Massachusetts Department of Public Health (DPH)

Massachusetts Department of Environmental Protection (MassDEP)

**Responses to Reports of Cyanobacterial Harmful Algal Blooms (CyanoHABs)**

**Purpose**: This document describes general roles, responsibilities and response protocols for two state agencies (DPH and MassDEP) that have historically been contacted and/or involved with responses to reports of cyanobacterial harmful algal blooms (CyanoHABs). DPH and MassDEP have agreed to develop, articulate, and implement a coordinated approach for responding to these events, including:

* Determining which agency will lead the response.
* The key decision making authority entrusted to each agency. When and how agency staff will respond to such reports.
* Notification protocols and communication tools
* Regular tracking of both MassDEP and DPH efforts

**Background**: A number of state and local agencies receive reports of suspected CyanoHABs. These are caused by the excessive growth of cyanobacteria, single celled organisms which are found naturally in all waterbodies. CyanoHABs are usually suspected when a waterbody exhibits decreased clarity and discoloration ranging from a greenish tinge to a pea soup or spilled paint appearance.

These blooms can be problematic, given the potential for health risks due to either bodily contact with or ingestion of cyanobacteria, or the possible presence of various cyanotoxins that pose more serious risks to human and animal health if ingested or inhaled.

When these blooms occur, multiple agencies can be contacted and sometimes multiple agencies may initiate responses, wasting time and resources.

**Jurisdiction:** Both MassDEP and DPH address a variety of CyanoHAB toxicity concerns, jurisdictional responsibilities, response options, and resource limitations. Each agency has its unique scope of interest and jurisdiction.

* MassDEP has jurisdiction over public drinking water systems and sources and is the lead agency, acting through its Drinking Water Program (DWP), regulating public drinking water systems and sources impacted or potentially impacted by CyanoHABs, including any monitoring and notification requirements for regulated and unregulated contaminants.
* MassDEP’s Watershed Planning Program (WPP) is responsible for conducting statewide water quality monitoring to meet the Commonwealth’s obligations under the federal Clean Water Act. All WPP monitoring is planned and sampling locations are identified in advance. Monitoring for algal toxins and the phytoplankton community, including cyanobacteria, are performed by WPP staff when they are part of the statewide water quality monitoring plan. If during the course of field activities, WPP staff suspect a CyanoHAB bloom based on visual observation of a waterbody they are not scheduled to sample, they will document with a photograph and report it to the WPP Lead. Samples will only be collected when they are part of formal, previously scheduled monitoring plan. WPP does not respond to reports of potential blooms. Rather, WPP collects and maintains water quality information for Massachusetts, including data about bloom events.
  + If there is a suspected CyanoHAB bloom, the WPP Lead will notify the DEP CyanoHAB Lead who will notify DPH.
  + WPP will provide a list to DPH of the locations that WPP plans to sample for identification and enumeration of cyanobacteria and algal toxins prior to their collection.
* MassDEP’s Division of Environmental Analysis (DELS) at the William X. Wall Experiment Station (WES) in Lawrence, MA has the capability of analyzing water samples for cyanotoxins.
* MassDEP’s Environmental Emergency Response (ER) Program responds to reported releases and threats of release of oil and hazardous materials to the environment on a 24/7 basis to protect public health, safety and the environment. Suspected CyanoHABs may be mistaken for chemical spills. A reported potential CyanoHAB may generate a response by MassDEP’s ER Program.
* DPH is the lead agency for making health-based recommendations regarding the recreational use of water bodies affected by suspected and confirmed CyanoHABs. DPH makes decisions on restricting the recreational use of waters located on or within state lands (such as DCR property). In addition, DPH makes recommendations to local Boards of Health and Health Departments on restricting the recreational use of waters located elsewhere.

In addition to DPH and MassDEP, the following state and local entities also have interests in potential and confirmed CyanoHABs. They are described here to clarify communication and coordination protocols (established below).

