



**WATERKEEPERS
CAROLINA**



DEAD IN THE WATER
Environmental Enforcement in North Carolina



Cape Fear River PHOTO BY KEMP BURDETTE

NORTH CAROLINA RIVERKEEPERS BY BASIN

MAP BY BRIELLE DAVIDSON, APPALACHIAN STATE UNIVERSITY



DEAD IN THE WATER: ENVIRONMENTAL ENFORCEMENT IN NORTH CAROLINA

North Carolina has a proud history of environmental protection. A generation ago the state was a regional leader in environmental protection. Between 1967 and 1985 the state passed fifty-nine environmental laws to protect everything from headwaters of the Blue Ridge to coastal submerged lands.¹ These efforts were supported by governors and legislators from both sides of the aisle. With environmental disasters across the country – from Love Canal to acid rain – dominating the news, citizens demanded these laws and lawmakers responded. However, from the beginning, powerful interests within the state, from large electric utilities to the burgeoning hog industry, worked to see that the laws on the books would not be enforced – at least not enforced on powerful interests.

At the same time grassroots groups around the state sprung up to protect their local streams and rivers. In 1974 the Cape Fear River Watch formed to protect quality of life in the state's largest watershed by conducting environmental and economic analyses.² The Neuse River Foundation followed in 1980, the Pamlico-Tar River Foundation in 1981 and the Haw River Assembly in 1982. Since then, this network of citizen water protection groups has grown to a membership base of thousands and fights to ensure that the rights to clean water, enshrined in our state constitution and federal laws, are protected. In 1999, Waterkeeper Alliance, an umbrella organization promoting water protection groups worldwide, was formed and has since grown to over 290 grassroots member organizations protecting watersheds from the Appalachians to the Himalayas. In 2012, North Carolina's Riverkeepers came together to form Waterkeepers Carolina to better address statewide issues.



Duke Energy's Plant Allen on the Catawba River PHOTO BY SAM PERKINS

This report documents how, in 2016, Riverkeepers worked with citizens to demand protection for their rivers and drinking water. While our legislators were pushing bills to bury coal ash in unlined pits next to rivers or strip away clean water protections, Riverkeepers were documenting the contamination those coal ash pits caused upstream of major cities³ and the fish kills occurring on our coastal rivers.⁴

As Pamlico-Tar Riverkeeper Heather Deck notes in her report, enforcement of sediment pollution has dropped like a rock, "From 2010 to 2014, 25 positions were eliminated and the remaining staff conducted 10,000 fewer inspections; a reduction of more than 40 percent." Let this be clear: Riverkeepers respect the work done by the scientists and on-the-ground staff in state government. Those hard-working professionals deserve our appreciation. More than that, they deserve to be funded and supported by their politically-appointed leaders so that they can enforce the laws on the books. If time has shown us anything it is that the less our politicians support enforcement of our environmental laws, the more work Riverkeepers have to do.



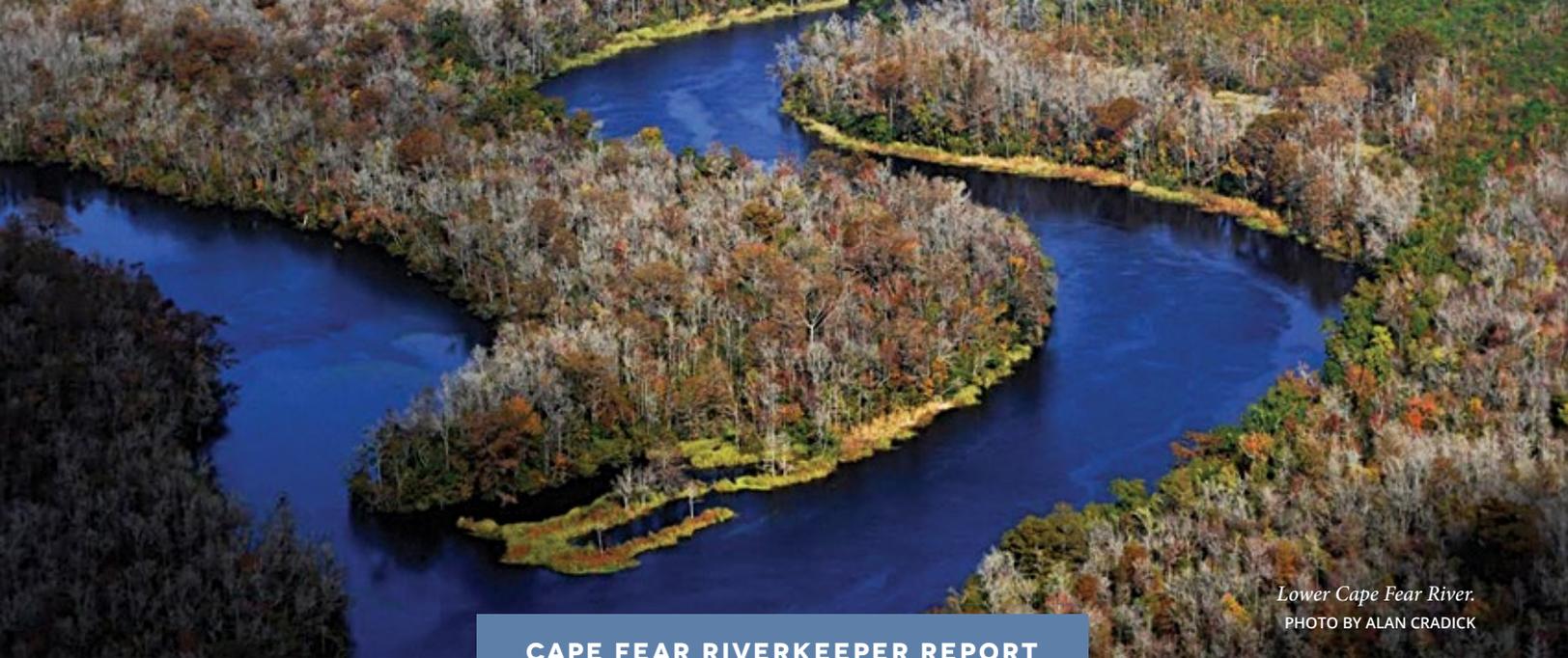
Fish kill on the Neuse River PHOTO BY TRAVIS GRAVES

