United States Environmental Protection Agency

October 2021

Harmful Algal Blooms (HABs) Newsletter

In this issue

EPA Updates!

HABs News, Research, Resources, and Tools

EPA's OIG Report of Findings on Efforts Under the Clean Water and Safe Drinking Water Acts to Address HABs

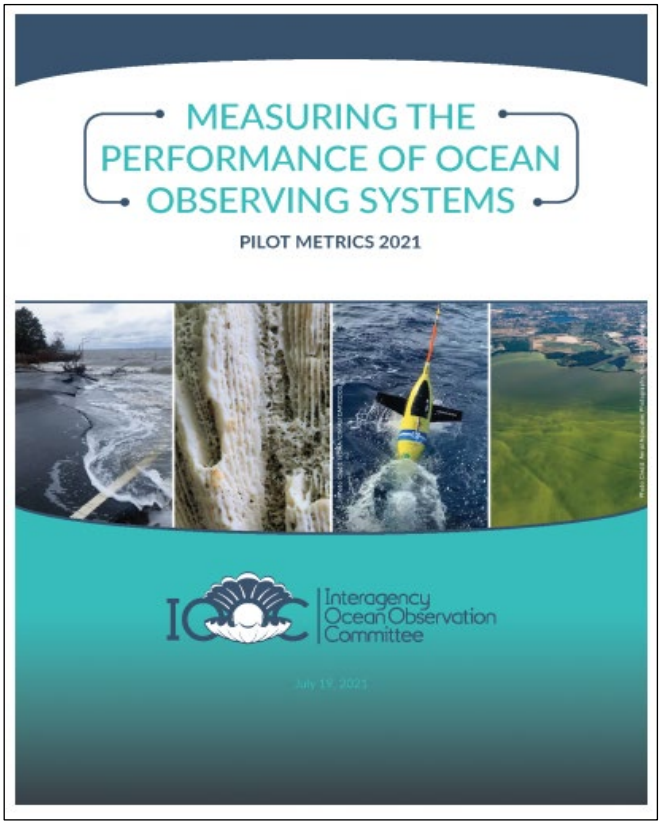
On September 29, 2021, EPA's Office of Inspector General (OIG) published a report of findings and recommendations from their evaluation to determine how EPA is exercising its authority under the Clean Water and Safe Drinking Water Acts to address HABs and protect human health and the environment. The report, entitled *EPA Needs an Agencywide Strategic Plan to Address Harmful Algal Bloom*, lists four recommendations for EPA to address.

EPA's Office of Water and OIG agreed on three of the OIG's recommendations, including the need for EPA to develop an agencywide strategic action plan to describe EPA's efforts to maintain and enhance a national program to forecast, monitor, and respond to freshwater HABs.

Access the final OIG report.

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

NEWS ON HABs



Measuring the Performance of Ocean Observing Systems, Pilot Metrics for Sea Level Rise, Ocean Acidification, and Harmful Algal Blooms

The United States Interagency Ocean Observation Committee (IOOC) recently published a report with pilot metrics covering a range of activities, from observing infrastructure and assets to economic impacts, in an effort to assess the baseline of, measure progress in, and identify gaps in the selected observing systems. The report outlines two metrics for HABs:

- Regions with HAB observing network capabilities that contribute to forecasts
- Economic impact of HABs

The report also includes specific guidelines to move beyond the pilot project and make metrics a robust, interagency effort with tangible impacts and recommendations for program managers and policy makers.

CALL FOR ABSTRACTS

A HAB session is scheduled for the Aquaculture 2022 Meeting to be held in San Diego, California from February 28 to March 4, 2022. This meeting combines the annual meetings of the Fish Culture Section of the American Fisheries Society, World Aquaculture Society, National Shellfisheries Association, and the National Aquaculture Association.

For more information contact Steve Morton (steve.morton@noaa.gov) or Alan Wilson (wilson@auburn.edu).

Abstracts are due on October 15, 2021

NOTICE OF FUNDING OPPORTUNITY

NOAA's National Centers for Coastal Ocean Science (NCCOS) is soliciting proposals from one or more Cooperative Ecosystems Studies Units to establish a HAB Control Technologies Incubator (HCTI). The HCTI will fast track the assessment of innovative control strategies for feasibility, and facilitate deployment and implementation of the strategies proven to be cost-effective, scalable, and environmentally acceptable.