* The Department of Conservation and Recreation (DCR) owns and manages water bodies, some of which are used as public drinking water sources and some of which are used for recreational purposes.
* The Division of Fisheries and Wildlife (DFW) investigates reports of fish kill events and is responsible for making determinations about whether the kill is natural or requires a site investigation.
* At the local level, key partners may include the Boards of Health and Health Departments and public drinking water suppliers. Local Boards of Health issue public health advisories and closure determinations for recreational waters under their purview. Public water suppliers are responsible for supplying safe drinking water to consumers and complying with applicable federal and state monitoring and reporting requirements.
* The Massachusetts Water Resources Authority (MWRA) is a Massachusetts public authority that provides wholesale water and sewer services to metropolitan Boston communities.

**Lead Agency Roles:** MassDEP will coordinate the response to reports of CyanoHABs in waterbodies that are used as public drinking water supplies[[1]](#footnote-1) to assure the provision of safe drinking water to consumers.

DPH will coordinate the response to reports of CyanoHABs in water bodies that are used for recreational purposes, such as swimming or boating, and make recommendations or decisions, as appropriate, on recreational use restrictions and closure.

DPH and MassDEP will jointly coordinate the response to reports of CyanoHABs in water bodies used as public drinking water supplies *and* for recreational purposes, with each agency maintaining responsibility for implementing their respective statutory duties.

**Initial Intake and**

**Communication:** DPH and MassDEP periodically receive reports of potential CyanoHAB events from a variety of sources.[[2]](#footnote-2) Agency staff notified of a potential CyanoHAB should ask the following initial intake questions: (See intake questions on Event Summary Template – Appendix A)

1. Name and contact information for the individual reporting the potential CyanoHAB.
2. Date and time the potential CyanoHAB was observed.
3. Location of the potential CyanoHAB event (town/city, waterbody name, other easily identifiable landmarks to distinguish location of potential CyanoHAB).
4. Whether any pictures or other evidence of the potential CyanoHAB event / area of concern have been collected.
5. Any observations of public recreational use (e.g., boat ramps, beaches, public access)
6. Whether the reporting party has contacted any other local or state agency.

MassDEP staff receiving a report of a potential CyanoHAB or request for investigation should summarize the initial intake information collected and email it to the MassDEP CyanoHAB lead.

For DPH *[insert practice / protocol]*

[insert info here]

**Agency Contacts:** The following contacts have been identified at each agency for CyanoHAB communications.

|  |  |  |
| --- | --- | --- |
| **MDPH** | | |
| **NAME** | **PHONE** | **EMAIL** |
| Marc Nascarella | 617-624-5757 | [Marc.Nascarella@mass.gov](mailto:Marc.Nascarella@mass.gov) |
| Michael Celona | 617-624-5757 | [Michael.Celona@mass.gov](mailto:Michael.Celona@mass.gov) |

|  |  |  |
| --- | --- | --- |
| **MassDEP** | | |
| **NAME** | **PHONE** | **EMAIL** |
| Kristin Divris | 508-849-4028 | [Kristin.Divris@mass.gov](mailto:Kristin.Divris@mass.gov) |
| Kathleen Romero | 617-292-5727 | [Kathleen.Romero@mass.gov](mailto:Kathleen.Romero@mass.gov) |
| Damon Guterman | 617-574-6811 | [Damon.Guterman@mass.gov](mailto:Damon.Guterman@mass.gov) |
| Art Johnson | 508-767-2873 | Arthur.Johnson@mass.gov |
| AFTER HOURS  Emergency Response Hotline  (24 hours/7 day per week) | 888-304-1133 | N/A - emergency line only - for after hours and weekends or when above contacts are unavailable |

If the report concerns a waterbody owned or managed by DCR, the following contacts should also be notified.

|  |  |  |
| --- | --- | --- |
| **DCR** | | |
| **NAME** | **PHONE** | **EMAIL** |
| Anne Carroll | 617-626-1395 | [Anne.Carroll@mass.gov](mailto:Anne.Carroll@mass.gov) |
| Vanessa Curran | 617-624-5757 | [Vanessa.Curran@mass.gov](mailto:Vanessa.Curran@mass.gov) |

