



# Policy Innovations to Secure Drinking Water for All





# Preface

The US Water Alliance and the Water Foundation are releasing this report as the COVID-19 pandemic and the ongoing movement for racial justice are radically changing our economy and society. The global pandemic has made it clear that public health is unattainable without clean water for all. Clean, affordable, and accessible water service is fundamental to public health and thriving communities but is often denied to Black, Indigenous, and communities of color.

Millions of people live in places where their tap water is toxic, causing acute sickness and chronic disease. Many others struggle to pay monthly water bills. Still other families lack indoor plumbing entirely or live never knowing if water will flow from their faucets because of water shortages and increasingly common droughts. Some communities experience more than one of these compounding challenges (burdened for example by paying unaffordable prices for unsafe water). As community activists in Flint and across the country have been making clear for decades, communities of color experience disproportionate burden from these challenges. Ensuring access to safe drinking water requires addressing all of these problems as well as the structural inequities in the US water system that reinforce them.

Over the course of several months in late 2019 and early 2020, our organizations set out to better understand the drinking water challenges facing different regions across the US and the ways in which stakeholders were driving solutions. At four regional roundtables, we convened community organizers, nonprofit leaders, public officials, utility managers, and funders who are leading the way to drive state and tribal policy change that promotes safe, affordable, and reliable drinking water. These roundtables aimed to foster a shared understanding of the broad drinking water threats facing American communities and to amplify innovative state policy solutions being advanced across the country. Through this work, we sought to lift up successes and recognize the continued struggle of some communities that remain without equal access to drinking water. One of the critical takeaways from these roundtables is that when resourced effectively, community-driven solutions advanced by diverse coalitions have the power to drive significant policy change.

The US Water Alliance and the Water Foundation are committed to advancing such lasting water solutions for communities, economies, and the environment. We hope this report will spark national dialogue within the water sector, among the philanthropic community, and with policymakers on accelerating the promising approaches to drinking water policy innovation that is taking root in communities across the country. The COVID-19 crisis and the protests for racial justice sharpen our focus and commitment to securing safe water for all.



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# Introduction

Most Americans enjoy high-quality water services at an affordable price. They can turn on the tap and clean, safe drinking water comes out. But millions of people throughout the nation live with unsafe, unreliable, or unaffordable drinking water. In California, one million residents are without safe and reliable drinking water. In Flint, Michigan, lead contamination of the water supply created a public health crisis, primarily for children and families struggling to make ends meet. Algal blooms in Lake Erie regularly threaten the drinking water supply for hundreds of thousands of residents in Toledo, Ohio. These are only a few challenges to drinking water that make headlines across the country. Many communities confront these challenges, yet Black, Indigenous, communities of color, and lower-income neighborhoods are the most negatively impacted.

While the challenges facing America's drinking water systems are significant, there are many reasons for hope. In all corners of the country, there is a growing urgency to act. The US Water Alliance and the Water Foundation wanted to better understand the drinking water challenges confronting communities, and the ways that diverse stakeholders are driving policy solutions. To hear from these new water innovators in communities across America, we convened four regional roundtables on state- and tribal-level drinking water challenges and solutions. These discussions—which took place in California, New Mexico, Michigan, and Georgia—engaged nearly 100 leaders, including water managers, public officials, environmental and watershed advocates, and community and philanthropic organizations.

One of the dominant themes from the regional roundtables was the increasing focus on state and tribal policy interventions to make progress on drinking water issues. Participants in each roundtable noted that the current federal government response is inadequate to solve the drinking water challenges facing communities, especially vulnerable populations. Coalitions and campaigns are increasingly focused on local policy to drive better and more durable outcomes on drinking water issues for communities in need. Given the need for greater progress, we focused this report on state-level and tribal-level drinking water successes.

The regional roundtables also revealed increased engagement by community organizations and coalitions representing those most affected by drinking water challenges and driving policy innovations. Across the nation, communities are working to craft and implement state drinking water policy that provides real solutions. They are collaborating, innovating, and forging positive change. The US Water Alliance and the Water Foundation believe that now is the time to spread and scale these successes to benefit more communities across the country. We have compiled the ideas and insights from our discussions with water champions across the nation. The report is organized in the following manner:

- **Drinking Water Challenges in America** contextualizes the state of America's drinking water challenges and the consequences we are seeing around the country.
- **States and Tribes: Seedbeds of Innovation** describes the important role that state and tribal policies can play in advancing progress.
- **Spotlight on Policy Solutions** presents eight case studies of drinking water policy successes that were shared at the regional roundtables.
- **Elements of Success** draws lessons from the case studies and the regional roundtable discussions about what is needed to spread and scale progress on safe drinking water for all.





# Drinking Water Challenges in America

Safe, reliable, and affordable drinking water is essential for public health, economic development, and stewardship of the natural environment. But the drinking water challenges facing America today are numerous. These include:

- **Our drinking water infrastructure is aging.** The most recent US Environmental Protection Agency (EPA) survey of needs afflicting drinking water systems projects that utilities require \$472.6 billion in infrastructure investments over the next 20 years.<sup>1</sup> An earlier study by the American Water Works Association (AWWA) puts that number even higher—approximately \$1 trillion over the next 25 years.<sup>2</sup> Our aging infrastructure results in nearly six billion gallons of drinking water lost *every day* from leaking pipes. The daily loss in drinking water could support the needs of 15 million households. Every year, there are an estimated 240,000 water main breaks, wasting over two trillion gallons.<sup>3</sup>
- **Water contamination is a growing concern.** Agricultural and industrial pollution contaminates waterways and water supplies. Fertilizer runoff (excess nitrogen and phosphorus) into groundwater can harm well water sources that millions rely on, and runoff into surface water can feed harmful algal blooms, including the 7,829-square-mile dead zone in the Gulf of Mexico.<sup>4</sup> According to the EPA, 46 percent of rivers and streams have high levels of phosphorus, and 41 percent have high levels of nitrogen.<sup>5</sup> On the industrial side, EPA lists 85,000 chemicals on its inventory of substances that fall under the Toxic Substances Control Act (TSCA).<sup>6</sup> The Safe Drinking Water Act (SDWA) (which applies to public water supplies, not drinking water wells) regulates only 94 of these chemicals.<sup>7</sup>
- **Millions live without basic water access.** While some individuals experience unreliable water service in their homes, two million others lack even basic access to indoor plumbing.<sup>8</sup> As a result, they haul water, use public taps, or drink directly from streams to meet their basic needs. This disproportionately affects communities of color, with Native American households 19 times more likely than white households to lack indoor plumbing.<sup>9</sup>
- **This is also a public health problem.** Lack of access to clean water is a sanitation issue. A hundred years ago, water-borne illnesses such as cholera were a leading cause of death in the United States. Recognizing the threat to public health, our government invested in modern systems that extended safe and reliable drinking and wastewater services to nearly every American. As a result, public health and economic development dramatically improved.<sup>10</sup> Yet, every year about 19.5 million Americans become sick from waterborne pathogens and other infectious agents found in contaminated water.<sup>11</sup>
- **Federal investment is inadequate.** Between 1977 and 2014, the federal government's contribution to water infrastructure capital spending fell from 63 percent to just nine percent. Reflected as per capita spending, federal investment in water infrastructure has fallen from \$76 to \$11 per person, shifting the burden of paying for these systems more and more to local water utilities.
- **Water utility fragmentation compounds the challenge.** Fragmentation of water utilities further compounds this issue. Across the nation, there are more than 51,000 community water systems and nearly 15,000 wastewater treatment plants. More than 80 percent of the nation's water systems serve fewer than 3,330 people, and 55 percent serve fewer than 500.<sup>12</sup> By contrast, there are approximately 3,000 electricity providers.<sup>13</sup> Without adequate rate bases to cover the cost of maintenance, lower-capacity systems often cannot upgrade and replace aging and deteriorating infrastructure. It can also be difficult to spread and share solutions across this many local utilities that may have varying resources and capacity levels.

- **Water is becoming more unaffordable.** The rising cost of water leaves some individuals and families unable to pay their water bills, their rent, and their other utility bills all in the same month. In some communities, the lowest 20 percent of earners pay from four to 19 percent of their monthly household income for water and sanitation services.<sup>14</sup> If water rates continue to rise at projected levels, the number of households that may find water bills unaffordable could triple in just a few years.<sup>15</sup>

- **The burden of these issues is not felt evenly across America.** The establishment of drinking water systems is perhaps the nation’s single greatest public health achievement of the 20th century. Many people remain left behind. The most vulnerable populations shoulder the heaviest burden, and race is the biggest factor in inadequate protections under the federal drinking water law.<sup>16</sup>

### The Federal Government Role

The federal government is foundational to the canon of water law and a major source of the resources that built our collective water infrastructure. Legislation like the Safe Drinking Water Act shows the kind of leadership the federal government must demonstrate to safeguard clean water for everyone. Federal funding programs like the EPA’s Drinking Water State Revolving Fund and the US Department of Agriculture’s Rural Water and Waste Disposal Loan and Grant Program showcase the commitment the federal government must have to provide resources to help state and local governments enforce the regulations that protect water sources. National and local leaders must renew their dedication to a partnership between federal, state, and local governments on effective water stewardship.

## States and Tribes: Seedbeds of Innovation

As with many issues, new approaches to drinking water develop at the state level. Several parts of state government play primary roles in crafting, implementing, and enforcing laws relevant to drinking water. Key players include:

- **Governors.** Governors can advance the cause of safe, reliable, and affordable drinking water by making water a priority for their administrations and political appointments. Broadcasting an achievable vision and setting concrete priorities for water can motivate action. In Michigan, Governor Gretchen Whitmer drew public attention to water challenges and solutions in her 2018 campaign platform and has used that momentum to drive public and political will for action. Governors, in many cases, draft and champion budget proposals and policy priorities within budgets. These can be effective ways to advance priorities and deliver resources for innovative ideas. In 2019, Ohio Governor Mike DeWine demonstrated water leadership by supporting a comprehensive water plan for the state, including the water plan in his budget package.
- **State Agencies.** Names of agencies vary from state to state, but departments like Natural Resources, Environment, and Health typically have significant levels of authority over drinking water, including enforcement of the SDWA. State water programs can be a powerful source of innovation. They have significant power and influence over the implementation of a governor’s initiatives and the laws passed by the state legislature. Governors typically appoint the leadership of state agencies and play a significant role not only in crafting certain policies but how effectively those policies are implemented and how strongly they are enforced. As part of his administration’s “Year of Clean Drinking Water,” Governor Tony Evers directed Wisconsin Department of Natural Resources to better regulate nitrate levels in sensitive areas and combat groundwater contamination and drinking water in wells. The new regulations were approved in December 2019.<sup>17</sup>

- **State Legislatures.** While governors set broad agendas and funding priorities—and state agencies implement the policy once it is in place—legislatures play a critical role in driving policy change and crafting the legal framework for how states will carry it out. Legislatures have the authority to pass budgets, appropriations, and laws that take infrastructure and water management plans from vision to reality. They can evaluate a state’s regulatory landscape and take steps to encourage innovation and advance drinking water safety, reliability, and affordability. Legislatures are also instrumental in establishing targets and goals for water program performance. Benchmarks are essential for strong but realistic performance metrics. Understanding the data available for water and prioritizing the collection and sharing of water data can help identify barriers and limitations to clean and safe drinking water.
- **Bonds, Ballot Measures, and Initiatives.** In 26 states, voters can play a direct role in advancing drinking water policy through initiatives, referenda, and bond measures.<sup>18</sup> Recent examples include California Proposition 1 in 2014, where voters approved \$7.12 billion for state water supply infrastructure projects,<sup>19</sup> and more recently, Proposition 68<sup>20</sup> in 2018 with \$4 billion for parks, environmental protection and restoration, water infrastructure projects, and flood risk reduction. Voters in Colorado also legalized sports betting in their state in 2019 with Proposition DD,<sup>21</sup> with the generated tax revenue allocated to water projects.

