


North Carolina's Hog Waste Problem Has a Long History. Why Wasn't It Solved in Time for Hurricane Florence?

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The hog industry is changing, but, as Hurricane Florence hits, history may be doomed to repeat itself.

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Hogs are enclosed in a barn at a concentrated animal feeding operation.

(Photo: Environmental Protection Agency)

In September of 1999, North Carolina found itself facing a foul problem. As Hurricane Floyd battered the coast, floodwaters breached lagoons of animal waste from the state's industrial hog farms, transforming rural counties into seas of toxic, foul-smelling, bacteria-laden sludge. The storm drowned two million chickens and turkeys and 110,000 hogs. It also engulfed their waste, sending a deluge of feces, urine, and animal carcasses into waterways—and causing an environmental hazard that lingered as long as the stench.

North Carolina, accounts say, had not prepared for this. Locals struggled to take stock of what seemed an unimaginable horror: farmers whose crops were suddenly drenched in waste, rescue workers sick with the fumes, residents who feared to drink the water. Put simply: "We do have a practical problem here," North Carolina Governor James B. Hunt Jr. told the *New York Times* in 1999. Politicians called for tightening regulation meant to keep this from happening again; just two years prior, they'd banned new pits and enacted a landmark law.

Yet, in 2016, during Hurricane Matthew, it did happen again: storm, flood, feces. The same cycle has haunted the state for the past 25 years. Now many worry it will happen once more; forecasts place North Carolina's industrial farms right in the path of Hurricane Florence, a fierce storm projected to unleash "life-threatening, catastrophic" flooding in the eastern counties this week.

Why has this problem plagued the state, time after time? Like the sludge, it comes from a potent mix: ineffective regulation, an increasingly industry-friendly state legislature, entrenched monopolies, and, of course, geography. (If you're going to build a receptacle for huge piles of manure, filled with hazardous contaminants, you probably shouldn't do it in a floodplain.)

Once, North Carolina had a chance to make real regulatory change—in 2003, when environmentalists sought Environmental Protection Agency intervention—but the courts ruled otherwise. Bob Edwards, a sociology professor at East Carolina University who studies the social impact of natural hazards, fears this opportunity will never resurface. "Things have remained almost a hundred percent unchanged since 1997," he says. "That lawsuit was an effort that failed to change the rules of the game." The industry keeps changing, but history may be doomed to repeat itself.

In Moratorium

North Carolina, home to nine million hogs, is the nation's second-largest pork producer. In Sampson County, the hog capital of eastern North Carolina, and perhaps the world, the 1.8 million hogs outnumber people 29 to one, according to an industry website. Hog farming has boomed since the 1990s, although more than 90 percent of the state's pork production and processing now comes from one company: Virginia-based Smithfield Foods, now owned by China's WH Group. After consolidating the industry in the early 2000s, Smithfield

secured a monopoly in North Carolina and beyond, pushing out small farmers, outsourcing hog-raising to beleaguered competitors, and restructuring the industry around large operations and even larger profits. Locals who once showed their pigs at state fairs were replaced with vast, profitable operations, well documented for their abuses and risks. These farms are known in the industry as confined animal feeding operations, or CAFOs.

With millions of hogs comes a lot of waste. In these giant operations, feces, urine, and anything else that seeps beneath pens' slatted floors—stillborn pigs, afterbirths, pesticides, blood—form a liquid slurry, which is then pumped into open-earth pits, known in the industry as lagoons. Smithfield's lagoons cover 120,000 square feet and run 30 feet deep, Rolling Stone reports. That's dangerously close to the water table of this low coastal plain, which was once entirely wetlands. The pools contain a toxic brew that turns "Pepto Bismol" pink, farmers say, from its contents' chemical interactions. When ingested, health hazards include higher risks of cancer, miscarriage, and infectious disease, studies have found. The stench has been known to keep residents up at night, Indy Week reports; farmers have become overcome by the fumes, fallen in, and died.

Newer pits are lined with clay, but the older ones aren't, leaving contaminants to leak into the ground: everything from noxious gases and heavy metals to over 100 microbial pathogens, such as salmonella, a Rolling Stone investigation found. The waste is meant to break down as the liquid evaporates, but in case of spillover, farmers spray the slurry into nearby fields, and the waste washes into the local watershed, killing fish, fueling algal blooms, and choking the state's rivers with excess nitrogen and phosphorus. According to a 2009 environmental sociology text, at the industry's peak, millions of gallons of hog waste entered the state's eastern waterways every week.

For many years, this industry was largely unregulated. A spill of 40 million gallons of sludge and two smaller hurricanes drew attention to the problem four years before Hurricane Floyd, igniting the "hog wars" of the 1990s. In 1997, the state legislature passed a moratorium on construction of new lagoons or expanding existing ones. The same year, one state over, federal regulators fined Smithfield \$12.6 million for dumping illegal levels of hog waste into a Virginia river, the largest penalty of its kind at the time, according to the Washington Post.

Then Floyd hit, and helped galvanize this movement further. The storm devastated the state: One analysis found that water breached 46 waste pits, most located in low-income and primarily African-American communities; later studies confirmed high concentrations of bacteria from fecal matter still contaminate surface water. Rivers of dead swine floating in their own excrement proved too much to ignore.