If the initial intake involves a reported fish kill, DFW should be notified through the Environmental Police.

|  |  |  |
| --- | --- | --- |
| **DFW** | | |
| **NAME** | **PHONE** | **EMAIL** |
| Environmental State Police | 1-800-632-8075  CHECKING THIS With DFW | n/a  **Note:** According to website, DFW has revised their reporting methods regarding fish kills, which is not reflected in the interagency SOP on fish kills (DEP-DFW). This needs resolution |

**Identification of Lead Agency:** Based on the use of the waterbody, the lead agency should be identified. The lead agency will provide the necessary communications to the other state and local agencies. The lead agency will be responsible for providing appropriate updates and a resolution summary for the event.

**DPH Response Description:**

DPH will respond to CyanoHAB events when a report or request for investigation of a potential CyanoHAB in a recreational water body is received in order to make a recommendation or decision on recreational water use. Reports may come from a variety of sources including local health officials, the public, other state agencies, etc.

1. Initial Intake. When DPH is notified of a potential bloom within a recreational water body, the party reporting the bloom will be asked to provide photographs of the affected water body as part of the initial intake.
2. Review, Analysis and Restriction Recommendations. DPH staff will review the photographs.
   1. If a suspected cyanobacterial scum is present in the photographs, DPH will recommend that the local board of health or managing agency issue a public health advisory. DPH will supply a template advisory poster.
   2. If the photographs do not show a scum but nonetheless indicate there is a likely cyanobacteria issue, provided available funding, DPH will manage the collection and analysis of water sample(s) for cyanobacterial identification and cell count, and microcystin toxin using its contract laboratory services.
   3. If the photographs do not provide clarity on potential presence of cyanobacteria, DPH staff may coordinate a site visit with the local board of health and reporting party, if different.
   4. If the photographs do not indicate the presence of cyanobacteria, the reporting party will be asked to monitor the waterbody and send more pictures if the water’s appearance worsens.
3. Sampling and Analysis. For cyanobacteria blooms, provided available funding, DPH will manage the weekly collection and analysis of water samples for cyanobacterial identification, cell count and microcystin toxin presence until samples collected at least a week apart have cell counts and/or microcystin levels below DPH guideline levels. DPH will use contract laboratory services for this sampling and analysis, depending on available resources.
4. Board of Health Requests for Assistance. For all potential blooms at waterbodies, DPH will require a formal request from the BOH requesting assistance prior to DPH collecting a sample or conducting a site visit.
5. Referral to and Coordination with MassDEP. For potential blooms at public water supplies, DPH will refer the notification of a potential bloom to MassDEP (using the contacts listed above).[[3]](#footnote-3) If the water body is also used as a recreational water body, DPH will coordinate any response with MassDEP.
6. Coordination with DFW and DCR. DFW will be notified of the event if a fish kill is reported. DCR will be notified if location of the potential bloom is a recreational water body managed by DCR.
7. Recommendations to Lift Public Health Advisories. When a bloom dissipates DPH may recommend that the local BOH or managing entity lift any issued public health advisory, and remove public signage.
8. Annual Tracking. DPH will maintain a list of all events reported, responded to, or assisted with, and make that annual CyanoHAB activity summary available to MassDEP. DPH will confer annually with MassDEP on CyanoHAB events in recreational water bodies.

**MassDEP Response Description:**

MassDEP will respond to reports of potential CyanoHAB events when a report or request for investigation of a potential CyanoHAB in a public drinking water source is received. Reports may come from a variety of sources including the PWS operator, local health officials, the public, other state agencies, divisions, etc. MassDEP has a central point of contact, or CyanoHAB lead (currently Kristin Divris (2019)) for tracking and coordinating responses to CyanoHAB events in public drinking water sources.

MassDEP staff receiving a report of a potential CyanoHAB or observing a potential CyanoHAB in the field will complete the initial intake form and send it to MassDEP’s CyanoHAB lead to initiate the inter-agency notification process. MassDEP’s CyanoHAB lead has backup points-of-contact from the DWP when MassDEP’s CyanoHAB lead is unavailable (current back up staff are Kathleen Romero and Damon Guterman).