## The Unique Role of Tribal Governments

Tribal governments have a unique role in advancing drinking water progress. Their status as sovereign nations allows them to manage water resources on their lands, and much more. While tribes do not have direct regulatory authority over off-reservation lands, federal statutes treat tribes as states under many environmental laws, like the Clean Water Act (CWA) and SDWA, enabling them to set their own water quality standards and apply the standards to upstream point source pollution from outside reservations. The EPA must consider the water quality standards when evaluating permits and can deny permits that violate them. For example, the Bad River Band of Lake Superior Chippewa recently denied an easement renewal request for an oil pipeline, citing the risk of a spill affecting water quality.

One important vehicle for advancing drinking water progress in America is to better support and resource tribal governments. There are real challenges to fully exercising tribal rights—tribes often might not have the level of financial resources or technical capacity to fully regulate water in their lands, and many tribes remain unrecognized by the federal government. Supporting the capacity of tribal governments to leverage their authority over water is a critical tool for scaling drinking water innovations.

# Spotlight on Policy Innovations

While many communities in America face drinking water challenges, the regional roundtables surfaced policy innovations being developed and implemented by community advocates, residents most affected by drinking water challenges, tribal governments, and state policymakers. As the US Water Alliance and the Water Foundation synthesized learnings and insights from the roundtables, we identified four key areas of innovation:

- **Finding the Money.** Funding for drinking water infrastructure was a prominent theme in every one of the regional roundtables. Capital needs are growing as water agencies grapple with updating and enhancing their systems, complying with government regulations, and addressing challenges like the need to remove lead service lines and adapt to climate change. Water agencies must balance capital needs with the imperative to keep water service affordable for all. It is unlikely that there will be a sustained infusion of federal drinking water dollars, so many advocates and community stakeholders are pursuing state action that will generate increased funding and financing for drinking water projects. As the following case studies show, advocates and residents can play an essential role in making urgent challenges visible, designing policy solutions, and driving political will for investment.
- **Protecting Water at the Source.** Approximately two-thirds of the nation's public drinking water comes from surface water.<sup>22</sup> Protecting the lakes and rivers that are the source of those waters is an important strategy to ensure clean drinking water into the future. The regional roundtables lifted innovations coming from both state and tribal governments to protect water at the source.

- **Strengthening Regulatory Protections on Water Quality.** In each regional roundtable, participants discussed how the current regulatory regime for drinking water is outdated, making it difficult to tackle present-day challenges. States have primacy in the implementation of the federal SDWA. One of the most important steps that can be taken at the state level is to establish a regulatory environment that facilitates the safety, accessibility, and affordability of drinking water for all residents.
- **Supporting Effective Water Utility Management.** At the regional roundtables, participants emphasized that today's local water utilities face a broad range of complex issues, including rising costs and affordability, aging infrastructure, shifting regulatory requirements, enhanced customer expectations, and rapidly developing technology. Utilities with a small ratepayer base particularly struggle to provide clean water while managing these issues. State policy can set the enabling conditions for utility innovation.

# Case Studies

The following eight case studies highlight policy innovations from the regional roundtables. Each case study provides context, policy innovation, and lessons learned. These policy innovations illustrate the power of cross-sector collaboration to define drinking water problems and co-create solutions. These ideas are not a comprehensive set of solutions to all our water challenges, nor do they describe the full range of creative policy solutions discussed at the regional roundtables. Instead, they highlight the priorities, challenges, and solutions we heard most consistently in regional roundtables around the country. They are practical solutions that can positively change how we manage our drinking water resources and infrastructure. Some ideas expand on proven practice, and others call for decisive change. Bold leadership and collaboration across sectors have been essential for these ideas to take hold.

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# Case Studies: Finding the Money

## California

### Establishing the Safe and Affordable Drinking Water Fund through Community-Led Organizing

#### Context and Challenge

California faces almost every water challenge imaginable—droughts, flooding, water contamination, rising sea levels, and wildfires. One challenge masked in a state of economic abundance is that more than one million Californians lack access to clean drinking water.<sup>23</sup> Without it, people are at a greater risk of health issues, including gastrointestinal illnesses, nervous system damage, cancer, and other chronic diseases.<sup>24</sup> Communities of color and low income are most affected by the lack of water access in California—incurring extra expenses to purchase bottled water and enduring hardships such as no water for cooking or bathing. To address this environmental justice and public health challenge, community leaders pushed California to become the first state to recognize the human right to water legally.<sup>25</sup>

#### Policy Solution

A 140-organization coalition led by Leadership Counsel for Justice and Accountability, Community Water Center, and Clean Water Action drove California's recognition of the human right to water. The broad-based coalition included representatives from agricultural, public health, business, labor, and water sector organizations. These leaders developed legislation that declared that every person in the state has a right to clean, safe, and affordable drinking water. The legislation, formally adopted by the state as Assembly Bill 685, became law in 2012. Initially, the legislation was largely symbolic, with no enforceable structure, but it laid the foundation for more significant change. Following the enactment of AB 685, the coalition advanced a set of policies to operationalize the vision of the human right to water.

In 2015, the California legislature enacted Senate Bill 88, which gave the State Water Resources Control Board the authority to incentivize and mandate consolidation of failing water systems chronically unable to provide safe drinking water to paying customers. While voluntary system consolidation is the most common approach, when no willing partners step forward, one way to realize the human right to water is for states to enable mandatory consolidation. After the enactment of SB 88, a state-funded project connected the residents of East Porterville—a low-income, majority Latinx community that had no running water for years—to the water system in neighboring Porterville.

Another building block for safe water for all put in place with the enactment of Assembly Bill 401, also in 2015, directed the Water Quality Control Board to develop a plan for a statewide Low-Income Water Rate Assistance Program. This program aims to ensure the right to affordable water by providing assistance to qualifying ratepayers with their water bills.

More recently, California Governor Gavin Newsom signed SB 200 into law, creating the Safe and Affordable Drinking Water Fund. This landmark legislation guarantees \$130 million annually for 11 years for water infrastructure projects and allows funds to cover drinking water utility operations and maintenance expenses (most other grant programs only fund capital improvements). In many cases, poor water quality results from several problems beyond failing infrastructure, including a lack of technical, managerial, and financial capacity of local water systems.<sup>26</sup> The funding will be the first in the country to address all of these related challenges and help deliver safe and affordable water for all in California.

## Lessons Learned

Over the past decade, the advocates and community leaders belonging to and serving California's most vulnerable residents have steadily advanced drinking water solutions at the state level. While much remains to be done, the precedent set by these equity-driven organizations provides several lessons for future drinking water advocacy efforts:

- **The human right to water, as a tenet of state policy, established the groundwork for continued activism.**

The enactment of SB 200 was over a decade in the making. AB 685 set a bold vision for California on the human right to water. In the years between advancing California's human right to water and creating the state's Safe and Affordable Drinking Water Fund, community organizations educated vulnerable residents about water policy, partnered with affected communities to develop policy solutions, and built the public and political will to garner significant funding for drinking water projects across the state.

- **Three key organizations grounded the cross-sector coalition in environmental justice principles.**

The Leadership Counsel for Justice and Accountability, Community Water Center, and Clean Water Action grounded the coalition's work in environmental justice organizing. With the three organizations calling for the voices of affected individuals, the coalition centered community members in the movement for safe drinking water for all.<sup>27</sup>

- **Impacted residents designed the solutions.**

Residents from affected communities led the campaign, attending multiple legislative hearings and sharing the solutions that would work best for them. Their leadership grounded General Assembly and Senate decision-makers in the lived experiences of those without access to clean water.<sup>28</sup> Because of the advocacy and organizing of frontline organizations and affected residents, the Safe and Affordable Drinking Water Fund prioritizes historically marginalized communities, and an Advisory Council (which includes affected community residents) identifies needs and designates spending priorities that will shape the distribution of funding across the state.

- **Philanthropic investment can build capacity for community-centered solutions.**

Significant, ongoing investment from foundations in the form of core operating support to the frontline groups, communications capacity, polling, and academic research, was critical to building the organizational infrastructure of this campaign. All three organizations received general operating support from the California Wellness Foundation for multiple years. In addition, the Water Foundation provided targeted programmatic funding and supported a range of coalition-related expenses such as polling, communications, and lobbying. This is an example of how private foundations and intermediaries can leverage each other's strengths to support the long-term organizational infrastructure required to launch successful drinking water campaigns.



**The Safe and Affordable Drinking Water Fund developed as a result of years of advocacy, years of lugging bottled water home, years of dirty tap water running into homes and schools.**

—Veronica Garibay, Co-Founder and Co-Director of Leadership Counsel for Justice and Accountability<sup>29</sup>

# Ohio

## Balancing Water Quality and Agriculture Needs through the H2Ohio Plan

### Context and Challenge

Ohio is a state surrounded by water. Bordered to the north by Lake Erie and south by the Ohio River, the state has a significant opportunity to advance watershed-scale change. Ohio is a major agricultural state and must meet its obligation to protect clean water for residents while supporting a productive agricultural sector. Ohio has faced multiple toxic algal blooms across the state due to nutrient pollution from a variety of sources, most significantly runoff from agricultural lands. This includes an algae bloom in 2015 that was more than 600 miles long in the Ohio River. The public health and environmental challenge has to be addressed in a manner that recognizes the importance of agriculture to the state.<sup>30</sup> Agriculture is the state's largest industry, employing over 400,000 workers and contributing \$53 billion to its economy.<sup>31</sup> In 2019, Governor Mike DeWine, along with a cross-section of government officials, acted on the challenge of balancing water quality and agricultural needs by putting forth H2Ohio, a "comprehensive, data-driven water-quality plan," and securing funding for its implementation.<sup>32</sup>

H2Ohio, the culmination of years of work, had leaders outside of the government address water quality challenges in a collaborative fashion. The Nature Conservancy Ohio saw an opportunity to build a broad-based coalition that would call for water programs, including a state water trust. Working chiefly with the Ohio Farm Bureau and the Ohio Agri-Business Association, Scott's Miracle-Gro, Anheuser Busch, and others as a part of Healthy Water Ohio, and later with the Ohio Environmental Council and other key stakeholders, the unexpected coalition set the foundation and design for what is now H2Ohio.<sup>33</sup>

### Policy Solution

H2Ohio strives to ensure safe and clean water for all Ohioans by providing economic incentives to farmers who adopt best practices for the reduction of phosphorus—the leading nutrient pollutant in the state. H2Ohio also provides funding for urban and rural infrastructure projects, including home sewage treatment systems and lead pipe replacement in low-income households and high-risk facilities.

