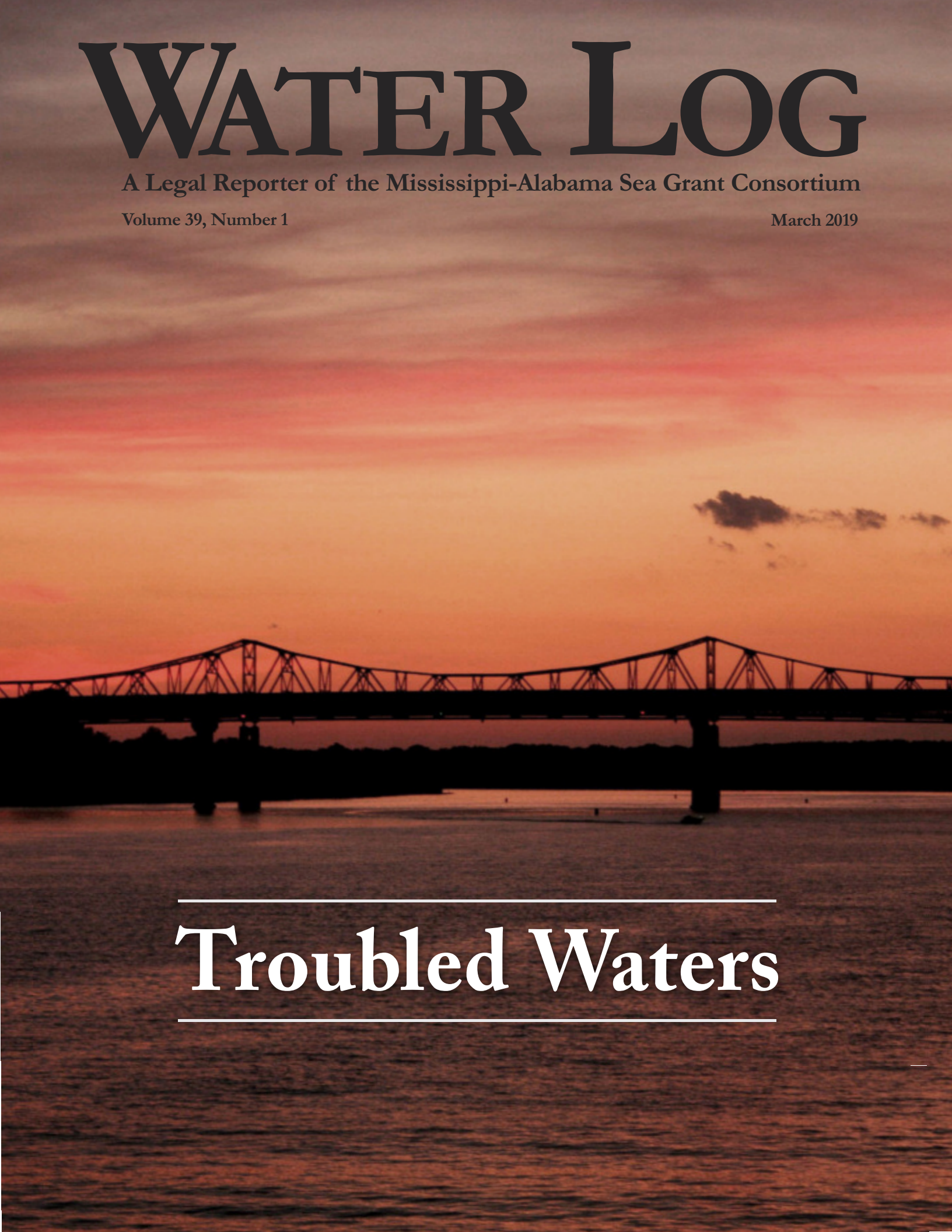


WATER LOG

A Legal Reporter of the Mississippi-Alabama Sea Grant Consortium

Volume 39, Number 1 March 2019

Troubled Waters

Water Log

Inside This Issue . . .

Cover photograph courtesy of Blue Adventure Photography.

Table of Contents photograph courtesy of Jim Perry.

• UPCOMING EVENTS •

Gulf of Mexico Climate and Resilience Community of Practice

April 3-5, 2019

Fairhope, AL

https://tinyurl.com/gomcr2019

National Watershed & Stormwater Conference

April 29-May 2, 2019

Charleston, SC

https://www.cwp.org/2019-national-conference

Keeping History Above Water Conference

May 5-9, 2019

St. Augustine, FL

http://historyabovewater.org/2019-st-augustine

Do Bad Sewage Systems in Alabama Violate Civil Rights Law?

Kristina Alexander

Hookworm is in Lowndes County, Alabama, and a legal complaint blames racism for its presence. "For decades, the black residents of rural Lowndes County, Alabama have suffered disproportionately from inadequate access to basic sanitation." That is the first sentence of a formal complaint against the federal government for the raw sewage contamination affecting black residents in Lowndes County.[1] The complaint was brought under the Civil Rights Act of 1964, which outlaws excluding any person from programs receiving federal funds on the grounds of race, color, or national origin.[2] In this case, the Alabama Center for Rural Enterprise (ACRE), the group which filed the civil rights complaint, alleges that the U.S. Department of Health and Human Services (HHS) denied reliable sanitation to certain residents due to their race. The complaint shines a light on how pollution disproportionately affects low-income Americans, and how laws to prevent that pollution can do little to right that wrong.

Title VI Civil Rights Claims

Under the applicable civil rights regulations, a recipient of HHS funding may not deny a person any service or benefit provided under the program because of their race.[3] To succeed, a complaint must show that African Americans did not get the same benefit from a federally-funded program as white people. The Civil Rights Act prohibits "practices having a disparate impact on protected groups, even if the actions or practices are not intentionally discriminatory."[4]

The complaint states that the Alabama Department of Public Health (ADPH) and the Lowndes County Health Department (LCHD) received HHS funding but failed to address the wastewater contamination issue. ADPH received federal funding of $100,522,413 in 2017, and $57,497,378 in 2018. (Complaint, p. 4.) LCHD is the local arm of ADPH.

