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The Fight This Time

Forty-five years after the passage of the Clean Water Act (CWA), water pollution remains a profound problem. More than forty-seven thousand US waters are impaired. At the rate these lakes, rivers, and estuaries are being cleaned up, it will take more than five hundred years to make them all safe for swimming and fishing.[1] Oliver Houck, a professor of law at Tulane University who has focused on environmental protection since the 1970s, sums up the situation: "We have not had clean water in America," he writes, "in the lifetime of anyone living."[2]

The major source of pollution in the waters of the US, as in other developed countries, is now runoff from farm fields and city streets. These nonpoint sources remain difficult to control.[3] More than 75 percent of the rivers and lakes that fail to meet water quality standards are tainted by nonpoint sources.[4] In terms of nutrient pollution, agricultural runoff is by far the dominant source,[5] triggering harmful algal blooms from Chesapeake Bay to Puget Sound.

The CWA of 1972 addressed point sources of pollution in a decisive and radical way. Section 402 of the CWA applies effluent standards based on the best available treatment technology to city sewage and industrial wastewaters, and puts regulatory power in the hands of the federal Environmental Protection Agency (EPA). Regulation under this scheme has brought dramatic improvement in water quality. Before the CWA was enacted, major urban river systems throughout the country had such low levels of dissolved oxygen that fish kills became routine,[6] and urban beaches were often closed due to fecal contamination. By the late 1990s, dissolved oxygen levels had improved in about 70 percent of river reaches and watersheds studied by the EPA, and fish had returned to many waters. Beach closures decreased. Problems remain, especially in cities like Chicago and Baltimore, where heavy rains can overwhelm treatment systems, releasing raw sewage downstream. Still, in terms of curbing point source pollution, the CWA has made a critical difference.

The rise of pollution from unregulated nonpoint sources has eaten away at these water quality gains. The Mississippi River basin, whose waters flow into the northern Gulf of Mexico, may be the most dramatic example. In August 2017, the Gulf's dead zone grew to an unprecedented 8,776 square miles, about the size of New Jersey.[7] Three-fourths of the nutrient load triggering the Gulf's vast dead

zone flows from farms above the confluence of the Ohio and Mississippi Rivers, more than 975 river miles upstream.[8] Heavy loads of nitrate taint drinking water sources in the basin. The pattern is repeated throughout the US: Wisconsin's lakes are polluted by runoff from dairy farms, Washington's rivers and estuaries by agricultural fertilizers, Maryland's by industrial poultry farming.

Before 1972, water quality regulation was left to the states. The federal CWA was written because state programs had failed.[9] Local dischargers held enormous political clout, enough to shape the water quality standards in each state. This created a "race to the bottom" in which states lowered the bar for polluters in order to lure industries across state lines. The legislators who crafted the CWA were keenly aware of these problems. Senator Edmund Muskie, a driving force behind the CWA, wanted to transfer environmental protection entirely to the federal government and opposed including state water programs at all.[10]

In 1972, solutions to the problem of nonpoint pollution were unclear and politically daunting. Answers then, as now, involved putting some limits on land use, traditionally viewed as the province of the states. State officials lobbied hard to keep control. In the end, the framers of the CWA let that tradition stand, but they did give the federal EPA authority to monitor state actions, and to step in when states fail to act.

In the decades since, nonpoint source pollution has grown worse. Most states have only voluntary programs to address nonpoint pollution. The industries that would be affected by stronger regulation have resisted any move toward enforceable pollution limits.[11] In Congress and the courts, the struggle for control of nonpoint pollution has moved at a slow creep. The original CWA called for water pollution control planning by each state. Planning commenced, but no action followed.

In 1987, Congress amended the CWA, adding Section 319, which requires each state to identify impaired waters and create a plan to clean them up. Senator Robert Stafford, then chairman of the Senate Committee on Environment and Public Works, described Section 319 as "a first step in tackling the problem—a trial run, to see if allowing the States the option to develop a control program will indeed abate nonpoint source pollution across the Nation."[12] The states have been reluctant to move, and Congress failed to back the program up with adequate funding. The trial run has failed.

Grappling with nonpoint pollution is not a task anyone in government has been eager to take on. It took a series of citizen lawsuits in the 1990s to force the EPA to acknowledge its responsibility to step in when states fail to act. The agency has been slow to push the issue, and prefers to work in cooperation with the states, despite decades of inertia and continuing lawsuits from environmental groups.