In 2019, newly elected Governor DeWine showed his dedication to the plan, and water quality throughout the state, by including \$900 million for H2Ohio in his budget request to the Ohio General Assembly.<sup>34</sup> The 2020–2021 state budget, signed in July 2019, allocated \$172 million to H2Ohio over two years. While less than originally intended, this amount allows the program to begin and demonstrate success for future funding opportunities. The governor also included provisions to direct 50 percent of any excess general revenue funds (about \$500-900 million at the time) to continue the program. After the state budget approval, water quality experts from the state, research institutions, and non-governmental organizations developed implementation strategies for the program. It led to a formal announcement by Governor DeWine four months later, which cited targeted initiatives around reducing phosphorus on farms, creating wetlands, replacing failing septic systems, and replacing lead pipes and fixtures. In 2019, the governor recommitted Ohio to reducing Lake Erie's phosphorus pollution by 40 percent by 2025, and H2Ohio is a critical component in achieving that goal.



**For the past 50 years, we've been screaming at the agricultural community. It's been a tough relationship, frankly. I wanted a restart. [H2Ohio] is the start of a new beginning.**

—Heather Taylor-Miesle, Executive Director of Ohio's Environmental Council<sup>35</sup>

## Lessons Learned

Years in the making, the H2Ohio statewide water quality plan successfully created a mutual benefit for Ohioans with different priorities but shared goals. By providing support for (and ensuring buy-in from) agricultural stakeholders, environmental, community, business, and health care industry leaders, the campaign for H2Ohio demonstrates the importance of fostering connections with those that would be regulated. It turns policy likely considered a burden by some into an incentive.

- **A shared vision brought together stakeholders traditionally at odds.** The lasting cross-sector coalition that pushed for H2Ohio is notable, particularly considering the traditional divisions between the environmental and agricultural actors. By laying the groundwork for trust-building, taking steps like conducting financial analysis to demonstrate the need, and communicating authentically and often, The Nature Conservancy and Ohio Farm Bureau helped achieve some alignment between environmentalists and farmers around the value of the H2Ohio initiative.
- **Sustained dialogue in the face of non-support.** Former Ohio Governor John Kasich was not supportive nor convinced of the need for the concept. That did not stop stakeholders involved in Healthy Water Ohio from continuing discussions with state agency directors, elected officials, and stakeholders. Numerous strategy meetings from 2015 to 2018 built general support and modified the design, hoping that a future governor would recognize the wisdom and benefit of this program.
- **New gubernatorial leadership pushed a long-running campaign over the finish line.** While the H2Ohio plan resulted from the leadership of a cross-sector coalition, Governor DeWine's support was critical to secure the resources necessary for implementation. The commitment of a new governor to a comprehensive approach to water quality challenges illustrates how taking advantage of a political opportunity could advance positive change. The Ohio Nature Conservancy advocated for a statewide program to address nutrients at their source to both 2018 presumptive gubernatorial candidates and urged other partners to include the concept in their candidate briefings. The Ohio Environmental Council, Ohio Farm Bureau Federation, and many other groups continued to support the concept after the election of the governor. Early in his tenure as governor,

DeWine was unequivocal about the need for clean water, saying, "We have a moral obligation to preserve and protect our natural resources."<sup>36</sup> In his 2020–2021 budget request to the Ohio General Assembly, the H2Ohio program was the single largest line item.<sup>37</sup> He emphasized that "setting aside the money now, instead of selling bonds, would save the state hundreds of millions in future interest payments."<sup>38</sup> His proactive leadership set the tone for the legislature's allocation of \$172 million to the program.

- **Private philanthropy catalyzed action.** Philanthropy was an essential partner in advancing the H2Ohio Plan. Funding from the Cleveland Foundation, the Helen G., Henry F. & Louise T. Dornette Foundation, The George Gund Foundation, The Joyce Foundation, The Nord Family Foundation, The Sears-Swetland Family Foundation, and Scotts Miracle-Gro Foundation made all the difference. Philanthropic resources enabled the coalition to invest in key areas, including hiring a professional facilitator to help build momentum with diverse stakeholders, completing scientific and financial needs assessments, and conducting public polling to gauge viability of the idea.



**The nearly unanimous Floor vote for priority House Bill 7 underscores the importance of a strong bipartisan commitment to the protection, preservation, and restoration of Ohio's freshwater lakes and rivers.**

—Ohio State Representative Haraz Ghanbari (R-Perrysburg)<sup>39</sup>



**H2Ohio is a very good case study of organizations, government, and private philanthropy all coming together. It wasn't a top down initiative driven by philanthropy or one with 'turf' sensitivities among donors or organizations—it was a complementary balance all around.**

—John Mitterholzer, Senior Program Officer for the Environment, The George Gund Foundation<sup>40</sup>

# Case Studies: Protecting Water at the Source

## Isleta Pueblo

### Asserting Tribal Sovereignty to Secure Stronger Water Quality Rules

#### Context and Challenge

Isleta Pueblo is a tribal community 13 miles south of Albuquerque. The community, established in the 14th century, long predates European settlement in the Southwest. Isleta Pueblo relies heavily on the Rio Grande. The river provides drinking water, water for irrigation, and water for cultural and spiritual ceremonies. Only six miles upstream from Isleta Pueblo, the city of Albuquerque discharges wastewater into the river treated in accordance with EPA permits. In the last years of the 20th century, Isleta Pueblo leaders became concerned that because of the wastewater discharge, the levels of certain pollutants in the Rio Grande—including arsenic—were unsafe.

#### Policy Solution

In 1987, Congress amended section 518(e) of the CWA to facilitate tribes being treated as states for the purposes of setting water quality standards.<sup>41</sup> To address its water quality challenges, Isleta Pueblo asserted its sovereignty as a recognized tribal nation in order to regulate water quality. In October 1992, the EPA granted Isleta Pueblo “treatment in a manner similar to a state” status.

Two months later, Isleta Pueblo became the first tribe to establish a water-quality standards program under the CWA.<sup>42</sup> In part because of the spiritual and cultural uses of water in Isleta Pueblo, which differs from many other communities, the Pueblo set an arsenic limit of 17 parts per trillion—almost three times stricter than the federal drinking water standard of 50 parts per billion.<sup>43</sup> A legal process challenging the authority of the community to establish its own strict pollution control levels concluded in Isleta Pueblo’s favor in 1996, setting a precedent so other tribal governments could assert their sovereignty on drinking water issues.<sup>44</sup>

## Lessons Learned

- **Isleta Pueblo’s exercise of tribal sovereignty led to meaningful water quality standards.** In the Isleta Pueblo case, the community and tribal leaders took advantage of the authority to act as a state under revised federal policy.
- **Isleta Pueblo’s water quality standards program set the stage for other Pueblos to follow suit.** With Isleta Pueblo asserting its authority regarding the contamination of the Rio Grande river, other Pueblo peoples in New Mexico observed the proceedings and followed suit. Shortly after Isleta Pueblo set its water quality standards program, Sandia and Ohkay Owingeh (formerly known as San Juan) Pueblos proposed identical standards.<sup>45</sup> The EPA approved Sandia’s water quality standards in August 1993 and Ohkay Owingeh’s three months later. Today, 62 tribes have established a water quality standards programs under the CWA through “treatment as states” (TAS) status.<sup>46</sup>
- **Water quality practices should address all needs—including cultural and spiritual needs.** In Isleta Pueblo, the cultural and spiritual demands of water created a different context for water quality than those many other communities face. As other communities grapple with their water quality needs, recognizing the unique demands of water in the community and then using policy and law to address those demands can lead to more comprehensive and sustainable management practices.



**We need to braid science, law, and culture—and build this into policy.**

—Corrine Sanchez, Executive Director, Tewa Women United<sup>47</sup>



**We need to preserve and maintain the quality of our surface waters. Our religious and cultural traditions make it essential that our waters stay as pristine as possible.**

—Alvino Lucero, Former Governor, Isleta Pueblo<sup>48</sup>

## Georgia

### Protecting Groundwater Sources from Hydraulic Fracturing with a Multi-Stakeholder Coalition

#### Context and Challenge

More than 13 million Americans get their drinking water from private wells, which are unregulated by the EPA.<sup>49</sup> For these people, protecting groundwater is critical to safe drinking water. In northwest Georgia, concerns about groundwater contamination emerged in the early 2010s when residents received queries from gas companies that wanted to buy the mineral rights beneath their lands. The gas companies were interested in the Conasauga Shale Field as a future site for natural gas extraction and possible hydraulic fracturing, or fracking, fracturing underground rock formations to extract gas. The process can pose a significant threat to groundwater, as it uses a highly pressurized liquid chemical blend to break through rocks. These chemicals can contaminate nearby water sources.<sup>50</sup>

As concern grew among community members, the Georgia Water Coalition and its 265 member organizations took notice. The coalition wanted to help residents advocate for themselves, and members looked into the regulations in place to ensure environmental and public health. It turned out there were none. So, the coalition began building the public and political will for changes to Georgia's mining law, which had no amendments since 1975, to protect groundwater and surface waters. The Coosa River Basin Initiative (a northwest Georgia organization and a member of the Georgia Water Coalition's leadership team) began organizing town halls to educate the public about the consequences associated with fracking. Northwest Georgia, dominated by farming, has communities particularly concerned about property rights. At the town halls, the Coosa River Basin Initiative framed fracking as a private property rights issue, arguing that fracking on one farm could contaminate a well on a neighbor's property.<sup>51</sup>

#### Policy Solution

The town halls were a critical element of building public support for legislative change. Another Georgia Water Coalition member, the Southern Environmental Law Center, helped to secure a legislative champion in the late Representative John Meadows.<sup>52</sup> As the chair of the Georgia House Rules Committee, Representative Meadows was a powerful champion of property rights and water quality and grew to be an advocate for fracking regulations. In 2016, he introduced HB 205 to amend Georgia's mining law to regulate exploration and extraction of gas and oil and specifically address hydraulic fracturing.<sup>53</sup>

The amended law emphasizes the importance of protecting natural resources and states that new sources of energy should not compromise the state's freshwater sources. It requires groundwater testing within a half-mile radius of fracking sites before, during, and after drilling, and it requires gas developers to notify the public of their submission of any fracking permit applications.<sup>54</sup> HB 205 was signed into law in May 2018.<sup>55</sup>

A notable difference between Georgia's HB 205 and fracking regulations in other states is that HB 205 was designed to explicitly allow local governments to adopt stricter regulations than the state statute.<sup>56</sup> The provision allowed for Dade County, one of the counties with potential natural gas deposits, to adopt a ban on fracking, which takes precedence over any state restrictions under the new mining law.<sup>57</sup>



**By updating and strengthening these protections for local communities, Georgia residents will now have a say in what happens in their own backyards.**

—April Lipscomb, Senior Attorney, Southern Environmental Law Center<sup>58</sup>

## Lessons Learned

- **Starting with values-based organizing is a key component of building support for change.** When the Coosa River Basin Initiative hosted the town hall meetings in communities in northwest Georgia, the organization began by connecting the fracking issue with private property concerns already top of mind among the area's residents.<sup>59</sup> It galvanized residents' support for regulating the development of gas resources and protecting groundwater in the area.
- **Cultivating the right political ally can help accelerate the legislative process.** Representative John Meadows was a leader in the Georgia legislature and an established proponent for clean water and property rights. By making the connection between property rights, water quality, and fracking regulation, the Georgia Water Coalition secured an ideal legislative champion.
- **Philanthropy can expand capacity for under-resourced organizations and projects.** The glue that created the Georgia Water Coalition is foundation funding. The coalition is the cornerstone of the Sapelo Foundation's environmental protection portfolio.<sup>60</sup> Initial grant funding from the foundation allowed the coalition to coalesce, and coalition members continue to receive financial support.