1 The Evolution of Modern North Carolina Conservation and Environmental Legislation, Milton Health, 29 Campell Law Review 535

2 www.capefearriverwatch.org

3 "What to Know About Arsenic in Charlotte's Water Supply" www.charlotteobserver.com/news/local/article88187512.html

4 "Thousands of Dead Fish Near Neuse River Frustrating Community" July 14, 2016 wncn.com/2016/07/14/thousands-of-dead-fish-near-neuse-river-frustrating-community/



Lower Cape Fear River.
PHOTO BY ALAN CRADICK

CAPE FEAR RIVERKEEPER REPORT

WHILE RIVERKEEPERS FLY, STATE REGULATORS ARE GROUNDED

BY KEMP BURDETTE, CAPE FEAR RIVERKEEPER

On Thursday, September 1, 2016, it became clear that tropical storm Hermine would pass over eastern North Carolina. A flood watch was issued for several NC counties including Duplin County, the heart of “swine country” in the Cape Fear River Basin. Industrial meat production facilities cover the landscape in Duplin County. The enormous amounts of animal waste produced in these facilities poses significant risk to water quality, including drinking water supplies. We know this to be true because of the environmental disasters that occurred in the 1990s when tropical systems and heavy rains flooded swine “lagoons” or filled them so full that the berms failed and the waste poured into waterways.

Because of the disasters in the 1990s, the Swine Waste Management System General Permit (G.S. 143-215) stipulates that “Land application of waste shall cease within four hours of the time that the National Weather Service issues a Hurricane Warning, Tropical Storm Warning, or a Flood Watch associated with a tropical system including a hurricane, tropical storm, or tropical depression for the county in which the permitted facility is located.”

The rules are clear – no spraying raw feces and urine onto fields before an imminent storm. What Riverkeepers across eastern North Carolina know to be true is that Concentrated Animal Feeding Operations’ (CAFOs) operators routinely ignore these laws. As I boarded a small, single engine plane at the Duplin County Airport after the four hour cutoff for spraying, I knew I was likely to see CAFOs violating the law and spraying waste onto fields, even with a storm on the horizon that was predicted to dump five to seven inches of rain on eastern North Carolina.

Easily a third of the CAFOs I flew over had their sprayers on. Several were spraying onto saturated fields and a few were spraying into woods

or ditches. I photographed each one and recorded GPS coordinates. I took the photographs to the Wilmington Regional Office of the NC Department of Environmental Quality (NC DEQ). I showed them to regulators who are responsible for overseeing CAFO operations. I explained what I had observed and showed them the photographs.

Their response was disheartening. They said they couldn’t issue notices of violation based on our photos, even though each was stamped with GPS coordinates, date and time. I urged them to get into a plane and see for themselves but was told there was no budget for those flights. That funding was cut by the NC General Assembly as part of widespread budget cuts since 2008. I asked, “What they could do?” They replied that they would go out and review the CAFO spray logs for the farms I identified. The CAFO operators self-report those logs; and they would have to literally write in the log that they were breaking the law in order for NC DEQ regulators to catch them doing anything illegal. I pointed out that the likelihood of false reporting was extremely high.

The situation is grim for water quality in the Cape Fear basin and across North Carolina unless we change the way waste management rules for CAFOs are enforced. The regulators have been defunded to the point that they can’t do commonsense inspections of CAFOs. The farmers are self-reporting; and they know well that inspections are infrequent and almost always preceded with a “heads up” call to give CAFO operators time to prepare for the visit. The NC General Assembly passed laws that make the results of those visits confidential. The burden of reporting illegal activities by CAFO operators has fallen on citizens and environmental groups like North Carolina Riverkeepers. Even when illegal activity is reported with abundant evidence, regulators are unable or unwilling to use that evidence to issue notices of violation. In short, the system is designed to fail. That’s just how the CAFO industry—and the legislators to whom they contribute millions— like it.



IF YOU VISIT THE RIVER AFTER A RAINSTORM, THE NORTH TOE CAN BE SO CLOUDY IT LOOKS LIKE A DIRTY VANILLA MILKSHAKE AND SMELLS LIKE CHEMICALS.

