

Communicating the Risks of Cyanotoxins in Drinking Water



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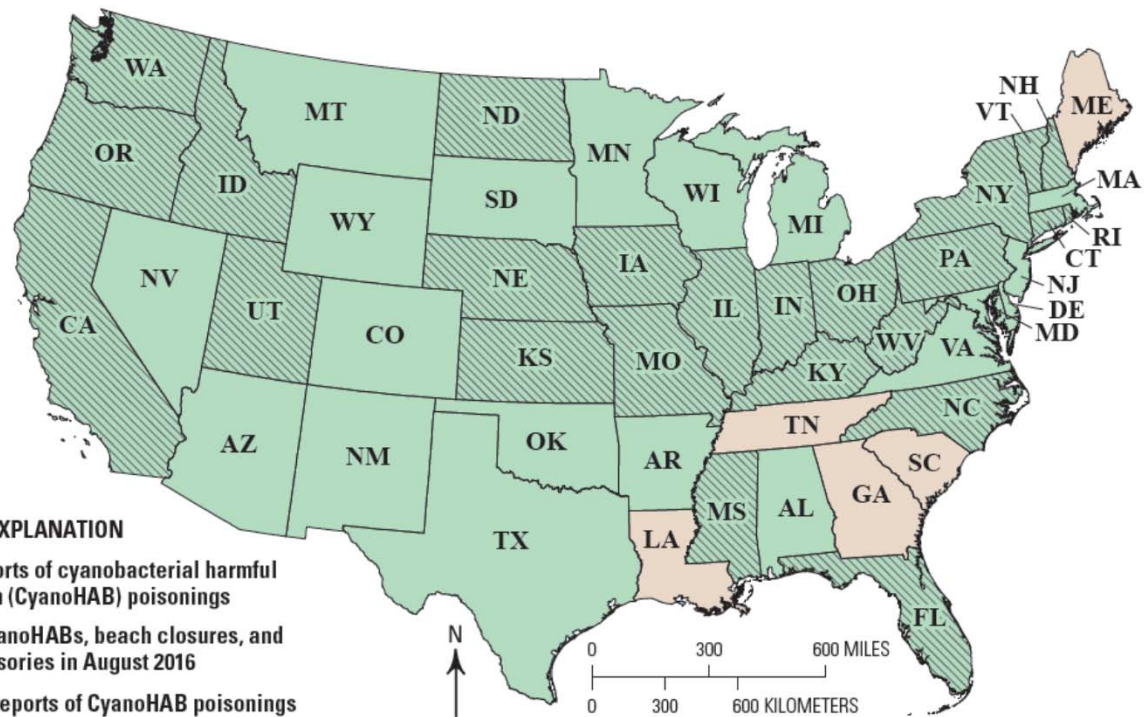
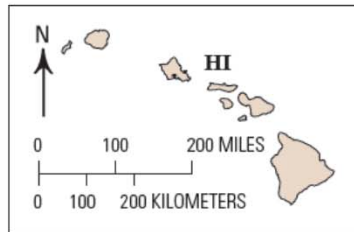
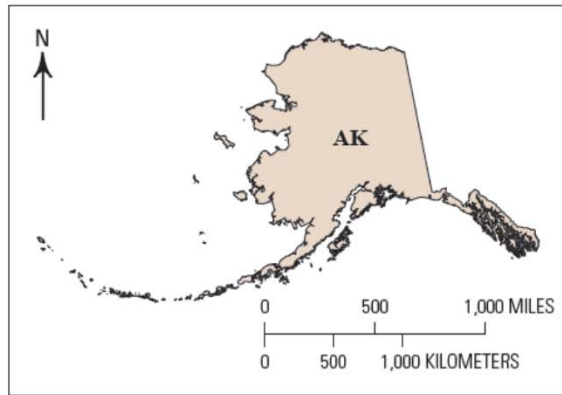
Presentation Overview



- Overview of risk communication needs and challenges
- Introduction to EPA's Cyanotoxin Drinking Water Risk Communication Toolbox
- Overview of Toolbox contents



Blooms are widespread across the country



EXPLANATION

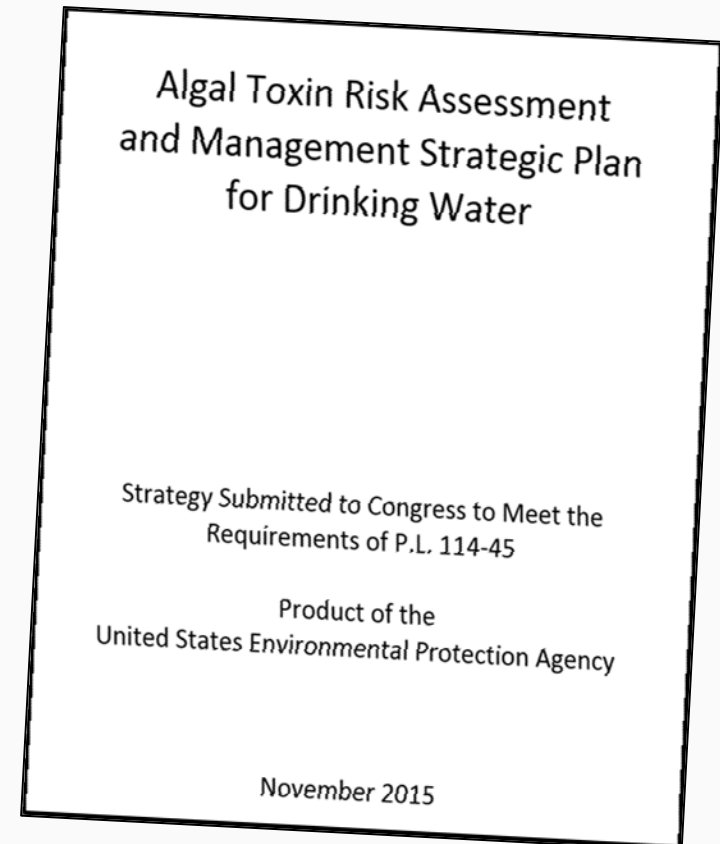
- Anecdotal reports of cyanobacterial harmful algal bloom (CyanoHAB) poisonings
- States with CyanoHABs, beach closures, and health advisories in August 2016
- No anecdotal reports of CyanoHAB poisonings

