

# Harmful Algal Blooms (HABs) Newsletter



## EPA Updates!

HABs News – Research – Resources -- Tools

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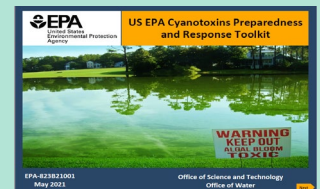
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Mention of trade names, products, or services in this newsletter does not convey and should not be interpreted as conveying official EPA endorsement, approval, or recommendation for use.

More HABs information is available on EPA's [CyanoHABs in Water Bodies website](#)

## Getting Ready: What To Do Before, During, and After a CyanoHAB

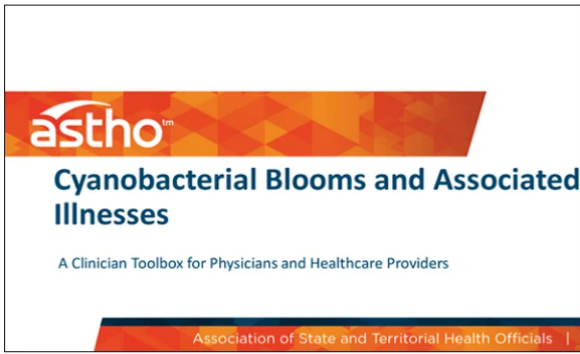


EPA's *Cyanotoxins Preparedness and Response Toolkit (CPRT)* is an online tool containing resources that drinking water systems and waterbody managers can use to be prepared before a cyanoHAB event, and to respond to cyanotoxins in drinking water and/or cyanobacteria and their toxins in recreational waters. The CPRT includes:

- Cyanobacteria/Cyanotoxins Management Plan template, including worksheets and checklists to plan before and during a bloom event;
- Frequently Asked Questions on cyanoHABs, Drinking Water Health Advisories, and EPA's Recommended Recreational Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin;
- Links to communication tools for effective risk communication during cyanotoxin events;
- CyanoHABs incident response questionnaire to use when a cyanotoxins event is suspected or confirmed; and
- Post-incident technical support questionnaire to evaluate the effectiveness of the response.

The resources in the toolkit can be filled out electronically, downloaded, and shared.

The CPRT is available to download on [EPA's CPRT webpage](#)



## Cyanobacterial Blooms and Associated Illnesses: A Clinician Training Module for Physicians and Healthcare Providers

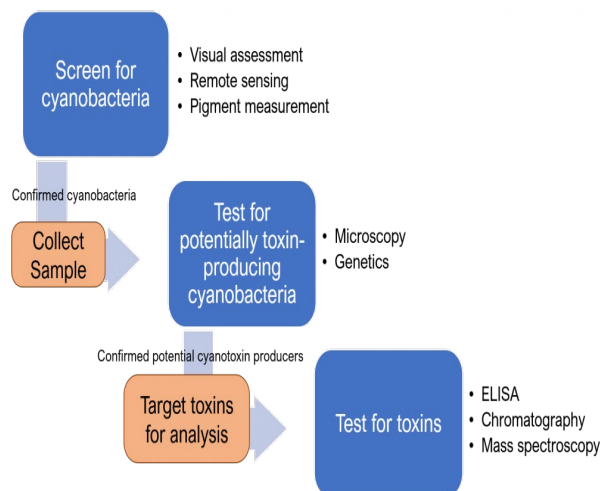
The Association of State and Territorial Health Officials (ASTHO) recently posted online a clinician [toolbox](#) intended for use by health agency staff when providing training about cyanobacterial blooms to health care providers. The training module is aimed to help clinicians recognize signs and symptoms associated with cyanobacterial bloom-associated illnesses; describe how to diagnose cyanobacterial bloom-associated illnesses, including cyanotoxin exposures; know where to find cyanobacterial bloom advisories; and explain the importance of reporting cyanobacterial bloom-associated illnesses to the state health agency.



## ITRC's Strategies for Preventing and Managing Harmful Cyanobacterial Blooms Interactive Tools

The ITRC guidance includes useful interactive tools for monitoring and managing cyanobacterial blooms:

**Monitoring Tool:** Provides monitoring methods for cyanobacteria and cyanotoxins



**Management Criteria Tool:** Helps evaluate in-lake management strategies that prevent future HCBs or intervene in active blooms.

Select the criteria that describes your needs, situation and/or water body:

Strategy Type	Waterbody Type	Type of HCB
<input type="checkbox"/> Intervention	<input type="checkbox"/> Pond	<input type="checkbox"/> Planktonic
<input type="checkbox"/> Prevention	<input type="checkbox"/> Lake or Reservoir	<input type="checkbox"/> Benthic
	<input type="checkbox"/> River	