FRENCH BROAD RIVERKEEPER REPORT

MOUNTAIN RIVER RESTORATION STYMIED BY MINE POLLUTION

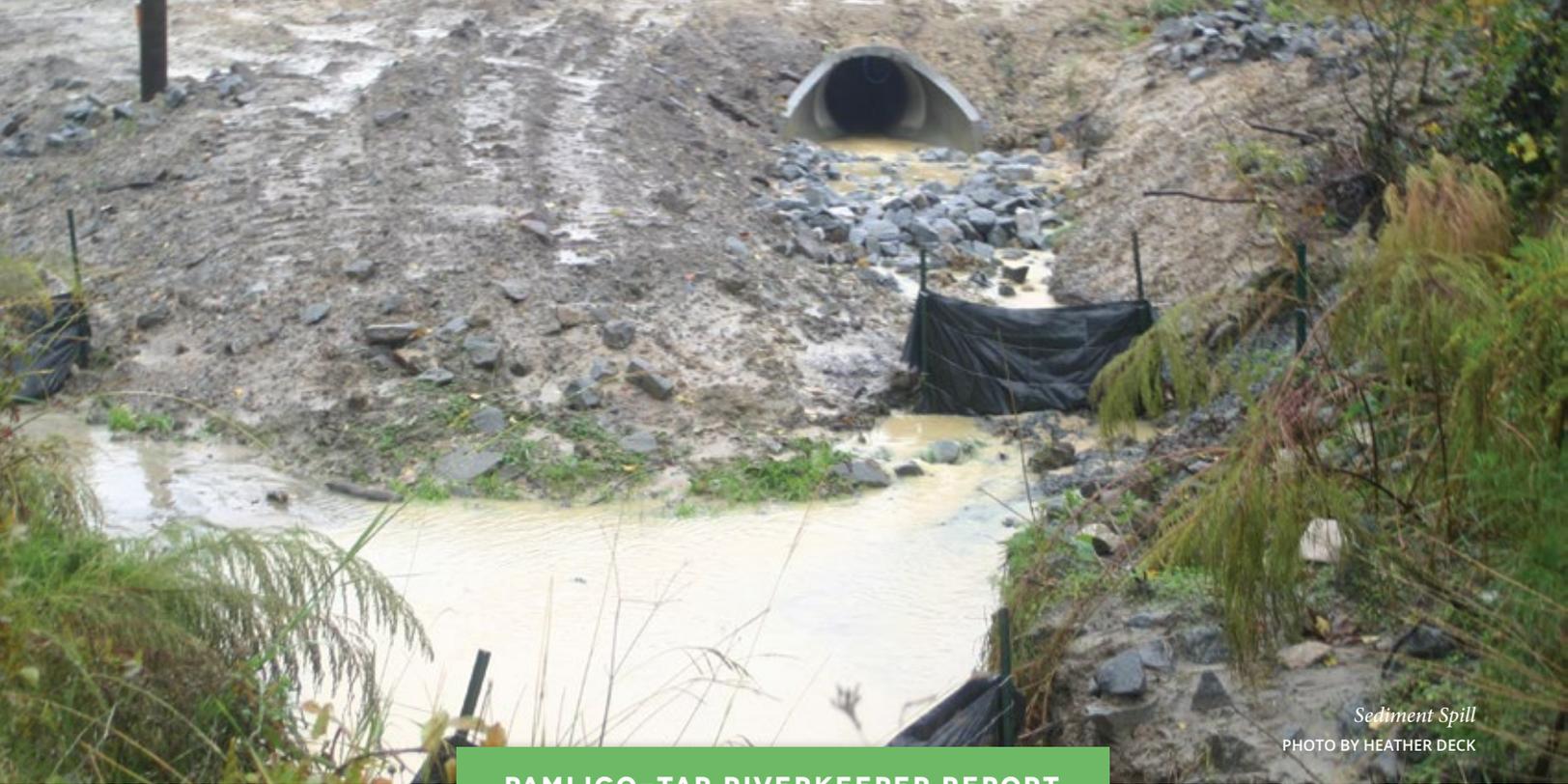
BY HARTWELL CARSON, FRENCH BROAD RIVERKEEPER

The North Toe River on a good day is one of the gems of Western North Carolina. On some days the water is so clear you can see big trout darting around, as the shadow of your boat moves down the river bottom. The river meanders by rocky cliffs and over some very fun Class II+ rapids. Several years ago a successful dam removal project was completed, and the river is now becoming a very popular paddling destination, to compliment the already top-notch fishing. The Town of Spruce Pine is bisected by the North Toe and has realized the river's potential. The town's river park is popular every day of the week, and the signs in town tout the potential of the natural resources of the area.

The North Toe River all has the makings of a successful river restoration and ecotourism story, if it were not for the fact that some days the river turns completely white from the area quartz and feldspar mines. This discharge coats the bottom of the river and suffocates the aquatic life in the stream. Fishermen have even been burned while wading in the

river, from the toxicity of this discharge. The river is listed on the state's impaired list; and despite some progress over the years, if you visit the river after a rainstorm, the North Toe can be so cloudy it looks like a dirty vanilla milkshake and smells like chemicals.

The French Broad Riverkeeper's water samples have shown the river was so full of wastewater, that it was literally off the charts. The monitoring equipment could not even measure the levels. The French Broad Riverkeeper and the Southern Environmental Law Center have sued Quartz Corps for illegally burying a stream, and continue to report problems at the mines to the Department of Environmental Quality (DEQ). The permits for the mines are up for renewal, making this a great opportunity to ensure the North Toe can finally be cleaned up. However, as with Duke Energy, DEQ has yet to release a new permit. This loophole allows the facility to indefinitely work under the old permit, even if it is polluting the river. The potential of the North Toe River is there, we just need the state to do its job to meet the goals of the Clean Water Act to make the river fishable and swimmable.