**[Residents] were legitimately concerned about what fracking would mean for water quality and what pathway they would have to be made whole if there was some kind of contamination in groundwater.**

—Jesse Demonbreun-Chapman, Executive Director, the Coosa River Basin Initiative<sup>61</sup>



**States must deal with the real-world consequences of chemical pollution. From undrinkable water to contaminated residents to huge costs of clean up, we don't want to be left holding the bag. Preventing these problems is the best solution.**

—Washington State Representative Joe Fitzgibbons (D-Burien), Chair of the state's House Environment Committee<sup>62</sup>

# Case Studies: Strengthening the Regulatory Protections on Water Quality

## Washington

### Passing Comprehensive PFAS Chemical Regulation

#### Context and Challenge

Per- and polyfluoroalkyl substances (PFAS) are a class of thousands of chemicals used since the 1950s to make a wide range of water-resistant, grease-proof, non-stick, and flame-retardant products. PFAS are (or degrade to) chemicals that are water-soluble and endure in the environment. Some build up in the human body over time, and nearly all people tested in representative sampling by the Centers for Disease Control and Prevention (CDC) have detectable levels of some PFAS in their blood.<sup>63</sup> Two PFAS (PFOS and PFOA) have been detected above health advisory levels in millions of people's drinking water in the United States.<sup>64</sup> EPA set a lifetime health advisory for PFOA and PFOS in 2016, and several states have subsequently set more stringent advisories and state regulations for multiple PFAS in drinking water and groundwater.<sup>65</sup> Health concerns are based on demonstrated toxicity in animal testing and observational studies in humans that have reported positive associations between exposure and negative health effects, including thyroid disease and kidney cancer.<sup>66</sup>

PFAS are largely unregulated contaminants. The EPA released its PFAS Action Plan in February 2019 with a focus on two main chemicals of concern.<sup>67</sup> The plan did not set firm drinking water standards for PFAS or standards for how to handle sites where groundwater is known to have PFAS contamination. In February 2020, EPA announced a plan to regulate PFOS and PFOA in drinking water, but developing and adopting maximum contaminant levels can take years.<sup>68</sup> Without imminent federal regulation of PFAS in drinking water, states such as Washington are developing regulatory approaches to protect drinking water and address sources of contamination.

Fifteen miles outside of Spokane, Washington lies Fairchild Air Force Base and the nearby City of Airway Heights. PFAS were discovered in the public water system serving over 6,000 people in Airway Heights in May 2017.<sup>69</sup> The levels of PFOS and PFOA were at least 17 times higher than what EPA considers safe for long-term consumption.<sup>70</sup> Between 2015 and 2020, four other areas in the state have been identified as having PFAS-related drinking water contamination—three adjacent to military bases and one involved civilian fire training. Firefighting foam is the primary suspected source of contamination at all five sites.<sup>71</sup> Mitigation in all five areas has occurred to provide people drinking water that meets the EPA health advisory.

## Policy Solution

Starting in 2016, Washington State’s environmental and public health agencies worked with a diverse group of stakeholders to develop a statewide chemical action plan to address PFAS contamination. An interim plan was released in 2018, and a final plan is expected in 2020.<sup>72</sup> The state Board of Health initiated rulemaking in 2017 to establish state standards for PFAS in drinking water.<sup>73</sup> Contamination of drinking water near military sites like Fairchild AFB sparked public awareness of the problems with PFAS and the high cost of removing them from drinking water. A wide range of stakeholders—affected communities, public water systems, city governments, ports, environmental advocates, labor unions, firefighters, and others—contributed to the passage of three pieces of legislation aimed at the prevention of new contamination.

In March 2018, to reduce sources of PFAS contamination in food and drinking water, the Washington State Legislature passed SB 6413 prohibiting the manufacturing or sale of PFAS-based firefighting foams. It authorized the Department of Ecology to implement and fund proper disposal of existing stockpiles at local fire departments.<sup>74</sup> Because of the risks posed by PFAS, the Washington State Council of Fire Fighters (WSCFF) emerged as an active supporter of a legislative ban on PFAS and became a key partner to the nonprofit organization Toxic-Free Future.<sup>75</sup> The cost of drinking water mitigation borne by cities was also influential.

That same month, the Washington legislature passed HB 2658, prohibiting the sale or distribution of food contact paper containing PFAS chemicals.<sup>76</sup> The ban goes into effect once the state can show that safer alternatives are available and feasible. A diverse coalition came together to support the ban on PFAS in food packaging. The members of the coalition included: Toxic-Free Future, Zero Waste Washington, Latino Community Fund, Self-Advocates in Leadership (an organization led by Washingtonians with developmental disabilities), and Tilth Alliance (a network of community gardens).<sup>77</sup> Later, in May 2019, the state legislature passed SB 5135. Known as the Safer Products for Washington Act, SB 5135 is the nation’s strongest law regulating classes of high priority toxic chemicals in products.<sup>78</sup> The law establishes a process for Washington’s Department of Ecology to regulate additional products that are significant sources of PFAS and other priority chemicals.

## Lessons Learned

- **Focus intervention at the source.** Consumer and commercial products are key contributors to PFAS contamination in Washington. Because PFAS are highly persistent and expensive to clean-up, Washington recognized the need to work upstream to stem the flow of PFAS-containing products that contribute to contamination of food, drinking water, and the environment.
- **Broad-based support for action on PFAS built legislative will.** Each bill on PFAS passed by the Washington legislature in 2018 and 2019 had the support of a diverse coalition that included stakeholders beyond the usual environmental and health advocates. From bill to bill, the coalitions created a sense of broad-based concern about PFAs. These coalitions also included voices from many of the affected communities, which ensured the advocacy on the legislation came from a place of authenticity.
- **Sustained support from advocates led to a more comprehensive victory.** Even after the early legislative wins in 2018, community advocates remained engaged on PFAS issues and supportive of more comprehensive action. The sustained support played a major role in building the political will to pass in 2019 and established the broader bill to regulate additional sources of priority toxic chemicals in the state.

# Michigan

## Enacting the Nation's Strongest Protections Against Lead in Drinking Water

### Context and Challenge

The water crisis in Flint, Michigan began in 2014 when the city switched its drinking water supply from Detroit's system to the Flint River in a cost-saving move. After the city switched its water supply, failing to apply anti-corrosion treatment caused lead to leech from the aging pipes. Inadequate treatment and testing of the water had tragic consequences for Flint residents' health and water quality. Studies revealed that the blood lead levels in Flint's children, along with Legionnaires' disease cases in the city, rose significantly. Michigan's then-Governor Rick Snyder appointed a five-member Water Advisory Task Force to investigate the crisis, identify causes, and recommend ways to avoid a recurrence. The Task Force's report assigned blame to state, federal, and local agencies and officials, with the bulk of the responsibility on the Michigan Department of Environmental Quality (DEQ) for its failure to enforce the federal Lead and Copper Rule (LCR) properly.<sup>79</sup>

### Policy Solution

In January 2016, then-Governor Snyder appointed a Flint Water Interagency Coordinating Committee (FWICC) to discover long-term solutions in response to the task force's recommendations. Along with the committee's work, he ordered the Michigan DEQ to rewrite most of the state's Lead and Copper Rule, working with FWICC members and water quality experts.<sup>80</sup> While this initial process drew on the expertise of the water, public health, public policy, and environmental sectors, minimal involvement came from residents affected by and at risk of lead in their drinking water.

Michigan DEQ worked through the state's rulemaking process, and the new state LCR was finalized and promulgated in June 2018. This new rule:

- requires a complete, verified inventory of all service lines throughout a water supply.
- mandates a full lead service line replacement within 20 years, to be funded by water utilities.
- bans a partial lead service line replacement, except for emergency repairs.
- strengthens water quality testing by requiring samples from the first and fifth liters of water from a faucet, helping to ensure that the water sitting in lead service lines is tested.
- lowers the lead action level (the threshold where regulatory action kicks in) from 15 to 12 parts per billion (ppb) in 2025.

The new rule creates the nation's strongest statewide lead in drinking water protections—significantly stronger than the current federal LCR. Not everyone from the water utilities and municipalities, however, embraced the new rule because of its costs. It was also the subject of criticism from residents in communities most affected by lead in drinking water for the delay in implementation and the potential loopholes for utilities. The new LCR took effect immediately after its finalization in June 2018. Several water utilities and municipalities argued that the rule provided inadequate time to prepare for implementation and enforcement. Meanwhile, with public trust seriously eroded by the Flint crisis, as the LCR was being crafted, many stakeholders pushed to discuss how new requirements would protect the health of affected individuals and identify strategies for lead control that would incorporate the immediate needs and priorities of the most affected communities.

The new LCR mandated that local utilities replace lead service lines but had not identified new funding streams to close Michigan's water infrastructure investment gap, including the replacement of lead service lines. No additional funding provided for DEQ to enforce the LCR. In December 2018, four municipalities filed suit against the State of Michigan, challenging the state's authority to issue the rule and its cost to implement. They contended that the revised rule would require the removal of 500,000 service lines statewide at a conservative cost of \$5,000 each, a total cost of \$2.5 billion over 20 years. A Michigan Court of Claims judge dismissed the lawsuit in July 2019, which allowed the implementation of the new rule to continue.

In January 2019, current Governor Gretchen Whitmer took office. Under Governor Whitmer, the state has taken steps to address funding needs for LCR implementation. Her 2019 budget included \$37.5 million to implement the LCR and an increase in funding for the DEQ, now known as the Department of Environment, Great Lakes, and Energy (EGLE). While the Whitmer Administration has increased funding, a substantial gap persists between the available resources and funding needs for water infrastructure investments and implementing the LCR.

## Lessons Learned

- **State requirements for increased capital spending need to come with increased state and/or federal funding, as well as affordability solutions.** Imposing significant new capital requirements on utilities without new state and/or federal funding means that those utilities will face the need to raise water rates. States should partner with utilities, nonprofits, local governments, and other stakeholders to locate support for significant new utility sector investments. Vulnerable communities are generally at higher risk for exposure to lead contamination because they are more likely to have lead service lines and lead found in in-home plumbing. States can encourage (or require) utilities to implement affordability programs to help ensure equitable rates across customer classes to protect those hit hardest by rate increases. Where state laws limit utilities' ability to establish legally defensible structures for affordable rates, states should work with stakeholders to change those laws or the legal interpretation of them.
- **Stronger state regulations call for careful consideration of resource needs in the agencies responsible for enforcement.** The lack of funding to ensure safe drinking water, including the costs associated with the new LCR, creates concerns regarding the capacity to implement the more health-protective regulations. While Governor Whitmer's administration has increased funding for EGLE slightly, there are still questions about how effectively the state can enforce the new LCR and other safeguards in the years ahead.

- **Broad stakeholder engagement and proper planning for change can improve regulatory provisions and implementation.** Stronger community engagement by DEQ would have provided a critical opportunity to help rebuild the community's trust that was shattered during the Flint water crisis. While state leaders may have wanted to get the law in place during the then-governor's administration, taking the time to plan adequately for implementation would likely produce stronger results and less resistance as the implementation moves forward.