Under the Civil Rights Act, if a federally-funded group is acting in a discriminatory manner, the federal funds can be cut off. The procedure under the law is to file a written complaint with the offending agency, in this case HHS.[5] That agency will then investigate the complaint. There must be an opportunity for a hearing for the accused federal recipients to address the allegations before funding is cut. As mentioned, tens of millions of dollars are at stake.

The complainant is in the difficult position of not being able to seek relief that would fix the problem: notably, changing the sanitation systems of low income residents of Lowndes County. Title VI does not give the victims of race discrimination money; it forces the recipient of federal funds to change its behavior. To satisfy the complaint, ACRE wants HHS to investigate the contamination along with the Department of Justice Civil Rights Division, among other actions discussed later in this article.

Hookworm Forms the Basis of the Complaint

The basis of the suit is that 19 people in Lowndes County were diagnosed with hookworm in 2017, but ADPH denied that the study was true.[6] Hookworm is an intestinal parasite that is spread when people come in contact with human feces containing the parasite. Touching contaminated soil, for example, such as by walking barefoot, can lead to the disease. It is associated with poor sewage disposal. The disease was considered all but eradicated in the United States by the 1980s, when almost everybody had adequate wastewater treatment. In Lowndes County people with unsanitary sewage systems tend to be black, and people with functioning wastewater systems tend to be white, according to the complaint.

A study published in 2017 revealed that 19 people from the 24 households tested in Lowndes County tested positive for hookworm.[7] The information is alarming. According to the complaint, 40 to 90 percent of residences

in Lowndes County have an inadequate septic system or none at all. Of the homes that have septic systems in the county, 50 percent are failing. A United Nations' Human Rights Council observer visited Lowndes County in 2017, describing homes surrounded by cesspools of sewage flowing from broken or non-existent septic systems. According to that official, ADPH "had no idea of how many households exist in these conditions."[8]

Under Alabama law, every person owning or occupying property must install the appropriate sewage collection and disposal system in a sanitary manner approved by the State Board of Health.[9] Because of the nature of the soil in the lower elevations of Lowndes County, where the low income population tends to live, residents must install a special, engineered septic system, instead of the basic unit usable at sites with soils that allow water to drain easily. An engineered septic system costs between $6,000 to $30,000; whereas a basic system costs between $2,000 to $3,000. Over a third of Lowndes County residents, and 40 percent of the county's black residents, live in mobile homes. The median value of those homes is $23,900, sometimes making the engineered septic system more expensive than the home it is servicing, and making most septic systems an unaffordable expense. (Complaint, p. 10.) The complaint alleges that many people whose septic system stopped working substituted "straight pipes," which are pipes that take the sewage from a house and discharge it directly into ditches or woods, untreated. This means there is a significant amount of untreated sewage in the soils of Lowndes County.

The Duties of ADPH and LCHD

According to the complaint, instead of addressing the unsanitary conditions, ADPH "rejected a peer-reviewed finding of hookworm in the county." The ADPH official Notice regarding the hookworm report states that the November 2017 report did *not* find hookworm in Lowndes County, claiming the testing was no good. However, the complaint indicates that the peer-reviewed hookworm study used three different methods to test for the parasite. The only other official action reported in response to the hookworm study is a survey conducted in Lowndes County about water safety, which failed to ask or inform about hookworm.

Under the relevant laws and regulations, ADPH and LCHD had the duty to "take 'proper steps' to abate nuisances to public health … and abate insanitary conditions." (Complaint, p. 2.) The complaint makes clear that the charges are on-going; the unsanitary conditions have not been stopped by LCHD or ADPH. More specifically, the complaint states that the failure of ADPH and LCHD regarding oversight of wastewater disposal programs disproportionately affected minority residents. The complaint claims that more than half of the people in the state that lack adequate plumbing are black, but African Americans make up only 25 percent of the state's population. (Complaint, p. 22.)

Accordingly, the civil rights complaint is alleging that ADPH and LCHD discriminated against the minority population in Lowndes County by "failing to take affirmative action to overcome the effects of prior discrimination," referring to the poverty of the area and the failure of the agencies to correct the insanitary conditions. The complaint alleges three ways ADPH and LCHD acted in a discriminatory way:

- Failed to abate known insanitary conditions;
- Dismissed a credible outbreak of hookworm; and
- Failed to maintain sufficient data regarding the lack of wastewater services, despite [knowing] … the high rate of insufficient onsite wastewater systems in the county.

Enforcement of Inadequate Sewage Systems

Poverty is the complicating factor in this situation. It is against Alabama law to have a straight pipe or to dump untreated waste. However, according to the complaint, enforcement by the state cannot stop the problem because the people with the illegal straight pipes cannot afford to fix the sewage systems. Enforcing sewage laws can have a positive benefit only if the offenders have the money to correct the problem. Otherwise, enforcement yields convictions but no results.

The complaint alleges that Alabama arrested several black residents and either jailed or fined them for failing to have adequate sewage systems. However, the crime of an improper sewage system cannot be avoided when the offender cannot pay the thousands of dollars it takes to repair the system. The complaint indicates that in addition to heaping suffering on the poor, the enforcement

created a chilling effect: Lowndes County residents were afraid to complain to LCHD or ADPH about the insanitary conditions because they were worried about being arrested.

Improving the Situation

The complaint offers five ways in which the actions of ADPH and LCHD would not have been discriminatory. For example, the agencies could have done the following:

- Notified the county residents of the 19 cases of hookworm;
- Investigated the hookworm outbreak;
- Requested medical treatment to eradicate the parasite in the infected individuals;
- Surveyed the county to learn of failing septic systems, straight pipes, and other inadequate wastewater disposal; and
- Kept data to show racial and ethnic divides of onsite wastewater disposal systems. (Complaint, p. 25).

