EPA United States Environmental Protection Agency

November 2021

Harmful Algal Blooms (HABs) Newsletter

In this issue

More HABs information is available on EPA's
CyanoHABs in Water Bodies website

EPA Updates!

HABs News, Research, Resources, and Tools

Harmful Algal Blooms: The Federal and Innovative Funding Sources for the Prevention, Monitoring, and Treatment of Harmful Algal Blooms

EPA's Water Infrastructure and Resiliency Finance Center (WIRFC) is hosting a two-day virtual forum to provide state agencies and coastal and inland communities with an overview of federal funding programs available to prevent, monitor, and treat HABs, and examples of communities that have utilized those funds.

The virtual forum will be held on November 9 and 10 from 1:00-4:00pm EST.

Register for the forum.

The objectives of the forum are:

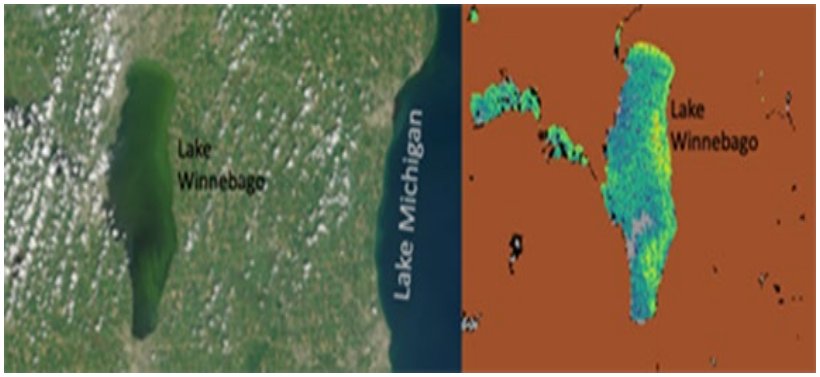
- Provide information to participants on federal sources available to fund the prevention, monitoring, and treatment of HABs.
- Hear about real-world examples of coastal and inland communities and landowners that have successfully used these funding sources for HAB-related projects.
- Allow participants to share perspectives with federal agencies on their experiences, challenges, and successes accessing funding for HABs.

For more information, please contact waterfinancecenter@epa.gov.

NEWS ON HABs

USGS Kansas Water Science Center Project: Characterization of Potentially Toxic CyanoHAB Initiation in Slow-Moving Streams, Wetlands, and Oxbows

The United States Geological Survey (USGS), in cooperation with several departments/offices in the State of Kansas (KDHE, KWO, KDWPT) and WaterOne, is studying cyanoHABs in slow-moving waters (wetlands, oxbows, rivers, streams) above and below Perry and Milford Lakes. Crews sampled several wetland and slow-moving stream areas in early September to better characterize late-season algal blooms. Sampling will continue to target these slow-moving water areas over the next couple of years to help establish a better understanding of cyanoHAB initiation, processes, and transport.



NASA Releases New Cyanobacteria Index Map and Raw Satellite Data in Over 2,300 Lakes in the U.S.

A new publicly available NASA dataset allows citizens and policymakers to get near-real time updates on the cyanobacteria in over 2,300 lakes in the contigious Unites States and more than 5,000 in Alaska. Scientists and state officials have already used the data to monitor and respond to early-stage algal blooms – a rapid increase in the population of algae in freshwater or marine water systems – but the dataset is now available to the general public and research community in the form of raw data, maps, and an index of cyanobacteria risk to human health. The data and products have been made available by the **Cyanobacteria Assessment Network** (CyAN), a joint project between NASA, EPA, the National Oceanic and Atmospheric Administration (NOAA) and USGS.

The data is now publicly available in the form of **Cyanobacteria Index maps** and **raw satellite data**.

