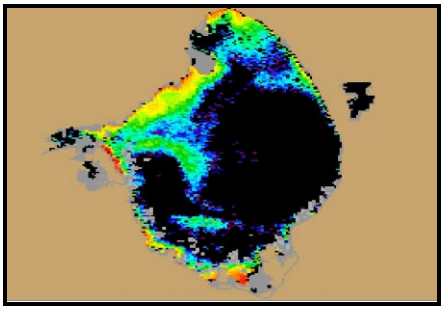
United States Environmental Protection Agency

July 2018

Freshwater HABs Newsletter

The Algae Bloom is Back. But Why?



Lake Okeechobee, FL. July 18th, 2018

Source: Rick Stumpf, NOAA National Ocean Service, Copernicus Sentinel-3 data provided by EUMETSAT

State of Emergency Declared in Florida to Combat Harmful Algal Blooms

On July 9, 2018, Florida Governor Rick Scott issued an emergency order in seven Florida counties including Glades, Hendry, Lee, Martin, Okeechobee, Palm Beach and St. Lucie counties in efforts to address the impacts of harmful algal blooms caused by water discharges from lake Okeechobee.

EPA Researchers Develop Strategies and Methods to Help Predict Harmful Algal Blooms in Kansas

At Milford Lake—which discharges into the Kansas River, a drinking water source for more than 800,000 people, EPA researchers are working with the state of Kansas and other partners to develop monitoring tools for predicting harmful algal bloom events, as well as understanding how toxic blooms form to minimize future blooms.

Ohio Takes Steps to Confront Toxic Algae Crisis

On July 11, 2018, the state of Ohio took two steps to reduce farm runoff pollution into Lake Erie, the No. 1 cause of toxic algal blooms. The actions include an executive order requiring farmers to craft and implement plans to reduce run-off pollution that runs into the Maumee River that feeds into Lake Erie, and a bill, S.B. 299, investing $36 million to help farmers prevent manure and excess fertilizers from running off farm fields and polluting waterways, by paying for farming practices such as soil testing, injecting nutrients into the soil (rather than on the surface), planting vegetation around fields to absorb nutrients, and installing natural drainage systems to keep water on fields.

Important Links

- ✓ MO's Harmful Algal Bloom Website
- ✓ NOAA's Lake Erie HAB Forecast
- ✓ Ohio Sea Grant's video What Are Harmful Algal Blooms
- ✓ EPA's video on Tools for Addressing the Risks of Cyanotoxins in Drinking Water
- ✓ WA Department of Ecology's Freshwater Algae Control Grant Program

UPCOMING EVENTS

Webinars

Understanding, Tracking and Predicting Harmful Algal Blooms
Wednesday, August 8, 2018
2pm CDT

Conferences

2018 Joint Oregon Lakes Association/Washington State Lakes Protection Association Conference
September 26-28, 2018
Portland, Oregon

18th ICHA
October 21-26, 2018
Nantes, France

NALMS 2018
October 30 – Nov. 2, 2018
Cincinnati, OH

Workshops

Ecology of Algae Blooms
Iowa Lakeside Laboratory
June 25 to July 6, 2018

CyanoSED: A Workshop on Benthic Cyanobacteria and Cyanotoxins
August 6-7, 2018
Cincinnati, Ohio