If the agencies fail to come into compliance, the complaint requests that federal funds be suspended or terminated. But the complaint offers possible remedies. The complainant wants ADPH to do the following:

- Retract its public notice that there is no hookworm in Lowndes County;
- Inform and educated residents and nearby areas of the risks of infection;
- Request that the Centers for Disease Control and Prevention (CDC) investigate hookworm in the county;
- Conduct an independent survey of failing wastewater systems without the threat of fines or arrests;
- Maintain racial and ethnic data of the extent to which minorities are users of onsite wastewater disposal systems;
- Adopt a non-enforcement policy of the sanitation misdemeanor; and
- Support any community or federal effort to create a program that provides functional onsite wastewater treatment to low-income homeowners in Lowndes County and other counties with soil incompatible with conventional septic systems. (Complaint, pp. 25-26.)

Septic Systems in Wetlands

Using Civil Rights law to address water pollution is an unusual approach. The Clean Water Act (CWA) is the more obvious tool to address water quality,[10] but the CWA targets the offenders with civil penalties or criminal enforcement, and, as discussed above, when the offenders lack the resources to stop the illegal dumping, enforcing the law makes no impact. Therefore, when it comes to environmental justice issues underlying the Lowndes County hookworm contamination, the law falls short.

As mentioned, it is illegal to dump untreated waste. The CWA makes intentionally pouring waste into the waters of the United States a crime, and allows enforcement against polluters, including shutting down the illegal pipes. In the case of the low income residents of Lowndes County who cannot afford to make the necessary changes, enforcement of the CWA seems unlikely to improve the situation. That does not mean the CWA could not be used to improve wastewater treatment. For example, in cases where the people exposed to open sewage are renters, it may be possible to enforce against the owners of those homes. However, the financial obstacles may lead to the owner choosing not to rent rather than to renovate with an expensive septic system.

One example of the CWA being used to enforce against septic violations occurred in Mississippi a decade ago. The lawsuit brought criminal charges against the developers for septic pollution in a mobile home park.[11] The suit claimed the developer deliberately installed septic tanks in mobile home units knowing that septic was not allowed due to the soil composition. The proof of the developer's knowledge included the fact that the developer's initial septic system plans were not approved by the Mississippi State Department of Health (MSDH), and instead, he hired a private engineer to certify the systems. The federal Environmental Protection Agency, MSDH, and other agencies sent cease and desist orders against the developer and his engineer to stop operating the non-complying septic systems.

Federal criminal charges were brought based on the nexus to the waters of the United States. The mobile homes were located on wetlands and tributaries that connected to those navigable rivers. Charges were not brought against the occupants of the mobile homes.

There was some dispute as to whether a septic tank could violate the CWA, as septic is specifically excluded from the act's coverage of regulated treatment works.

The court agreed that the CWA definition of "treatment works" did not include septic tanks. However, the court held that septic tanks are "point sources," and the CWA regulates point sources for discharges into the waters of the United States. Additionally, the court noted that straight pipe septic systems, such as the types commonly used in Lowndes County, also are regulated point sources.

Conclusion: The Law Cannot Fix Broken Pipes

Unfortunately, Lowndes County demonstrates that where financial resources are lacking, enforcement of clean water laws will not lead to clean water. Although federal and state laws were designed to prevent the health consequences of polluted water, for those laws to work, they must be enforced. Additionally, the benefits of programs to promote the health effects of clean water must be available to people regardless of race. Unfortunately, as the HHS complaint alleges regarding ADPH and LCDH's responses to hookworm disease, the existence of laws does not necessarily mean government will act in a way to benefit all of its citizens.

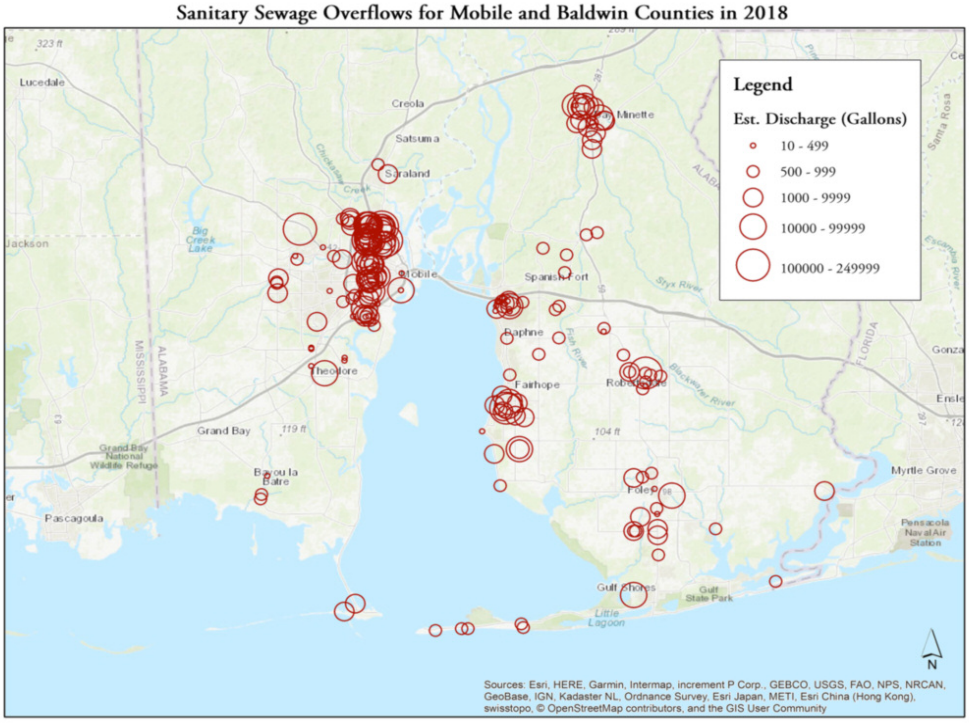
Additionally, the Lowndes County complaint highlights a significant problem unrelated to government apathy: compliance is not always affordable. It appears clear that the straight pipe sewage outlets used by low income residents are both the cause of the hookworm contamination and a violation of federal and state laws. However, the laws fail to offer complete relief to the problem because the victims cannot afford the remedy, i.e. the appropriate septic systems. Thus, low income residents of Lowndes County pay the price for the limits of the laws and the people who enforce them.