**This is about finding real solutions to clean up our drinking water so every Michigander can bathe their kids and give them a glass of water at the dinner table safely. We have a chance to build a system that really works so we can protect our water and improve public health.**

—Gretchen Whitmer, Governor, State of Michigan<sup>81</sup>

# Case Studies: Supporting Effective Water Management

## New Mexico

### Improving Water Decision-Making Through Data

#### Context and Challenge

Good information is critical to good water management. But in many states, the critical data needed for water decision-making is neither readily available nor well integrated into management tools. The water data challenge is acute in New Mexico. Key data about water quantity and water quality have not integrated easily to access and use tools and are not readily accessible to the public. This was the top issue identified in the state's last round of statewide water planning. Stakeholders across the state regularly need information on ground-water quality, availability and use that may be difficult to access or understand.<sup>82</sup> In other cases, water data does not exist or has never been digitized.<sup>83</sup> To address issues of data standardization and accessibility, the New Mexico legislature, in March 2019, passed the Water Data Act (HB 651).<sup>84</sup>

#### Policy Solution

To help empower communities and stakeholders to manage the limited water resources more effectively, New Mexico legislators crafted the New Mexico Water Data Act, drawing on expertise from water users and technical experts and lessons learned from California's Open and Transparent Water Data Act (AB 1755). New Mexico's Water Data Act requires five state agencies—the New Mexico Bureau of Geology and Mineral Resources, the Interstate Stream Commission, the Office of the State Engineer, the New Mexico Environmental Department, and the New Mexico Energy, Minerals, and Natural Resources Department—to inventory existing water data and create standards across agencies on water levels, quality, and use.<sup>86</sup> The legislation also creates a fund, the Water Data Account, managed by the New Mexico Bureau of Geology and Mineral Resources, to launch the effort and grow funding opportunities. Over the next three years, this fund will provide a non-federal cost-match for a US Bureau of Reclamation WaterSMART grant to address regional water data issues in southeast New Mexico.

New Mexico's Water Data Act passed unanimously in both chambers with bipartisan support, with state leaders pushing for the development of common tools and standards, addressing critical gaps in existing data.<sup>87</sup> Stakeholder support was critical to the New Mexico Water Data Act's passage. The bill's co-sponsors worked with ranchers, farmers, utilities, irrigation districts, environmental organizations, cities and counties, university and national laboratory researchers, and many others to vet and move the policy forward. This widespread support from across the state helped secure unanimous votes for the bill in both houses of the New Mexico legislature.<sup>88</sup> Representative Melanie Stansbury, one of the co-sponsors of the bill, maintains that the implementing the act will be at the community level, as more effective data will help state, tribal, and local organizations improve water management across the state.<sup>89</sup>



**People say water is for fighting over, but I believe water is for collaborating on.**

—Representative Melanie Stansbury, New Mexico State Legislature, Water Data Act co-sponsor<sup>85</sup>

## Lessons Learned

- **With widespread support, legislation can move quickly.** Passing legislation is often a lengthy and cumbersome process. New Mexico’s Water Data Act went from concept to signed law in less than a few months. According to Representative Stansbury, stakeholder engagement and leadership were critical to the swift passage of the legislation.
- **Legislation can elevate issues that would not normally rise to the top of agency to-do lists.** Digitizing and integrating water data are tasks that may not rise to the top of an agency’s priority list, as officials juggle a myriad of issues. With legislation like the Water Data Act, governance frameworks can elevate issues and create a process and timeline that drives activity toward this critical end goal.



**When you don’t know how much gas is in your car, you don’t know when to stop driving. Similarly, when you don’t know how much water you have, you don’t know when to start managing those water supplies differently. Data supports our choices. When we all have the same data in hand, we can build a consensus about how to prioritize our water use.”**

—Stacy Timmons, Associate Director for Hydrogeology Programs, NM Bureau of Geology and Mineral Resources<sup>90</sup>

## Arkansas

### Enhancing Water Service through Utility Consolidation

#### Context and Challenge

One of the biggest barriers to implementing sustainable water solutions is the fragmentation of water services in the United States. There are over 51,000 regulated community water systems owned and managed by thousands of entities ranging from large metropolitan cities to mobile home park owners to private, investor-owned utilities. Fifty-five percent of these systems serve fewer than 500 people. By comparison, Australia has 82 and the United Kingdom only 32. Shared services and consolidation—the merger of administrative, financial, and/or governance functions—are strategies that several water systems have found useful to reduce operating costs, increase efficiency, and achieve service delivery goals.<sup>91</sup>

In Arkansas, the story of Central Arkansas Water provides an example of how consolidation can benefit both the water utility and community members. In 2001, the water systems in North Little Rock and Little Rock merged to create a single water utility—Central Arkansas Water (CAW).<sup>92</sup> The consolidation agreement between the two systems has equalized the rate structure for both cities, created additional revenue bond opportunities outside of either jurisdiction, and resulted in a higher credit rating for the consolidated system.<sup>93</sup> While it caused incrementally higher rates over ten years, bills became still significantly lower than comparable systems across Arkansas and the country.<sup>94</sup>

As part of its work surrounding consolidation, CAW conducted extensive outreach, including direct communication with customers and print and television media communications, explaining the process and addressing specific concerns raised by community members. On the ground, CAW spoke at dozens of community meetings, worked directly with the City Board of Directors, and became active in large community social media groups. Every step of the process intended to keep the communities informed and part of the partnership involved in the consolidation process.

The consolidation agreement also granted CAW authority to sell drinking water to new customers outside of Little Rock and North Little Rock.<sup>95</sup> CAW has used this authority to merge with an additional seven local water suppliers to increase its rate base, secure rights to larger water supplies, and achieve economies of scale, leading to better water service for all the Arkansas communities it serves.<sup>96</sup> Until 2017, CAW was required to go through the process of separating systems so it could merge with only the drinking water component. This created a major constraint to consolidation in the region.

### Policy Solution

To address this limitation, CAW championed legislation that amended an existing state law on interlocal cooperation. Enacted in 2017, SB 435 permits a public drinking water system to own and operate a wastewater system from an entity the acquiring system simultaneously obtains.<sup>97</sup> It granted CAW the authority to acquire both the drinking water and wastewater service components of a smaller utility.

SB 435, however, did not allow CAW to merge with smaller utilities that provide wastewater services solely. In 2019, CAW advanced legislation designed to remove this limitation. The new legislation, HB 1729, permits a public drinking water utility to acquire and operate systems that had previously provided only wastewater or stormwater services.<sup>98</sup> The legislation furthered CAW's ability to work broadly on water management throughout the state. Through the authority to merge with drinking water, wastewater, and stormwater systems, CAW is more equipped to promote community and watershed health in places previously served by small utilities than if it could only provide drinking water service.

### Lessons Learned

- **Drinking water does not exist in a vacuum.** Across all the regional roundtables, participants indicated that drinking water management has deep ties to—and influenced by—the management of surface water, groundwater, wastewater, and stormwater. In the Central Arkansas Water case, the agency recognized that managing water holistically is better for communities than taking authority over the drinking water component. Through the authority to acquire wastewater and stormwater systems, CAW can own and operate more systems (achieving economies of scale) and advance its mission to provide communities with safe, reliable, and affordable water.
- **A bold vision combined with expertise can help frame legislation.** Central Arkansas Water's leadership saw a policy gap and, instead of highlighting the problems, offered a clearly defined vision for a solution. Most state legislators are not well versed in every issue area they must address. Water agency consolidation is a complex topic, even for water sector experts. Central Arkansas Water showed how consolidation leads to more efficient operations and more affordable water for Arkansas communities.
- **A favorable political landscape helps.** CAW was pleased to discover that legislators were largely amenable to its ideas and did not find them controversial. Once the utility shared its proposed solutions with policymakers, support was not hard to build. The CAW story demonstrates that not every piece of legislation aimed at improving water management needs to be an uphill battle.





# Elements of Success

While the success and lessons from each case study in this report are unique, common elements to successful policy innovation emerge. These elements are not an all-inclusive recipe for success. No single case study features each element, and the absence of any element is not necessarily a weakness. Together, the case studies, along with other lessons gathered from our regional roundtables, demonstrate that when the right combination of the six elements incorporates into efforts to change drinking water policy, the chances of driving solutions that benefit the people most threatened by the drinking water challenges increase substantially.

## Key Element:

### **Base Innovation on Concerns and Solutions from Impacted Communities**

Those living in communities facing drinking water challenges have the knowledge to address the challenges. Residents of affected communities have the most grounded insights and the experience necessary to define problems, identify effective solutions, and ensure the policies apply to the realities facing those communities. By basing policy on the expertise that exists in affected communities, policy advocates can expose historic racial and economic disparities in water management and create policies that explicitly advance water equity outcomes.

The Isleta Pueblo example in New Mexico highlights the importance of a community's knowledge. The community understood and articulated Isleta Pueblo's unique spiritual and cultural needs for water and set strong arsenic limits asserting their right to defend and enforce those limits. In California, because residents from historically marginalized communities went to the state legislature to testify on the Safe and Affordable Drinking Water Fund, money from the fund now has priority for low-income communities and communities of color. Conversely, the Michigan Lead and Copper Rule illustrates a missed opportunity by not considering community voices. The rule, known as the strongest state LCR in the nation, raises skepticism from many in Michigan because it did not consider the community when crafted.

## Key Element:

### **Develop a Bold Vision and Strategy**

When water management fractures across agencies and regulators throughout the country, it is difficult for policy-makers to comprehend the whole. As a result, disjointed management often isolates water policy, leading to, at best, incremental policy progress on the most critical drinking water issues. It requires bold visions to break down silos and overcome incrementalism. Strong positive visions of holistic water management can coalesce diverse interests, overcome traditional barriers, and catalyze transformative water policy that benefits communities with drinking water challenges.

The human right to water effort in California is a clear example of the power of a bold vision. This vision served as a foundation for an effective coalition, with residents of low-income communities and communities of color at its core. The vision has motivated coalition members to keep working together for over a decade. The "human right to water" provided a lens through which the coalition saw initial legislative success, not as the final achievement, but a step on a path to larger goals. Central Arkansas Water also shaped a bold vision for a better system to serve the residents of the Little Rock metro area. It became a guide for broader authority and better service to surrounding communities. In some states, governors have proven to be very effective messengers of bold visions. Michigan's Governor Gretchen Whitmer made safe water and the Great Lakes central to her 2018 election platform. Since taking office in early 2019, her commitments have fueled momentum to address Michigan's water problems. Similarly, Wisconsin Governor Tony Evers sparked action on water issues in his state by campaigning on the issues and declaring 2019, his first year in office, the "Year of Clean Drinking Water."

## Key Element:

### **Harness the Power of Data**

Data fuels and drives effective policy. Without quality, trusted data, it is impossible to craft and implement policies where policymakers, advocates, and residents can have confidence that intended outcomes will happen. The ability to access and use comprehensive data allows for quick implementation and adaptation, creating favorable results faster or leading to pivots in the approach as needed. With good data, the public, government officials, and other important stakeholders can share an understanding of drinking water issues and find common ground when challenges arise. The effort in New Mexico, aimed at making water data more comprehensive and accessible, will hopefully show how access to data will improve policy creation and implementation. Michigan's Lead and Copper Rule, with its provisions around inventorying lead service lines and strengthening testing for lead, provides an example of how legislation can incorporate data collection and regulation to enable adaptation while implementing policy.

Advocates and residents of communities facing drinking water challenges find data crucial as they advance solutions to policymakers. Data can help shed light on the severity or spread of a problem, set the parameters for what it might cost to fix it, and underscore what communities are experiencing. Data can also be a rallying point that helps to build diverse coalitions from a common set of facts. In California, in the work leading up to the Safe and Affordable Drinking Water Fund, data helped to define the scope of the state's drinking water problems and estimate the cost of a solution. Other data, from polling and economic analysis, demonstrated that the solutions advanced under the human right to water banner were both politically and financially reasonable.