Sediment Spill
PHOTO BY HEATHER DECK

PAMLICO-TAR RIVERKEEPER REPORT

“A TREMENDOUS STRAIN” NORTH CAROLINA’S LEGISLATURE GUTS ENVIRONMENTAL ENFORCEMENT

BY HEATHER DECK, PAMLICO-TAR RIVERKEEPER

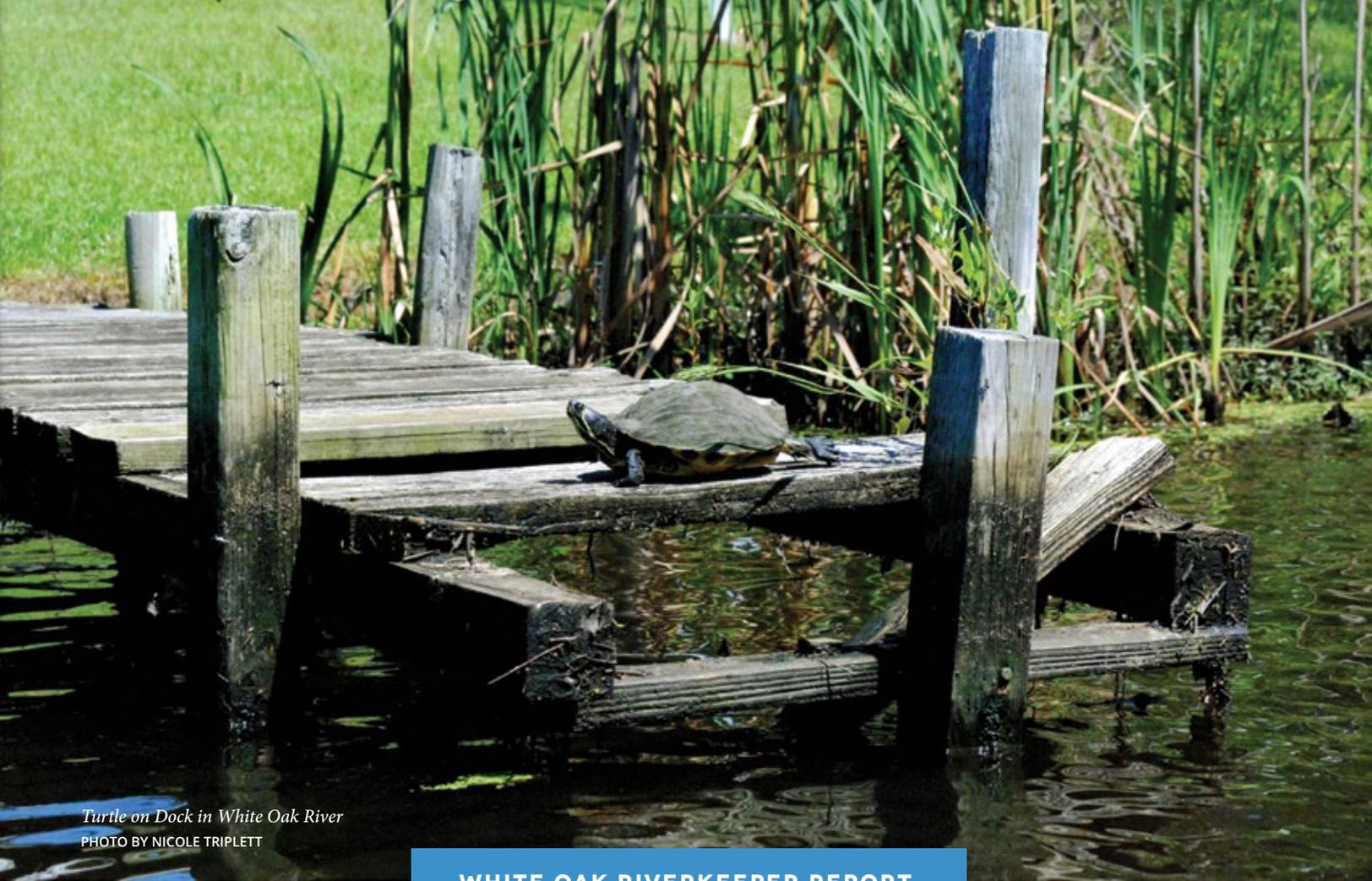
Following the election, this is a time to reflect on the direction in which elected officials are taking our communities; and whether we want to follow the same path or a new one. This is accountability season for legislators at local, state, and federal levels.

Unfortunately, it is sometimes hard to discern paths and to see destinations, because environmental laws and rules can be complex. Understanding changes to laws and the real-world effects that those changes will have on clean water can be particularly difficult. In recent years, our state’s elected leaders have made egregious changes to North Carolina’s environmental laws and have reduced the regulatory authority and budgets of state environmental agencies.

What has been most telling for me on the Pamlico-Tar River and my fellow Riverkeepers on the Neuse is the significantly slower response time by state regulators when a complaint is filed. We routinely investigate reported problems and document possible environmental violations. These violations are then reported to the appropriate enforcement agency. Before significant budget and staff reductions, staff typically responded within 48 hours. It was rare that a reported violation was not followed up within a week’s time. Most recently, I reported a possible buffer violation in Beaufort County. When I followed up with the agency after 6 weeks, the staff had yet to visit the site.

I sympathize with state agency personnel who are currently charged with a job they do not have the resources and manpower to fulfill. Coupled with the “be soft on polluters” attitude emanating from the higher levels of the previous administration, there is very real evidence that enforcement of our state’s environmental laws has been severely lacking. We see this evidence across the state environmental divisions. In 2012, staff from the Division of Land Resources, who are charged with preventing sediment pollution, wrote to lawmakers and stated that budget and staff cuts had created “a tremendous strain on the program’s ability to carry out its responsibilities.” From 2010 to 2014, 25 positions were eliminated and the remaining staff conducted 10,000 fewer inspections; a reduction of more than 40 percent. For four years, the division has requested permit fee increases in order to obtain additional revenue and hire more staff. Those requests have been ignored.

Accountability is defined by Webster’s Dictionary as “the quality or state of being accountable; an obligation or willingness to accept responsibility or to account for one’s actions.” We do not want to have a governmental climate that sides with polluters over people, gutting environmental protections and putting at risk what makes North Carolina special. From the mountains to the sea, North Carolina is a great place to live, work and raise a family. The places of North Carolina are worth protecting; and the people of North Carolina deserve better now and in the future.