Courtesy of USGS, Graham and others, 2016, USGS OFR 2016-1174
<http://dx.doi.org/10.3133/ofr20161174>

Algal Toxin Risk Assessment and Management Strategic Plan for Drinking Water



- Includes steps and timelines for:
 - Assessing human health effects
 - Developing list of algal toxins of concern
 - Publishing Health Advisories
 - Assessing treatment options
 - Developing analytical and monitoring approaches
 - Summarizing the causes of HABs
 - Recommending source water protection actions
 - Strengthening collaboration and outreach



Risk communication tools identified as a need



- April 29th, 2016 Public Meeting: Updates and feedback on drinking water and cyanotoxin activities
- Regional HABs Workshops

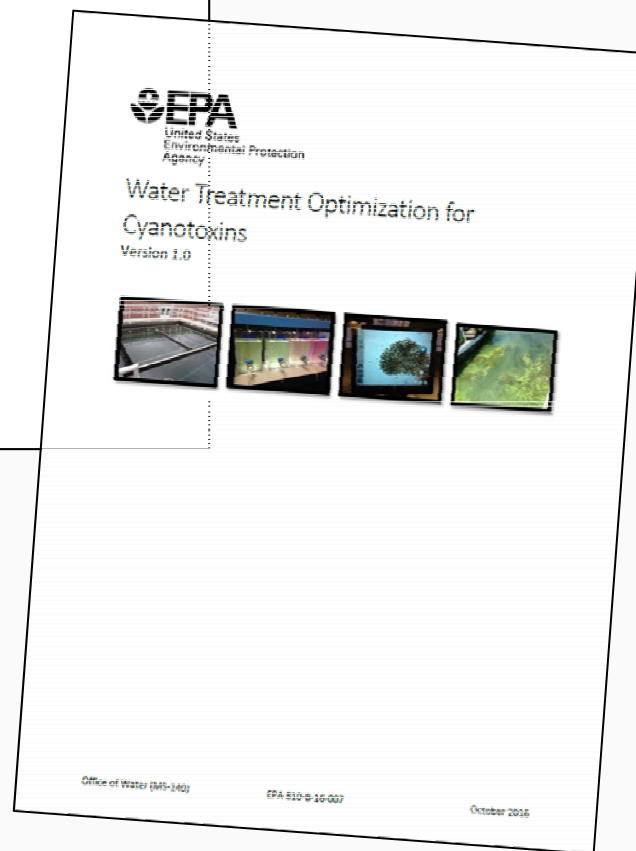
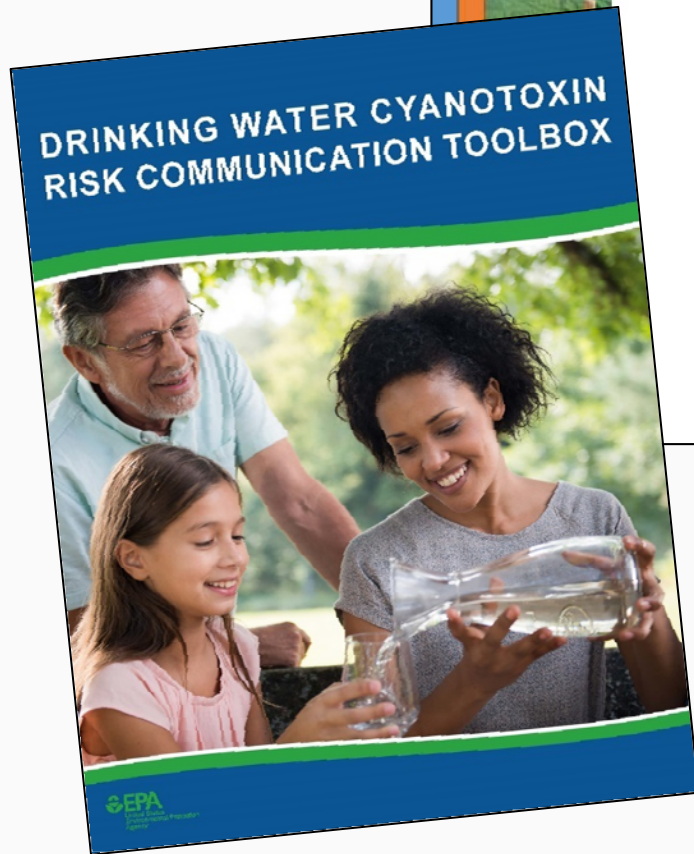


