

A: Yes. As long as they meet the conditions in the regulations:

- No more than 500 shoreline meters apart
- Can't be separated by physical or human-made structures
- If the sample exceeds, all beaches close
- All operators fill out surrogate sampling form, which is approved by BOH



Program Updates

New for the 2022 season

- Field blanks no longer required
- Public notification of combined/sanitary sewer overflow (CSO/SSO) events (314 CMR 16.00)
- DCR will notify BOHs of exceedances at state waterbodies
- Online training on surface water sampling methods will be available through Boston University's Local Public Health Institute

Beach Season Reminders

- Beach permits up to date
- Beach signs legible with correct dates of operation
- Field forms filled out completely
- Automate data submission to DPH by asking the testing laboratory to copy DPH on results emails:

dph-beach@mass.gov

Cyanobacteria Harmful Algal Blooms (CyanoHABs)

Background

Cyanobacteria

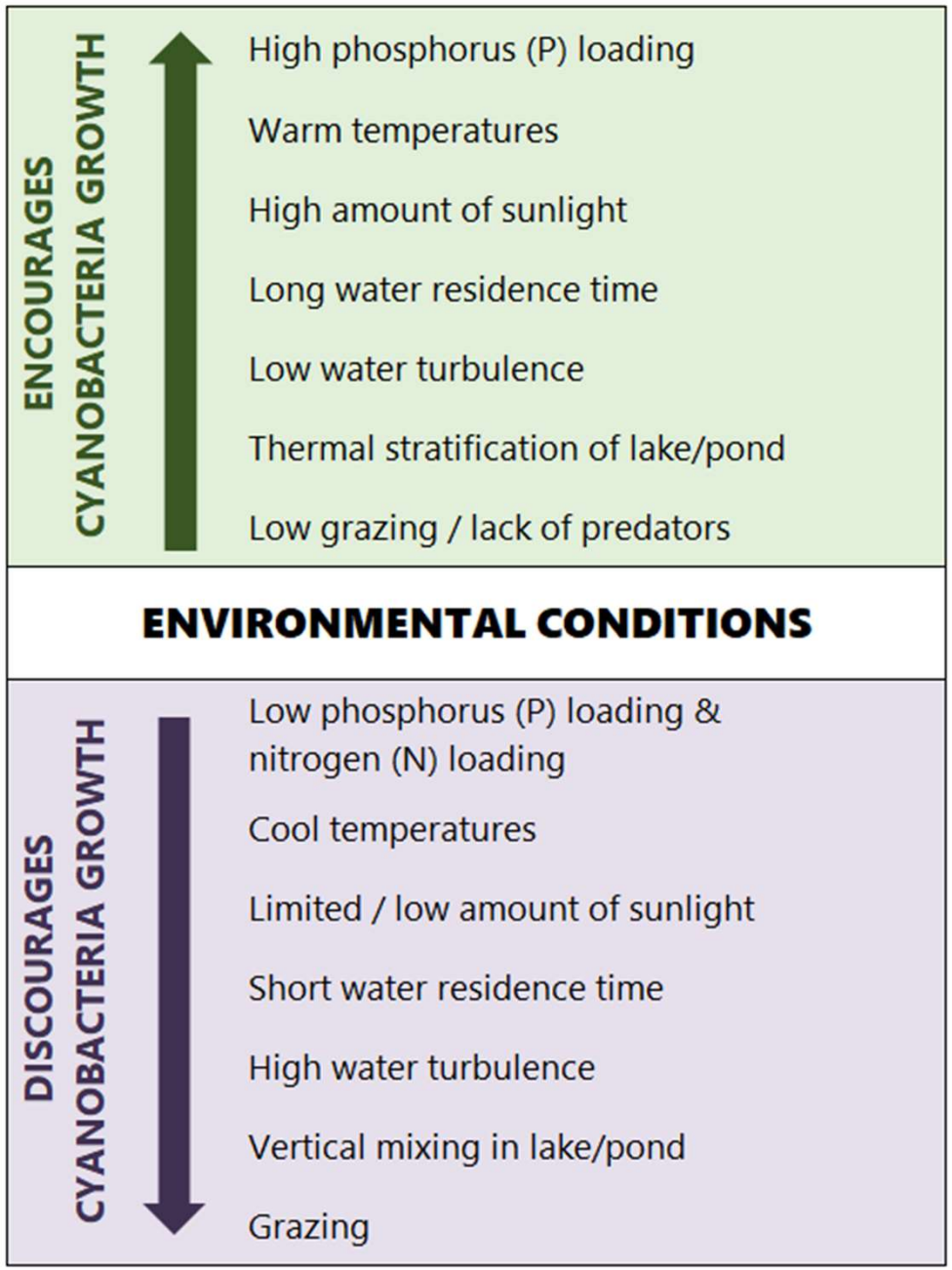
- Occur naturally in freshwater
- Certain environmental conditions can cause excessive growth – **"CyanoHAB"**
- Some species produce toxins called **cyanotoxins**
- Human & animal health impacts