Turtle on Dock in White Oak River
PHOTO BY NICOLE TRIPLETT

WHITE OAK RIVERKEEPER REPORT

MUCH ADO ABOUT SEWAGE

BY NICOLE L. TRIPLETT, WHITE OAK NEW RIVERKEEPER

On the weekend of July 18, 2015, the Maysville Wastewater Treatment Plant (MWWTP) experienced a washout of approximately 15,000 gallons of raw sewage into the White Oak River in Maysville, North Carolina. Our members, who swim and fish downstream, were not pleased. What's more, White Oak New Riverkeeper's investigation revealed that the plant had already received thirty Notices of Violation for exceeding fecal coliform levels, total mercury concentrations, and frequency violations, some dating as far back as 2012.

After meeting with Department of Water Resources (DWR) officials, it was exposed that a plant employee stated that DWR inspectors were 1) misled about the plant having a composite sampler onsite, and 2) misinformed about a tertiary system being in use. To remedy the compliance issues the state officials ordered Maysville to agree to a Special Order by Consent (SOC) in order to avoid the EPA's attention.

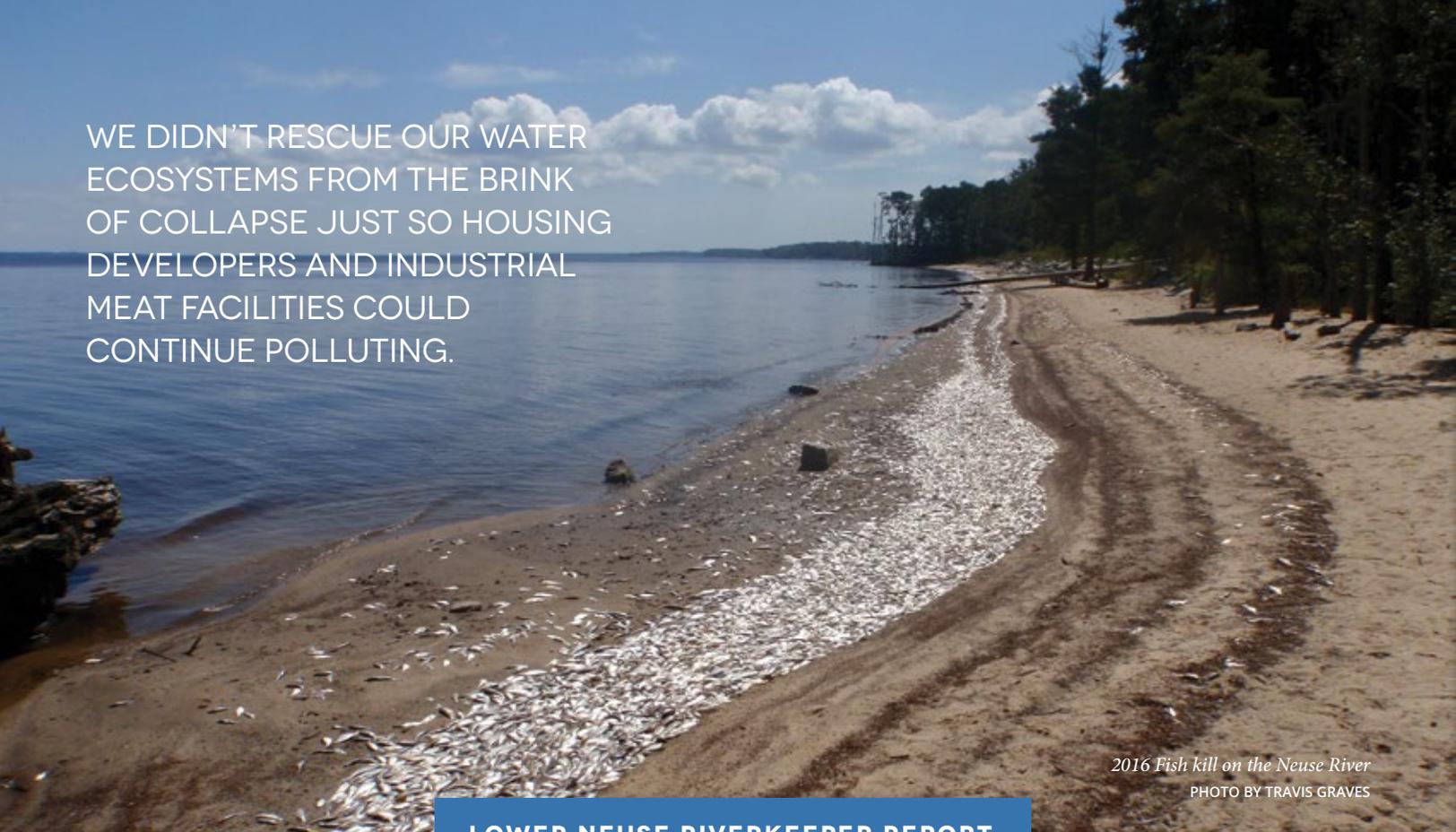
In September of 2015 the same facility received a Notice of Violation, Assessment of Civil Penalty for Violations and a Notice of Intent to Enforce. The Town of Maysville paid a \$4,000 fine to the NCDEQ for

violations dating from October 2014 to February of 2015 ranging from discharging waste water above permitted flow to exceeding the permitted monthly and weekly discharge of fecal coliform. Additionally failure to properly monitor mercury and pH was also included. Unfortunately, fines did not remedy the ongoing issues of the town's plant dumping untreated sewage into the river when it rained.

To fix the ongoing source of fecal overflows, the Town of Maysville agreed, on December 15, 2015, to a Special Order by Consent with the state to upgrade its wastewater treatment plant over the course of two years. However, when we reached out to the state seven months later, in July of 2016, we learned that a Special Order by Consent had yet to be drafted or presented to the MWWTP.