Key Messages from Stakeholders: April 29, 2016 Public Meeting



1. Lessons learned on managing cyanotoxins during 2015
 - Important to develop a plan accounting for competing priorities
 - Collaboration is needed with all stakeholders impacted by blooms
 - **Open communication across all stakeholders including multiple levels of government, multiple users of source waters, and customers**
2. Remaining needs
 - **Better understanding of risk communication**
 - Predictive tools
 - Treatment and mitigation strategies
 - Monitoring and methods

Recent EPA tools to address risks of cyanotoxins in drinking water



Risk Communication Toolbox

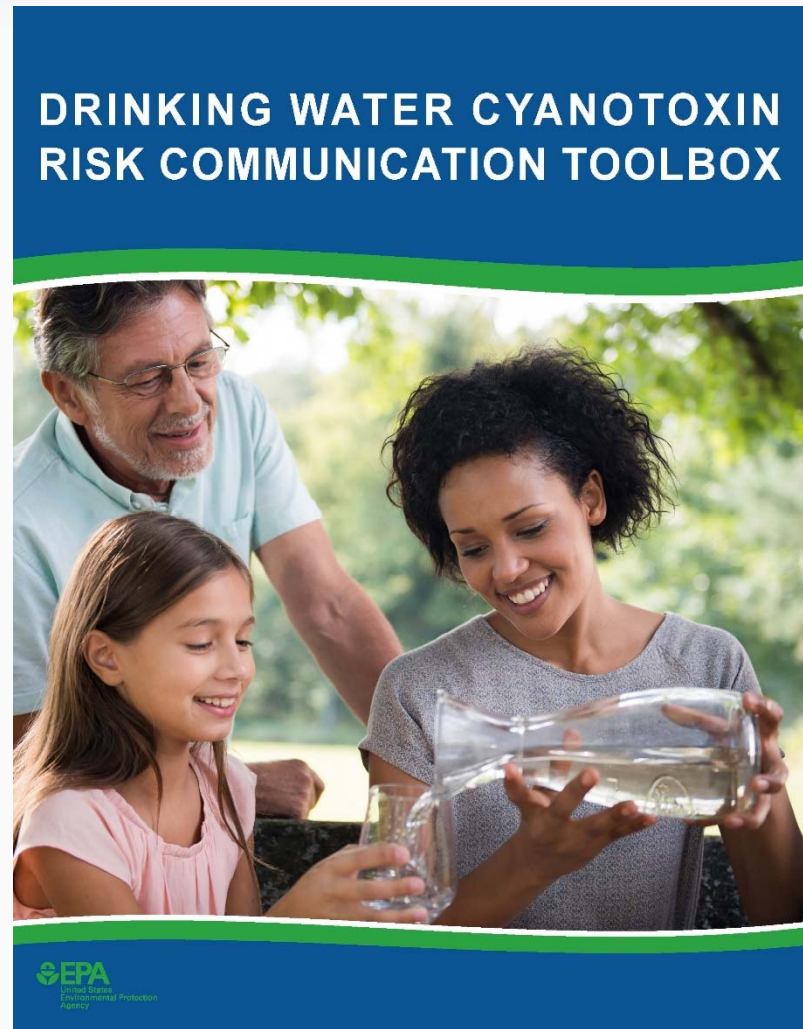


Developed with input from:

- Multiple States
- Several public water systems
- Centers for Disease Control and Prevention
- American Water Works Association
- Association of State Drinking Water Administrators
- Water Research Foundation
- American Public Health Laboratories

Available online at:

<https://www.epa.gov/ground-water-and-drinking-water/drinking-water-cyanotoxin-risk-communication-toolbox>





Purpose

- Ready-to-use, web-based “one-stop shop” for communicating risks of cyanotoxins in drinking water
- Tools including fillable templates, general information and graphics for local and state governments and drinking water systems
- Public is target audience
- Key tools available in English and Spanish

TOOLBOX CONTENTS

DRINKING WATER ADVISORY
[CYANOTOXIN NAME] IS PRESENT IN [WATER SYSTEM NAME]
DO NOT DRINK THE TAP WATER – [DATE ISSUED]

PRESS RELEASE

FLORACIONES DE ALGAS NOCIVAS Y EL AGUA POTABLE

CYANOTOXINS

DRINKING WATER ADVISORIES

EPA United States Environmental Protection Agency
Marca compartida (optional)
EPA 810-F-16-006

EPA United States Environmental Protection Agency
Co-Branding (optional)

Available online at:

<https://www.epa.gov/ground-water-and-drinking-water/drinking-water-cyanotoxin-risk-communication-toolbox>