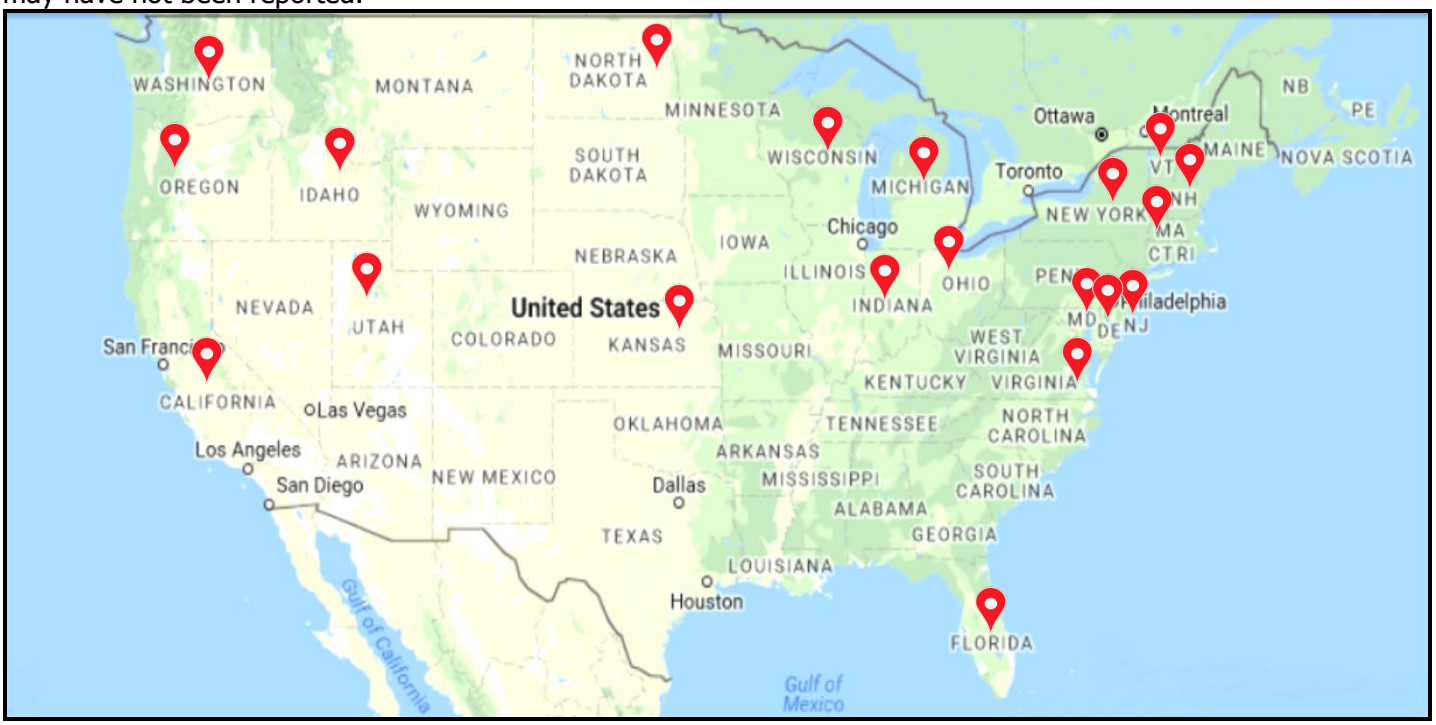
Freshwater Algae Identification Workshop
The Ohio State University
Stone Laboratory
Gibralter Island, Ohio
August 6-7, 2018

Dealing with Cyanobacteria, Algal Toxins, and Taste & Odor Compounds
The Ohio State University
Stone Laboratory
Gibralter Island, Ohio
August 8-9, 2018

To sign up please email epacyanohabs@epa.gov

BLOOMS, BEACH CLOSURES and HEALTH ADVISORIES, July 2018

The following map includes blooms, cautions, warnings, public health advisories, closings and detections over the State's threshold, due to the presence of algae, toxins or both. This is not a comprehensive list, and many blooms may have not been reported.



