U.S. EPA's Support Tools for Developing Drinking Water Cyanotoxin Response Plans

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Region 10 CyanoHABs Pre-workshop Webinar

Presentation Overview

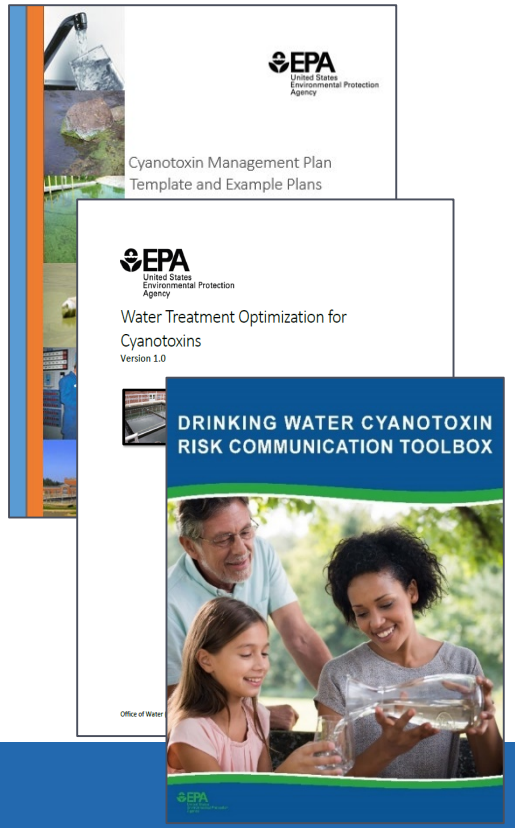
- Overview of harmful algal blooms (HABs) and drinking water challenges
- Discussion of key support tools for managing cyanotoxin risks in drinking water

HAB-Related Drinking Water Challenges

- Drinking water quality
  - Taste and odor problems
  - Human health effects from ingesting toxins: gastroenteritis, liver and kidney damage
  - Increased raw water organic matter/increased potential development of disinfection byproducts
- Treatment strategies must also consider other treatment objectives
  - Turbidity removal
  - Disinfection
  - Disinfection byproducts control
  - T&O control
  - Corrosion control

EPA HAB Drinking Water Tools

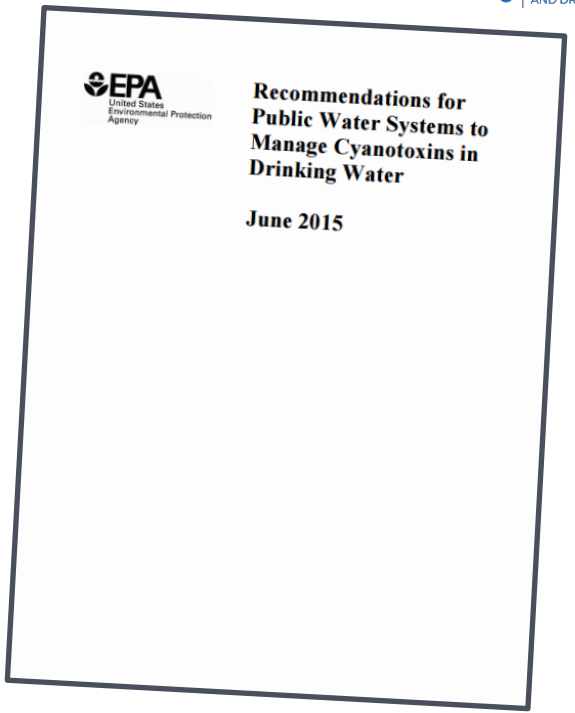
- Recommendations Document
- Cyanotoxin Management Plan Template and Example Plans
- Water Treatment Optimization for Cyanotoxins
- Cyanotoxin Risk Communication Toolbox
- Factsheet: Possible Funding Sources for Managing Cyanobacterial Harmful Algal Blooms and Cyanotoxins in Drinking Water
- Factsheet - Cyanobacteria and Cyanotoxins: Information for Drinking Water Systems
- FAQs - Laboratory Analysis for Microcystins in Drinking Water
- Video summarizing tools for managing cyanotoxins in drinking water – linked here