A letter of intent is required. For more information contact felix.martinez@noaa.gov

Deadline for letters of intent is October 15, and full applications are due January 27, 2022.

CDC Updates on OHHABS

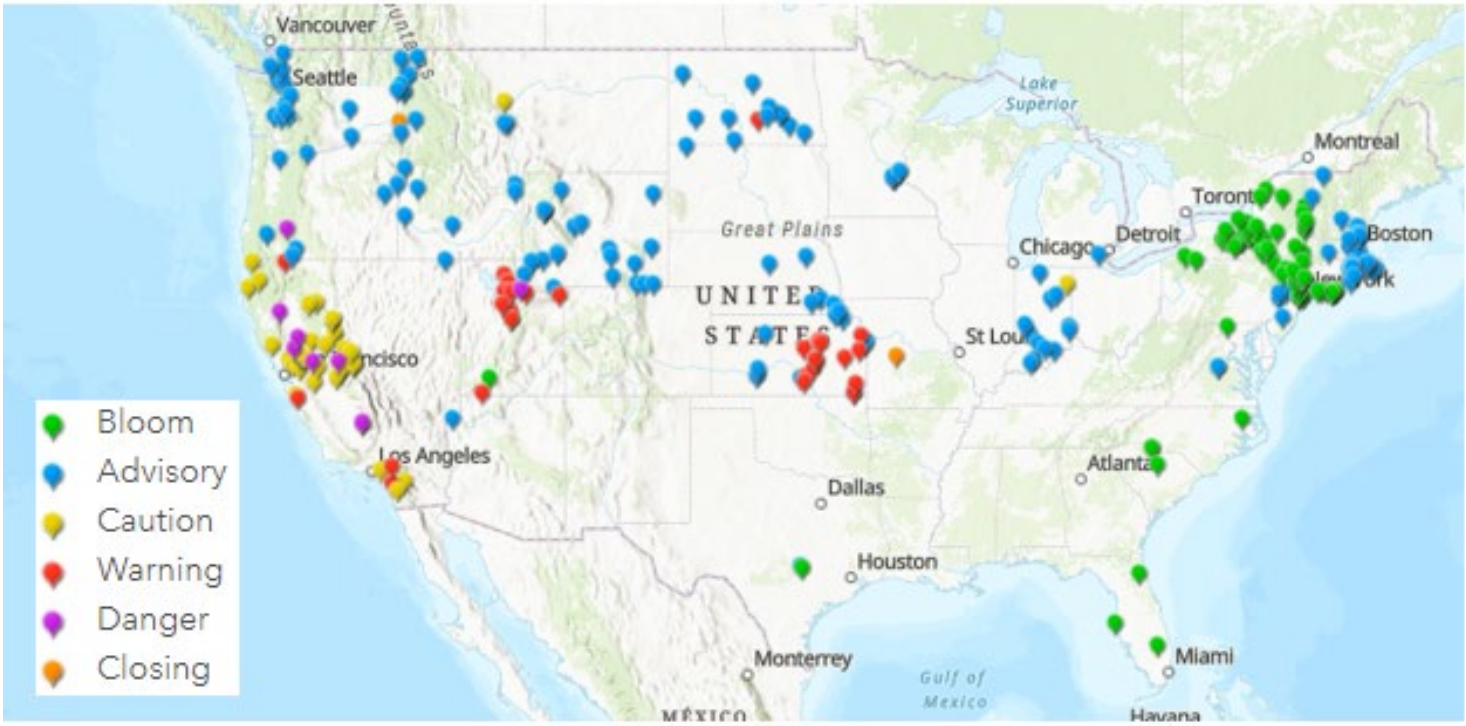
On September 28, 2021, CDC released OHHABS 2.0 to improve the IT platform, with a user interface that includes a more intuitive design, enhanced data quality and completeness checks, and streamlined data entry. CDC plans to conduct trainings and have office hours of OHHABS users during the month of October.

On October 1, 2021, CDC released a summary report of 2019 data from the One Health Harmful Algal Bloom System (OHHABS). The report shows that during 2019, 14 states reported 242 HABs, 63 human illnesses, and 367 animal illnesses linked to HABs. Over half of the animals (56%)—including pets, livestock, and wildlife—died after coming in contact with harmful algal blooms.