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. EarthJustice, *Complaint Under Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 2000e, 45 C.F.R. Part 80* (Sept. 28, 2018). The facts throughout this article are based on information within this complaint. The page numbers for reference are provided.
2. 42 U.S.C. § 2000d.
3. 45 C.F.R. § 80.3.
4. Alexander v. Choate, 469 U.S. 287, 293 (1985).
5. Exec. Order. 13160, § 4-401 (June 23, 2000).
6. ADPH, *Notice: Environmental study in Lowndes County, Alabama, fails to prove hookworm infection* (Apr. 9, 2018).
7. Megan L. McKenna, *et al., Human Intestinal Parasite Burden and Poor Sanitation in Rural Alabama*, The American Journal of Tropical Medicine and Hygiene, Vol. 97, Issue 5, pp. 1623-1628 (Nov. 2017).
8. Complaint p. 6, quoting from Philip Alston, UN Special Rapporteur on Extreme Poverty, *Statement on Visit to the USA, by Professor Philip Alston, United Nations Special Rapporteur on extreme poverty and human rights* (Dec. 15, 2017).
9. Ala. Code Ann. § 22-26-2; Ala. Admin. Code r. 420-3-1-.02; 420-3-1-.05.
10. 33 U.S.C. §§ 1251-1387.
11. United States v. Lucas, 516 F.3d 316 (5th Cir. 2008).

Sanitary Sewage Overflows for Mobile and Baldwin Counties in 2018



Safe Drinking Water Act Could Be Safer

Kristina Alexander

While the federal government has laws and guidelines to limit lead poisoning, some of its practices are inconsistent. It has either banned or limited the use of the mineral in gasoline, paint, and plumbing, yet its laws impose a patchwork of contamination levels, testing requirements, and notification demands. Lead paint was banned for houses in 1978. Therefore, if you buy or rent a home built before 1978, the federal government requires the owner to disclose information about the potential hazards from lead paint. Congress restricted the use of lead in plumbing materials in 1986. However, there is no similar disclosure requirement to notify residents about potential lead in a home's drinking water, even though an estimated 6.5 to 10 million homes in the United States still are served by lead service lines.[1]

This is especially problematic because there is no cure for lead poisoning; there is only avoidance. And people must be aware of a hazard in order to dodge it. Lead contamination is especially dangerous for children. Children absorb lead more easily – 4 to 5 times more than adults – harming their brain development.[2] Notably, for nursing-age infants taking formula, their nutrition comes solely from liquids, potentially exposing them to more lead from contaminated water. Lead also poses adverse health effects on adults, but the harm is more significant to children. And the symptoms are likely undetectable without a blood test. The federal government provides coverage for blood lead level screening via Medicaid for infants at 12 months and 24 months.

Lead Paint Gets the Attention

The government's focus appears to be on contamination from lead paint and not lead in water. The literature provided by the Centers for Disease Control (CDC) and Health and Human Services (HHS) for their Lead Awareness program states "the most common source of exposures is from lead-based paint," and mentions lead in drinking water just once. If blood tests show a high blood lead level, the government's recommendation is to have a certified lead risk assessor visit your home to assess for "lead-based paint or lead-based paint hazards."[3] Significantly,

Photograph: MachineCodeBlue Media

the certification for a lead risk assessor is based on reviewing lead paint risks, and not drinking water. For example, the Mississippi and Alabama certification for lead abatement specialists is for knowledge of remediating lead paint, not testing or remediating for lead in drinking water.

State governments are similarly oriented toward lead paint risks. The Mississippi State Department of Health's information on Lead Poisoning Prevention lists "7 Ways to Reduce Lead Risk."[4] None address lead in water; all are about lead paint. In contrast, the Alabama Department of Public Health's "Alabama Childhood Lead Poisoning Prevention" website focuses on avoiding lead paint, but also includes information on lead poisoning from water.[5]

Inconsistencies in federal policies are also demonstrated by the different standards set by different agencies for drinking water. The government acknowledges that there is no safe level of lead in water.[6] The Environmental Protection Agency (EPA) has an "action level" for lead contamination in public drinking water supplies that reaches 15 parts per billion (ppb). However, the Food and Drug Administration imposes a 5 ppb standard for bottled water. In other words, the government policy suggests that when people drink water

in their homes that water is not harmful until it reaches three times the lead levels allowed for bottled water, even though the government has acknowledged that any lead is unsafe. Also worth noting, while there is a standard for lead exposure for workplaces via the Occupational Safety and Health Administration, the standard applies only to air and not water.

Community Water Systems or Wells

The Safe Drinking Water Act (SDWA) was passed in 1974. It regulates public water systems, which are those systems providing water for at least 25 people or with at least 15 service connections. When a public water system supplies water to the same population year-round, it is categorized as a community water system (CWS). If you pay a water bill, you are likely paying it to your community water system. The SDWA does not regulate private wells or systems smaller than 25 customers, leaving gaps in coverage. The act was designed to regulate contaminants that have adverse health effects on humans. While EPA issues the regulations under the act, it has delegated enforcement authority to qualified states. Mississippi and Alabama have primary enforcement under the SDWA; they are referred to as having "primacy."

One benefit of getting your water from a CWS rather than a private well is that the SDWA requires community water systems to test regularly for contaminants and send you the results. However, there is no federal requirement for testing private wells. While it is difficult to determine the exact number of people who get their drinking water from a private well, as the U.S. census stopped collecting that information, according to a calculation by Mississippi State University in 2015, 11.84% of county populations in Mississippi were on private wells, or approximately 353,434 people.[7] This is significant because private well water does not undergo the testing required of CWS. Therefore, if the water from the wells contain lead, it is less likely that those 353,434 consumers of the water will know.

