

Can Lawsuits Stop Harmful Algal Blooms?

Kristina Alexander

Water is made of much more than H₂O. All sorts of interesting things are wriggling around in it, and hopefully, those things stay at a safe level. But when the balance of water – the temperature, the salinity, the levels of dissolved oxygen, or the quantity of natural nutrients – gets out of whack, those microscopic organisms can surge and cause problems. Life-threatening problems.

2019 HAB Event in Mississippi

The coast of Mississippi experienced that trouble firsthand in the Summer of 2019, when massive amounts of freshwater released from the Bonnet Carré spillway in Louisiana changed the ideal salinity of the water in the Mississippi Sound. The Bonnet Carré (pronounced Bonnie Carry) is a U.S. Army Corps of Engineers (Corps) project upriver of New Orleans. It is designed to shunt flood waters away from the Mississippi River into Lake Pontchartrain and the Mississippi Sound to prevent New Orleans from flooding. Its floodgates were opened February 27 through April 10, 2019, and again May 10 to July 27.¹ It was the first time in history the gates were opened twice in a year. The diversions worked as flood control for New Orleans but led to months-long toxic events in the Mississippi Sound, wiping out the livelihoods of some who depend on the Gulf.

The freshwater insurgence led to a harmful algal bloom (HAB). Two factors caused the HAB of cyanobacteria also known as blue-green algae.² First, the amount of freshwater drastically reduced the salinity of the water in the Mississippi Sound. Second, that water contained nitrogen and phosphorus runoff from the farms along the Upper Mississippi River. When this nutrient-rich “food” was added to water with low salinity in the Sound, a toxic level of blue-green algae grew. As a result, swimming at Mississippi’s beaches was barred for over 90 days – all summer – due to the health risks to humans and animals.

The excess freshwater also created environmental havoc for the species in the Sound that depend on salt water to live – such as endangered sea turtles, dolphins, and the commercially vital Mississippi industries of shrimp and oysters, which suffered 60% and 100% losses this summer, respectively.³

Mississippi River Flood Management

Two major Corps’ projects built in the first half of the last century protect New Orleans from flooding from the Mississippi River: the Morganza Floodway, 186 river miles northwest of New Orleans; and the Bonnet Carré Spillway, which is just 30 miles from New Orleans. The Morganza Floodway will divert water into the Atchafalaya basin to the south-southwest part of the state when the river gets above a certain level. The Bonnet Carré shifts water to the east, into Lake Pontchartrain and then the Mississippi Sound. The Corps operates both pursuant to operating manuals issued periodically. The Bonnet Carré was open for a total of 123 days in the first seven months of 2019; the Morganza Floodway was not opened. The State of Mississippi does not have jurisdiction over either project.

2018 Red Tide in Alabama and Florida

The toxic blue-green algae was not the only HAB event along the Mississippi-Alabama coast in the past 12 months. In 2018, the so-called Red Tide, a toxic algal bloom of *Karenia brevis*, made its way north along the Gulf Coast of Florida, killing tons of fish and forcing beach closures. It eventually reached Alabama’s coast in late November, although it stopped short of Mississippi’s waters. The algae forced the closure of shellfish harvesting in Alabama for weeks.

Unlike the blue-green algae bloom in the Gulf, which has a direct link to increased nutrient rich freshwater, the cause of a toxic *K. brevis* bloom is still under investigation. It is believed that increased nitrogen in the water from agricultural runoff helps to feed *K. brevis*. Additionally, warm waters help the toxins. However, unlike blue-green algae, *K. brevis* needs high salinity to live.

While those are the HAB events affecting coastal Alabama and Mississippi in the last 12 months, they are not the only recent HAB events in the United States.⁴ Toledo, Ohio had to shut down drinking water supplies for days when a blue-green algae bloom in Lake Erie contaminated its drinking water in 2014. The St. Lucie River in Florida registered blue-green algae 10 times greater

than the point at which it becomes hazardous in 2018. Dogs in North Carolina, Georgia and Texas died after swimming in freshwater lakes in August, 2019. Also in 2019, the toxic algae blooms in Lake Champlain reportedly were “worse than ever.”

