April 2022

Harmful Algal Blooms (HABs) Newsletter

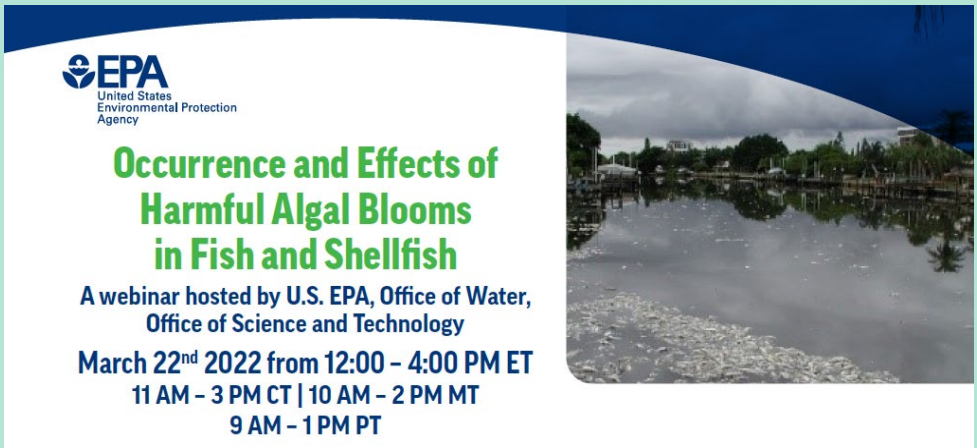
In this issue

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

EPA Updates!

HABs News – Research – Resources -- Tools



On March 22, 2022, EPA's Office of Science and Technology hosted a webinar on the *Occurrence and Effects of Harmful Algal Blooms in Fish and Shellfish* to share information on the occurrence and impacts of HABs in fresh and marine fish and shellfish, and to learn about ways to protect human health and the environment from the risks of HABs and their toxins. The webinar was well attended by representatives from states, tribes, territories, federal agencies, universities, and international governments. Topics covered included:

- freshwater impacts with presentations from the University of Geneva, California EPA, the Big Valley Band of Pomo Indians, EPA Office of Research and Development; and
- estuarine and marine impacts with presentations from National Oceanic and Atmostpheric Administration; the French Agency for Food, Environmental and Occupational Health Safety; and the Northwest Indian College.

Each presentation was followed with a question and answer session. Presentations and a recording of the webinar are posted to the webinar webpage of the EPA CyanoHABs website.

New USGS Publication on Mapping Benthic Algae and Cyanobacteria in River Channels

The U.S. Geological Survey's (USGS) National Water Quality Program recently published a report resulting from a partnership with the National Park Service that evaluates the feasibility of mapping benthic algae via remote sensing. In the report, titled *Mapping Benthic Algae and Cyanobacteria in River Channels from Aerial Photographs and Satellite Images: A Proof-of-Concept Investigation on the Buffalo National River, AR, USA*, scientists describe the use of aerial photographs and satellite images to classify four levels of algal density along the Buffalo National River in Arkansas.

For more information, contact Carl Legleiter at cjl@usgs.gov

Interstate Technology and Regulatory Council (ITRC) NEW Training Courses for Harmful Cyanobacterial Blooms (HCBs)

ITRC published a new **Benthic Harmful Cyanobacteria Blooms (HCB-2) Guidance Document** addressing the unique challenges of evaluating and communicating to the public the health and environmental risks of benthic HCBs, and providing contemporary best management practices for this type of harmful bloom.

ITRC's HCB Team will be hosting live Internet-based training sessions about this new guidance document and two training courses on HCBs. Registration is now open.

- **April 26, 2022 (Tuesday) -** Strategies for Preventing and Managing Harmful Cyanobacterial Blooms (HCBs) – a course covering cyanobacterial blooms in general, with a focus on planktonic blooms.
- **April 28, 2022 (Thursday) -** Harmful Cyanobacterial Blooms (HCBs) - Benthic – a new course focused primarily on benthic HCBs.

Webinars Series
Indian River Lagoon (IRL) Council GeoCollaborate: Informing Harmful Algal Bloom Emergency Response

Four webinars will be held to explore datasets associated with the 2016 HAB and fish kill events in the Indian River Lagoon, Florida. Speakers will describe emergency response scenarios and illustrate the use of GeoCollaborate to communicate and coordinate a regional emergency response. Speakers will include:

- Duane De Freese PhD., Executive Director, Indian River Lagoon Council and National Estuary Program
- Charles Jacoby PhD., Supervising Environmental Scientist, St. John's River Water Management District
- Kirsten Jo Ayres, GIS Coordinator, Indian River Lagoon Council and National Estuary Program
- Dave Jones, CEO/Founder, StormCenter Communications, Inc.

Register today by clicking your preferred date and time below:

Thursday, April 14, 2022 10:00 – 11:30AM ET
Thursday, April 14, 2022 2:00 – 3:30PM ET
Friday, April 15, 2022 10:00 – 11:30AM ET
Friday, April 15, 2022 2:00 – 3:30PM ET

For more information reach out to malcolm@irlcouncil.org.