After that push, Maysville was finally presented with an SOC by the state later in July. Unfortunately, the SOC was lenient and broadly worded. In all it took nearly two years for the state to even order the town to fix the problem. This case provides just one example of all-too-typical delays and lax enforcement that result from a department that has been left understaffed by budget cuts and leadership inclined to cut deals with polluters.

WE DIDN'T RESCUE OUR WATER ECOSYSTEMS FROM THE BRINK OF COLLAPSE JUST SO HOUSING DEVELOPERS AND INDUSTRIAL MEAT FACILITIES COULD CONTINUE POLLUTING.



2016 Fish kill on the Neuse River
PHOTO BY TRAVIS GRAVES

LOWER NEUSE RIVERKEEPER REPORT

TOO MUCH OF A GOOD THING : NUTRIENT OVERLOAD ON THE LOWER NEUSE

BY TRAVIS GRAVES, LOWER NEUSE RIVERKEEPER

The Lower Neuse basin and estuary are no strangers to fish kills. The summer of 2016 was a reminder of the bad old days, back in the mid-1990s, when the Neuse garnered national news as hundreds of millions of fish died along the river. Scientists, activists, and regulators scrambled to find the cause and implement strategies to reverse the degrading conditions. What they found was not what we would have expected. It wasn't toxic chemical pollution from a villainous industrial giant, but something much more insidious. The culprit was simple nutrients – nitrogen and phosphorus – the same nutrients on our lawns and gardens to make our tomatoes fat and our grasses green. Too much of a good thing was, it turned out, deadly.

Nutrients were overwhelming the waters of eastern North Carolina, growing dangerous algae blooms on a scale large enough to impact property values, scare away valuable tourist dollars, and decimate the local commercial fishing industry. So scientists, advocates, and legislators developed a plan to reduce nutrient pollution, specifically nitrogen, by thirty percent. This would require municipalities, industry leaders, and other discharge permit holders to invest hundreds of millions of dollars to overhaul their water treatment systems. They did just that, with many achieving reductions greater than the targets. Yet,

somehow, levels of nitrogen in the Neuse continued to increase.

This led to scrutiny of other nutrient sources in the basin - industrial meat facilities, chemical fertilizers and storm water management systems. In 1998, the Neuse Nutrient Strategy was made law after years of research. The plan set the reduction goals, instituted riparian buffer protections and set guidelines for wastewater treatment facilities and storm water management. It worked, with many facilities beating their reduction targets.

In the past several years, we started to see nitrogen levels begin to level off and the number of dead fish on our banks drop. Unfortunately, as fish kills continued in the summer of 2016, that perceived success was thwarted when the legislature attempted to roll back protections that had been in place since the 1990s

Now is not the time to coast on the hard work done over the last twenty years. Now is the time to ensure the success of that work. We didn't rescue our water ecosystems from the brink of collapse just so housing developers and industrial meat facilities could continue polluting. We did it so our families and future generations would be able to live, work and play free of concerns about the safety of their drinking water, free of massive fish kills, and free of toxic algae blooms.



Algae Bloom on the Chowan River
PHOTO BY LARRY BALDWIN

UPPER NEUSE RIVERKEEPER REPORT

DONALD VAN DER VAART & FIFTEEN THOUSAND GALLONS OF HOG URINE & POOP

BY MATT STARR, UPPER NEUSE RIVERKEEPER

Riverkeepers take it as their mission to call out state officials who misrepresent their actions to the public. In September of 2016, Upper Neuse Riverkeeper, Matt Starr, took to the pages of the *Raleigh News & Observer* to do just that. Below is his letter to the editor:

"The Aug. 30 letter 'Protecting North Carolina's environment' from Department of Environmental Quality (DEQ) Secretary Donald van der Vaart left me more than a little perplexed.

"The secretary's piece conflated wishful thinking with facts – so much so that his summary of the department's record on clean water is basically a work of fiction.

"Van der Vaart's first attempt to rewrite history was his claim that 'even after record rainfall last spring and fall, waterways remained protected with no major incidents or unauthorized discharges.' Just last February there was a discharge of more than 15,000 gallons of hog urine and poop into a tributary of the Cape Fear River.

"Van der Vaart congratulated himself and the McCrory administration for being a 'national leader' on coal ash, and the 'first state to enact a comprehensive law that requires every coal ash pond to be closed.' But the truth is that it took legal action from citizen groups against the coal-