William Andreen, an expert on water law and a professor at the University of Alabama School of Law, has closely tracked this history. "The goals of the Clean Water Act are unlikely to ever be fulfilled unless something other than a voluntary approach is taken to nonpoint source pollution," he writes.[13]

The opposition to such a change is fierce. The problem is not a scientific or technical one. We know how to decrease nutrient pollution, and as Houck has

written, it's not rocket science.[14] It is instead a matter of convincing farmers—all of them—to use strategic fertilizer application, vegetated buffers, restored wetlands, and other management practices that limit the amount of nitrogen and phosphorus dumped on the land and leached into rivers. It might mean changing crops, giving up some cropland. From the birth of the CWA, farm runoff has been exempted from regulation—a mark of the agricultural lobby's power. Setting and enforcing water quality standards for farm runoff will take a departure from the longstanding status quo, which has left agriculture above the law.

"The issue is often portrayed as imposing regulation on hapless family farms," says Robin Kundis Craig, professor of law at the University of Utah and author of numerous works on the CWA. "That scenario tugs on an American heartstring. The reality is that many farms in the US are industrial scale, owned by corporations that are just as capable of putting the financial effort into controlling their pollution as any industry in the US." In Craig's view, the main obstacle to dealing with agricultural pollution is politics and an outdated image of American farming.

Controlling pollution takes effort, investment, and a change from business as usual. The responsible parties, whether they're industries or cities or individuals, don't volunteer to do it; they have to be pushed. In the case of agricultural pollution, the dominant strategy in the US has been to offer financial incentives in an effort to lure farmers into using conservation practices. In the handful of states that have instituted regulations on nonpoint farm pollution, there's a demand for clean water that can counterbalance the political leverage of agriculture. In Washington and Oregon, it's the need to protect dwindling salmon runs.[15] Yet even the few states with regulations on the books seldom enforce them.[16] Forty-five years of the current approach hasn't put a real dent in nonpoint pollution.

Alternatives exist, and they have been shown to work in some European nations. In Denmark, agricultural runoff has been a major driver of eutrophication in estuaries and coastal waters. In the late 1980s, a government initiative made farm subsidies contingent on strict nutrient budgeting, which limited farmers to using enough fertilizer to support only 90 percent of their traditional yield (see Chapter 10). New rules were applied to manure storage, the timing of manure application, and wetland restoration. Government auditors monitored fertilizer use and levels of nitrogen and phosphorus in runoff. By 2013, excess nitrogen flowing from the landscape had been cut in half, contributing to marked progress toward recovery in coastal ecosystems.[17]

Using a different approach, the Netherlands succeeded in curbing nutrient pollution by imposing a tax on excess nitrogen and phosphorus runoff from farms. Taxes on pollution are unpopular, however, and this one proved expensive to enforce. Eventually, the Dutch abandoned taxation and sought an alternative way of limiting fertilizer use.[18]

The European Union's Water Framework Directive is similar to the CWA. On both sides of the Atlantic, efforts to control point source pollution have proven far more effective than those aimed at nonpoint sources. In most European countries, nonpoint source pollution controls remain voluntary, as they are in the US.

Part of the problem is a question of scale. In 1972, point source regulation in the US involved tens of thousands of permits. To address nonpoint sources today would involve regulating millions of farms. There's no single technological fix that would work everywhere, so regulation must allow the flexibility to deal with local conditions. A successful program will need to include participation from affected farmers. Many who have studied the nonpoint source conundrum believe that despite these complexities, enforceable regulations are the only road forward.[19] The biggest obstacle is a lack of political will.

Could the Danish or Dutch approaches work in the US? "It could be done," muses Andreen, "but you might have another revolutionary war on your hands . . . I wouldn't want to be the politician to propose that in this country."

The fight to control nonpoint source pollution has often focused on Section 303(d) of the CWA, which requires that states designate a maximum concentration of a given pollutant that can be allowed in affected waters, called a Total Maximum Daily Load (TMDL). If a state fails to do this, the federal EPA must. This provision was written into the original CWA but was largely ignored until a series of citizen lawsuits in the 1990s forced EPA to move. The agency convened a committee with representatives from state water agencies, agribusiness, timber, municipal and industrial point sources, Native Americans, and academics. Their task was to reach a consensus on regulations for a national TMDL program.