Since June 1986 the SDWA has prohibited using lead in pipes, plumbing fixtures, solder, and flux used for potable water delivery. In 2011, Congress amended the act, setting the maximum lead content of those pipes at no greater than 0.25% across the surface of a pipe and 0.2% for solder and flux. (Until 2011 the maximum lead content for pipes was 8%.) There is no requirement to replace existing plumbing, however, absent evidence of water contamination. Accordingly, buildings constructed prior to 1986 are considered most at risk of having lead pipes causing contamination. More conservatively, it may be that only those buildings constructed during the past several years pose the least risk, having used plumbing components with materials with only scant traces of lead.

Steps when Lead Reaches the "Action Level"

As mentioned, 15 ppb is known as the "action level" by EPA. That applies to a community water system if lead levels at the 90th percentile exceed 15 ppb. In other words, at least 10 percent of the test results must have levels above 15 ppb to be actionable. That means if only 9 percent of the samples exceed 15 ppb, there is no federal requirement for action, despite the impact on those users. If one user's water shows 65 ppb, no action is required.

If lead concentrations reach the action level, the CWS must deliver materials in water bills and make press releases and public service announcements to inform customers and at-risk populations (such as children and pregnant women). Source water treatment is the first recommended action. Where that is not appropriate, large systems (i.e. more than 50,000 users) must begin a corrosion control treatment. For example, if the water pH level is found to be too acidic (the ideal range is between 6.5 and 8.5 pH), the water system will add lime or soda ash to increase the alkali content. That helps reduce lead accumulation. If either source water treatment or corrosion control treatment does not bring the lead levels to below action levels, only then are water systems required to replace lead service lines. The rate of replacing the lines is set by regulation at 7 percent per year (40 C.F.R. § 141.84), meaning it will take 7 years before almost half the people get lead-free pipes, and some people will wait 14 years to have their lead pipes replaced.

How to Avoid Lead in Water

You can't tell if your water has lead in it by looking at it, tasting it, or smelling it. And you cannot boil it off. As mentioned, if you are part of a CWS, it will provide water testing results annually letting you know contaminant levels. If you are still curious, you could have your water tested by gathering a sample first thing in the morning before anybody has used a faucet. Lead will settle in the pipes, and so the first burst of water of the day gives the best results. You can find a testing facility by calling the Safe Drinking Water Hotline at (800) 426-4791, or www.epa.gov/safewater/labs.

The fact that lead settles to the bottom of pipes also provides an easy way to avoid minor lead issues: flush the water at home for two minutes each morning using cold water at full pressure.[8] This could be done by running a load of wash in the washing machine. This flushes the accumulated lead from overnight from the pipes. Warm water is more likely to contain lead, so another way to avoid possible lead issues is not to cook with warm water. Start your coffee or your pasta using cold water. You can also clean the aerator on the ends of your faucets, or ensure that if you drink filtered water, the filter is certified to remove lead – not all of them are. Lead is not absorbed by the skin, so bathing should pose little risk.

State and Federal Legislation Addressing Lead in Water

Since the lead contamination in Flint, Michigan was reported, states have enacted laws to require lead testing in schools. As of the end of 2018, 15 states and the District of Columbia require some testing at schools, but even those laws are not comprehensive.[9] For example, Louisiana's law requires testing at just 12 schools a year for two years and specifically states that the testing will incur "no additional cost to the department [of public health]."[10] While no other legislation blocks a department from spending money for lead testing, only five of the new laws provide for new funding. Additionally, only 6 of the 16 jurisdictions require testing to continue past an initial round.

The federal government reacted to the idea of lead in schools by including lead remediation grants in a recent water infrastructure law.[11] One part of the 2018 law, the Voluntary School and Child Care Program Lead Testing Grant Program, authorizes $25 million in grants for fiscal years 2020 and 2021. The program will assist educational agencies to test for lead contamination, with a priority for voluntary testing in drinking water at schools and child care programs in low-income areas. The fact that the law gives priority to "voluntary testing" may give Alabama and Mississippi an edge in receiving a grant, as neither state has a law compelling testing at schools. A different provision in the infrastructure law, the Drinking Water Fountain Replacement for Schools program, authorizes $5 million in grants for the next three fiscal years, starting with 2019. The money can be used to replace drinking water fountains and to test and report lead levels. This grant also gives priority funding based on economic need.

Conclusion

People who know about water contaminated by lead know what steps to take. However, existing government policy does little to inform the public before the harm is done. Additionally, health practices supported by the federal government, such as that sponsored by the CDC and HHS, focus on lead paint and do little to inform parents of the risks of lead in water, despite millions of homes still serviced by lead service lines and countless people using well water not regulated under the SDWA. A simple first step would be to require owners of homes built prior to 1986 to inform residents of lead water risks, including what steps to take to avoid contamination, just as owners of residences built prior to 1978 must inform of lead paint risks. It would be a low-cost step to protect children's health. Additionally, Alabama and Mississippi should actively seek federal grants to perform lead testing in schools and to replace problematic drinking fountains. Without the assistance, the costs to local schools systems might be too steep to provide adequate protection where it is needed most.

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

Endnotes

1. Environmental Protection Agency, *Lead and Copper Rule Revisions White Paper* (Oct. 2016).
2. World Health Organization, *Lead Poisoning and Health* (Feb. 9, 2018).
3. Centers for Disease Control and Prevention, National Lead Poisoning Prevention Week, *Lead Free Kids for a Healthy Future*.
4. MSDH, *Lead Poisoning Prevention*. It does identify tap water as a possible source of lead.
5. Alabama Public Health, *Alabama Childhood Lead Poisoning Prevention: Tips for Prevention*.
6. Environmental Protection Agency, *Lead and Copper Rule Revisions White Paper*, p. 6 (Oct. 2016).
7. Jason R. Barrett, *Mississippi Private Well Populations* (Pub. 2775, Nov. 2015), Mississippi State University. A copy is available from the author.
8. *See* CDC website for more tips, https://www.cdc.gov/nceh/lead/tips/water.htm.
9. Ajay Kunapuli, et al. *Perspectives on State Legislation Concerning Lead Testing in School Drinking Water* (Nov. 2018).
10. La. Rev. Stat. § 40:5.6.1.D.
11. Pub. L. No. 115-270 (Oct. 23, 2018).