Management Strategy	Documented Effectiveness	Depth	Surface Area	Trophic State	Turbidity
<a href="#">Acidification</a>	Planktonic - Limited; Benthic - Limited	Shallow	Small	Any Trophic Status	Generally Clear
<a href="#">Artificial circulation and mechanical mixers</a>	Planktonic - Substantial; Benthic - Not Applicable	Deep	Small or Large	Any Trophic Status	Clear to Turbid
<a href="#">Barley and rice straw</a>	Planktonic - Substantial; Benthic - Limited	Shallow or Deep	Small or Large	Any Trophic Status	Clear to Turbid
<a href="#">Clay and surfactant flocculation</a>	Planktonic - Substantial; Benthic - Limited	Shallow or Deep	Small or Large	Any Trophic Status	Clear to Turbid
<a href="#">Copper algaecides</a>	Planktonic - Substantial; Benthic - Substantial	Shallow or Deep	Small or Large	Any Trophic Status	Clear to Turbid
<a href="#">Dredging</a>	Planktonic - Limited; Benthic - Limited	Shallow or Deep	Small or Large	Any Trophic Status	Clear to Turbid
<a href="#">Floating wetlands</a>	Planktonic - Limited; Benthic - Limited	Shallow	Small or Large	Eutrophic	Clear to Turbid
<a href="#">Food web manipulation</a>	Planktonic - Substantial; Benthic - No Available Data	Shallow or Deep	Small or Large	Any Trophic Status	Clear to Turbid
<a href="#">Hydraulic flushing</a>	Planktonic - Substantial; Benthic - Limited	Shallow	Small or Large	Eutrophic	Clear to Turbid
<a href="#">Hydrodynamic cavitation</a>	Planktonic - Emerging; Benthic - No Available...	Shallow	Small	Any Trophic Status	Clear to Turbid



# Reported Blooms, Beach Closures, and Health Advisories\* - April 2022

*\*Includes blooms, cautions, warnings, public health advisories, closings, and detections over state thresholds due to the presence of algae and/or toxins. This is not a comprehensive list; not all blooms have been reported and/or not all lakes are actively monitored.*

Go to EPA's interactive [Tracking CyanoHABs Story Map](#) to access the data underlying the map points and for more information.



*Click the state name to see the reported blooms for the month of April 2022:*  
[California \(9\)](#); [Florida \(17\)](#); [Kansas \(1\)](#); [New Jersey \(2\)](#); [Oregon \(1\)](#); [Rhode Island \(2\)](#); [South Carolina \(2\)](#)

## Upcoming Virtual Events

### [12<sup>th</sup> International Conference on Toxic Cyanobacteria](#)

May 22-27, 2022 in Toledo, Ohio

### [Benthic HABs Discussion Group Webinar](#)

June 1, 2022 from 12:30pm - 2:00pm PDT

### [Pathogens and Natural Toxins e-Conference](#)

July 1- August 31, 2022

### [GlobalHAB symposium on automated in situ observations of plankton](#)

August 22-26, 2022

### [U.S. Symposium on Harmful Algae](#)

October 23-28, 2022 in Albany, NY

## Additional Useful Resources

[Guide for Public Health Response to Cyanobacterial Harmful Algae in Recreational Freshwater in Texas](#)



## Recently Published Articles\*

### Septic system-groundwater-surface water couplings in waterfront communities contribute to harmful algal blooms in Southwest Florida

Rachel A. Brewton, Lisa B. Kreiger, Kevin N. Tyre, Diana Baladi, Lynn E. Wilking, Laura W. Herren, Brian E. Lapointe, Science of The Total Environment, 2022, 155319.

### Genomic insights into the biosynthesis and physiology of the cyanobacterial neurotoxin 3-N-methyl-2,3-diaminopropanoic acid (BMAA)

Maria José Q. Mantas, Peter B. Nunn, Geoffrey A. Codd, Daniel Barker, Phytochemistry, Volume 200, 2022, 113198.

### A critical review on the interaction of iron-based nanoparticles with blue-green algae and their metabolites: From mechanisms to applications

Yangyang Yang, Xiulei Fan, Jiankun Zhang, Shuyun Qiao, Xun Wang, Xueyang Zhang, Lingzhan Miao, Jun Hou, Algal Research, Volume 64, 2022, 102670.

### Graphene-Mediated removal of Microcystin-LR in chitosan/graphene composites for treatment of harmful algal blooms

Sarah Grace Zetterholm, Luke Gurtowski, Jesse L. Roberts, Sheila McLeod, Brianna M. Fernando, Chris S. Griggs, Chemosphere, Volume 300, 2022, 134583.

### Gene expression changes in Daphnia magna following waterborne exposure to cyanobacterial strains from the genus Nostoc

Petar G. Davidović, Dajana J. Blagojević, Gospava G. Lazić, Jelica B. Simeunović, Harmful Algae, Volume 115, 2022, 102232.

### Electrochemical biosensor with aptamer/porous platinum nanoparticle on round-type micro-gap electrode for saxitoxin detection in fresh water

Jeong Ah Park, Namgook Kwon, Eunhae Park, Younghun Kim, Hongje Jang, Junhong Min, Taek Lee, Biosensors and Bioelectronics, Volume 210, 2022, 114300.

### The influence of Lake Okeechobee discharges on Karenia brevis blooms and the effects on wildlife along the central west coast of Florida

Margot K. Vermeylen, Toby G. Knowles, Heather W. Barron, Harmful Algae, Volume 115, 2022, 102237.

### Air, land, and water variables associated with the first appearance and current spatial distribution of toxic Prymnesium parvum blooms in reservoirs of the Southern Great Plains, USA

Shisbeth Tábora-Sarmiento, Reynaldo Patiño, Carlos Portillo-Quintero, Cade Coldren, Science of The Total Environment, 2022, 155567.

### How reliable is chlorophyll-a as algae proxy in lake environments? New insights from the perspective of n-alkanes

Yong He, Xiangyu Wang, Fuli Xu, Science of The Total Environment, 2022, 155700.  
<https://doi.org/10.1016/j.scitotenv.2022.155700>

\*Articles are retrieved monthly from Science Direct research database searching for the following key words: cyanobacteria, cyanotoxins, harmful algal blooms, HAB(s), etc.