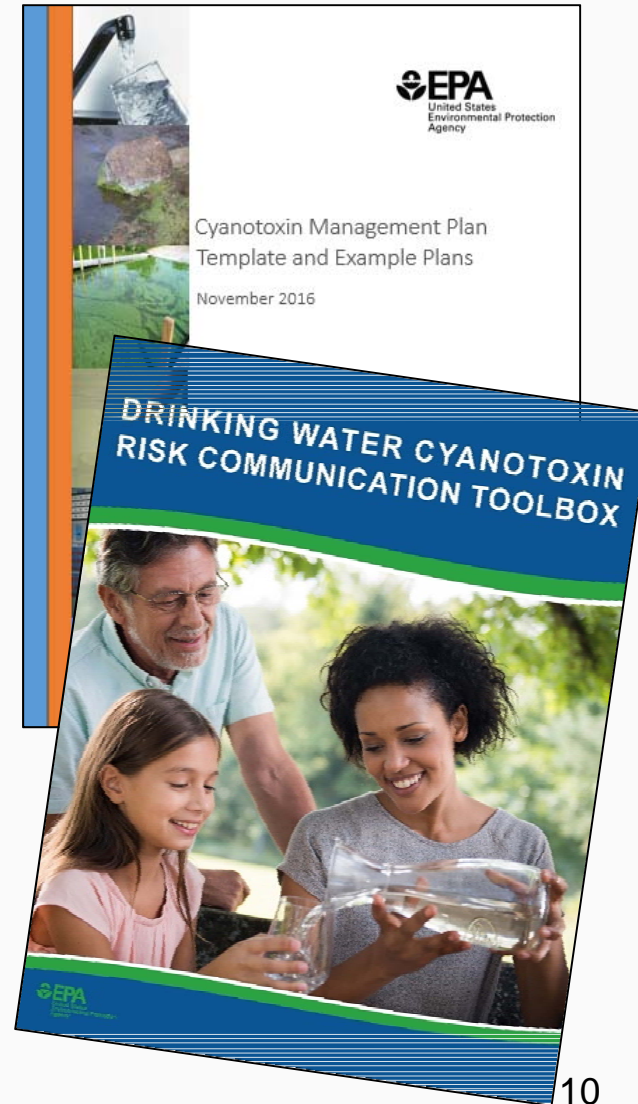
and

<https://espanol.epa.gov/espanol/caja-de-herramientas-para-la-comunicacion-del-riesgo-de-cianotoxinas-en-el-agua-potable>

Intended Uses



- Toolbox provides specific materials for communication
- Use in conjunction with a Cyanotoxin Management Plan
 - Communication strategy and the process for when and how to communicate, should be developed as part of the Cyanotoxin Management Plan



EPA's Health Advisories for Cyanotoxins Used as Example



- U.S. EPA's national drinking water Health Advisory levels are used as example cyanotoxin levels that inform public communication decisions in the toolbox.
- Templates are editable to include state and local action levels.

chemical	10-day advisory	
	Bottle-fed infants and pre-school children	School-age children and adults
microcystins	0.3 µg/L	1.6 µg/L
cylindrospermopsin	0.7 µg/L	3 µg/L

Risk Communication Toolbox Contents - Templates



Templates – Editable, fillable and ready to use

- Press releases
- Drinking Water Advisories (available in [Spanish](#))
- Social media and text alerts (available in [Spanish](#))

Template Options

-Available in editable pdf or word formats

-3 scenarios per template, based on the level of toxins occurring and the population impacted:

- **Everyone:** > U.S. EPA's Health Advisory level for everyone
- **Vulnerable Populations:** > EPA's Health Advisory level for infants and young children under the age of six, but \leq to the Health Advisory level for children six years and older through adults;
- **Advisory Lifted:** \leq EPA's Health Advisory level for everyone

PRESS RELEASE

DRINKING WATER ADVISORY – INFANTS, YOUNG CHILDREN AND OTHER VULNERABLE POPULATIONS

FOR IMMEDIATE RELEASE
Media Contact: [insert name, title, telephone and fax number of spokesperson]

DRINKING WATER ADVISORY

[CYANOTOXIN NAME] IS PRESENT IN [WATER SYSTEM NAME]
DO NOT DRINK THE TAP WATER – [DATE ISSUED]

WHY IS THERE AN ADVISORY?

SOCIAL MEDIA

DRINKING WATER ADVISORY – INFANTS, YOUNG CHILDREN AND OTHER VULNERABLE POPULATIONS

TWITTER

- **"Drinking water advisory!"** Vulnerable populations including infants and young children should not drink [location]'s tap water. See: [insert website link]
- **"Drinking water advisory!"** Vulnerable populations in [location] should not drink tap water. For more information visit: [insert website link]
- "Drinking water contains potentially harmful levels of cyanotoxins. **Vulnerable populations - do not drink [location]'s tap water.** See: [insert website link]"
- **"Vulnerable populations including infants and young children should not drink [location]'s tap water.** For more information: [insert website link]"
- **"Vulnerable populations should temporarily avoid drinking tap water in [location] until further notice.** For more information visit: [insert website link]"

FACEBOOK

- **"Drinking water advisory!"** Cyanotoxins were detected in [location]'s tap water exceeding the national drinking water Health Advisories for vulnerable populations (listed below). Vulnerable populations in the affected areas should not drink the water.
- **The following vulnerable populations are advised not to drink the tap water:** infants, young children under the age of six, pregnant women, nursing mothers, those with pre-existing liver conditions and those receiving dialysis treatment. As a precautionary measure, the elderly and other sensitive populations should consider following these advisory instructions. You should use [alternative sources] for drinking water, making infant formula, making ice and preparing food and beverages.
- **Do Not Boil the tap water.** Boiling the water will not destroy cyanotoxins and may increase the toxin levels.
- If a person is not listed in the vulnerable category above they may drink the tap water.