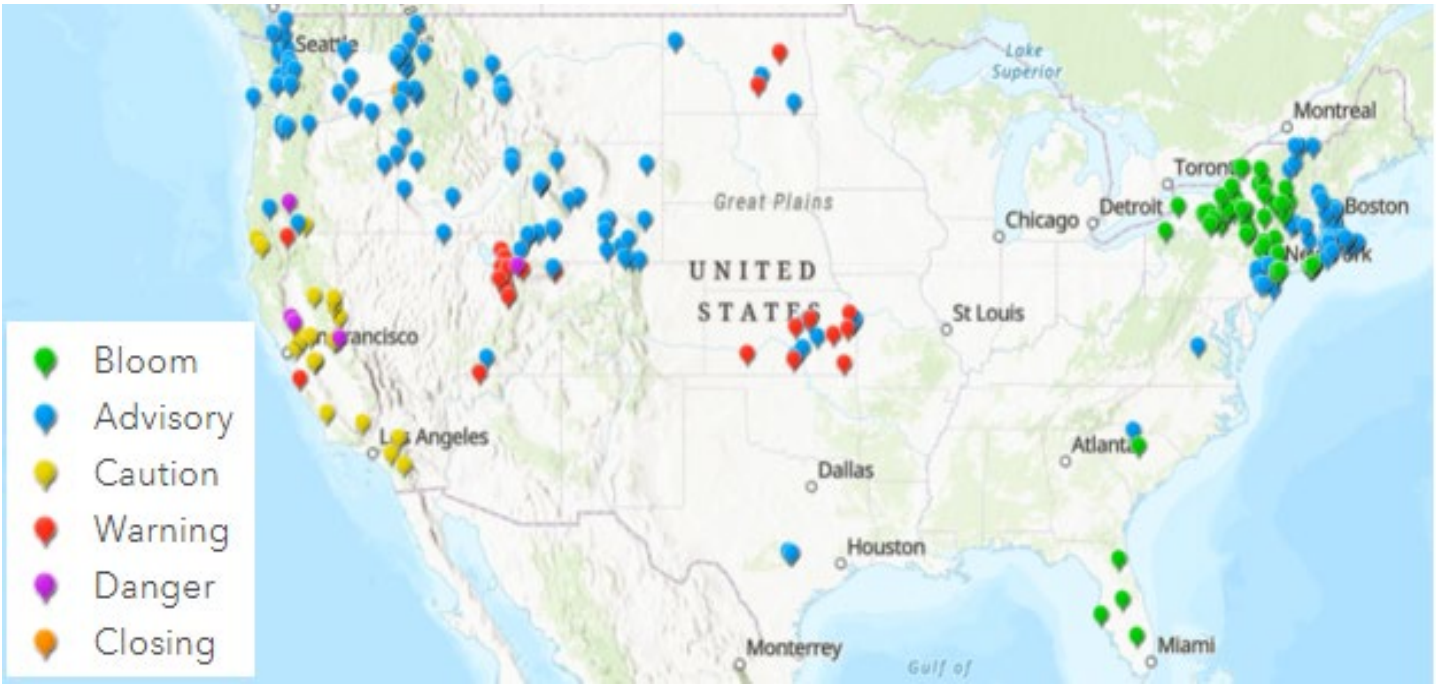
Save the Date for a Benthic HABs Webinar

Please save the date for a webinar highlighting research done in Greenland on cyanotoxins from benthic blooms and to learn about the North Fork Shenandoah River benthic bloom event this past summer. The webinar will take place on December 7, 2021 at 8:30-10:00am PST. Agenda and webinar information will be posted in the EPA Benthic HABs Discussion Group webpage.