Reported Blooms, Beach Closures, and Health Advisories* - September 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 September 2021:

California (52), Florida (3), Idaho (20), Indiana (13), Kansas (23), Maryland (1), Massachusetts (14), Michigan (1), Minnesota (4, 3), Missouri (1), Montana (3), Nebraska (7), Nevada (1), New Hampshire (8), New Jersey (4), New York (64), North Carolina (3), North Dakota (13), Oregon (5), Rhode Island (14), South Carolina (2), Texas (2), Utah (15), Vermont (2), Virginia (1), Washington (18), Wyoming (23)

Upcoming Virtual Events

19th International Conference on Harmful Algae
October 10-15, 2021 La Paz, B.C.S. (live and virtual)

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

ADDITIONAL USEFUL

Lake Erie HABs Forecast Bulletin
Weekly forecast of the Microcystis HABs in western Lake Erie.

Aligning Research and Monitoring Priorities for Benthic Cyanobacteria and Cyanotoxins: A Workshop Summary
Summary Report of the 2018 Workshop: *CyanoSED: A Workshop on Benthic Cyanobacteria and Cyanotoxins.*

Recently Published Articles*

Environmental window of cyanobacteria bloom occurrence
Oscar Dario Beltran-Perez, Joanna J. Waniek, Journal of Marine Systems, Volume 224, 2021, pp. 103618.

Difference in temporal and spatial distribution pattern of cyanobacteria between the sediment and water column in Lake Chaohu
Mingdong Ren, Min Zhang, Fan Fan, Jinsheng Yang, Zhen Yang, Kaining Chen, Yun Chuang Li, Xiaoli Shi, Environmental Pollution, Volume 291, 2021, pp. 118163.

Multi-proxy approaches to investigate cyanobacteria invasion from a eutrophic lake into the circumjacent groundwater
Sisi Ye, Li Gao, Arash Zamyadi, Caitlin M. Glover, Ning Ma, Haiming Wu, Ming Li, Water Research, Volume 204, 2021, pp. 117578.

Toxic effects of cyanotoxins in teleost fish: A comprehensive review
Sambuddha Banerjee, Sukhendu Maity, Rajkumar Guchhait, Ankit Chatterjee, Chayan Biswas, Madhuchhanda Adhikari, Kousik Pramanick, Aquatic Toxicology,Volume 240, 2021, pp.105971.

Evaluation of Ultraviolet/Peracetic Acid to Degrade M. aeruginosa and Microcystins -LR and -RR
Husein Almuhtaram, Ron Hofmann, Journal of Hazardous Materials, 2021, pp.127357.

Rising temperature more strongly promotes low-abundance Paramecium to remove Microcystis and degrade microcystins
Wenjie Xu, Xianxian Li, Yapeng Li, Yunfei Sun, Lu Zhang, Yuan Huang, Zhou Yang,Environmental Pollution, Volume 291, 2021, pp.118143.

Occurrence of cylindrospermopsin, anatoxin-a and their homologs in the southern Czech Republic - Taxonomical, analytical, and molecular approaches
Lucie Blahova, Ludek Sehnal, Olga Lepsova-Skacelova, Vendula Szmucova, Pavel Babica, Klara Hilscherova, Jonna Teikari, Kaarina Sivonen, Ludek Blaha, Harmful Algae, Volume 108, 2021, pp. 102101.

In situ use of bivalves and passive samplers to reveal water contamination by microcystins along a freshwater-marine continuum in France
Emilie Lance, Alexandra Lepoutre, Véronique Savar, Elise Robert, Myriam Bormans, Zouher Amzil, Water Research, Volume 204, 2021, pp. 117620.

Cyanobacteria *Microcystis aeruginosa* Contributes to the Severity of Fish Diseases: A Study on Spring Viraemia of Carp
Palikova, M.; Kopp, R.; Kohoutek, J.; Blaha, L.; Mares, J.; Ondrackova, P.; Papezikova, I.; Minarova, H.; Pojezdal, L.; Adamovsky, O. *Toxins*, 2021, 13, pp. 601.

Study the antioxidant effects of blue-green algae Spirulina extract on ROS and MDA production in human lung cancer cells
Elham Tajvidi, Nikta Nahavandizadeh, Maryam Pournaderi, Azin Zargar Pourrashid, Fatemeh Bossaghzadeh, Zahra Khoshnood, Biochemistry and Biophysics Reports, Volume 28, 2021, pp. 101139.

**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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