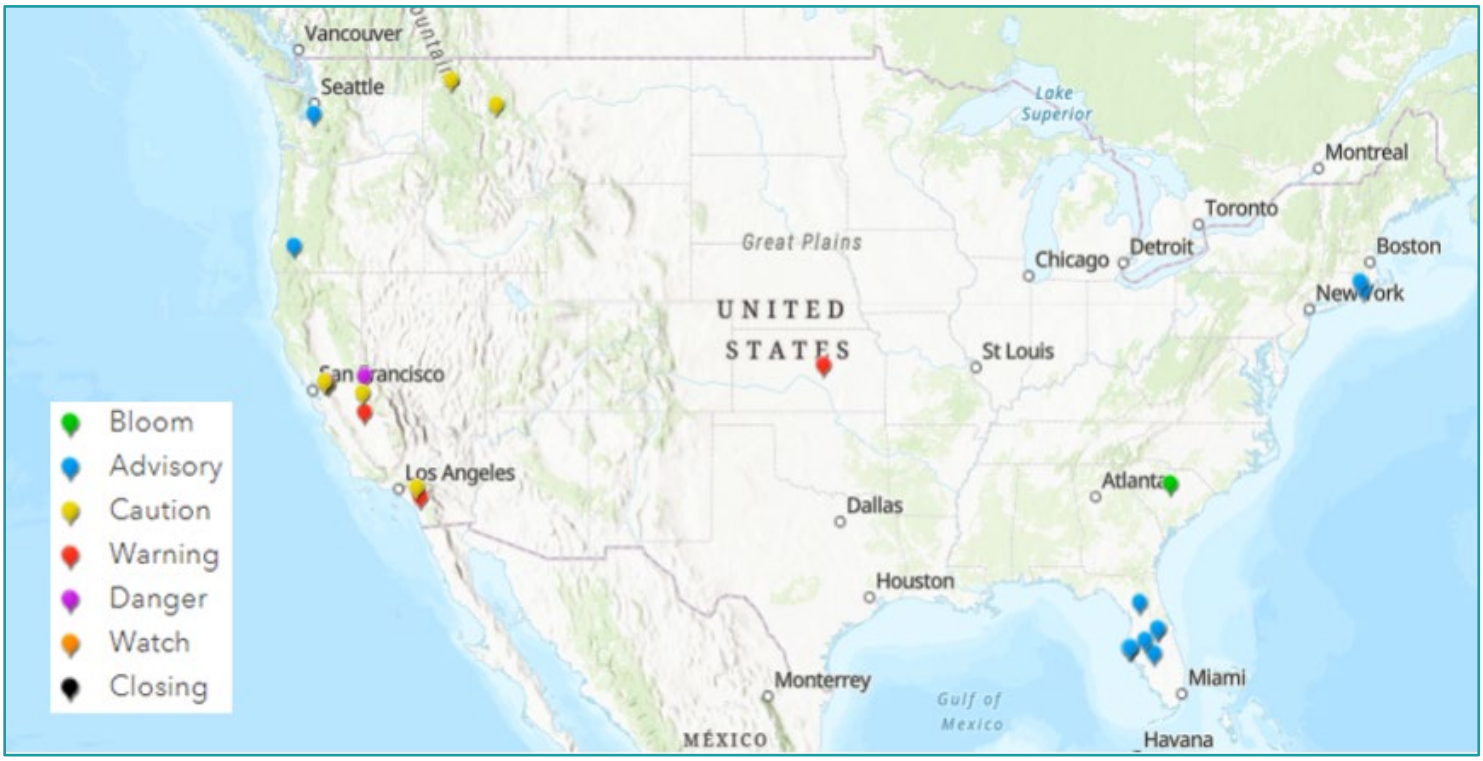
National HAB Observing Network Community of Practice (NHABON CoP) Call for Members of the Steering Committee

The Steering Committee of the NHABON CoP is soliciting nominations or self-nominations for new members. Read the NHABON CoP Terms of Reference to learn more about the CoP, the roles and responsibilities of steering committee members, and the selection criteria. To nominate someone for consideration, please fill out this form, and submit a resume to maggie@ioosassociation.org by Friday, April 29, 2022. The Steering Committee expects to meet monthly to plan quarterly webinars as well as additional activities to foster scientific collaboration, information sharing, and other activities. Such activities aim to lead to the development, operation, and application of the NHABON at local, state, and regional levels.

Reported Blooms, Beach Closures, and Health Advisories* - March 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 points underlying the map and for more information.