Reported Blooms, Beach Closures, and Health Advisories* - October 2021

**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 points underlying the map and for more information.



Click the state name to see the reported blooms for the month of October 2021:

California (28); Connecticut (1); Florida (4); Idaho (23); Kansas (15); Massachusetts (17); Montana (6); New Hampshire (6); New Jersey (9); New York (58); North Dakota (5); Oregon (4); Rhode Island (12); South Carolina (2); Texas (3); Utah (15); Vermont (6); Virginia (1); Washington (30); Wyoming (25)

Upcoming Virtual Events

CERF 2021
November 1-4 and 8-11, 2021
Impact of Climate Change on Harmful Algal Blooms

SETAC North America 42nd Annual Meeting
November 14-18, 2021
Pelagic and Benthic HABs: The detection, fate, effects, monitoring, and management of blooms and their associated toxins

2nd Annual Virtual Harmful Algal Bloom Symposium
January 6-7, 2022
Emerging Research & Case Studies

12th International Conference on Toxic Cyanobacteria
May 22-27, 2022, Toledo, Ohio

U.S. Symposium on Harmful Algae
October 23-28, 2022 (tentatively), Albany, New York

ADDITIONAL USEFUL

- **North American Lake Management Society (NALMS) 2021 Algal-related Workshops**
  November 15 and 19th
- **2021 Oregon Lakes Association Online Seminar Series**
  November 3rd, 10th and Dec 1st

Recently Published Articles*

Microcoleus (Cyanobacteria) form watershed-wide populations without strong gradients in population structure
Bouma-Gregson, K., Crits-Christoph, A., Olm, M. R., Power, M. E., & Banfield, J. F. (2021). Molecular Ecology, 00, pp. 1–18.

A critical review on operation and performance of source water control strategies for cyanobacterial blooms: Part I-chemical control methods
Faith A. Kibuye, Arash Zamyadi, Eric C. Wert, Harmful Algae, Volume 109, 2021, pp. 102099.

A critical review on operation and performance of source water control strategies for cyanobacterial blooms: Part II-mechanical and biological control methods
Faith A. Kibuye, Arash Zamyadi, Eric C. Wert, Harmful Algae, Volume 109, 2021, pp. 102119.

Acute oral toxicity and tissue residues of saxitoxin in the mallard (Anas platyrhynchos)
Robert J. Dusek, Matthew M. Smith, Caroline Van Hemert, Valerie I. Shearn-Bochsler, Sherwood Hall, Clark D. Ridge, D. Ransom Hardison, Robb S.A. Kaler, Barbara L. Bodenstein, Erik K. Hofmeister, Jeffrey S. Hall, Harmful Algae, Volume 109, 2021, pp. 102109.

Multiclass cyanotoxin analysis in reservoir waters: Tandem solid-phase extraction followed by zwitterionic hydrophilic interaction liquid chromatography-mass spectrometry
M. Mar Aparicio-Muriana, Rocío Carmona-Molero, Francisco J. Lara, Ana M. García-Campaña, Monsalud del Olmo-Iruela,
Talanta, Volume 237, 2022, pp. 122929.

Recent trends in the detection of freshwater cyanotoxins with a critical note on its occurrence in Asia
Prabir Kumar Kulabhusan, Katrina Campbell, Trends in Environmental Analytical Chemistry, 2021, e00150.

Treatment of cylindrospermopsin by hydroxyl and sulfate radicals: Does degradation equal detoxification?
Marcel Schneider, Marina F. Grossi, Darshak Gadara, Zdeněk Spáčil, Pavel Babica, Luděk Bláha, Journal of Hazardous Materials, Volume 424, Part B, 2022, pp. 127447.

Cyanobacterial cell-wall components as emerging environmental toxicants - detection and holistic monitoring by cellular signaling biosensors
Ilona Gągała-Borowska, Iwona Karwaciak, Dorota Jaros, Marcin Ratajewski, Mikołaj Kokociński, Tomasz Jurczak, Bartłomiej Remlein, Kinga Rudnicka, Łukasz Pułaski, Joanna Mankiewicz-Boczek,
Science of The Total Environment, Volume 807, Part 2, 2022, pp. 150645.

Fish tissue accumulation and proteomic response to microcystins is species-dependent
René S. Shahmohamadloo, Xavier Ortiz Almirall, Denina B.D. Simmons, David G. Poirier, Satyendra P. Bhavsar, Paul K. Sibley, Chemosphere, Volume 287, Part 1, 2022, pp.132028.

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

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