Initial Intake and Notice to CyanoHAB Lead.

MassDEP staff observing a potential CyanoHAB or receiving a potential CyanoHAB report will collect the initial intake information listed on the Event Summary Template. MassDEP staff collecting this information should then forward by email to MassDEP’s CyanoHAB lead for tracking and notification purposes.

Events to which MassDEP’s ER staff responds (including those on weekends or during non-office hours) concerning a suspected CyanoHAB shall follow routine, internal chain of command reporting as well as notification to the MassDEP CyanoHAB lead.

* Drinking Water Program staff receiving reports directly from a PWS supplier of a suspected or confirmed CyanoHAB in their source shall follow routine, internal chain of command reporting, as well as notification to the MassDEP CyanoHAB lead. MassDEP’s CyanoHAB lead should be notified by email by the staff receiving the intake information.

1. CyanoHAB Lead Review, Confirmation of Lead Agency and Notification(s). MassDEP’s CyanoHAB lead will determine or confirm whether the waterbody is used as a public drinking water source and review the initial intake or screening information and any photographs or other evidence of a CyanoHAB provided. If ER staff receives the report of a potential CyanoHAB, and the CyanoHAB lead is unavailable, the ER staff will consult with the regional drinking water program to determine whether the water is used as a public drinking water source. The determination should be conveyed to the CyanoHAB lead for follow-up, tracking and notification purposes.
   1. Recreational Use Only: If the waterbody is used for recreational use only, MassDEP’s CyanoHAB lead will notify DPH and confirm DPH’s role as the lead agency.
   2. Drinking Water Use Only: For public drinking water sources, MassDEP’s CyanoHAB lead will start a chronology of the event using the Event Summary Template (Appendix A) to inform MassDEP’s Drinking Water Program’s and Watershed Planning Program’s points-of-contact of the potential CyanoHAB. The Event Summary Template includes notification to DPH and other agencies, as well, when appropriate. If the PWS has not already been informed, MassDEP’s CyanoHAB lead will coordinate notification to the PWS contact through MassDEP’s Regional Office’s Drinking Water Program.
   3. Drinking Water and Recreational Use: If the public drinking water source is also used for recreational purposes, MassDEP’s CyanoHAB lead will confer with DPH on the management of the investigation. (See Coordinated Responses below).
2. PWS Source Sampling and Public Notice. If the waterbody is an active, including backup, public drinking water source, the PWS may be required by MassDEP’s Drinking Water Program to perform sampling. A confirmed CyanoHAB event that results in cyanotoxins within the finished water of a PWS may require the PWS to provide public notice. A MassDEP DWP Standard Operating Procedure (SOP) document describes follow-up response for events at a PWS source.
3. Notice to Local BOH. The Drinking Water Program staff in MassDEP’s Regional Office will advise the local Board of Health or Health Department, or require that the PWS advise the local Board of Health or Health Department of an ongoing investigation when a CyanoHAB has been identified in an active, including backup, public drinking water source.
4. Ongoing Monitoring and Sampling. Drinking Water Program staff in MassDEP’s Regional Office and the CyanoHAB lead will follow the event developments, determine sampling requirements, coordinate with the PWS, and provide regulatory oversight until the bloom dissipates. MassDEP’s DWP will encourage PWSs to use the bloom tracking form available on MassDEP’s website.
5. Annual Tracking. MassDEP will maintain a list of all events reported, responded to, or assisted with, and make that annual CyanoHAB summary available to DPH. MassDEP will confer annually with DPH on CyanoHAB events in public water supplies.

**Coordinated Responses:** MassDEP’s CyanoHAB lead and DPH’s lead will coordinate their respective agency’s actions and communicate results for events in waterbodies that are used both for recreational purposes and for public drinking water purposes. MassDEP will complete the Event Summary Template and provide to the appropriate agencies to disseminate new information in coordination with DPH. Each agency will retain its respective regulatory authority.