Risk Communication Toolbox Contents – Template Examples




PRESS RELEASE

DRINKING WATER ADVISORY – INFANTS, YOUNG CHILDREN AND OTHER VULNERABLE POPULATIONS

FOR IMMEDIATE RELEASE
Media Contact: [insert name, title, telephone and fax number of spokesperson]

[WATER SYSTEM] ISSUES DO NOT DRINK ADVISORY FOR [CYANOTOXIN NAME] FOR INFANTS, YOUNG CHILDREN AND OTHER VULNERABLE POPULATIONS

LOCATION [Month Date, Year] – Officials from [local/state agency] have issued a Do Not Drink and Do Not Boil drinking water advisory for infants, young children under the age of six and other vulnerable populations (listed below) in [area affected] until further notice. [Cyanotoxin name], a toxin produced by cyanobacteria (formerly known as blue-green algae), was recently detected in the tap water at [levels and/or ranges] on [dates]. This exceeds the U.S. Environmental Protection Agency's national Health Advisory levels for vulnerable populations that is set at [level]. Therefore, vulnerable populations (listed below) in the affected areas should not drink the water.

Officials are working closely with local and state public health and/or emergency response agencies to address and resolve the situation. [System name] is working quickly to reduce [cyanotoxin name] levels in tap water by taking the following actions: [list actions such as adjusting treatment, changing source...].


[Insert quote here from local official]

This advisory applies to infants, children under the age of six, pregnant women, nursing mothers, those with pre-existing liver conditions and those receiving dialysis treatment. As a precautionary measure, the elderly and other sensitive populations should use an alternate water source. Vulnerable populations, as listed above, who drink water containing [cyanotoxin name] at levels exceeding the national drinking water Health Advisories are at risk of various adverse health effects of [cyanotoxin name]. Possible adverse health effects include upset stomach, vomiting and diarrhea as well as liver and kidney damage. Seek medical attention if you or your family members are experiencing illness. If you, your family members, or your animals have experienced adverse cyanotoxin-related health effects, please contact [State or local Health Department] to report the illness.

[System name] is recommending that vulnerable consumers, as described above, use [alternative sources of water] for drinking, making infant formula, making ice and preparing food and beverages and use precautions against accidental ingestion of tap water until further notice. Do not to boil the water, as boiling water does not remove cyanotoxins and may increase toxin levels.

All those individuals not listed in the vulnerable category may drink the tap water. Everyone may use tap water for showering, bathing, washing hands, washing dishes, flushing toilets, cleaning and doing laundry. However, infants and young children under the age of six should be supervised while bathing and during other tap water-related activities to prevent accidental ingestion of water.

Telephone Number [000-000-0000]
[123 Address Street]
[City, State 00000]
[www.URL.com]



DRINKING WATER ADVISORY

**[CYANOTOXIN NAME] IS PRESENT IN [WATER SYSTEM NAME]
DO NOT DRINK THE TAP WATER – [DATE ISSUED]**

WHY IS THERE AN ADVISORY?

- [Cyanotoxin name], a toxin produced by cyanobacteria (formerly known as blue-green algae) was detected in the drinking water from [System name] on [date].
- Elevated levels of toxins have been detected in [source name] that supplies water to [geographic area, cities, counties, distribution system segments, etc.].
- [System name] is taking the following actions to reduce [cyanotoxin name] levels: [list actions such as: adjusting treatment, changing source, etc.].
- Samples collected on [dates] show [cyanotoxin name] in the drinking water at [levels and/or ranges], which are above the U.S. Environmental Protection Agency's [cyanotoxin name] national drinking water Health Advisory of [level].

WHAT SHOULD I DO?

- Do Not Drink the tap water.**
- [Alternative sources of water] should be used for drinking, making infant formula, making ice and preparing food and beverages.**
- Do Not Boil the tap water.** Boiling the water will not destroy cyanotoxins and may increase the toxin levels.
- Everyone may use tap water for showering, bathing, washing hands, washing dishes, flushing toilets, cleaning and doing laundry. However, infants and young children under the age of six should be supervised while bathing and during other tap water-related activities to prevent accidental ingestion of water.
- Drinking water containing [cyanotoxin name] at levels exceeding the national drinking water Health Advisories can put you at risk of various adverse health effects including upset stomach, vomiting and diarrhea as well as liver and kidney damage. Seek medical attention if you or family members are experiencing illness.
- Animals may be vulnerable to adverse health effects of [cyanotoxin name] at the detected levels indicated above; consider providing animals alternative sources of water. Contact a veterinarian if animals show signs of illness.
- If you, your family members or your animals have experienced adverse cyanotoxin-related health effects, please contact [State or local Health Department] to report the illness.

WHAT IS BEING DONE?

- [System name] is working closely with local and state public health and emergency response agencies to address the situation and to quickly to reduce [cyanotoxin name] levels in tap water.
- [System name] will post an updated advisory when: the [cyanotoxin] levels are less than or equal to the national drinking water Health Advisories, this Do Not Drink Advisory is lifted and/or if there are any changes to the conditions of this Do Not Drink Advisory.
- For more information please contact [contact information] or visit [website].

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools and businesses). You can do this by posting this notice in a public place or distributing copies by hand.

This notice is being sent to you by [system].
State Water System ID#: _____ Date distributed: _____

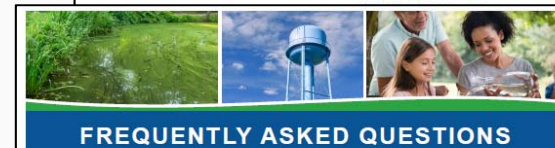
Telephone Number [000-000-0000]
[123 Address Street, City, State 00000]
[www.URL.com]

Risk Communication Toolbox Contents – General information



General information

- Public messaging
- Frequently Asked Questions (available in [Spanish](#))
- Factsheets (available in [Spanish](#))
- Co-branding option available



WHAT ARE HARMFUL ALGAL BLOOMS AND CYANOTOXINS?
Cyanobacteria, formerly referred to as blue-green algae,

WHAT ARE HEALTH ADVISORIES?
The U.S. Environmental Protection Agency (U.S. EPA) publishes Health Advisories for unregulated contaminants to help states and water systems assess local situations.