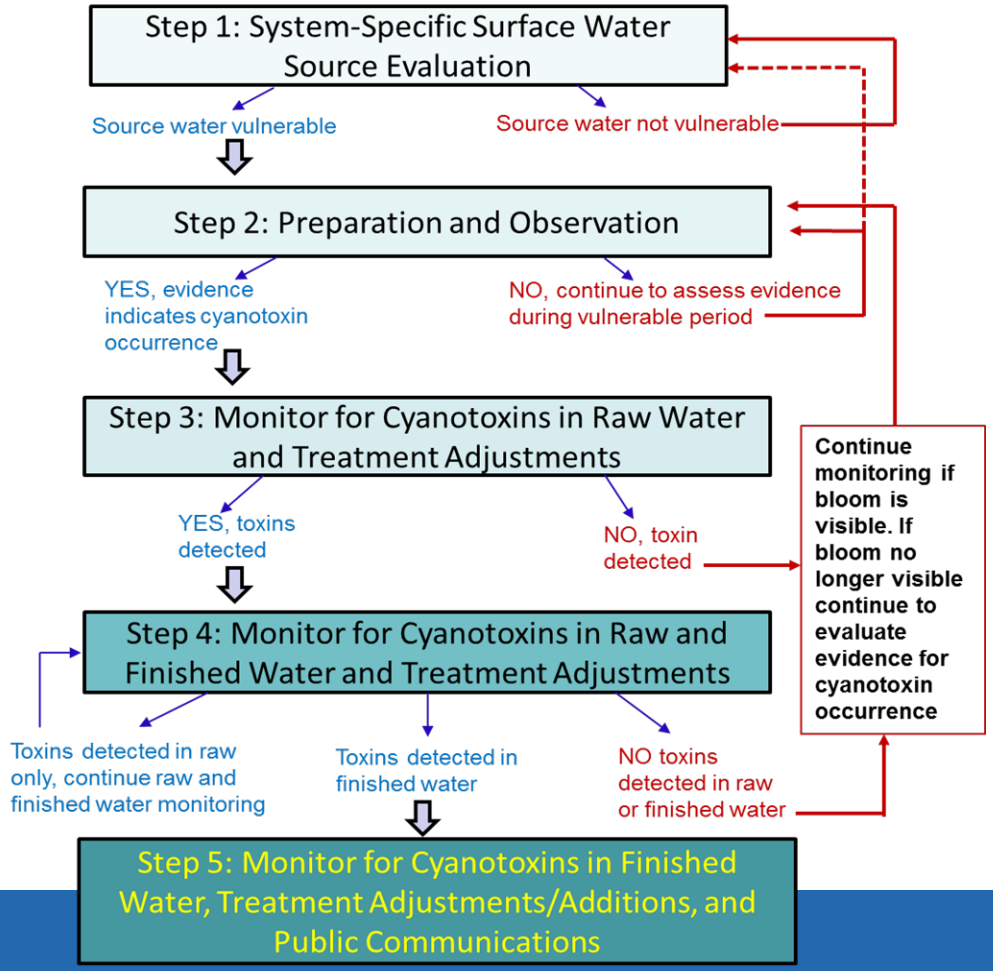
Tools available online at: https://www.epa.gov/ground-water-and-drinking-water/what-cyanotoxin-tools-are-available-public-water-systems

Recommendations Document

- Potential 5-step framework for managing risks of toxins in drinking water
- Monitoring, treatment and communication components in every step



Available online:
https://www.epa.gov/sites/production/files/2017-06/documents/cyanotoxin-management-drinking-water.pdf



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5-Step Risk Management Framework

- One of these five steps are being executed at all times before and during a bloom event

Step 1: System-Specific Surface Water Source Evaluation

- Evaluation of source waters at or near the intake and within watershed:
  - Source Water Characteristics
  - Water Quality Parameters
  - Source Water Assessment Information
  - Climate and Weather Information
  - Land Use
  - Nutrient Levels
- If determined vulnerable based on above evaluation; determine when (e.g., which seasons and under what conditions) system is most vulnerable to HABs