[Appendix A – **MASSDEP Event Summary Template** ]

**MassDEP CYANOBACTERIAL BLOOM EVENT SUMMARY TEMPLATE\***

1. **INTAKE INFORMATION**.

*This information should be summarized by email or using the following template for the CyanoHAB lead.*

1. Name and contact information for the individual reporting the potential CyanoHAB.
2. Date and time the potential CyanoHAB was observed.
3. Location of the potential CyanoHAB event (town/city, waterbody name, other easily identifiable landmarks to distinguish location of potential CyanoHAB).
4. Whether any pictures or other evidence of the potential CyanoHAB event / area of concern have been collected.
5. Any observations of public use (e.g., boat ramp, beach, public access)
6. Whether the reporting party has contacted any other local or state agency.

|  |  |  |  |
| --- | --- | --- | --- |
| **REPORTING DATE:** | Click or tap to enter a date. | **REPORTING PARTY**: | Click or tap here to enter text. |
| **CITY OR TOWN:** |  | **CONTACT INFO FOR REPORTING PARTY** |  |
| **REGION:** | Choose an item. | **SPECIFIC LOCATION:** | Click or tap here to enter text. |
| **PICTURES OR OTHER EVIDENCE?** |  | **REPORTED TO OTHER AGENCY OR BOH?** |  |
| **WATER BODY USE:** | Choose an item. | **FORM COMPLETED BY:** | DIVRIS, KRISTIN (DEP) / or OTHER PERSON |

1. **EVENT SUMMARY:**

*ENTER EVENT INFORMATION IN BULLETED FORMAT BEGINNING WITH DATE OF NOTIFICATION TO MASSDEP, INCLUDING DETAILS OF INITIAL REPORT, EVENT AND POSTING INFO. INCLUDE ANY ASSISTANCE PROVIDED (e.g., identification/enumeration, toxin analysis, sample dates/results, etc.)* ***CLEARLY NOTE AT TOP IN BOLD IF WATER BODY IS A PWS SOURCE EVEN WHEN WATER BODY USE CATEGORY INDICATES SUCH****.*

1. **PLANNED FOLLOW- UP AND NEXT STEPS:** *DESCRIBE ANY ADDITIONAL ACTIONS PLANNED/REQUIRED HERE IN BULLETED FORMAT (e.g., “recreational waterbodies fall under MDPH authority; PWS will continue visual monitoring; no further assistance requested;” “PWS collecting samples for cyanotoxin analysis by contractor” etc.)*
2. **NOTIFICATION INSTRUCTIONS:**

* *NOTIFY ALL PARTIES IN FIRST SEVEN ROWS OF TABLE BELOW AND**RELEVANT MASSDEP REGION FOR ALL EVENTS*
* *MDPH & MDCR NOTIFIED ON ALL RECREATIONAL WATERBODIES WITH BLOOM EVENT*
* *MWRA & MDCR NOTIFIED ON ALL COMMUNICATIONS IF EVENT AFFECTS MWRA WATERBODY/MDCR PROPERTY*
* *MDFW NOTIFICATION IF FISH KILL ASSOCIATED WITH BLOOM EVENT*
* *LOCAL BOH WILL BE NOTIFIED BY MDPH FOR RECREATIONAL WATERS*
* *ENSURE BOH NOTIFIED FOR PWS EVENT*

**MassDEP NOTIFICATION TRACKING:** [Entities/People listed in first 7 rows (shade green below) should **always** be notified. Delete other Entities/People who are NOT notified.]