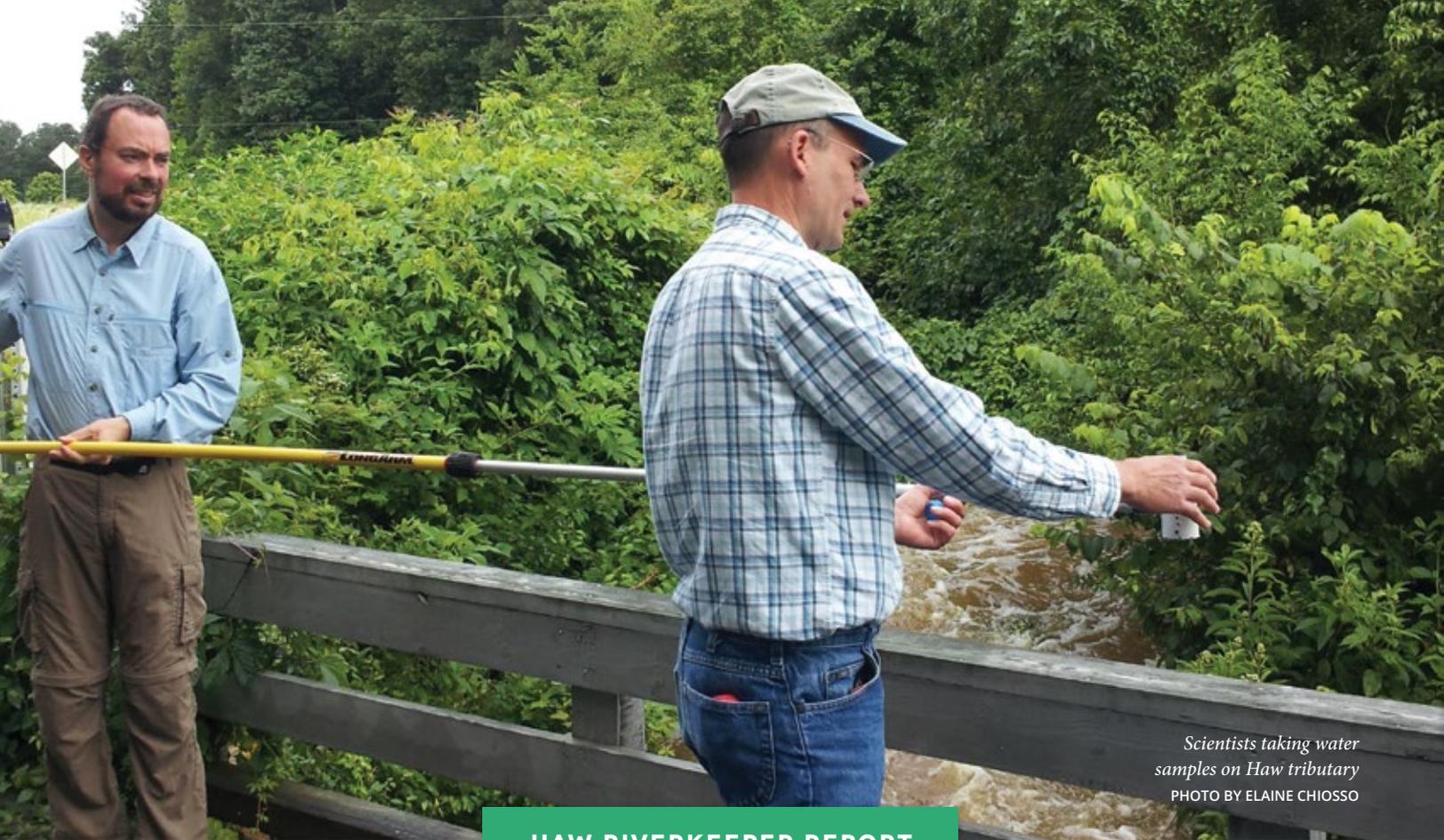
ash polluter Duke Energy, plus a massive environmental disaster on the Dan River, to make the state step in. When they did, it was largely to play defense for the [former] Governor's former employer.

"Instead of excavating our leaking coal-ash pits like South Carolina has done, van der Vaart is poised to allow many of them to pollute in place, contaminating our water for the rest of time. That isn't leadership.

"Finally, van der Vaart argued that, because of a change to the gasoline standard, we now have a regulatory system that better protects our water. Like they say on ESPN, 'C'mon, man!'

"Under van der Vaart's leadership, political appointees at DEQ have systematically removed every regulatory vertebrae from the agency, leaving the department intended to protect the environment and public health completely spineless.

"Give van der Vaart credit for getting one thing right, though. He said, 'Over the last three years, we have taken steps that benefit consumers and businesses by eliminating outdated or overly burdensome regulations.' DEQ made it very clear who the customer is in this administration's 'customer service' approach to regulation: Big corporations, like Duke Energy and Smithfield Foods, not fishermen, swimmers or well owners, are who the state agency sees as its customers."