That consensus was never reached. "At bottom," writes Houck, "the timber and agriculture industries were not going to accept that CWA Section 303(d) covered nonpoint sources or that, if it did, it required implementation plans . . . A Farm Bureau Federation representative wrote that the program had been 'hijacked by a vast national bureaucracy of parasites'."[20]

Not much has changed since Houck described the political battle over TMDLs in the late 1990s and early 2000s. Agriculture continues to resist the establishment of numerical limits on pollution from nonpoint sources. The industry favors the narrative standards that have long been used in state regulations—and such standards are nearly impossible to enforce. A narrative standard may state, for example, that phosphorus and nitrogen may not be discharged in amounts that will result in growths of algae that impair waters for their best uses. Such standards leave regulators with the burden of tracking nonpoint pollution back to myriad sources throughout a watershed, and of proving that individual farms or landowners bear responsibility for degraded conditions downstream. In contrast, numerical standards are clear: Like a set speed limit, they leave little room for evasion or argument. Using narrative standards to govern nutrient pollution is like posting highway signs that say "drive safely" instead of listing a legal speed.[21]

In 1998, EPA formally recommended that states accelerate the development and adoption of numerical nutrient water quality standards. The agency pointed out that numerical standards are needed to create measurable baselines for acceptable levels of nitrogen and phosphorus, to allow evaluation of best management practices meant to reduce nonpoint nutrient pollution, and for the development of water quality targets under the TMDL program.

EPA projected that all fifty states would have set numerical standards by 2004. At the time, six states had adopted numerical standards for at least one type of nutrient for one type of water body. By 2008, one more state had joined that list.[22] As of September 2017, only Hawaii had a complete set of numerical criteria for all its state waters. Minnesota, Wisconsin, New Jersey, and Florida had made substantial progress, and had established standards for nitrogen and/or phosphorus on two or more kinds of waters. But twenty-six states had no numerical water quality standards at all.[23] Thirteen of those states were in the Mississippi River watershed, the source of the heavy nutrient loads that have been killing the northern Gulf of Mexico for decades.

The most dramatic sign of progress on nonpoint pollution is in the Chesapeake Bay region, where a faltering restoration effort was boosted by the nation's first regional TMDL program, established in 2010. Water clarity is improving, allowing a rebirth of underwater plants. In 2016, seagrass beds in the bay grew to cover almost 100,000 acres—three times the vegetated expanse in the 1980s. The bay's dead zone is shrinking.[24]

This success has been possible because of federal programs, including the EPA's Chesapeake Bay Program. The Trump administration has proposed to eliminate the program's $73 million in federal funds. It's part of a broad attack on environmental protection, which includes rolling back regulations and slashing EPA's budget by one-third. If the president gets his way, he will end EPA programs that support restoration efforts in the Great Lakes and Puget Sound watersheds, and gut the agency's enforcement and research capabilities.

Trump campaigned on his intention to dismantle the EPA. In a March 2016 debate between Republican presidential candidates, Trump announced that if elected he would eliminate "The Department of Environment Protection," his misnomer for EPA. "We're going to have little tidbits left but we're going to get most of it out," he said.[25]

The man Trump put in charge at the EPA built his career on attacking the agency. As attorney general of Oklahoma, Scott Pruitt signed a legal brief supporting the Farm Bureau Federation's suit against the Chesapeake Bay TMDL. He sued the EPA fourteen times, seeking to halt establishment or enforcement of new regulations. In all but one of these cases, Pruitt's co-litigators—most often energy companies—contributed to Pruitt's campaign or a political action committee affiliated with him. Together with Murray Energy, Peabody Energy, Southern Company, and others, Pruitt worked to stymie the EPA's efforts to regulate air pollution across state boundaries, improve air quality in national parks, reduce emissions of greenhouse gases, and extend CWA protections to headwater streams and wetlands.

In 2011, Pruitt submitted a letter to the EPA accusing the agency of grossly overestimating the amount of air pollution caused by energy companies drilling new natural gas wells in Oklahoma. He failed to mention that the letter had been written by lawyers for Devon Energy, one of Oklahoma's biggest oil and gas companies. Investigative reporting by the *New York Times*[26] documented this and other examples of Pruitt's cozy relationship with industries he was meant to regulate.