Transparency in data (and transparency in general) can be a way to strengthen or rebuild trust between a community and its state and local water institutions. The community message behind the New Mexico Data Act said it is impossible to fix the invisible, but when the issue becomes apparent, intentional steps can address it. It is especially important, from a water equity standpoint, to know who is most affected, to what extent, and where they are in the system. Data are also critical to accountability, helping to reinforce trust.

## Key Element:

### **Gather Partners and Build Coalitions**

Rarely can a single community, or a single advocate, secure truly innovative drinking water policy. Coalitions are usually essential to meaningful policy change. Diverse coalitions—where the interests of communities, environmental organizations, key businesses, and others are present—often express effectively to policymakers that a proposed policy both serves a broad public interest and has wide support necessary to be politically viable. When community voices are at the core of a coalition, it is more likely that the agenda being advanced will benefit the low-income communities and communities of color facing the greatest drinking water challenges.

Efforts to tackle PFAS pollution in the state of Washington show the value of a diverse coalition. Stakeholders from firefighters to sustainable agriculture advocates, to residents from communities facing PFAS pollution came together. In just over one year, this collection of unique partners secured the passage of multiple bills, including the nation's strongest law on regulating toxic chemicals. The Georgia Water Coalition also exemplifies an influential a broad-based coalition. From its beginning with four organizations, the coalition has grown to include more than 200 groups representing sportspeople, conservationists, business owners, civic groups, religious organizations, farmers, homeowner and lake associations, and others from all over the state. The coalition is now a powerful political player working to advance the collective interests of its members. These groups demonstrate the need to gather coalitions around a logical solution, where the coalition members and allies have a clear sense of how the solution relates to the problem and how it sets up the next phase of work. Philanthropy can also be a key part of this, as with the Georgia Water Coalition, the coalition behind H2Ohio, and the coalition in California. In each case, philanthropy supported and funded coalition efforts that grew into effective and meaningful policy outcomes over time.

### Key Element:

## **Build and Maintain Long-Term Leadership Capacity**

Securing an innovative drinking water policy often takes years. For long-term campaigns to be successful, there needs to be long-term leadership. A campaign with strong leadership can provide a backbone offering the training necessary for residents and stakeholders to be effective advocates. Campaign leaders can help to hold history and policy knowledge, enabling all campaign participants to share an understanding of the campaign. Established leaders can help to nurture and grow new leaders, making the campaign resilient to the attrition that can occur over multi-year efforts.

The Ohio campaign that resulted in the 2019 H2Ohio plan, its legislative adoption, and funding shows the value of long-term leadership. Sparked by the 2014 Lake Erie algal bloom and the “do not drink order” for the city of Toledo, The Nature Conservancy organized the Ohio Farm Bureau and other key players to work for mutually agreeable pollution control policy. The Nature Conservancy’s ongoing leadership proved to be a linchpin to the successful five-year effort. The California coalition also illustrates the value of sustained leadership and the critical role philanthropy can play in ensuring long-term funding for organizational infrastructure. Without significant, ongoing investment from foundations, frontline groups would not have provided the leadership capacity essential to the California coalition. Initial and ongoing philanthropic support was also critical for the coalitions in Ohio and Georgia. Funders need to continue and expand their support for leadership capacity and development across all parts of the country.

### Key Element:

## **Cultivate and Utilize a Favorable Political Landscape**

Good policy cannot happen without policymakers. To ensure that policymakers make the right decisions about drinking water, advocates and residents from communities affected by drinking water challenges need to engage elected leaders, share stories and offer knowledge from their communities, and articulate visions for change. Advocates and residents should celebrate decision-makers when they act to benefit communities and hold leaders accountable when they do not. When the political landscape creates the opportunity to advance meaningful drinking water policy, advocates and community members should take advantage of their work to cultivate policymakers’ support and seize the opportunity to make a change. Federal, state, and local governments and utilities need to make sure there are adequate opportunities for communities and their advocates to engage.

Ohio illustrates what can happen when advocates lay the groundwork and then seize a political opportunity. Upon his election in 2018, Governor Mike DeWine declared water quality a priority issue. Over the four previous years, The Nature Conservancy, the Ohio Farm Bureau, and others collaborated to develop solutions that would improve water quality and be workable for the state’s important agriculture industry. The coalition saw Governor DeWine’s declaration on drinking water as an opening and acted. The coalition helped ensure the creation of the H2Ohio plan, legislation to institutionalize the plan, and funding for implementation. The case of Central Arkansas Water shows that sometimes a political opportunity can be quietly present. When CAW reached out to legislators about the value of and challenges to water utility consolidation, they found policymakers willing to advance solutions to complex problems when educated. The CAW example demonstrates that sometimes, with good ideas and the right relationships, drinking water policy reform need not be an uphill battle.



# Conclusion

The lessons from the case studies and the regional roundtables are valuable guideposts for efforts to enact state and tribal change around drinking water policy. There is a growing awareness of the threats to economic development, public health, and the environment when people lack clean, safe, reliable, and affordable drinking water. There is an opportunity for organizations across the country to learn from each other's experiences and replicate success on drinking water policy. A national dialogue on the state and tribal lessons in this report can be an effective way to spread and scale meaningful change in drinking water policy.

Effective water management that brings safe, reliable, and affordable water service to everyone is a goal everyone shares in the water sector. Utilities and water systems can work with advocates and organizations in their communities to help close funding gaps and protect water at its source. Likewise, philanthropy has an opportunity—and the means—to drive the national dialogue and confront the structural barriers to safe, affordable, and reliable drinking water. In many of the case studies, there was a need for community efforts and broad multi-stakeholder coalitions to bring about meaningful change. The resources directed to those efforts by philanthropy were foundational to their success. Funders, particularly those with overlapping networks in environmental and health fields, can stimulate renewed civic engagement and information exchange, break traditional silos, experiment with promising ideas, and scale fact-based solutions.

While the challenges the nation faces are many, its capacity for innovation is greater. The water sector is poised to rise to the challenge and unleash a new era of water management—one that secures economic, environmental, and community wellbeing for all.



# Collaborating Organizations

## US Water Alliance

The US Water Alliance advances policies and programs to secure a sustainable water future for all. Our membership includes water providers, public officials, business leaders, environmental organizations, community leaders, policy organizations, and more. A nationally recognized nonprofit organization, the US Water Alliance brings together diverse interests to identify and advance common ground, achievable solutions to our nation's most pressing water challenges. We:

- **Educate the nation about the true value of water and the need for investment in water systems.** Our innovative education and advocacy campaigns, best-in-class communications and media activities, high-impact events, and publications are educating and inspiring the nation about how water is essential and in need of investment.
- **Accelerate the adoption of One Water policies and programs that manage water resources to advance a better quality of life for all.** As an honest broker, we convene diverse interests to identify and advance practical, achievable solutions to our nation's most pressing water challenges. We do this through national dialogues, knowledge building and peer exchange, the development of forward-looking and inclusive water policies and programs, and coalition building.
- **Celebrate what works and spread innovation in water management.** We shine a light on those who engage in groundbreaking work through storytelling, cataloging and disseminating best practices, and spearheading special recognition programs that focus attention on how water leaders are building stronger communities and a stronger America.

## Water Foundation

The Water Foundation is a public foundation that works in the service of our partners, including grantees and funders, to secure safe water for people, sustain and restore freshwater ecosystems, and build climate resilience, both urban and rural. We use philanthropy's ability to convene, experiment with new ideas, and scale what works to bring the sweeping policy changes we need in water. To address both immediate needs and root causes, like social inequality and outdated infrastructure, we focus on three system interventions:

**Broaden who makes water decisions and how.** By expanding the voice and political influence of those most impacted by water challenges, we can generate more democratic, responsive, and effective water institutions. Achieving water systems that support healthy human and natural communities requires diversifying water leadership and supporting water institutions to collaborate and innovate.

**Change how we move and share water.** Historically, the US has moved water through legacy infrastructure that often hurts fish and wildlife and generates conflict. By recasting natural watershed functions as valued parts of water infrastructure, we can reimagine water systems to recover degraded ecosystems and enhance resilience to climate change.

**Strengthen the stories we tell about water.** Voters support water for people and nature, but the US often lacks the political will to tackle our most critical water problems. By driving narratives through communications and community outreach that connect to people's values and priorities, we can spur political action and galvanize powerful movements for clean, reliable water.