- **California (23):** Horseshow Lake, Iron Gate Reservoir at Camp Creek, Lake Almaden, Lake Anza, Pyramid Lake, Arcade Lake, Big Break Regional Shoreline, Clear Lake, Old River, Lake Almanor, Lake Isabella, Lake Oroville, Middle River, Pine Flat Lake, Spring Valley Lake, Diamond Valley Lake, Upper Blue Lakes (UBL), Pinto Lake, Lake Wilson- Riverfront Park, Discovery Baynear Capstan Place, Wrights Lake, Three Mile Slough near San Joaquin River, False River near Oakley.
- **Delaware (11):** Broadkill River, Old Mill Creek, Red Mill Pond, Indian River, Pepper Creek, Vines Creek, Dirickson Creek, Jefferson Creek, Lake Gerar, Silver Lake, Guinea Creek
- **Idaho (7):** Little Camas Reservoir, Fernan Lake, Eagle Island State Park Pond, Brownlee Reservoir, American Falls (caution), Mormon Reservoir, Salmon Fall Creek Reservoir
- **Indiana (6)**: Salamonie Lake, Cecil M. Lardin Lake, Monroe Lake, Starve Hollow Lake, Hardy Lake, Whitewater Lake
- **Kansas (12)**: Watches (Central Park Lake (Pond), Mary's Lake); Warning (Atchison County Park Lake, Carbondale West Lake, Frazier Lake, Jerry Ivey Pond, Lake Afton, Lake Wabaunsee, Melvern Outlet Swim Pond, Rooks County State Fishing Lake, South Park Lake, Webster Lake)
- **Florida (2)**: Lake Okeechobee, Caloosahatchee River (several areas), Red Tide (Sarasota County, Charlotte County, Lee County, and Collier County)
- **Maryland (8)**: Sassafras River, Budds Landing, Eastern Bay, South River South of Poplar Point, Severn River, Sandy Point South Beach, Magothy River, Bishopville Prong
- **Massachusetts (7):** Bartlett Pond, Plymouth; Central Pond, Seekonk; Charles River at Community Boating and Lagoons, Boston; Charles River at Broad Canal, Cambridge; Hummock Pond, Nantucket; Lovells Pond, Barnstable; Miacomet Pond, Nantucket; Turner Reservoir, Seekonk
- **Michigan (1)**: Belleville Lake
- **New Hampshire (3):** Keyser Pond, New Pond-Sherwood Forest, Silver Lake State Park Beach
- **New York (45)**: Agawam Lake, Avon Marsh Dam Pond, Bear Lake, Beaver Dam Lake, Beaver Lake, Black Lake, Bowne Pond, Cayuga Lake, Cazenovia Lake, Chautauqua Lake, Chodikee Lake, Clove Lake, Dean Pond, Fresh Pond, Georgica Pond, Harlem Meer, Hiawatha Lake, Honeoye Lake, Hyde Park Lake, Indian Pond, Java Lake, Kissena Lake, Lake Carmel, Lake Mahopac, Lake Mohegan, Lake Neatahwanta, Lake Waccabuc, Lawson Lake, Maratooka Lake, Meizinger Lake, Mill Pond (Watermill), Montgomery Lake, Morningside Pond, Morningside Lake, Oneida Lake, Orange Lake, Prospect Park Lake, Putnam Lake, Roth Pond, Sagg Pond, Smith Pond, The Lake in Central Park, Turtle Pond, Wainscott Pond
- **New Jersey (4):** Lincoln Park Community Park, Echo Lake, Deal Lake, Duck Pond
- **North Dakota (11)**: Homme Dam, Woodhouse Lake, Antelope Lake, Harvey Reservoir, Patterson Lake, Bowman-Haley Reservoir, Lake LaMoure, Sweet Briar Dam, Long Lake NWR, Green Lake, Camels Hump Dam
- **Ohio (2):** Buckeye Lake, Grand Lake St. Marys
- **Oregon (6):** South Umpqua River, Detroit Lake, Dorena Reservoir, Upper Klamath Lake, Lake Billy Chinook, Odell Lake
- **Utah (5)**: Utah Lake, Scofield Reservoir, Big Lake, Rockport Reservoir, Upper and Lower Box Creek Reservoirs
- **Vermont (20):** North Beach, Lake Carmi, Leddy Park, Province Island, Rock Point Offshore, Black Bridge, St. Albans Marina, Phillipsburg, Alburgh, Highgate Springs, Long Point, Maquam Shore, Clearwater Road, Georgie Beach, Button Bay, Burgey Farm Road, Arnold Bay, Port Henry, Potash Bay
- **Virginia (1)**: Chris Greene Lake
- **Washington (9):** Silver Lake, Wiser Lake, Anderson Lake, Rufus Woods Lake, Vancouver Lake, Lake Tapps, Kitsap Lake, Long Lake, Mallard Lake