Click the state name to see the reported blooms for the month of March 2022:

California (6), Florida (14), Kansas (1), Montana (2), Oregon (1), Rhode Island (2), South Carolina (1)

Upcoming Virtual Events

North Central Region Water Network Webinar: How Climate Change Impacts Marine and Freshwater Ecosystems
April 6, 2022 at 11AM CT

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

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
Abstract Deadline: May 6, 2022

Webinar Recordings

Virtual Great Lakes Seminar Series presentation: *The Harmful Algal Bloom Assessment of Lake Okeechobee (HALO): Innovative monitoring technologies providing multidisciplinary insights into HAB dynamics and internal nutrient loading.*

Ohio Sea Grant Webinar: *Health Impacts of Algal Toxins in the Context of Chroinic Illnesses*

New Jersey Department of Environmental Protection *3rd Annual Virtual HAB Summit*

NHABON CoP's Webinar: Making HAB Community Science Work

Wayne State University Talk: Microcystins in Lake Erie: Working towards developing a toxin concentration forecast

Additional Useful Resources

Cyanobacteria Monitoring Collaborative: Understanding, Monitoring and Managing Harmful Algal Blooms Video

Recently Published Articles*

The impact of micropollutants on native algae and cyanobacteria communities in ecological filters during drinking water treatment
Caroline M. Erba Pompei, Luiza C. Campos, Eny Maria Vieira, Andréa Tucci, Science of The Total Environment, Vol. 822, 2022, 153401.

Competitive superiority of N-fixing cyanobacteria when fixed N is scarce: Reconsiderations based on a model with heterocyst differentiation
James P. Grover, J. Thad Scott, Daniel L. Roelke, Bryan W. Brooks, Ecological Modelling, Vol. 466, 2022, 109904.

Comparing microscopy and DNA metabarcoding techniques for identifying cyanobacteria assemblages across hundreds of lakes
Paul W. MacKeigan, Rebecca E. Garner, Marie-Ève Monchamp, David A. Walsh, Vera E. Onana, Susanne A. Kraemer, Frances R. Pick, Beatrix E. Beisner, Michael D. Agbeti, Naíla Barbosa da Costa, B. Jesse Shapiro, Irene Gregory-Eaves, Harmful Algae, Volume 113, 2022, 102187.

Cyanotoxin impact on microbial-mediated nitrogen transformations at the interface of sediment-water column in surface water bodies
Hanyan Li, Marielle Hollstein, Aditi Podder, Vedansh Gupta, Michael Barber, Ramesh Goel, Environmental Pollution, Volume 266, Part 1, 2020, 115283.

The Historical Prevalence of Cyanobacteria in Spanaway Lake, Pierce County, Washington
W. Hobbs , E. Frame , F. Sweeney, I. Struewing, N. Sienkiewicz, J. Lu , E. Villegas and R. Labiosa. 2022. Publication 22-03-009. Washington State Department of Ecology, Olympia.

Metabolic transformation of cyanobacteria for biofuel production
Rajendran Velmurugan, Aran Incharoensakdi, Chemosphere, Volume 299, 2022, 134342

The widespread capability of methylphosphonate utilization in filamentous cyanobacteria and its ecological significance
Liang Zhao, Li-Zhou Lin, Meng-Yun Chen, Wen-Kai Teng, Ling-Ling Zheng, Liang Peng, Jin Lv, Jerry J. Brand, Chun-Xiang Hu, Bo-Ping Han, Li-Rong Song, Wen-Sheng Shu, Water Research, 2022, 118385.

Natural and anthropogenic influences on benthic cyanobacteria in streams of the northeastern United States
Nicholas O. Schulte, Daren M. Carlisle, Sarah A. Spaulding, Science of The Total Environment, 2022, 154241.

Cyanotoxins uptake and accumulation in crops: Phytotoxicity and implications on human health
Chanusha Weralupitiya, Rasika P. Wanigatunge, Dilantha Gunawardana, Meththika Vithanage, Dhammika Magana-Arachchi, Toxicon, Volume 211, 2022, Pages 21-35.

Cyanotoxin transport from surface water to groundwater: Simulation scenarios for Lake Erie
Bidisha Faruque Abesh, Ganming Liu, Angélica Vázquez-Ortega, Enrique Gomezdelcampo, Sheila Roberts, Journal of Great Lakes Research, 2022.

Cyanotoxin-encoding genes as powerful predictors of cyanotoxin production during harmful cyanobacterial blooms in an inland freshwater lake: Evaluating a novel early-warning system
Xiaodi Duan, Chiqian Zhang, Ian Struewing, Xiang Li, Joel Allen, Jingrang Lu, Science of The Total Environment, Volume 830, 2022, 154568

HABs in coastal upwelling systems: Insights from an exceptional red tide of the toxigenic dinoflagellate Alexandrium minutum
E. Nogueira, I. Bravo, P. Montero, P. Díaz-Tapia, S. Calvo, B. Ben-Gigirey, R.I. Figueroa, J.L. Garrido, I. Ramilo, N. Lluch, A.E. Rossignoli, P. Riobó, F. Rodríguez, Ecological Indicators, Volume 137, 2022. 108790.

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

Would you or a colleague like to sign up to receive future issues of this newsletter? Simply send an email to epacyanohabs@epa.gov