Harmful Algal Blooms (HABs) Newsletter

January 2022

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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

Use of Fluorescent Microscopy to Differentiate Phytoplankton Composition

Image by Robert Zucker and Emma Brentjens, EPA.

The Center for Public Health and Environmental Assessment at EPA’s Office of Research and Development is using fluorescent microscopy to identify and differentiate between green algae and cyanobacteria. Samples collected from Discovery Lake and Lake Betz in Research Triangle Park, North Carolina were photographed using a fluorescent microscope. Algae and cyanobacteria in the samples absorb light at different wavelengths and thus fluoresce with different intensity after excitation. Algae can absorb blue light better while cyanobacteria absorb green light better resulting in a two-colored image representing the two different species: algae appears green, and cyanobacteria appears red --- for the

Holiday Season!

To learn more about fluorescent microscopy please contact Dr. Robert Zucker at zucker.robert@epa.gov

Lake Betz, NC. December 10th, 2021. Image by Robert Zucker and Emma Brentjens, EPA.
We are pleased to announce that the 11th U.S. Symposium on Harmful Algae will be held on October 23-28, 2022, in Albany, New York, at the Hilton Albany. Local coordination is being led by the NEIWPCC, the New York State Department of Environmental Conservation, and the U.S. Geological Survey with support from the U.S. National Office for Harmful Algal Blooms at the Woods Hole Oceanographic Institution.

The Call for Abstracts is Now Open! Please submit your abstracts by May 6, 2022 to be considered for a presentation at the symposium. Poster abstracts will continue to be accepted as space permits through July 2022.

The theme for the upcoming symposium is "Science to Support Solutions from Shore to Shore". From freshwater to marine systems, the prevalence of HABs is a national environmental challenge, and solutions are needed. Celebrating this event in New York - the only state with Great Lake shorelines, marine coasts, and the diverse range of ecosystems between these extremes - creates an ideal setting to discuss progress in understanding algal bloom ecology and the solutions necessary to prevent and reduce HABs.

Topic Areas:
- For Training Sessions or Workshops
- Mitigation and Control
- Monitoring
- Bloom Dynamics and Drivers
- Cellular and Molecular Technology
- Method Validation and Reference Materials
- Microbial Interactions
- Climate Change and Resiliency
- Food Web Dynamics and Ecosystem Function
- Biochemistry and Ecophysiology
- Predictive Models and Forecasting
- GIS and Remote Sensing Applications
- Nutrients and Biogeochemistry
- Toxin Biosynthesis, Pathways and Effects
- Toxin Detection
- Taxonomy and Genomics
- Engaging Communities and Stakeholders
- Public Health
- Socioeconomic Impacts
- Fish and Shellfish-Killing Species
- Impacts to Wildlife and Domestic Animals
- Multi-stressor Research Studies
- HABs Across the Freshwater-to-Marine Continuum

Interested in sharing your creativity with the HAB community? Send your logo contest submission to mdugan@neiwpcc.org by January 12, 2022.

For more details, visit https://neiwpcc.org/events/ushab11/.
Reported Blooms, Beach Closures, and Health Advisories* - December 1-17, 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 December 2021:
Massachusetts (1); Rhode Island (10); New Jersey (8); Virginia (1); Florida (8); North Carolina (1); South Carolina (2); Michigan (1); Kansas (9); Montana (2); Wyoming (9); California (11); Idaho (4); Oregon (1); Washington (2)

Summary of HABs-Related Advisories from January through December 2021

The graph below summarizes the monthly state reports of blooms, cautions, warnings, public health advisories, and closings postings due to the presence of algae, toxins, or both from January 2021 through December 17, 2021. Blooms and advisories for each month are published on EPA’s CyanoHABs Freshwater Newsletters webpage and summarized on EPA’s interactive Tracking CyanoHABs Story Map.

* Special THANKS to Adrienne Keel, ORISE Research Participant, Office of Science and Technology, for her valuable contributions to this Newsletter.
Recently Published Articles*

*A review of algal toxin exposures on reserved federal lands and among trust species in the United States*

*State of knowledge on early warning tools for cyanobacteria detection*

*Harmful algae in aquaculture systems in Ngerengere Catchment, Morogoro, Tanzania: Descriptive community structure and environmental concerns*

*Chapter 12 - Comparative genomics for understanding intraspecific diversity: a case study of the cyanobacterium Raphidiopsis raciborskii*
Anusuya Willis, Jason N. Woodhouse, Brett A. Neilan, Michele A. Burford, Editor(s): Lesley A. Clementson, Ruth S. Eriksen, Anusuya Willis, Advances in Phytoplankton Ecology, Elsevier, 2022, Pages 415-434.

*Continuous and Synoptic Assessment of Indian Inland Waters for Harmful Algae Blooms*
Harmful Algae Chintan B. Maniyar, Abhishek Kumar, Deepak R. Mishra, Volume 111, 2022, 102160.

*Chapter 10 - Current applications and technological advances in quantitative real-time PCR (qPCR): a versatile tool for the study of phytoplankton ecology*
Kathryn J. Coyne, Yanfei Wang, Susanna A. Wood, Peter D. Countway, Sydney M. Greenlee, Editor(s): Lesley A. Clementson, Ruth S. Eriksen, Anusuya Willis, Advances in Phytoplankton Ecology, Elsevier, 2022, Pages 303-351

*Modelling of threats that affect Cyano-HABs in an eutrophicated reservoir: First phase towards water security and environmental governance in watersheds*

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

Upcoming Virtual Events

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
Abstract Deadline: January 15th, 2022
Early Registration: March 1st, 2022

Pathogens and Natural Toxins e-Conference
July 1st to August 31st, 2022

U.S. Symposium on Harmful Algae
October 23-28, 2022, Albany, New York
Abstract Deadline: May 6th, 2022

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

December 7, 2021 Benthic HABs Discussion Webinar:
Presentations
Webinar Recording

For more information visit the EPA's Benthics Discussion Group webpage