Harmful Algal Blooms - The Evolving Legal Landscape

Catherine Janasie

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, 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.


Photograph: Aaron Carlson

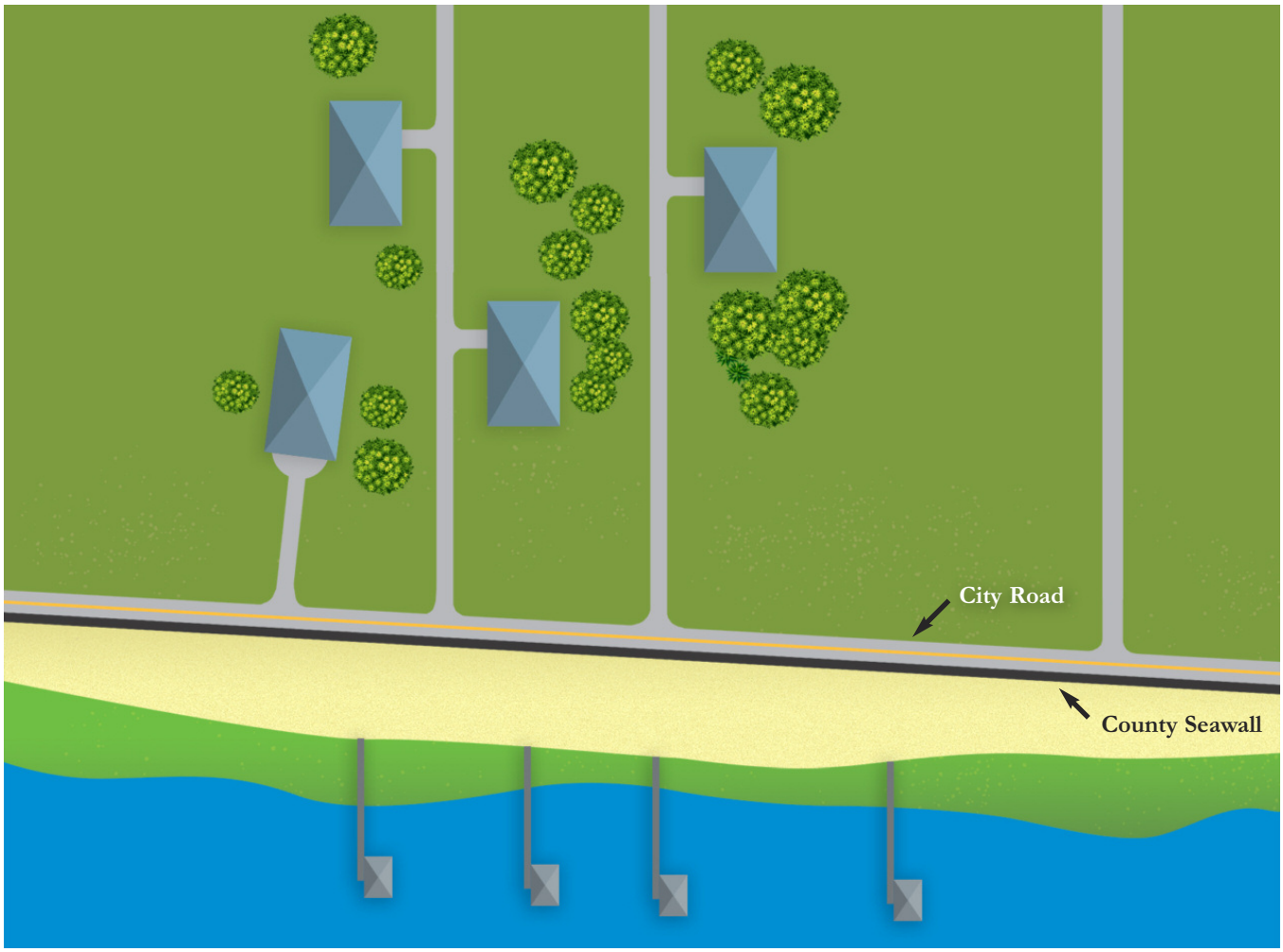
Catherine Janasie is a Research Counsel II with the National Sea Grant Law Center at the University of Mississippi School of Law.

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).

Mississippi Supreme Court Clarifies Ownership of Artificial Beach

Kristina Alexander



Just what part of a beach belongs to the landward property owners and what part to the State of Mississippi? Two neighbors in Ocean Springs, Mississippi went to court to find out.

Land ownership comes with a deed of title describing the metes and bounds of the property. A deed doesn't always answer the question of who owns what, however, especially when water is involved, because water can move the boundary line. When water recedes, adding land to property, that is known as an accretion. Where property is reduced because water shifts upland, that is known as a reliction. In this case, the notion of accretion proved important, especially the distinction between natural accretion and man-made.

Two Ocean Springs property owners each had deeds giving them title to neighboring properties up to "the water's edge." The properties are crossed by a city road and a county seawall, but continue across a sandy beach to "the water's edge." The owners say they each have paid taxes on the beach property adjoining their land and thought it was theirs. But then, almost ten years ago, the City of Ocean Springs proposed building a sidewalk on the beach, known as East Beach. The landowners objected and sued. The court hearing the dispute of who had title to the beach, found in favor of the landowners. The court held that the state had title only up to the mean high water line because the beach was made by nature. That turned out not to be true.

The issue of beach ownership in this case came down to whether the sandy beach above mean high tide was artificially-created. In Mississippi, beach ownership is determined in part based on a 1989 law called the Tidelands Act, in which the Mississippi Legislature directed the state to produce a map of the Mississippi shoreline to establish which tidelands were owned by the state in trust for the public. The map was finalized in 1994. Despite having a law and a map to establish what tidelands are state owned and what are privately owned, the law and the map did not answer all the questions regarding ownership. While it is true that the official map establishes what the state owns, there can be disputes for changes in the shoreline that do not match the map. Under common property law, the upland owner would acquire title to the accreted land. However, Mississippi case law, which supersedes common law, holds that if the tidelands are artificially created, the state has title, not the upland landowner.[1] (For more on this, and how Alabama law is different, see, "Jurisdiction on the Coast and at Sea," in Water Log.)