# Notes

- 1 Office of Water, "Drinking Water Infrastructure Needs Survey and Assessment: Sixth Report to Congress," US Environmental Protection Agency, March 2018, [https://www.epa.gov/sites/production/files/2018-10/documents/corrected\\_sixth\\_drinking\\_water\\_infrastructure\\_needs\\_survey\\_and\\_assessment.pdf](https://www.epa.gov/sites/production/files/2018-10/documents/corrected_sixth_drinking_water_infrastructure_needs_survey_and_assessment.pdf).
- 2 American Water Works Association, "Buried No Longer: Confronting America's Water Infrastructure Challenge," <https://www.awwa.org/Portals/0/AWWA/Government/BuriedNoLonger.pdf?ver=2013-03-29-125906-653>.
- 3 American Society of Civil Engineers. "2017 Infrastructure Report Card: Drinking Water," <https://www.infrastructurereportcard.org/wp-content/uploads/2017/01/Drinking-Water-Final.pdf>.
- 4 National Oceanic and Atmospheric Administration, "NOAA Forecasts Very Large 'Dead one' for Gulf of Mexico," US Chamber of Commerce, June 12, 2019, <https://www.noaa.gov/media-release/noaa-forecasts-very-large-dead-zone-for-gulf-of-mexico>.
- 5 Office of Water, "Renewed Call to Action to Reduce Nutrient Pollution and Support for Incremental Actions to Protect Water Quality and Public Health," US Environmental Protection Agency, September 22, 2016, <https://www.epa.gov/sites/production/files/2016-09/documents/renewed-call-nutrient-memo-2016.pdf>.
- 6 US Environmental Protection Agency, "TSCA Chemical Substance Inventory," <https://www.epa.gov/tsca-inventory>.
- 7 US Environmental Protection Agency, "Regulation Timeline: Contaminants Regulated Under the Safe Water Act," September 2015, [https://www.epa.gov/sites/production/files/2015-10/documents/dw\\_regulation\\_timeline.pdf](https://www.epa.gov/sites/production/files/2015-10/documents/dw_regulation_timeline.pdf).
- 8 US Water Alliance and DigDeep, "Closing the Water Access Gap in the United State: A National Action Plan," 2019, [http://uswateralliance.org/sites/uswateralliance.org/files/publications/Closing%20the%20Water%20Access%20Gap%20in%20the%20United%20States\\_DIGITAL.pdf](http://uswateralliance.org/sites/uswateralliance.org/files/publications/Closing%20the%20Water%20Access%20Gap%20in%20the%20United%20States_DIGITAL.pdf).
- 9 US Water Alliance and DigDeep, "Closing the Water Access Gap in the United State: A National Action Plan," 2019, [http://uswateralliance.org/sites/uswateralliance.org/files/publications/Closing%20the%20Water%20Access%20Gap%20in%20the%20United%20States\\_DIGITAL.pdf](http://uswateralliance.org/sites/uswateralliance.org/files/publications/Closing%20the%20Water%20Access%20Gap%20in%20the%20United%20States_DIGITAL.pdf).
- 10 Juliet Christian-Smith et al., *A Twenty-First Century US Water Policy* (New York: Oxford University Press, 2012), 168.
- 11 Kelly Reynolds, Kristina Mena, and Charles Gerba, "Risk of Waterborne Illness Via Drinking Water in the United States," *Reviews of Environmental Contamination and Toxicology* 192 (December 2007): 117-158. DOI: 10.1007/978-0-387-71724-1\_4.
- 12 US Water Alliance, "One Water Big Idea 1: Advance Regional Collaboration on Water Management," 2018, [http://uswateralliance.org/sites/uswateralliance.org/files/publications/uswa\\_listen\\_big1\\_FINAL\\_RGB.PDF](http://uswateralliance.org/sites/uswateralliance.org/files/publications/uswa_listen_big1_FINAL_RGB.PDF).
- 13 US Energy Information Administration, "Investor-Owned Utilities Served 72 Percent of US Electricity Customers in 2017, August 15, 2019, <https://www.eia.gov/todayinenergy/detail.php?id=40913>.
- 14 Patricia A. Jones and Amber Moulton, "The Invisible Crisis: Water Unaffordability in the United States," Unitarian Universalist Service Committee, May 2016, <https://www.uusc.org/press/the-crisis-of-unaffordable-water-in-the-u-s/>.
- 15 Elizabeth Mack and Sarah Wrase, "A Burgeoning Crisis? A Nationwide Assessment of the Geography of Water Affordability in the United States," *PLOS ONE* 12, no. 1 (January 2017): 1-19. DOI: 10.1371/journal.pone.0169488.
- 16 Kristi Pullen Fedinick, Steve Taylor, and Michele Roberts, "Watered Down Justice," National Resources Defense Council, 2019, <https://www.nrdc.org/sites/default/files/watered-down-justice-report.pdf>.
- 17 Wisconsin Department of Natural Resources, "Wisconsin Natural Resources Board Approves DNR Scope Statement for Regulations Aimed at Protecting Drinking Water Policy," December 11, 2016, <https://dnr.wi.gov/news/releases/article/?id=4990>.
- 18 Ballotpedia, "States with Initiative or Referendum," [https://ballotpedia.org/States\\_with\\_initiative\\_or\\_referendum](https://ballotpedia.org/States_with_initiative_or_referendum).
- 19 California Natural Resources Agency, "Bond Accountability," <http://bondaccountability.resources.ca.gov/p1.aspx>.
- 20 California Department of Parks and Recreation, "Parks and Water Bond Act of 2018 (Proposition 68)," [https://www.parks.ca.gov/?page\\_id=29906](https://www.parks.ca.gov/?page_id=29906).
- 21 Colorado Secretary of State, "Amendments and Propositions on the 2019 Ballot," <https://www.sos.state.co.us/pubs/elections/Initiatives/ballot/contacts/2019.html>.
- 22 US Environmental Protection Agency, "Factoids: drinking water and ground water statistics for 2007," April 2008, <http://nepis.epa.gov/Exe/ZyPDF.cgi/P100N2VG.PDF?Dockey=P100N2VG.pdf>.
- 23 Office of Governor Gavin Newsom, "Governor Gavin Newsom Signs Bill Creating Safe Drinking Water Fund," July 24, 2019, <https://www.gov.ca.gov/2019/07/24/governor-gavin-newsom-signs-bill-creating-safe-drinking-water-fund/>.
- 24 US Environmental Protection Agency, "Report on the Environment: Drinking Water," <https://www.epa.gov/report-environment/drinking-water>.

- 25 Community Water Center, "Human Right to Water," [https://www.communitywatercenter.org/human\\_right\\_to\\_water](https://www.communitywatercenter.org/human_right_to_water).
- 26 California Climate Investments, "State Water Board Authorizes Nearly Quarter Billion Dollars to Provide Safe and Affordable Drinking Water," <http://www.caclimateinvestments.ca.gov/press-releases/2019/8/20/state-water-board-authorizes-nearly-quarter-billion-dollars-to-provide-safe-and-affordable-drinking-water>.
- 27 Community Water Center, "Backers of Safe and Affordable Drinking Water Fund Applaud Commitment by Governor and Legislature to Move Forward to Address State Crisis," June 8, 2018, <https://www.communitywatercenter.org/sadwfcommit>.
- 28 Community Water Center, "Safe and Affordable Drinking Water Fund," May 20, 2019, [https://www.communitywatercenter.org/safe\\_and\\_affordable\\_drinking\\_water\\_fund](https://www.communitywatercenter.org/safe_and_affordable_drinking_water_fund).
- 29 Community Water Center, "Backers of Safe and Affordable Drinking Water Fund Applaud Commitment by Governor and Legislature to Move Forward to Address State Crisis," June 8, 2018, <https://www.communitywatercenter.org/sadwfcommit>.
- 30 The Nature Conservancy, "Stories in Ohio: Clean Water Victory," October 9, 2019, <https://www.nature.org/en-us/about-us/where-we-work/united-states/ohio/stories-in-ohio/h2ohio-water-fund/>.
- 31 Janice DiCarolis et al., "The Economic Contribution of Agricultural and Food Production to the Ohio Economy," The Ohio State University, November 2017, [https://aede.osu.edu/sites/aede/files/publication\\_files/The%20Economic%20Contribution%20of%20Agricultural%20and%20Food%20Production%20to%20the%20Ohio%20Economy\\_FINAL%20Nov%2028%202017.pdf](https://aede.osu.edu/sites/aede/files/publication_files/The%20Economic%20Contribution%20of%20Agricultural%20and%20Food%20Production%20to%20the%20Ohio%20Economy_FINAL%20Nov%2028%202017.pdf).
- 32 H2Ohio, <http://h2.ohio.gov/about-h2ohio/>.
- 33 The Nature Conservancy, "Stories in Ohio: Clean Water Victory," October 9, 2019, <https://www.nature.org/en-us/about-us/where-we-work/united-states/ohio/stories-in-ohio/h2ohio-water-fund/>.
- 34 Randy Ludlow, "DeWine Budget Targets Aid to Children, Water Quality – but No Tax Cuts," *The Dispatch*, March 15, 2019, <https://www.dispatch.com/news/20190315/dewine-budget-targets-aid-to-children-water-quality---but-no-tax-cuts>.
- 35 Tom Henry, "State Ag Director Touts H2Ohio Program," *The Blade*, December 17, 2019, <https://www.toledoblade.com/local/environment/2019/12/17/ohio-department-of-agriculture-director-dorothy-pelanda-visits-wood-hancock-counties/stories/20191217121>.
- 36 H2Ohio, <http://h2.ohio.gov/about-h2ohio/>.
- 37 Randy Ludlow, "DeWine Budget Targets Aid to Children, Water Quality – but No Tax Cuts," *The Dispatch*, March 15, 2019, <https://www.dispatch.com/news/20190315/dewine-budget-targets-aid-to-children-water-quality---but-no-tax-cuts>.
- 38 Randy Ludlow, "DeWine Budget Targets Aid to Children, Water Quality – but No Tax Cuts," *The Dispatch*, March 15, 2019, <https://www.dispatch.com/news/20190315/dewine-budget-targets-aid-to-children-water-quality---but-no-tax-cuts>.
- 39 The Ohio House of Representatives, "Speaker Householder Announces House Passage of H2Ohio Legislation," Majority Caucus Blog, June 20, 2019, <http://www.ohiohouse.gov/republicans/press/speaker-householder-announces-house-passage-of--h2ohio-legislation>.
- 40 John Mitterholzer, email correspondence with The Nature Conservancy, April, 2020.
- 41 US Environmental Protection Agency, "Tribal Grants Under Section 106 of the Clean Water Act," <https://www.epa.gov/water-pollution-control-section-106-grants/tribal-grants-under-section-106-clean-water-act>.
- US Environmental Protection Agency, "Federal Water Quality Standards Requirements," <https://www.epa.gov/wqs-tech/federal-water-quality-standards-requirements#review>.
- 42 US Water Environmental Agency, "Water Quality Standards Regulations: Pueblo of Isleta," <https://www.epa.gov/wqs-tech/water-quality-standards-regulations-pueblo-isleta>; Jason Lenderman. "A Tiny Tribe Wins Big on Clean Water," *High Country News*, February 2, 1998, <https://www.hcn.org/issues/123/3922>.
- 43 Jason Lenderman, "A Tiny Tribe Wins Big on Clean Water," *High Country News*, February 2, 1998, <https://www.hcn.org/issues/123/3922>.
- 44 Jason Lenderman, "A Tiny Tribe Wins Big on Clean Water," *High Country News*, February 2, 1998, <https://www.hcn.org/issues/123/3922>.
- 45 Michael Haederle, "Pueblo's Water Uses Could Cost Albuquerque Dearly," *Los Angeles Time*, March 9, 1993, <https://www.latimes.com/archives/la-xpm-1993-03-09-mn-870-story.html>.
- 46 US Environmental Protection Agency, "Tribes Approved for Treatment as a State," <https://www.epa.gov/tribal/tribes-approved-treatment-state-tas>.
- 47 Southwest Drinking Water Regional Roundtable.
- 48 Michael Haederle, "Pueblo's Water Uses Could Cost Albuquerque Dearly," *Los Angeles Time*, March 9, 1993, <https://www.latimes.com/archives/la-xpm-1993-03-09-mn-870-story.html>.
- 49 US Environmental Protection Agency, "Private Drinking Water Wells," <https://www.epa.gov/privatewells>.