In 2019, cyanoHABs were reported to have caused:

- **63 cases of human illness**
- **367 cases of animal illness**
- **207 animal fatalities**

Source: CDC

Background


ENCOURAGES CYANOBACTERIA GROWTH
High phosphorus (P) loading
Warm temperatures
High amount of sunlight
Long water residence time
Low water turbulence
Thermal stratification of lake/pond
Low grazing / lack of predators
ENVIRONMENTAL CONDITIONS
DISCOURAGES CYANOBACTERIA GROWTH
Low phosphorus (P) loading & nitrogen (N) loading
Cool temperatures
Limited / low amount of sunlight
Short water residence time
High water turbulence
Vertical mixing in lake/pond
Grazing

Agency Roles

- **Local BOHs** – responsible for responding to reports of cyanoHABs and issuing public health advisories
- **DPH/BEH** – provide technical assistance to BOHs dealing with cyanoHABs at recreational waterbodies
- **MassDEP** – responsible for cyanoHABs at drinking water sources

Possible actions when evaluating a potential cyanoHAB:

- Contact MDPH/BEH for assistance
  - Online cyanoHAB reporting form: https://redcap.link/HAB-Report-Form
- Visual inspection
- Water quality measurements
- Test water samples for cyanobacteria and/or cyanotoxins

MDPH Guidelines

DPH recommends a public health advisory when **at least one** of the following criteria is met:

1. **A visible cyanobacteria scum or mat is evident**
2. **Total cell count of cyanobacteria exceeds 70,000 cells/mL**
3. **Concentration of the toxin microcystins exceeds 8 µg/L**
4. **Concentration of the toxin cylindrospermopsin exceeds 15 µg/L**

Visual Identification

Blooms can appear as scum or mats on a water's surface and resemble paint swirls/splotches in colors of:

Bright Green, Blue, Red, Brown

Visual Identification

NOT CYANOBACTERIA

Duckweed – tiny aquatic plant

Pollen – yellow/green particles with a "dusty" texture

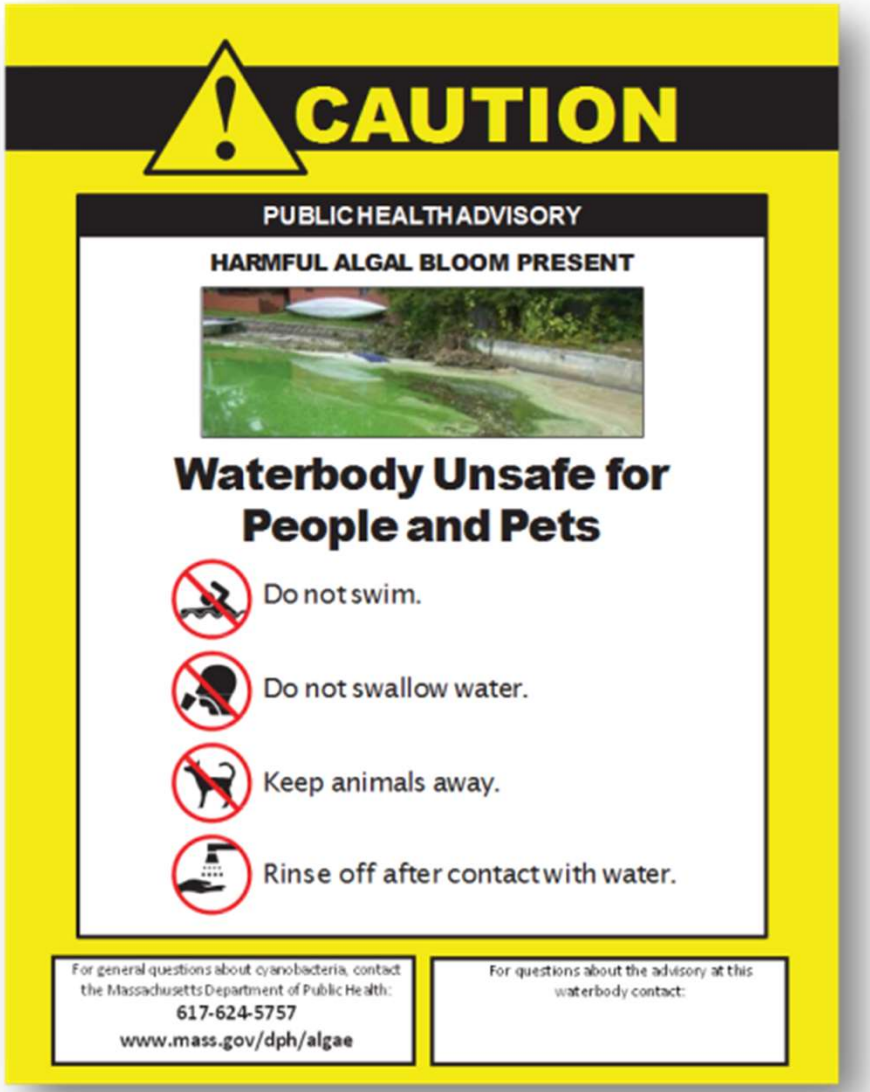
Filamentous green algae – stringy, silky, and able to be draped over a stick