In the case of the Ocean Springs landowners versus the state, the first court punted on the issue of beach creation, saying that as far as the court knew, it was a natural beach.[2] The state appealed, and the Supreme Court reversed and sent the case back for a trial. This time, the trial court found the beach was man-made, "that there had not been any natural beach along the prior shoreline" before the construction of the seawall by Jackson County and the road by the city.[3] Sand had been brought in to make the beach. Another appeal, this time by the landowners, brought the case before the Mississippi Supreme Court again.

According to the Supreme Court on this appeal, "the dispositive issue is whether or not East Beach was a natural beach or whether it was an artificial beach created along a shoreline without any prior natural beach."[4] Testimony and documents introduced at trial indicated that no sand was visible above high tide decades ago but that had changed. A witness reported seeing government workers build the beach by pumping in and trucking in sand. This supported the allegation that the beach was not natural. Because evidence indicated it was an artificial beach created when the state added sand, the court ruled the upland landowners did not have title. The Supreme Court also resolved the issue of the ownership of a sea wall and road on the landowners' property. The court held the county and city held prescriptive easements to their respective property.

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

Endnotes

1. Miss. State Highway Comm'n v. Gilich, 609 So. 2d 367 (Miss. 1992).
2. Susan Ruddiman, *East Beach property ruling in Ocean Springs could have broad implications to other beaches*, The Mississippi Press (Sept. 6, 2012).
3. Harris v. Mississippi, 2016-CA-01057-SCT, 2018 WL 5839607, *5 (Nov. 8, 2018).
4. Harris v. Mississippi, 2018 WL 58399607, *5.

In Sum.

A Summation of the Facts and Figures of Interest in this Edition

★ *Lead limit in bottled water (per FDA):*	5 ppb
★ *Lead action level in tap water if found in at least 10% of samples (per EPA):*	15 ppb
★ *Number of contaminants in private wells regulated under federal law:*	0
★ *Number of private well users in Mississippi (est.):*	353,434
★ *Number of residences checked for hookworm in Lowndes County, AL:*	24
★ *Number of people testing positive for hookworm from those homes:*	19

Incremental Strategies for Better Stormwater Management

Stephen Deal

What is true of natural systems is equally applicable to complex social systems such as cities. Small systems give rise to large systems with each component essential to stability over the entire natural landscape. Thus, city planners need to be mindful of small tweaks and changes that may improve the adaptive capacity of a city. Stormwater management can benefit immensely from small tweaks. Many planners and other local officials have in-depth knowledge of detention ponds, levees, and other large systems to guard against flooding, but knowledge about small, incremental modifications to stormwater management is no less important. Just as a small creek has an important role to play in promoting water quality, so too do small, stormwater retrofits in the day-to-day management of city rainwater.

The Versatility of Pervious Pavement

Pavement can be the bane of good stormwater management. Hard, paved surfaces are typically associated with high surface water runoff loads, which tax city infrastructure and undermine water quality. However, there are a number of alternatives to the traditional concrete and asphalt surface that allow for further water retention on site. These types of paved surfaces, known as pervious pavement, are a valuable component of sustainable stormwater design. Pervious pavements are best suited to roads or surface lots where vehicular speed does not exceed 30 mph.[1] There are actually a number of different street types which can be retrofitted with pervious pavement. Consider, for example, the number of residential streets and car storage areas. Even a simple driveway can take up as much as 20 percent of surface area in residential development. Accordingly, switching to pervious surfaces in neighborhoods can make a big impact. For example, a small, residential development in the state of Washington uses pervious concrete for all its surfaces including driveways, sidewalks, and the main street.[2] Although pervious pavement may not be appropriate for all road drainage problems, within the right urban context, pervious surfaces in the right places may add up to being a powerful tool for stormwater management.

As another example, urban alleyways are used instead of suburban driveways to handle car storage needs. Much like driveways, most alleys typically use some type of impervious pavement. Many city administrations have started retrofitting their alleyways. In the city of Chicago, where the total distance covered by alleyways is 1,900 miles, local leaders instituted a green alley pilot program to improve local stormwater drainage and conserve energy.[3] Initially the program began with five alleys, but has since expanded. The city now converts 30 to 45 alleys to "green" each year. A typical alley in the program will generally take a few weeks to be completely retrofitted and may cost more than $100,000 if the alley needs to be completely reconstructed. In smaller communities, such as Dubuque, Iowa, green alleys have been implemented for as little $37,274.[4]

Although costs can vary widely, the true value of such a program lies in its scalability. A community can be ambitious or conservative in rolling out a green alleys program. Also, while many large cities maintain green alley programs, such as Portland, Oregon, and Saint Louis, there are a number of smaller cities, such as West Union, Iowa, that have chosen to institute similar green alley programs.[5]

Showcasing Rainwater

In the case of stormwater, the dominant natural force at play is rain. For a natural asset to be managed, sometimes it needs to be shown off. The idea of using architectural ornament and design to display the movement of rainwater in the urban context is arguably one of the oldest techniques for managing rainwater.

There are many ways communities can showcase rain in creative ways, such as employing a rainwater trail. A rainwater trail may be the movement of runoff away from a place where it is not desired. This encompasses a number of basic water conveyance methods, including below ground pipes or above ground channels, swales, or ditches. Typically, rainwater trails are considered mundane, but a rainwater trail is a crucial component of resilient stormwater management as it can improve the water quality of city runoff. A rainwater trail improves water quality by: oxygenating the rainwater by making it move across a rough surface, detaining the rainwater through complex holding systems, and infiltrating the water in bioswales.[6]

A good example of a rainwater trail in action occurs at the Oregon Convention Center in Portland which collects, cleans, and retains stormwater from the convention center expansion's

5.5-acre roof.[7] Runoff is collected and drained into a large scupper located at ground level, which pours the rainwater into a large rain garden. The rain garden for the convention center has water basins and spillways to collect clean and retain the runoff. The end result is an attractive, but functional, rain garden.