|  |  |  |
| --- | --- | --- |
| **Agency** | **Name(s)** | **Date/Method** |
| MassDEP SS | Stephanie Cooper, Gary Moran, Brian Ferrarese, Ed Coletta |  |
| MassDEP Mgt. | Ann Lowery, Doug Fine, Nick Child |  |
| MassDEP DWP | Yvette DePeiza, Damon Guterman, Kathy Romero |  |
| MassDEP-WPP | Art Johnson, Richard Chase, Barbara Kickham |  |
| MassDEP-WURP | Kristin Divris |  |
| MassDEP-WES & ORS | Oscar Pancorbo, C.Mark Smith |  |
| MDPH | Michael Celona, Marc Nascarella |  |
| MassDEP-WERO | Brian Harrington, Deirdre Doherty, Eva Tor |  |
| MassDEP-CERO | Robert Bostwick, Marielle Stone, MaryJude Pigsley |  |
| MassDEP-NERO | Tom Mahin, Eric Worrall, Rachel Freed |  |
| MassDEP-SERO | Jonathan Hobill, David Johnston, Millie Garcia-Serrano |  |
| MWRA | Kimberly LeBeau ([Kimberly.LeBeau@mwra.com](mailto:Kimberly.LeBeau@mwra.com))  David L. Gottshall (David.Gottshall@mwra.com) |  |
| MDCR | Anne Carroll, Vanessa Curran |  |
| MDFW | Jason Stolarski (current fish kill contact as of June 2018) |  |
| Local Board of Health |  |  |
| Other |  |  |

**\*SAVING AND USING THIS TEMPLATE: *Completed templates should be used to provide internal MassDEP notifications described above and additional event updates. It may also be used to notify other state and local entities, as appropriate.***

* *ONCE TEMPLATE IS COMPLETE, SAVE AS “MUNCIPALITY NAME-WATERBODY NAME-CYANOSUM-DATE”*
* *COPY INFORMATION FROM ENTIRE TEMPLATE (MINUS ALL INSTRUCTIONS) AND EMBED CONTENT IN BODY OF EMAIL TO PROVIDE NOTICE TO APPROPRIATE PARTIES. DISTRIBUTE VIA EMAIL.*
* *FOR ONGOING EVENTS, ENTER UPDATES ON SAME FORM AND SAVE AS “MUNCIPALITY NAME- WATERBODY NAME-CYANOSUM-DATE-UPDATE#\_”*

**Flow Chart:** The following Flow Chart broadly outlines the proposed response paradigm for DPH and MassDEP. FLOW CHART NEEDS TO BE REVISED

TO BE REVISED

**Response to Report of Potential HAB to DEP or DPH**

**DPH: Recreational Water**

**MassDEP: Public Water Supply**

Intake information: initial screening

Sent to CyanoHAB lead

Request/interpret photos

Complete General Notification Template and Notify Appropriate Entities

Scum

No bloom

Unclear

Possible bloom

Regional DWP approves Sampling and Analysis Plan.

Monitor water body without sampling

Notify local health department

Ask for more photos or conduct site visit

DWP and CyanoHAB lead review analytical results or new information from visual monitoring

Bloom suspected

CyanoHAB lead updates Notification Template and notifies appropriate entities

Recommend sampling to confirm

CyanoHAB **NOT** confirmed

Cyano HAB confirmed

Continue / initiate sampling / monitoring until event dissipates

No bloom

Bloom confirmed

Recommend local health/managing entity issue an advisory;

initiate sampling

CyanoHAB lead completes event summary

Ask reporting entity to monitor conditions and send more photos if they worsen

1. Sources of water used by of public drinking water systems are classified by MassDEP according to their use as Active (including active Backup sources), Emergency sources, and Inactive sources. Approval from MassDEP is required to use and distribute water from any source, including Backup, Emergency and Inactive sources. Source categorization by the MassDEP DWP may result in different levels of concern, scrutiny and investigation if the source is not approved for current use (i.e. the source is classified as inactive or emergency). MassDEP DWP evaluates potential CyanoHAB impacts to Emergency and Inactive sources using knowledge of the system and its sources, and may respond or require PWS action, as appropriate.  [↑](#footnote-ref-1)
2. DCR and DFW may also receive such reports. DPH and MassDEP encourage DCR and DFW to follow the following communication practices. [↑](#footnote-ref-2)
3. Some public water suppliers have their own algal monitoring programs. The Massachusetts Water Resources Authority (MWRA) routinely monitors its sources for algae and maintains internal procedures for elevated levels. MWRA notifies MassDEP, DPH and DCR during CyanoHAB events to provide response actions, updates or requests for assistance. [↑](#footnote-ref-3)