Step 2: Preparation and Observation

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Preparation

Monitoring

- Prepare for possible future cyanotoxin monitoring by ordering necessary lab materials for screening tests or setting up contracts with outside labs
- Develop a plan for monitoring raw, in-plant and finished water

Treatment

- Assess status of available treatment adjustments prior to harmful algal bloom season
- Determine if there are mitigation strategies to employ (alternative sources, etc.)
- Develop a plan for necessary adjustments during a bloom event

Communication

- Establish partnerships with primacy agencies, state, and local public health officials
- Develop a communication strategy for communicating with the public and partners

Step 2: Preparation and Observation

3 key potential observations/early warning signs

- Visual: Visually confirm the presence of a bloom at intake structure or confirm public reports of blooms near raw water intake
- System effects: Track changes in treatment plant operations, water quality parameters, etc.
- Indicators: Indicator occurrence in source water and raw water at intake

Steps 3-5: Monitoring, Treatment Adjustments, and Communication

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Monitoring

- Determine if cyanotoxins have reached or are likely to reach the raw water
- Determine the effectiveness of cyanotoxin removal via drinking water treatment operations through monitoring
- Confirm whether cyanotoxins are detection in finished water (as appropriate)

Treatment

- Adjust or consider additional treatment to reduce risks from cyanotoxins in drinking water (as appropriate)

Communication

- Communicate with partners at state and local level
- Inform the public of the need to take actions to reduce their risks

Cyanotoxin Management Plans

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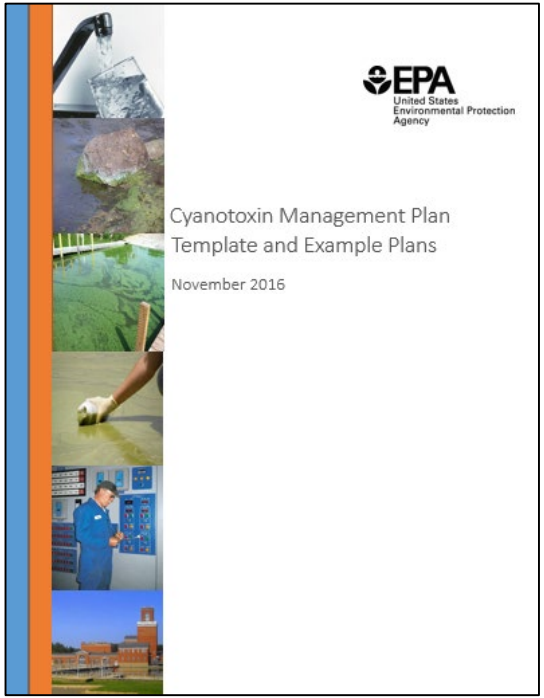
Two parts:

1. Template
   - Framework for public water systems (PWSs) to develop their own cyanotoxin management plans as they deem appropriate – 5-step process
2. Five example cyanotoxin management plans
   - Examples from five partner PWSs representing diversity in system characteristics and geography



Available online at : https://www.epa.gov/sites/production/files/2018-11/documents/cyanotoxins_management_plan_template_and_example_plans.pdf

Risk Communication Toolbox

- Ready-to-use, "one-stop shop" for communicating risks of cyanotoxins in drinking water
- Tools developed for use by local and state governments and PWSs
- The public is the target audience
- Available in English and Spanish

Available online at:
https://www.epa.gov/ground-water-and-drinking-water/drinking-water-cyanotoxin-risk-communication-toolbox
and
https://espanol.epa.gov/espanol/caja-de-herramientas-para-la-comunicacion-del-riesgo-de-cianotoxinas-en-el-agua-potable

Contact Information

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CyanoHABs website:

https://www.epa.gov/nutrient-policy-data/cyanobacterial-harmful-algal-blooms-water

Cyanotoxins in Drinking Water website:

https://www.epa.gov/ground-water-and-drinking-water/cyanotoxins-drinking-water


QUESTIONS ?