"With new moratoriums and CAFO regulations pending in at least 12 other state legislatures by the end of the year, Hurricane Floyd became to the hog industry what Three Mile Island had been to the nuclear power industry," Bob Edwards and Tony Ladd wrote in a 2002

study.

However, this regulation ultimately failed to address the real problem: the lagoons built in the middle of a floodplain. The moratorium only prevented companies from building new lagoons; it didn't force them to relocate or remediate old ones. At least 150 operations, all located in or near the floodplain, were essentially "grandfathered in" with this loophole, according to Edwards. The North Carolina Pork Council says the state has bought out 43 operations located in the 100-year floodplain since 1999, accounting for an estimated 106 waste lagoons, with more likely on the way. But a 2015 analysis found that these efforts have slowed due to cost; there are still 4,000 open lagoons across state's the flood-prone eastern coast.

Meanwhile, industry continued to expand, largely outpacing this already ineffective regulation. The regulations also require companies to utilize expensive renewable technologies, such as methane recapture, which discouraged them from relocating lagoons to higher ground.

Making a Non-Point

North Carolina has had four major and deadly hurricanes since the 1990s. The floodwaters rise and recede, and public frustration over the pork industry recedes with them. After Floyd, the groundswell of activism culminated in little long-term change, Edwards says, in part because of a popular political maneuver.

In 2000, the state's then-Attorney General Mike Easley made a high-profile deal with Smithfield that also served the purpose of baiting environmentalists amid his gubernatorial campaign. Smithfield promised to devote \$50 million to remediating unused hog lagoons, if it deemed the project financially feasible. (It didn't.) Easley won the race, Smithfield failed to implement any of the new technologies, and "the whole issue kind of died politically," Edwards says.

The biggest challenge to the hog industry came three years later, when the environmental advocacy group Waterkeeper Alliance sued Smithfield for violating the Clean Water Act. The lawsuit would have put Smithfield firmly under the EPA's regulatory control. Instead, the district court ruled that, as non-point source polluters, the corporation need not comply with the Clean Water Act standards.

As the lawsuit says, "the definition of point source excludes 'agricultural stormwater discharges.'" Without the EPA's oversight, Smithfield has continued its waste disposal practices with little to no regard for the environmental and public-health risks—all of which could be reduced if we treated animal waste like our own. (Currently, there are no treatment requirements for animal waste.)

"We're technically capable of producing pork and poultry in those kind of operations with no more environmental impact than from municipal sewage," Edwards says. "But they're not required to treat their waste that way."

More Than a Nuisance

This year, 10 local residents took Smithfield to court. They complained of foul odors, a constant parade of trucks, and the fine slurry of feces and urine that mists their homes, the Raleigh-based *News Observer* reports. The jury awarded \$50 million. The *Wall Street Journal* reports that this is the third time Smithfield has paid out millions to its neighbors: business as usual for the \$15 billion company.

Edwards cautions that these suits, known as nuisance lawsuits, do not allow for the kind of systemic change needed to make a long-term impact on animal-waste pollution. Moreover, this process leaves out many of those who are most directly affected; according to a 2002 study, more African Americans live in areas with flooded CAFOs than white people, and most of the plaintiffs in these nuisance cases are black. Still, many locals cannot afford a lawsuit, and they won't benefit from a payout.

Some things have changed since 1997 though: According to outside analysis, the government has bought out about 2 percent of low-lying lagoons over the years; North Carolina's swine sales have slowed in general; a company is planning to build a facility that turns hog waste into electricity; and, more recently, the North Carolina Department of Environmental Quality agreed to modify the industry's permit to allow for closer regulation, the industry outlet Feedstuffs reports.

In addition, Edwards says a Chinese firm's purchase of Smithfield in 2013—the largest-ever Chinese acquisition of an American company, according to Reveal—could create space for lawmakers to criticize the hog industry, even in this solidly Republican state. However, just as the second nuisance lawsuit went to trial in June, the state legislature adopted a new bill that limits when and how residents can bring this type of suit, the *News Observer* reports.

This week, as Florence puts all of this to the test, North Carolina's hogs are among those evacuating. A Smithfield spokesperson said the company planned to close two of its largest (and the world's largest) slaughter plants. "This would be expected, frankly, for the safety of the workers," Andy Curliss, chief executive of the North Carolina Pork Council, told Reuters. "Pigs were being moved off of farms [Tuesday]. They'll probably get 'em killed tonight," he said.

Meanwhile, NPR reported that farmers were rushing to drain the cesspools ahead of the storm. "We don't really know [if the lagoons can handle the rainfall]," Marlowe Vaughan of Ivy Spring Creek Farm in Goldsboro, North Carolina, told NPR. "I mean, we try to pump

down as much as we can, but after that, it's kind of in God's hands. We're kind of at the mercy of the storm." Waterkeeper Alliance says it will be flying over farms to monitor the flooding, which it considers a serious threat.

Few people actually live in the state's rural eastern counties—a land dominated by hogs and dotted with lagoons. But as the first storm surge tops 10 feet on the coast, North Carolina's failure to regulate animal waste serves as an ominous reminder that we are all connected through the water beneath our feet.