Legislation and HABs

What can be done about these HAB events? Legally, the options are limited. Congress enacted the Clean Water Act (CWA) to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”⁵ To accomplish these goals, the CWA prohibits dumping or adding pollutants to rivers, lakes, and oceans. However, the act excludes agricultural runoff – a main source for nitrogen and phosphorus pollution in freshwater – from the permit requirements imposed on other sources.

The act requires states to declare specific waterbodies as “impaired” if they do not meet public health or environmental standards necessary for that water’s purpose. Before being listed as impaired, a state must adopt water quality standards for the waters within their borders, depending on how that water will be used. As of 2018, only four states and Puerto Rico had taken that first step by identifying nitrogen and phosphorus as water quality standards for two or more waterbodies.⁶ Neither Alabama nor Mississippi have identified nitrogen or phosphorus criteria for any waterbodies. Therefore, until water quality standards are set for those contaminants for specific water bodies, and sources found that add more than the maximum load to those water bodies, the CWA does not appear to establish a legal basis to claim the waters are impaired due to runoff of those contaminants.

Suits against EPA and states for HAB contamination have not succeeded so far. The suits failed not because the waters were clean but because the claims failed to pin a specific duty to a state or EPA. The HAB events were not the result of a standard or permit being violated because there were no established nitrogen and/or phosphorus limits from agricultural runoff. Without a permit or a discharge limitation to enforce, the causes of action to limit HAB events took different approaches.

Plaintiffs in two suits based their claims on a failure to label waters as impaired. One suit brought against EPA for approving Ohio’s list claimed the agency’s approval violated the Administrative Procedure Act when it had earlier taken the state to task for failing to include certain impaired waters.



U.S. Army Corps of Engineers Flood Control Systems along the Lower Mississippi River.

Another suit brought claims against the Commonwealth of Virginia for failing to list part of a river as impaired in violation of the CWA. A third suit, in Florida in June 2019, has not been heard by a court yet. That complaint argues that the Corps of Engineers’ management of discharges from a lake in Florida violates the National Environmental Policy Act and the Endangered Species Act. These cases are discussed in detail below.

Lake Erie, OH

After years of HAB events caused by toxic levels of blue-green algae in the western part of Lake Erie, including toxic contamination so severe that the drinking water of more than 400,000 people in Toledo became unusable, an environmental group sued EPA. The plaintiffs wanted the state of Ohio to list Lake Erie as “impaired” as a first step under the CWA to limit nitrogen and phosphorus pollution. Two different opinions were issued by the court at separate stages of the suit.

Every two years states must submit lists of impaired waters to EPA for approval. The state found toxic levels of blue-green algae at the drinking water intakes in the open waters of Lake Erie, but did not list that portion of the lake as impaired in either 2014 or 2016. For both years the Ohio submissions listed only the shoreline as impaired, despite finding contaminated waters farther out where the drinking water intakes were located. After 2014, EPA directed the state to assess all of those waters, yet the state’s 2016 list did not. EPA approved the state’s list of impaired waters anyway.

The plaintiffs argued this violated the Administrative Procedure Act for being arbitrary and capricious and not in accordance with law. A day before the court hearing on the issue, EPA withdrew its approval of the 2016 list, finding the state had failed to evaluate the water quality criteria in the open waters of Lake Erie.⁷ The court described the last minute change (which was done without notifying the court) as having “the whiff of bad faith,” but since the problem was fixed, the court could not act.

