

Harmful Algal Blooms - The Evolving Legal Landscape

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2018 was a particularly bad year for harmful algal blooms (HABs). In June 2018, the city of Salem, Oregon, which obtains its drinking water from Detroit Lake, found dangerous levels of cyanotoxins in its water supply.¹ The result was a “do not drink” water advisory that lasted for weeks, and the Oregon Health Authority now requires certain larger drinking water systems that use surface water to regularly test for cyanotoxins.² At the opposite end of the country, Florida experienced its worst HAB in decades, as beach closures and fish kills plagued the state’s coasts. The red tide lasted for months, prompting the state to declare a state of emergency.³ As a result, Congress passed legislation addressing HABs, which builds off of previous actions by both Congress and the U.S. Environmental Protection Agency (EPA).

Harmful Algal Blooms

While nitrogen and phosphorus are nutrients that naturally occur in aquatic ecosystems, the presence of these nutrients in excessive quantities causes risks to human health and results in substantial economic and environmental harms. Nutrient pollution is primarily caused by several human activities, including municipal wastewater discharges, stormwater runoff, and agricultural discharges, such as fertilized cropland manure.⁴

One of the ways nutrient pollution is detrimental to water quality is that the presence of large amounts of nutrients stimulate rapid algal growth. While algal communities are a part of healthy ecosystems, when the population of algae rapidly increases, or “blooms,” the toxins produced can significantly impact surrounding ecosystems. However, not all HABs are caused by nutrient overload. Notably, the causes of Florida red tides, algal blooms that have plagued Florida’s west coast for years, are still under study. While

much is still unknown about what causes an algal bloom to turn toxic, and thereby become a HAB, these events have many detrimental effects, including threatening human and animal health.⁵

HABs have numerous negative health effects. Just coming into contact with contaminated water could cause skin rashes or burns. HABs are also poisonous if consumed. They can cause diarrhea, vomiting, nausea, numbness, and dizziness. Some health effects can be more severe. For instance, two cyanotoxins, microcystins and cylindrospermopsin, can cause liver and kidney toxicity, respectively. Children, the elderly, people with compromised liver function and pets are especially vulnerable to the toxins present in HABs.⁶

Congress Takes Action

As a result of recent HAB events, Congress passed bipartisan legislation to combat HABs, which President Trump signed in January.⁷ The new law amends the 1998 Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA).⁸ With the new legislation, Congress authorized appropriations of \$20,500,000 for each year from 2019-2023. In the bill, Congress mandated that a scientific assessment of HABs in both fresh and marine waters be done every 5 years. The bill also allows the federal government to provide funding for hypoxia or HAB events “of national significance,” which the law defines as an “event that has had or will likely have a significant detrimental environmental, economic, subsistence use, or public health impact on an affected State.” The law also lists factors to determine if the event is of national significance, including the HAB or hypoxia’s toxicity or severity, potential for spreading, economic impact, size, and geographic scope.

Previous HAB Regulatory Actions

In regards to drinking water, Congress amended the Safe Drinking Water Act in 2015 to require the EPA to develop a strategic plan targeted at managing the risks of algal toxins in drinking water supplies,⁹ which EPA submitted in November 2015.¹⁰ Also in 2015, the EPA released Health Advisories (HAs) for microcystins and cylindrospermopsin. EPA has the authority to issue HAs for contaminants that are not regulated under the Safe Drinking Water Act, but HAs are only informal guidance and not enforceable regulatory values.¹¹ Thus, public water systems are not required to monitor their drinking water supplies to meet HA levels.

However, in December 2016 the EPA released an Unregulated Contaminant Monitoring Rule for 30 contaminants, including 10 cyanotoxins. The rule applies to about 6,000 public water systems that use surface water or ground water under the direct influence of surface water for their drinking water. The monitoring under the rule will occur from 2018-2020.¹²

In regards to overall water quality, in 2016 EPA released Draft Human Health Recreational Ambient Water Quality Criteria (AWQC) for microcystins and cylindrospermopsin that aim to prevent the human health risks associated with swimming and other recreational activities in waters containing these cyanotoxins.¹³ The EPA intends that states could use these recommended values for swimming advisories or new or revised Water Quality Standards, which states are required to develop under the Clean Water Act. The EPA picked the values in the AWQC based on the non-cancer health effects to children. While HABs can pose health risks to pets, the levels are meant to be protective of human, and not animal, health. At this time, the agency has yet to finalize the draft AWQC.

Conclusion

With increasing temperatures and nutrient pollution, all signs point to more frequent and severe HAB events. These events can have significant impacts on our drinking water and seafood supplies. While beach closures may be inconvenient for vacation plans, it is important to heed the warnings of government entities when a HAB occurs. Remember that children, the elderly, and pets are particularly susceptible to HABs. What can you do to keep your family and pets safe? Be sure to check for beach closure either posted on-line or on signs at the beach. Stay away from water that smells, is discolored,



Photograph: Aaron Carlson

has foam, scum or algae on the surface, or contains dead fish or animals. In particular, make sure that your children or pets do not swim or drink contaminated water. 🐡

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Endnotes

1. City of Salem, *City Issues New Drinking Water Advisory for Vulnerable Populations* (June 6, 2018).
2. Oregon Health Authority, *Cyanotoxin Resources for Drinking Water*.
3. Caroline Simon, *Red Tide Has Sparked a State of Emergency in Florida. What is Red Tide?*, USA Today (Aug. 15, 2018).
4. EPA, *Nutrient Pollution*.
5. National Institute of Environmental Health Sciences, *Harmful Algal Blooms*.
6. *Id.*
7. *Harmful Algal Bloom and Hypoxia Research and Control*, Pub. L. No. 115-423, § 9, 132 Stat. 5454 (2019).
8. 33 U.S.C. §§ 4001 - 4009.
9. *Drinking Water Protection Act*, Pub. L. 114-45 (2015).
10. EPA, *Algal Toxin Risk Assessment and Management Strategic Plan for Drinking Water* (Doc. 810R04003) (Nov. 2015).
11. EPA, *2015 Drinking Water Health Advisories for Two Cyanobacterial Toxins* (Doc. 820F15003) (June 2015).
12. EPA, *The Fourth Unregulated Contaminant Monitoring Rule (UMCR 4) - General Information* (Doc 815F16007) (Dec. 2016).
13. EPA, *Draft Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin* (Doc. 822P16002) (Dec. 2016).