RECENTLY PUBLISHED ARTICLES

Susceptibility of the Algal Toxin Microcystin-LR to UV/Chlorine Process: Comparison with Chlorination
Xiaodi Duan, Toby Sanan, Armah de la Cruz, Xuexiang He, Minghao Kong, and Dionysios D. Dionysiou Environmental Science & Technology. June 19, 2018.

Harmful Algal Blooms: Compendium Desk Reference
Shumway, S. E., In Burkholder, J. A. M., & In Morton, S. L. Hoboken, NJ: John Wiley & Sons, 2018.

Resisting annihilation: Relationships between functional trait dissimilarity, assemblage competitive power and allelopathy
Muhl, R.M.W., D.L. Roelke, T. Zohary, M. Moustaka-Gouni, U. Sommer, G. Borics, U. Gaedke, F.G. Withrow, J. Bhattacharyya. 2018. Ecology Letters. 11 pages.

Algal blooms and cyanotoxins in Jordan Lake, North Carolina
Wiltsie, D., A. Schnetzer, J. Green, M. Vander Borgh, and E. Fensin. 2018. Toxins 10(2): 92.

Uptake and accumulation of Microcystin-LR based on exposure through drinking water: An animal model assessing the human health risk
Greer, Brett & Meneely, Julie & Elliott, Christopher. 2018. Scientific Reports. 8.

Tile Drainage and Anthropogenic Land Use Contribute to Harmful Algal Blooms and Microbiota Shifts in Inland Water Bodies
Mrdjen, Igor & Fennessy, Siobhan & Schaal, Alex & Dennis, Richard & L. Slonczewski, Joan & Lee, Seungjun & Lee, Jiyoung. 2018. Environmental Science & Technology.

A new microcystin producing Nostoc strain discovered in broad toxicological screening of non-planktic Nostocaceae (cyanobacteria)
Andreja Kust, Petra Urajová, Pavel Hrouzek, Dai Long Vu, Kateřina Čapková, Lenka Štenclová, Klára Řeháková, Eliška Kozlíková-Zapomělová, Olga Lepšová-Skácelová, Alena Lukešová, Jan Mareš. Toxicon, Volume 150, August 2018, Pages 66-73,

Fluorescence probes for real-time remote cyanobacteria monitoring: A review of challenges and opportunities
Edoardo Bertone, Michele A. Burford, David P. Hamilton, Water Research, Volume 141, 15 September 2018, Pages 152-162.

Toolboxes for cyanobacteria: Recent advances and future direction
Tao Sun, Shubin Li, Xinyu Song, Jinjin Diao, Lei Chen, Weiwen Zhang, Biotechnology Advances, Volume 36, Issue 4, July–August 2018, Pages 1293-1307

High-throughput sequencing reveals microbial communities in drinking water treatment sludge from six geographically distributed plants, including potentially toxic cyanobacteria and pathogens
Hangzhou Xu, Haiyan Pei, Yan Jin, Chunxia Ma, Yuting Wang, Jiongming Sun, Hongmin Li, Science of The Total Environment, Volume 634, 1 September 2018, Pages 769-779.

This newsletter was created by Dr. Lesley V. D'Anglada, Office of Science and Technology, Office of Water, EPA. Mention of trade names, products, or services does not convey and should not be interpreted as conveying official EPA endorsement, approval or recommendation for use.

For previous newsletters, go to Freshwater HABs Newsletter or visit the USEPA's CyanoHABs Website