SUMMARY

CYANOTOXINS



DRINKING WATER ADVISORIES



Co-Branding
(optional)

animals. Additionally, HABs can create taste and odor problems in drinking water, such as an earthy and musty smell. The environmental conditions that cause HABs to produce cyanotoxins are not fully understood and can vary from year to year within the same waterbody. Some cyanotoxins occur in blooms that look like thick scum or paint-like substances on the surface of the water, while others occur in blooms that are not as easily visible.

HEALTH IMPACTS

Conventional water treatment (consisting of coagulation, sedimentation, filtration and chlorination) can generally remove cyanobacterial cells and low levels of toxins. However, water systems may face challenges providing drinking water during a severe bloom event, when there are high levels of cyanobacteria and cyanotoxins in drinking water sources. If cyanotoxins over the U.S. Environmental Protection Agency's national 10-day Health Advisory level (see Table 1) occur in tap water, people are at risk of various adverse health effects including upset stomach, vomiting and diarrhea as well as liver and kidney damage.

10-DAY HEALTH ADVISORIES	LEVEL
Microcystins	
Children pre-school age and younger (under 6 years old)	0.3 µg/L
School-age children (6 years and older)	1.6 µg/L
Cylindrospermopsin	
Children pre-school age and younger (under 6 years old)	0.7 µg/L
School-age children (6 years and older)	3.0 µg/L

Table 1. U.S. EPA's National 10-Day Health Advisories

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ADVISORIES

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were developed
current science.

LEVEL
0.3 µg/L
1.6 µg/L
0.7 µg/L
3.0 µg/L

Available online at:
<https://www.epa.gov/ground-water-and-drinking-water/drinking-water-cyanotoxin-risk-communication-toolbox-general>

Risk Communication Toolbox Contents - Graphics

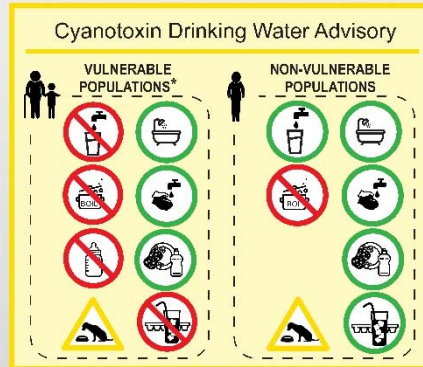


Graphics

- Menu of multiple downloadable options
- 4 styles to help communicate key messages
- From over 20 graphics to choose



Drinking Water Health Advisories



*vulnerable populations = infants, children under the age of six, pregnant women, nursing mothers, those with pre-existing liver conditions, those receiving dialysis treatment, the elderly and sensitive populations.

Icon style graphics



Drinking Water Health Advisories

<p>No Cyanotoxin Drinking Water Advisory</p> <p>EVERYONE</p>	<p>Cyanotoxin Drinking Water Advisory</p> <table border="1"> <tr> <th>VULNERABLE POPULATIONS*</th> <th>NON-VULNERABLE POPULATIONS</th> </tr> <tr> <td></td> <td></td> </tr> </table>	VULNERABLE POPULATIONS*	NON-VULNERABLE POPULATIONS			<p>Cyanotoxin Drinking Water Advisory</p> <p>EVERYONE</p>
VULNERABLE POPULATIONS*	NON-VULNERABLE POPULATIONS					

*vulnerable populations = infants, children under the age of six, pregnant women, nursing mothers, those with pre-existing liver conditions, those receiving dialysis treatment, the elderly and sensitive populations.