- 50 JD Howard, "New Fracking Legislation Renews Focus on Rejoining Severed Mineral Rights with Surface Ownership," Hall Booth Smith, May 30, 2018, <https://hallboothsmith.com/new-fracking-legislation-renews-focus-on-rejoining-severed-mineral-rights-with-surface-ownership/>.
- 51 Southern Environmental Law Center, "Georgia Passes Modern-Day Fracking Protections into Law," May 11, 2018, <https://www.southernenvironment.org/news-and-press/news-feed/georgia-passes-modern-day-fracking-protections-into-law>.
- 52 Southern Environmental Law Center, "Georgia Passes Modern-Day Fracking Protections into Law," May 11, 2018, <https://www.southernenvironment.org/news-and-press/news-feed/georgia-passes-modern-day-fracking-protections-into-law>.
- 53 Diane Wagner, "Fracking Bill on the Move: HB 205 Sets Regulation for the Oil and Gas Extraction Method," *Rome News-Tribune*, January 30, 2018, [https://www.northwestgeorgianews.com/rome/news/local/fracking-bill-on-the-move-hb-sets-regulations-for-the/article\\_cf774f7e-05d8-11e8-be97-f362c8679c19.html](https://www.northwestgeorgianews.com/rome/news/local/fracking-bill-on-the-move-hb-sets-regulations-for-the/article_cf774f7e-05d8-11e8-be97-f362c8679c19.html).
- 54 JD Howard, "New Fracking Legislation Renews Focus on Rejoining Severed Mineral Rights with Surface Ownership," Hall Booth Smith, May 30, 2018, <https://hallboothsmith.com/new-fracking-legislation-renews-focus-on-rejoining-severed-mineral-rights-with-surface-ownership/>.
- 55 Georgia General Assembly, "2017-2018 Regular Session HB 205," <http://www.legis.ga.gov/Legislation/en-US/display/20172018/HB/205>.
- 56 Grant Blackenship, "How Worries Over Private Property Led to Georgia's First Fracking Rules," *GPB Radio News*, July 9, 2019, <https://www.gpbnews.org/post/how-worries-over-private-property-led-georgias-first-fracking-rules>.
- 57 Grant Blackenship, "How Worries Over Private Property Led to Georgia's First Fracking Rules," *GPB Radio News*, July 9, 2019, <https://www.gpbnews.org/post/how-worries-over-private-property-led-georgias-first-fracking-rules>.
- 58 Southern Environmental Law Center, "Georgia Passes Modern-Day Fracking Protections into Law," May 11, 2018, <https://www.southernenvironment.org/news-and-press/news-feed/georgia-passes-modern-day-fracking-protections-into-law>.
- 59 Grant Blackenship, "How Worries Over Private Property Led to Georgia's First Fracking Rules," *GPB Radio News*, July 9, 2019, <https://www.gpbnews.org/post/how-worries-over-private-property-led-georgias-first-fracking-rules>.
- 60 The Sapelo Foundation, "Grant Spotlight: Georgia Water Coalition," <http://sapelofoundation.org/what-we-fund/environmental-protection/georgia-water-coalition/>.
- 61 Grant Blackenship, "How Worries Over Private Property Led to Georgia's First Fracking Rules," *GPB Radio News*, July 9, 2019, <https://www.gpbnews.org/post/how-worries-over-private-property-led-georgias-first-fracking-rules>.
- 62 Drake Skaggs and Gretchen Salter, "State Legislatures Tackle Toxic Chemicals as Pruitt EPA Falter," *Safer States*, February 12, 2018, <https://www.saferstates.com/news/2018map/>.
- 63 Centers for Disease Control and Prevention, "National Report on Human Exposure to Environmental Chemicals," <https://www.cdc.gov/exposurereport/index.html>.
- 64 Social Science Environmental Health Research Institute, "PFAS Contamination Site Tracker," Northeastern University, <https://pfasproject.com/pfas-contamination-site-tracker/>; Xindi Hu et al., "Detection of Poly- and Perfluoroalkyl Substances (PFASs) in U.S. Drinking Water Linked to Industrial Sites, Military Fire Training Areas, and Wastewater Treatment Plants," *Environmental Science & Technology* 3, no. 10, (October 2016): 344-350, DOI: 10.1021/acs.estlett.6b00260.
- 65 ITRC factsheet is tracking action at the states and updating the tables regularly, <https://pfas-1.itrcweb.org/fact-sheets/>.
- 66 US Environmental Protection Agency, "Basic Information on PFAS," <https://www.epa.gov/pfas/basic-information-pfas#health>; C8 Science Panel, "Homepage," <http://www.c8sciencepanel.org/>.
- 67 US Environmental Protection Agency, "EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan," February 2019, [https://www.epa.gov/sites/production/files/2019-02/documents/pfas\\_action\\_plan\\_021319\\_508compliant\\_1.pdf](https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf).
- 68 US Environmental Protection Agency, "EPA PFAS Action Plan: Program Update," February 2020, [https://www.epa.gov/sites/production/files/2020-01/documents/pfas\\_action\\_plan\\_feb2020.pdf](https://www.epa.gov/sites/production/files/2020-01/documents/pfas_action_plan_feb2020.pdf).
- 69 Washington Department of Health, "PFAS," <https://www.doh.wa.gov/CommunityandEnvironment/Contaminants/PFAS>.
- 70 Chad Sokol, "EPA Unveils Plan for Chemicals Found in West Plains Drinking Water; Critics Say its Not Enough," *The Spokesman-Review*, February 15, 2019, <https://www.spokesman.com/stories/2019/feb/14/epa-unveils-plan-for-chemicals-found-in-west-plain/>.
- EIN News Desk, "House Democrats Take Action to Protect Americans from Toxic PFAS Chemicals," [https://www.einnews.com/pr\\_news/506802722/house-democrats-take-action-to-protect-americans-from-toxic-pfas-chemicals](https://www.einnews.com/pr_news/506802722/house-democrats-take-action-to-protect-americans-from-toxic-pfas-chemicals).
- 71 Department of Ecology, "Interim Chemical Action Plan for Per- and Polyfluorinated Alkyl Substances," State of Washington, January 2019, <https://fortress.wa.gov/ecy/publications/documents/1804005.pdf>.

- 72 Department of Ecology, "Interim Chemical Action Plan for Per- and Polyfluorinated Alkyl Substances," State of Washington, January 2019, <https://fortress.wa.gov/ecy/publications/documents/1804005.pdf>.
- 73 Washington State Department of Health, "Rulemaking Activities—Office of Drinking Water," <https://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/RegulationandCompliance/RuleMaking>.
- 74 Washington State Department of Health, "PFAS," <https://www.doh.wa.gov/CommunityandEnvironment/Contaminants/PFAS>.
- Department of Ecology, "Toxics in Firefighting Law," State of Washington, <https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Addressing-priority-toxic-chemicals/PFAS/Toxics-in-firefighting>.
- Washington State Legislature, "SB 6413-2019-18," <https://app.leg.wa.gov/billssummary?BillNumber=6413&Year=2017>.
- 75 Toxic-Free Future, "Key Partner: Michael White, Washington State council of Fire Fighters," <https://toxicfreefuture.org/meet-michael-white-firefighter-environmental-health-champion/>.
- 76 Department of Ecology, "Focus On: Alternatives to PFAS in Food Packaging," State of Washington, October 2018, <https://fortress.wa.gov/ecy/publications/documents/1804034.pdf>.
- 77 Alexa Woodard, "Washington Approves First-in-Nation Ban on Nonstick 'PFAS' Chemicals in Food Packaging," Toxic-Free Future, <https://toxicfreefuture.org/wa-legislature-approves-first-nation-ban-pfas-food-packaging/>.
- 78 Department of Ecology, "Safer Products for Washington," State of Washington, <https://ecology.wa.gov/ToxicsInProducts>; Toxic-Free Future, "Safer Products for Washington Act," <https://toxicfreefuture.org/safer-products-for-washington-act/>.
- 79 Flint Water Advisory Taskforce, "Final Report," March 2016, [https://www.michigan.gov/documents/snyder/FWATF\\_FINAL\\_REPORT\\_21March2016\\_517805\\_7.pdf](https://www.michigan.gov/documents/snyder/FWATF_FINAL_REPORT_21March2016_517805_7.pdf).
- 80 Chad Livengood, "Snyder Proposes Tougher Regulations for Lead in Water," *The Detroit News*, April 15, 2016, <https://www.detroitnews.com/story/news/michigan/flint-water-crisis/2016/04/15/michigan-urge-toughest-lead-test-rules/83071228/>.
- 81 The Office of Governor Gretchen Whitmer, "Gov. Whitmer Signs Executive Order Announcing Dept. of Environment, Great Lakes, and Energy," February 4, 2019, <https://www.michigan.gov/whitmer/0,9309,7-387-90487-488720--,00.html>.
- 82 Laura Paskus, "Bill Would Shine a Light on State's Water Situation," March 1, 2019, <https://nmpoliticalreport.com/2019/03/01/bill-would-shine-a-light-on-states-water-situation/>.
- 83 Laura Paskus, "Bill Would Shine a Light on State's Water Situation," March 1, 2019, <https://nmpoliticalreport.com/2019/03/01/bill-would-shine-a-light-on-states-water-situation/>.
- 84 Bill Track 50, "NM HB651," <https://www.billtrack50.com/BillDetail/1069730>.
- 85 Southwest Regional Drinking Water Roundtable.
- 86 Theresa Davis, "NM Puts Focus on Better Water Data," *Albuquerque Journal*, January 25, 2020, <https://www.abqjournal.com/1413327/nm-puts-focus-on-better-water-data.html>.
- 87 Laura Paskus, "Bill Would Shine a Light on State's Water Situation," March 1, 2019, <https://nmpoliticalreport.com/2019/03/01/bill-would-shine-a-light-on-states-water-situation/>.
- 88 Kendra Chamberlain, "Amid Groundwater Declines, Water Data Gains Importance," *NM Political Report*, March 2, 2020, <https://nmpoliticalreport.com/2020/03/02/amid-groundwater-declines-water-data-gains-importance/>.
- 89 Laura Paskus, "Bill Would Shine a Light on State's Water Situation," March 1, 2019, <https://nmpoliticalreport.com/2019/03/01/bill-would-shine-a-light-on-states-water-situation/>.
- 90 Theresa Davis, "NM Puts Focus on Better Water Data," *Albuquerque Journal*, January 25, 2020, <https://www.abqjournal.com/1413327/nm-puts-focus-on-better-water-data.html>.
- 91 US Water Alliance and UNC Environmental Finance Center, "Strengthening Utilities Through Consolidation: The Financial Impact," 2109, [http://uswateralliance.org/sites/uswateralliance.org/files/publications/Final\\_Utility%20Consolidation%20Financial%20Impact%20Report\\_022019.pdf](http://uswateralliance.org/sites/uswateralliance.org/files/publications/Final_Utility%20Consolidation%20Financial%20Impact%20Report_022019.pdf).
- 92 US Water Alliance and UNC Environmental Finance Center, "Strengthening Utilities Through Consolidation: The Financial Impact," 2109, [http://uswateralliance.org/sites/uswateralliance.org/files/publications/Final\\_Utility%20Consolidation%20Financial%20Impact%20Report\\_022019.pdf](http://uswateralliance.org/sites/uswateralliance.org/files/publications/Final_Utility%20Consolidation%20Financial%20Impact%20Report_022019.pdf).
- 93 US Water Alliance and UNC Environmental Finance Center, "Strengthening Utilities Through Consolidation: The Financial Impact," 2109, [http://uswateralliance.org/sites/uswateralliance.org/files/publications/Final\\_Utility%20Consolidation%20Financial%20Impact%20Report\\_022019.pdf](http://uswateralliance.org/sites/uswateralliance.org/files/publications/Final_Utility%20Consolidation%20Financial%20Impact%20Report_022019.pdf).
- 94 *Utility Financial Sustainability and Rates Dashboard*. UNC Environmental Finance Center. Accessed February 7, 2019. <https://efc.sog.unc.edu/utility-financial-sustainability-and-rates-dashboards>.
- 95 US Water Alliance and UNC Environmental Finance Center, "Strengthening Utilities Through Consolidation: The Financial Impact," 2109, [http://uswateralliance.org/sites/uswateralliance.org/files/publications/Final\\_Utility%20Consolidation%20Financial%20Impact%20Report\\_022019.pdf](http://uswateralliance.org/sites/uswateralliance.org/files/publications/Final_Utility%20Consolidation%20Financial%20Impact%20Report_022019.pdf).

- 96 US Water Alliance and UNC Environmental Finance Center, "Strengthening Utilities Through Consolidation: The Financial Impact," 2109, [http://uswateralliance.org/sites/uswateralliance.org/files/publications/Final\\_Utility%20Consolidation%20Financial%20Impact%20Report\\_022019.pdf](http://uswateralliance.org/sites/uswateralliance.org/files/publications/Final_Utility%20Consolidation%20Financial%20Impact%20Report_022019.pdf).
- 97 State of Arkansas 91st General Assembly, "Senate Bill 435," February 23, 2017, <https://www.arkleg.state.ar.us/Acts/Document?type=pdf&act=711&ddBienniumSession=2017%2F2017R>.
- 98 State of Arkansas 92nd General Assembly, "House Bill 1729," March 5, 2019, [https://www.arkleg.state.ar.us/Acts/Document?type=PDF&source=Acts&act=613&ddBienniumSession=2019%2F2019R&Search=.](https://www.arkleg.state.ar.us/Acts/Document?type=PDF&source=Acts&act=613&ddBienniumSession=2019%2F2019R&Search=)





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