In 2018, Ohio listed the open waters in Lake Erie as impaired for the first time. The court held that the listing was “tardy,” but not actionable. After listing a waterbody as impaired, the next step under the CWA is for the state to establish the total maximum daily loads (TMDLs) for the pollutants causing the impairment. The state had not submitted TMDLs, but the court held that it did not violate the law. The court said the state could “sit on its hands” for a long period of time before having to submit TMDLs for nitrogen and phosphorus.⁸ The TMDLs need to be submitted only “from time to time” under the CWA, 33 U.S.C. § 1313(d)(2). To the extent that this decision provides precedent for other HAB cases, it is not helpful.

Shenandoah River, VA

Another suit based on blue-green algae contamination was against Virginia for its failure to list parts of the Shenandoah River as impaired. This suit, based on violations of the CWA, also failed in its objective. An environmental group argued that the State of Virginia failed to list portions of the Shenandoah River as impaired based on algal growth.⁹ The group claimed that levels of blue-green algae were hurting the recreational use of the river, and the state had violated the Clean Water Act. The court held that the state had a logical rationale for not including those waters – the data submitted by the group did “not meet the state’s quality standards.” The group submitted more than 1000 photographs, 15 videos, and a table, giving dates and locations of the blooms. It is a fact-specific conclusion that might not be useful to other plaintiffs.

Lake Okeechobee, FL

A suit against the Corps of Engineers for how it manages releases from Lake Okeechobee in central Florida raises HAB issues, among other problems, but does not seek relief under the CWA.¹⁰ The suit is based on the Lake Okeechobee

Regulation Schedule (LORS or the Schedule), a system for releasing waters from the lake into canals and rivers to avoid flooding that might occur during hurricane season. The plaintiffs claim the Schedule was designed to be in operation for only three years, until 2010, and that the Corps failed to assess the environmental impacts from ongoing releases continuing for more than a decade. The Corps announced it would continue to use the Schedule until 2022, according to the complaint. These facts are somewhat similar to the facts with the Bonnet Carré, in which floodwaters are released pursuant to a management schedule designed years ago.

The HABs issue arises from the fact that the waters of the Okeechobee are loaded with nutrients from farm runoff. Releasing this water into other freshwater, which eventually pours into the Gulf of Mexico, allege the plaintiffs, contributes to blue-green HAB events, and occurs at the time Red Tides tend to form off the coast.

The suit alleges that the Corps failed to comply with the National Environmental Policy Act (NEPA) or the Endangered Species Act (ESA) when it decided to continue operating under the Schedule without performing new assessments under those acts for environmental effects, including impacts on listed species. Similarly, but not related to the Florida litigation, the Secretary of State of Mississippi has sought an updated environmental review of the Bonnet Carré management guidelines in a July 11, 2019 letter to the Corps.¹¹

Corps’ Actions in Mississippi

In that July 2019 letter, the Secretary of State of Mississippi asked the Corps to explain how its operating manual considers the environmental impacts of Bonnet Carré releases and when those manuals were put into effect. Those responses could help the state assess whether the Corps needs to perform environmental analyses under NEPA and/or the ESA for future Bonnet Carré releases. The ESA, for example, requires permission of the federal government for actions that “take” (as in harm, injure, or kill) listed species, and similar permission is required under the Marine Mammal Protection Act (MMPA), even when those actions are taken by federal agencies, such as the Corps.

Protected species were killed as a result of the freshwater in the Sound in 2019. Dolphins, for example, are protected under the MMPA and some species are ESA-listed as well. The National Oceanic and Atmospheric

Administration reports that three times as many dolphins died in the months following the Bonnet Carré opening compared to normal years showing impacts from freshwater.¹² The article reported more dolphin deaths in Mississippi than following the 2010 oil spill. These deaths may bring into question the Corps' practice of releasing water from the Bonnet Carré for long periods rather than taking other actions, and thus, collaterally, reducing the chances of another blue-green algae HAB event.

Conclusion

If litigation is pursued, a novel cause of action may be needed to prevent freshwater contamination and HABs in the Mississippi Sound. This is because the action causing the impairment is outside of the state's control and the Sound is not continually impaired but becomes problematic only after extended releases of freshwater. It could be argued that the U.S. Supreme Court holding in *South Florida Water Management District v. Miccosukee Tribe of Indians*¹³ provides the best precedent.