A rainwater trail does not need to be large to filter and collect rainwater. At Howard Hall, on the Campus of Lewis and Clark College, also in Portland, a simple water trail carries rainwater from a building downspout to an adjacent bioretention system. The University of Virginia in Charlottesville employed another simple retrofit by installing a thin, incised channel within a larger, concrete conveyance structure. This small change allows continued water movement during low flow periods and accents the variable water volume associated with stormwater flows.

The core design concept for rainwater treatment systems is the same: in order to make rainwater a civic amenity and manage it better, a city should draw attention to its movement within the physical environment. People are generally attracted to the sound of running water.

Integrate Green Infrastructure into Public Facilities

One simple step a city can pursue to improve its stormwater management is to undergo a careful evaluation of its public facilities to determine the suitability of green infrastructure techniques in city-owned properties. Even the smallest incorporated communities may have a park or other city-owned open space that could be enhanced by green infrastructure practices. In coastal Mississippi, the city of Pascagoula received a $20,000 matching grant from the National Fish and Wildlife Foundation to transform BB Jennings Park into a living laboratory for green infrastructure.[8] Over the course of five months, city employees and volunteers worked at BB Jennings Park by removing about 60 invasive popcorn trees and planting 200 native plants and trees to restore a stream bank within the park. Because the park is city property, local officials were able to accomplish significantly more for their budget by not acquiring additional land for the project.

City properties also can serve as valuable experimentation grounds to assess different stormwater techniques. Of course, cities must perform due diligence and research beforehand to see what properties are more conducive to green infrastructure. For example, replacing an impervious surface trail in the middle of a field with pervious paving sounds beneficial, but since the water will infiltrate into the ground just a few feet from where it falls this would not significantly improve drainage capacity.[9] Thus, when a city decides to integrate green infrastructure principles it should start with small and simple projects to see what works best.

Communities can save from 30% to 60% by integrating green projects with infrastructure improvements that are already planned. For example, Onondaga County, New York found some of the most cost effective green infrastructure projects were green schools, because the infrastructure changes were integrated into planned school renovation projects.

Conclusion

In the realm of stormwater management, city planners must be willing to embrace policies and solutions that are more incremental and experimental by nature, constantly refining and modifying the existing fabric of city infrastructure. Not all of the solutions described above should be perceived as permanent solutions to the problems posed by excess rainwater and poor water quality. What they represent are strategies and tactics that can be applied on an ad-hoc basis to augment and enhance the larger systems associated with stormwater management. By allowing for incremental solutions and strategies to flourish in water retention and treatment, government leaders not only enhance a stormwater system's effectiveness, they enhance a city's adaptive capacity and its ability to respond to sudden, adverse change.

Stephen Deal is the Extension Specialist in Land Use Planning for the Mississippi-Alabama Sea Grant Legal Program.

Endnotes

1. Kathryn Ellis, et al., *Low Impact Development in South Carolina: A Planning and Design Guide* (2014).
2. ConcreteNetwork.com, *Use of Pervious Concrete Eliminates Over $260,000 in Construction Costs* (2019).
3. Tracy Swartz RedEye, *Green Alleys: Chicago gets friendlier*, Chicago Tribune (Nov. 20, 2009).
4. City of Dubuque, *City of Dubuque/Bee Branch Watershed/Green Alley Program* (2019).
5. City of Dubuque, *Green Alley Construction* (2019).
6. Stuart Echols & Eliza Pennypacker, *Artful Rainwater Design: Creative Ways to Manage Stormwater*, (Island Press 2015).
7. Carol Mayer-Reed, *Rain Garden at the Oregon Convention Center*, American Society of Landscape Architects (2019).
8. WLOX, *Pascagoula park transformed into environmental living laboratory* (June 18, 2014).
9. Stormwater Report, *The Real Cost of Green Infrastructure* (Dec. 2, 2015).

The University of Mississippi
WATER LOG
Mississippi-Alabama Sea Grant Legal Program
258-E Kinard Hall
University, MS 38677-1848

WINNER 2011 APEX AWARDS FOR PUBLICATION EXCELLENCE

WATER LOG (ISSN 1097-0649) is supported by the National Sea Grant College Program of the U.S. Department of Commerce's National Oceanic and Atmospheric Administration under NOAA Grant Number NA180AR4170080, the Mississippi-Alabama Sea Grant Consortium, the State of Mississippi, the Mississippi Law Research Institute, and the University of Mississippi Law Center. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of the Mississippi-Alabama Sea Grant Legal Program, the Mississippi-Alabama Sea Grant Consortium, or the U.S. Department of Commerce. The U.S. Government and the Mississippi-Alabama Sea Grant Consortium are authorized to produce and distribute reprints notwithstanding any copyright notation that may appear hereon.

Recommended citation: Author's name, *Title of Article,* 39:1 WATER LOG [Page Number] (2019).

MASGP-19-003-01

ISSN 1097-0649 *March 2019*

WATER LOG is a quarterly publication reporting on legal issues affecting the Mississippi-Alabama coastal area. Its goal is to increase awareness and understanding of coastal issues in and around the Gulf of Mexico.

To subscribe to WATER LOG free of charge, go to http://masglp.olemiss.edu/subscribe. For all other inquiries, contact us by mail at Mississippi-Alabama Sea Grant Legal Program, 258 Kinard Hall, Wing E, P. O. Box 1848, University, MS, 38677-1848, by phone: (662) 915-7697, or by e-mail at: bdbarne1@olemiss.edu. We welcome suggestions for topics you would like to see covered in WATER LOG.

Editor: Kristina Alexander

Publication Design: Barry Barnes

Contributors:
Stephen C. Deal
Catherine Janasie

Follow us on Twitter!

Become a fan by clicking "Follow" on our page at twitter.com/msalseagrantlaw