Early in his tenure, Pruitt closed down a section of the attorney general's office devoted to environmental protection and established a "federalism unit" to fight regulation by federal agencies. His biography on the Federalist Society website described him as "a leading advocate against the EPA's activist agenda . . . he is leading the charge against EPA's proposed Clean Power Plan and Waters of the United States rules for their unlawful attempt to displace state sovereignty in an environmental regulatory context."[27]

Pruitt has often described the EPA as a rogue agency, reaching beyond its legal authority to enact oppressive regulations. As the agency's administrator, he says he wants to bring the EPA "back to basics," focused on its mission as defined in landmark environmental legislation passed in the 1970s. He told the House Appropriations Subcommittee that his intention as EPA administrator is to "focus on the rule of law. We're reversing an attitude and approach that one can simply reimagine authority under statutes passed by this body . . . Any action by the EPA that exceeds the authority granted by Congress, by definition is inconsistent with the agency's mission."[28]

Pruitt never offers specific examples of the EPA exceeding its authority. His office did not respond to requests for comment. Based on his publicly available remarks, Pruitt's imagined original EPA seems to have been a meek institution, deferring at all times to the power of the states. That was never the intention of those who created the agency—nor was it the reality at EPA in its early years. EPA was designed as a strong advocate and enforcer of pollution control, with the authority to ride herd on state governments accustomed to letting things slide.

President Richard Nixon created the EPA in 1970. He was not an environmentalist, but he was compelled by public demand for an end to flaming rivers, oil spills, and smog-filled skies. Russell Train, who was then chairman of the president's Council on Environmental Quality, shaped the new agency. "What we needed—and what the public wanted—was an organization with a clearly defined mission: to be the sharp, cutting edge of environmental policy in the government," he said.[29] Train would later become EPA's second administrator.

Nixon echoed Train's vision of the EPA in his letter to Congress, when he proposed creating the EPA as a "strong, independent agency" that would view the environment as a "single, interrelated system."[30] The new agency's sole purpose would be environmental protection. Congress accepted the proposal, and in new legislation gave EPA responsibility for pollution control nationwide. The Clean Air Act, passed in 1970, authorized the agency to set air quality standards for the benefit of public health—and barred it from considering the costs to industry.[31] Two years later, the CWA became law, for the first time giving official consideration to the well-being of fish, wildlife, and ecosystems as well as human health.

William Ruckelshaus, EPA's first administrator, had witnessed the absence of state-level environmental enforcement while working at the Indiana State Board of Health. EPA's role was to set national standards, then delegate enforcement back to the states. If state officials proved too weak to curb local polluters, EPA could step in. Ruckelshaus described EPA as the muscular enforcer states could use to compel reluctant industries to clean up.

"Prior to EPA," he remembered, "there was no federal oversight. There was no 'gorilla in the closet.' Absent that, it was very hard to get widespread compliance."[32]

The EPA, along with the Clean Water and the Clean Air Act, was created to provide all US citizens with a healthy environment—regardless of which state or neighborhood they live in. The agency can set national environmental standards based on solid science, and enforce them. The framers of these laws recognized that government at any level could not always be relied on to act as a strong enforcer, so they built redundancy into the pollution control system. EPA and state governments both hold authority. But citizens have the right to sue to goad the government into action—and such citizen lawsuits have moved environmental protection forward many times over the years.

"If Pruitt were committed to getting EPA back to its origins, he'd be acting much differently than he is," says Jon Devine, a senior attorney in the water program at the Natural Resources Defense Council. "His actions as administrator are antithetical to the mission of EPA, and endanger water quality across the country."

One of Pruitt's goals as EPA administrator is to take back the Waters of the United States (WOTUS) rule, written by EPA staff during the Obama administration. The rule clarifies which waters are covered by the CWA, and would extend protections to headwater streams and wetlands that have a significant impact on downstream water quality. WOTUS was based on more than 1,200 peer-reviewed studies and over 1 million public comments.[33]

In June 2017, Pruitt announced that EPA would withdraw the rule. His action followed an executive order in which President Trump instructed the EPA administrator to "rescind or revise" the WOTUS rule. The order tells officials to interpret the reach of the CWA according to the late Justice Antonin Scalia's opinion in the landmark case of *Rapanos v. United States Army Corps of Engineers*. In the *Rapanos* case, the US Supreme Court split down the middle; there was no majority. The court's divided findings in the case have fueled years of argument and confusion, which the WOTUS rule was meant to clarify. Scalia's opinion dismissed reams of scientific research on the tight relationship between wetlands and downstream water quality.[34] In using the Scalia opinion alone, the Trump order discards a large body of legal thought that allows greater leeway for protection of wetlands and small streams.