In the *South Florida Water Management District* case, the plaintiffs argued that a pumping district that divvied up water between canals and wetlands was a point source under the CWA. The Court did not resolve the entire question – sending the case back for factual determinations whether pumping occurred between two distinct waterbodies – but it did establish that a point source does not need to be the original source of the pollution. The court held that “objects that do not themselves generate pollutants but merely transport them” can be point sources, and thus subject to enforcement under the CWA. Under this reasoning, it seems possible that the Bonnet Carré could also be considered a point source by pumping freshwater containing nitrogen and phosphorus from the Mississippi River into Lake Pontchartrain, and eventually into the Mississippi Sound. Success would depend on whether a court finds that water was moving between two distinct water bodies, rather than through two parts of the same water body. A court could find that without the spillway, the flooded Mississippi River would take a different route, distinguishing it from the problematic facts in *South Florida Water Management District*. While this case will not help provide relief for the typical instance of HAB events, it could be useful where there appears to be a discrete action that leads to the contamination. 🐬

Kristina Alexander is the Editor of Water Log and a Senior Research Counsel at the Mississippi-Alabama Sea Grant Legal Program at the University of Mississippi School of Law.

Endnotes

1. U.S. Army Corps of Engineers, New Orleans District, *Spillway Operational Effects: 2019 Opening Pace*.
2. Blue-green algae naturally occurs in freshwaters. At low levels it is not harmful. When the levels of the algae surge, the microcystins produced by the algae become toxic.
3. Benedict Posadas, *Bonnet Carré Spillway: Impacts on Mississippi's commercial shrimp fishery*, MASGC Blog (Aug. 22, 2019); and Benedict Posadas, *Bonnet Carré Spillway: Impacts on Mississippi's commercial oyster fishery*, MASGC Blog (Sept. 5, 2019).
4. See, Tyler Treadway, *Blue-green algae bloom in St. Lucie River 10 times too toxic to touch, DEP tests show*, Treasure Coast Newspapers (Aug. 8, 2018); Charles Duncan, *Toxic algae kills 4 dogs in North Carolina, Georgia lakes. How to keep your pets safe*, Raleigh News & Observer; Madeline Farber, *Dog in Texas dies from toxic algae found in river, owner claims: "I blame myself;"* and Bloomberg Law Environment & Energy Report, *Vermont to Spend \$20 Million a Year on Lake Champlain Pollution* (Aug. 8, 2019).
5. 33 U.S.C. § 1251(a).
6. EPA, *State Progress Toward Developing Numeric Nutrient Water Quality Criteria for Nitrogen and Phosphorus*. Those states are: Florida, Minnesota, New Jersey, and Wisconsin. West Virginia and Rhode Island each have named criteria for one water type. Sixteen other states have identified one waterbody with nitrogen and phosphorus water quality standards.
7. Environmental Law and Policy Center v. U.S. EPA, No. 3:17-cv-01514, *11, *16 (N.D. Ohio April 11, 2018).
8. Environmental Law and Policy Center v. U.S. EPA, 349 F. Supp. 3d 703, 715 (N.D. Ohio. 2018).
9. Potomac Riverkeeper, Inc. v. Wheeler, 381 F. Supp. 3d 1 (D.D.C. 2019).
10. Center for Biological Diversity v. U.S. Army Corps of Engineers (S.D. Fla. filed June 11, 2019).
11. Mississippi Secretary of State Delbert Hosemann, *Letter to Major Gen. Richard K. Kaiser*, U.S. Army Corps of Engineers (July 11, 2019).
12. Janet McConnaughey, *NOAA: 279 Dolphins Dead on Gulf Coast, Triple Usual Number*, U.S. News (June 14, 2019).
13. 541 U.S. 95 (2004).