Evaluating Blooms

- Most advisories issued based on visual identification
- Can utilize lake/pond associations and park staff for visual monitoring
- Use of other water quality parameters

CyanoHAB Advisories

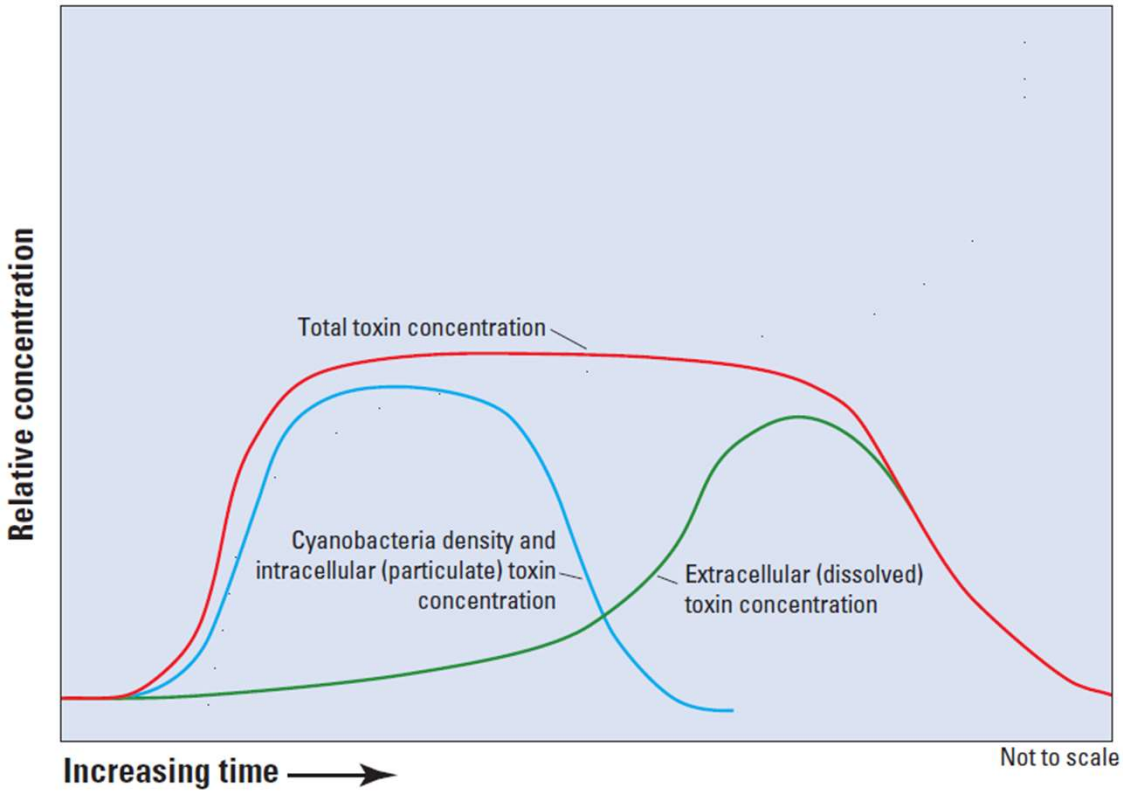
- Determine advisory extent
  - Rivers
  - Lake basins/coves
- Post signs at all access point to the water
- **"WHEN IN DOUBT, STAY OUT"**
- Notify DPH to have advisory added to online list



CyanoHAB Advisories

Lifting a cyanoHAB advisory

- Start sampling once bloom has cleared
- DPH can provide sampling at public waterbodies
- Lift after two rounds of samples (collected a week apart) with results below guideline levels



Watershed Management

How do I get rid of a bloom?

- Must wait for the bloom to run its course
- DPH **does not** recommend the use of algaecide treatment (such as copper sulfate)

How can I prevent blooms?

- Management strategies:
  - Maintaining septic systems and storm drains
  - Reducing application of fertilizer
  - Picking up pet waste and not feeding ducks/geese
  - Planting and/or maintaining native vegetation around the water's edge

Resources

NEW **cyanoHAB resources:**

- Cyanobacteria in Recreational Waters - Guidance document for BOHs
- Online cyanoHAB training through Boston University Local Public Health Institute
- **May 18th** – DPH virtual statewide cyanoHAB workshop
  - Contact logan.bailey@mass.gov

Contact Information

Environmental Toxicology Program
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Department of Public Health

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Cyanobacteria website
www.mass.gov/dph/algae

Beach website
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