Drinking Water Health Advisories

Cyanotoxin Drinking Water Advisory

EVERYONE

Cyanotoxin Drinking Water Advisory

VULNERABLE POPULATIONS*	NON-VULNERABLE POPULATIONS

No Cyanotoxin Drinking Water Advisory

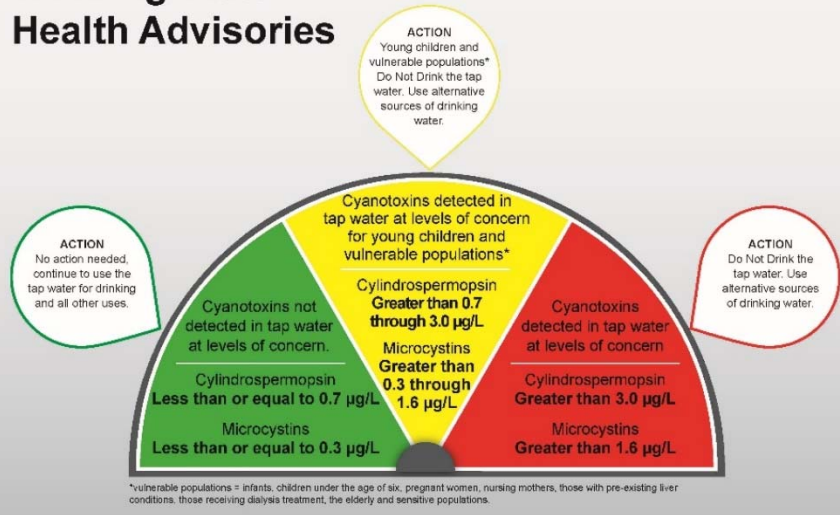
EVERYONE

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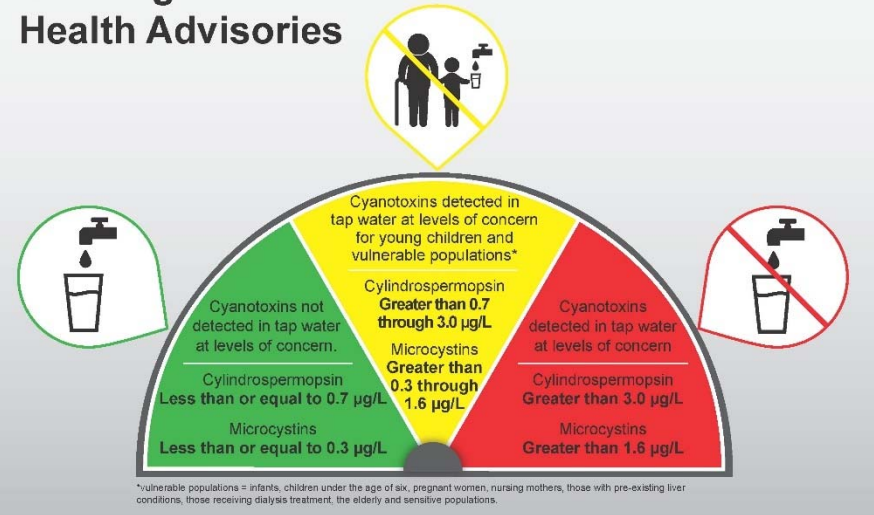
Speedometer style graphics