"The WOTUS rule was well within the agency's legal authority," says Devine. "It was rigorously supported by agency science. By contrast, Pruitt's planned repeal of that rule has no basis in law or science."

Devine notes that there's a strong legal framework backing up the WOTUS rule—and environmental groups can resort to lawsuits to defend it. But even if the rule can be preserved, major damage may be done. "This administration can turn a blind eye to pollution," he says. "Failing to enforce the law is in many cases just as bad as trying to roll it back."

Over the last four decades, bedrock environmental laws have shifted the baseline so that most Americans take their relative safety for granted. The clearest statistics are available for the Clean Air Act. Since its passage, despite a US

population increase of more than 50 percent and a 250 percent rise in gross domestic product, the nation has seen a 70 percent reduction in emissions of air pollutants targeted under the law.[35] This translates into illnesses prevented and lives saved: an estimated 160,000 people in 2010. But that trend will hold only as long as the law continues to be enforced.

Great progress has been made since the days of mass typhoid and cholera epidemics in American cities. Water pollution can still threaten human health, however—a fact that's most obvious in places like Des Moines, Iowa, with its ongoing struggle against nitrate contamination, and in Flint, Michigan, with its corroding lead pipes. Climate change will intensify problems related to nonpoint source water pollution. Heavier seasonal rains in the Midwest threaten to increase loads of nutrients, pathogens, and toxic chemicals in farm and urban runoff.[36] In the arid Southwest, droughts lead to intensifying wildfires and increased soil erosion. Both patterns can affect the quality of drinking water.

Pruitt never discusses the possible impacts of slashing environmental enforcement nationwide. In his first address to EPA staff, Pruitt made no mention of human or environmental health. Instead he asserted that "federalism matters," and that "regulators exist to give certainty to those that they regulate."[37]

Over the five decades of its existence, both Republican and Democratic presidents have helped to build the EPA. The only time the agency has experienced an attack comparable to the one unleashed by the Trump Administration was during 1981–1983, in the early years of the Reagan presidency. Reagan nominated Anne Gorsuch as EPA administrator. Her goals were much the same as Pruitt's: to shrink the agency, roll back rules, and redistribute more regulatory power to the states. Her first major organizational move was to break up EPA's office of enforcement. Career EPA staff saw this as a strategy to silence some of the most effective environmentalists at the agency.[38] Gorsuch also recommended deep cuts to EPA's budget. On her watch, enforcement actions taken against polluting industries fell by 79 percent.

A wave of scandal soon engulfed EPA. Gorsuch had promised the oil refiner Thriftway Company not to act on its failure to remove lead from gasoline. Her aide, John Hernandez, allowed Dow Chemical to edit an EPA report on dioxin contamination caused by the company's plant in Midland, Michigan.[39] Rita Lavelle, a political appointee in charge of the $1.6 billion Superfund program, was fired and later convicted of lying to Congress. Gorsuch resigned in March 1983 amid Congressional investigations of EPA's mismanagement of the Superfund program, intended to clean up hazardous waste sites.

The Gorsuch regime was brought down by resistance from Congress, legal and political activism by environmental groups, and public concern. In the aftermath, Reagan asked William Ruckelshaus, who had helped found the agency, to return to the EPA as administrator. He was welcomed back by EPA staff and spent two years working to rebuild the agency's enforcement ability and restore some of the budget cuts. Since he left the agency in 1985, EPA's responsibilities have grown while its funding has stayed the same.

Public outrage, Ruckelshaus has observed, is key to the existence of EPA and other environmental regulators. It's the force that ultimately drives the control

of air pollution, the construction of sewage treatment plants, and the restoration of wetlands. Nixon had no sympathy for environmentalists; he called them "crazies."[40] Yet he laid out the blueprint for EPA, and later doubled the agency's budget.

"[Nixon] created EPA for much the same reason Reagan invited me to return to the agency in 1983," Ruckelshaus has said. "Because of public outrage about what was happening to the environment. Not because Nixon *shared* that concern, but because *he didn't have any choice*."[41]

Those of us who study history and care about the future need to keep politicians in that same position: protecting the environment because the voters demand it. The task is unglamorous but essential—like the life of a cattail in Arcata's marsh.

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