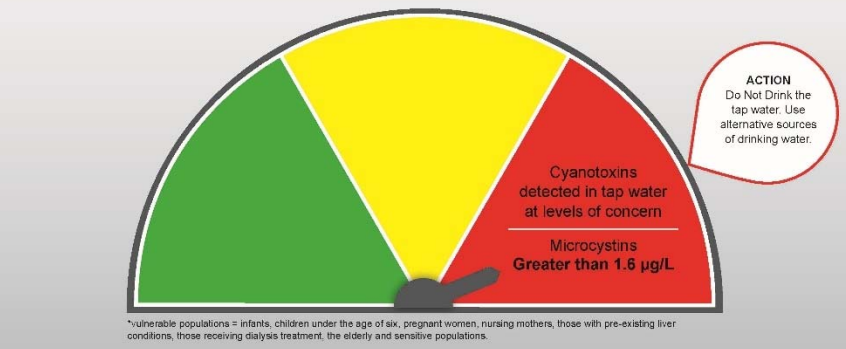
Drinking Water Health Advisories



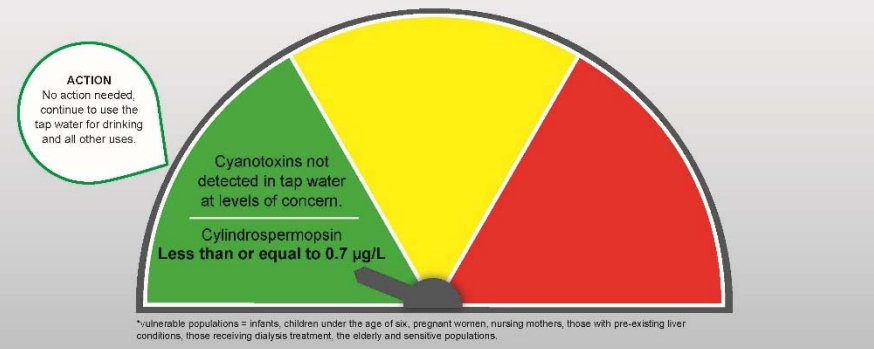
Drinking Water Health Advisories



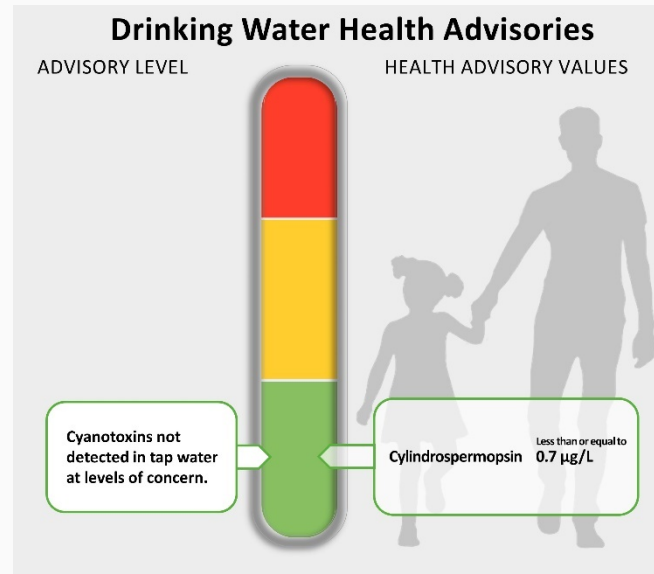
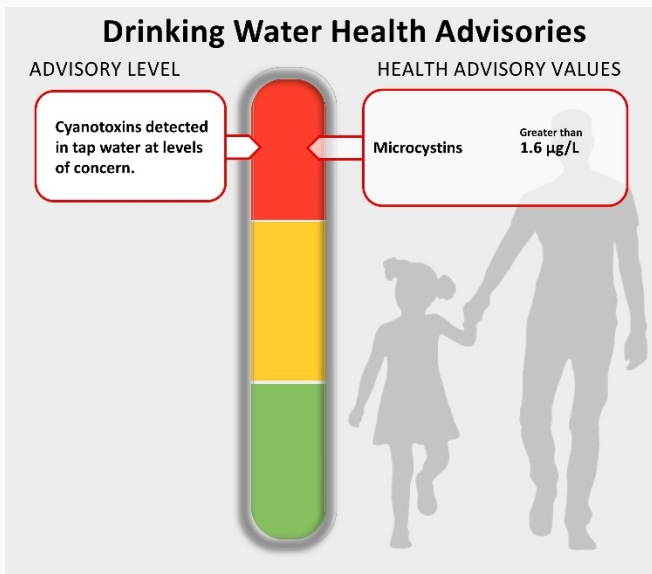
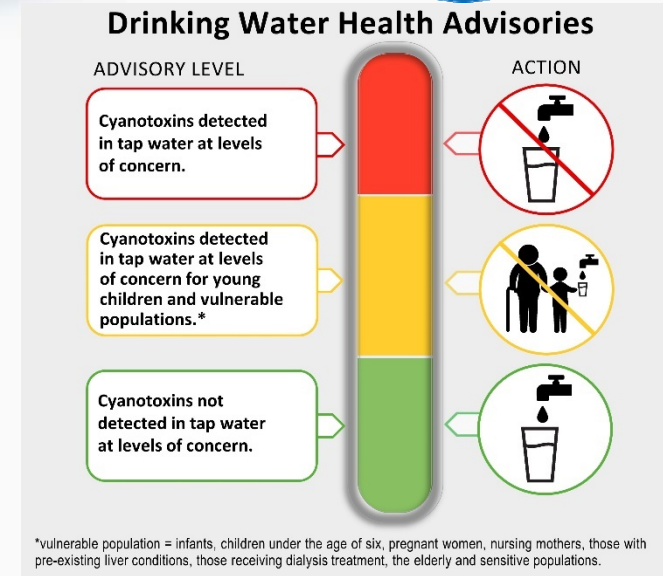
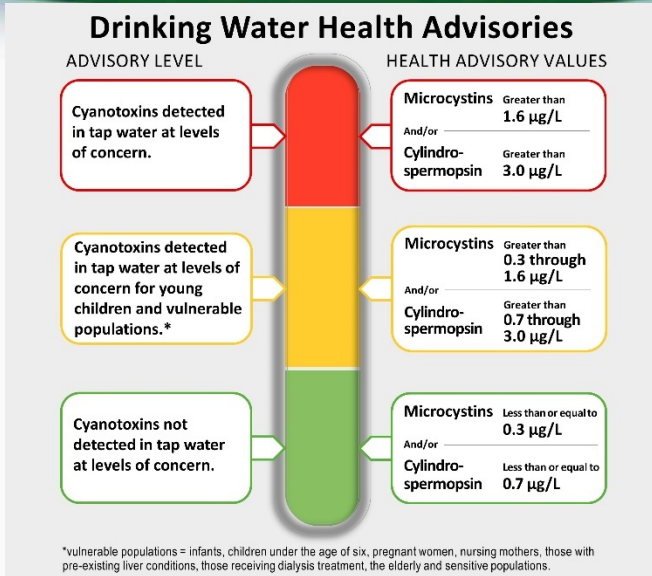
Drinking Water Health Advisories



Drinking Water Health Advisories



Thermometer style graphics





Stoplight style graphics

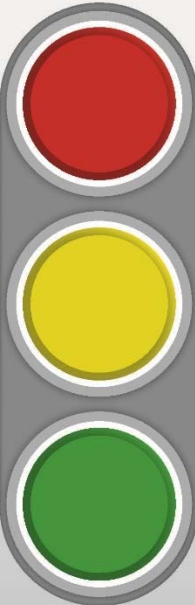
Drinking Water Health Advisories

MEANING

Cyanotoxins detected in tap water at levels of concern.

Cyanotoxins detected in tap water at levels of concern for young children and vulnerable populations*.

Cyanotoxins not detected in tap water at levels of concern.



ACTION

Do Not Drink the tap water. Use alternative sources of drinking water.

Young children and vulnerable populations* Do Not Drink the tap water. Use alternative sources of drinking water.

No action needed, continue to use the tap water for drinking and all other uses.

*vulnerable populations = infants, children under the age of six, pregnant women, nursing mothers, those with pre-existing liver conditions, those receiving dialysis treatment, the elderly and sensitive populations.

Conclusion



- Effectively communicating cyanotoxin risks in drinking water is important to protecting public health
- EPA's Cyanotoxin Drinking Water Risk Communication Toolbox can be customized to help communicate
- Tips for communicating:
 - Develop a communication strategy, including when/how to communicate and who to communicate to
 - Clear, concise and consistent messaging should be used across all communication products
 - Incorporate icons, color and other visuals
 - Keep messages simple and relevant to audiences, particularly if there are actions they need to take

Contact Information



Questions?

Katie Foreman

foreman.katherine@epa.gov

Drinking Water Cyanotoxin Risk Communication Toolbox:

<https://www.epa.gov/ground-water-and-drinking-water/drinking-water-cyanotoxin-risk-communication-toolbox>

OGWDW cyanotoxins website:

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

CyanoHABs website:

<https://www.epa.gov/cyanoHABs>