Scientists taking water samples on Haw tributary
PHOTO BY ELAINE CHIOSSO

HAW RIVERKEEPER REPORT

LACK OF STATE OVERSIGHT – INDUSTRIAL CHEMICALS IN OUR WATERS

BY ELAINE CHIOSSO, HAW RIVERKEEPER

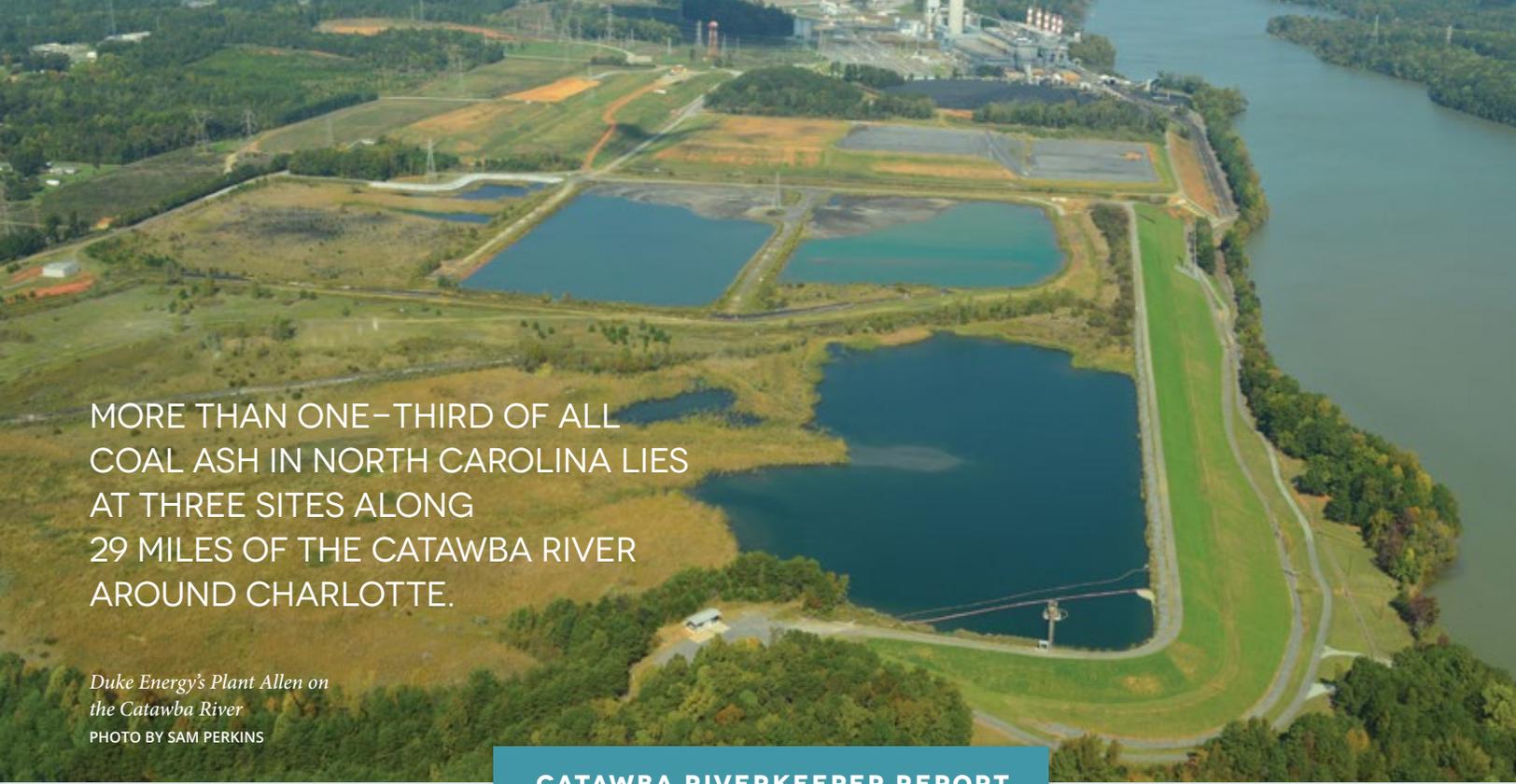
The Haw Riverkeeper has been working with a group of scientists investigating industrial chemicals that are contaminating the Haw River and its tributaries. They have identified the presence of perfluorinated compounds (PFCs), a family of chemicals used in flame retardants and coatings, and of 1,4-dioxane a common industrial solvent. Both chemicals have been tied to increases in cancer and other diseases. Monitoring data shows that these chemicals are entering surface waters via sewage sludge applications to agricultural fields, or, from treated, but undetected, sewage effluent discharged into streams from wastewater treatment plants. These industrial chemicals are NOT required to be monitored or regulated in the wastewater, the finished sludge, or in drinking water sources downstream. The state agencies responsible for protecting our streams and drinking water, including DEQ, have dropped the ball on this issue – which impacts both public health and the aquatic life in our waters.

Wastewater from homes, businesses and industry are co-mingled in sewage. The treated effluent released back into our waters, and the solids removed (sewage sludge), contain whatever was present in the original sewage water. These include pathogens, heavy metals and chemical contaminants – anything flushed or dumped down a drain.

Many of these industrial chemicals should not be in the wastewater to start with; and clearly, the regulations that govern pre-treatment removal are not adequate and rely on self-inspection. Water monitoring data shows that sludge application on farmland is running into streams, and ending up in our drinking waters. This problem is made worse by weak regulations for setbacks from streams and poor oversight, monitoring and enforcement by understaffed state agencies of rules that govern how often and under what conditions the sludge can be spread. Without adequate state regulation and oversight, and with a ban on local control, rural residents have found there is almost no recourse for the problems associated with land application of sludge in their communities.

The Haw Riverkeeper and Catawba Riverkeeper issued a report for Waterkeepers Carolina in October 2015 documenting the industrial contamination of our surface waters through municipal sewage sludge application. Many of these chemicals in sludge are persistent and resist degradation, and are not effectively removed by conventional drinking water treatment methods.

To read our “*Sludge In Our Waters*” report online and access the Waterkeepers Carolina Sludge Application Mapping Tool go to <http://bit.ly/2iLRGlu>.



MORE THAN ONE-THIRD OF ALL
COAL ASH IN NORTH CAROLINA LIES
AT THREE SITES ALONG
29 MILES OF THE CATAWBA RIVER
AROUND CHARLOTTE.

*Duke Energy's Plant Allen on
the Catawba River*
PHOTO BY SAM PERKINS

CATAWBA RIVERKEEPER REPORT

THE CATAWBA RIVER IS THE COAL ASH CAPITAL OF NORTH CAROLINA

BY SAM PERKINS, CATAWBA RIVERKEEPER

On the Catawba River, upstream of Charlotte, coal ash and drinking water go hand-in-hand. Tens of millions of tons of this toxic industrial waste are stored in leaking, unlined pits held back only by leaking earthen dams along the banks of the lakes that supply the city's water.

Duke Energy has 14 coal ash sites in North Carolina, and for years, monitoring wells at all 14 have revealed violations of state groundwater standards for metals associated with coal ash. For years, state regulators took no action. With Duke refusing to clean up its mess, Riverkeepers brought litigation to force clean up two years prior to the February 2014 Dan River coal ash spill.

The densely populated region around Charlotte – headquarters for Duke Energy – could be called the national capital for the coal ash threat. More than one-third of all coal ash in North Carolina lies at three sites along 29 miles of the Catawba River around Charlotte. Drinking water intakes, serving more than one million people, withdraw from the river immediately downstream of these coal ash pits piled as much as 80 feet high above the waterfront to a flood-prone river. These sites threaten not only drinking water supplies but thousands of downstream lakefront properties.

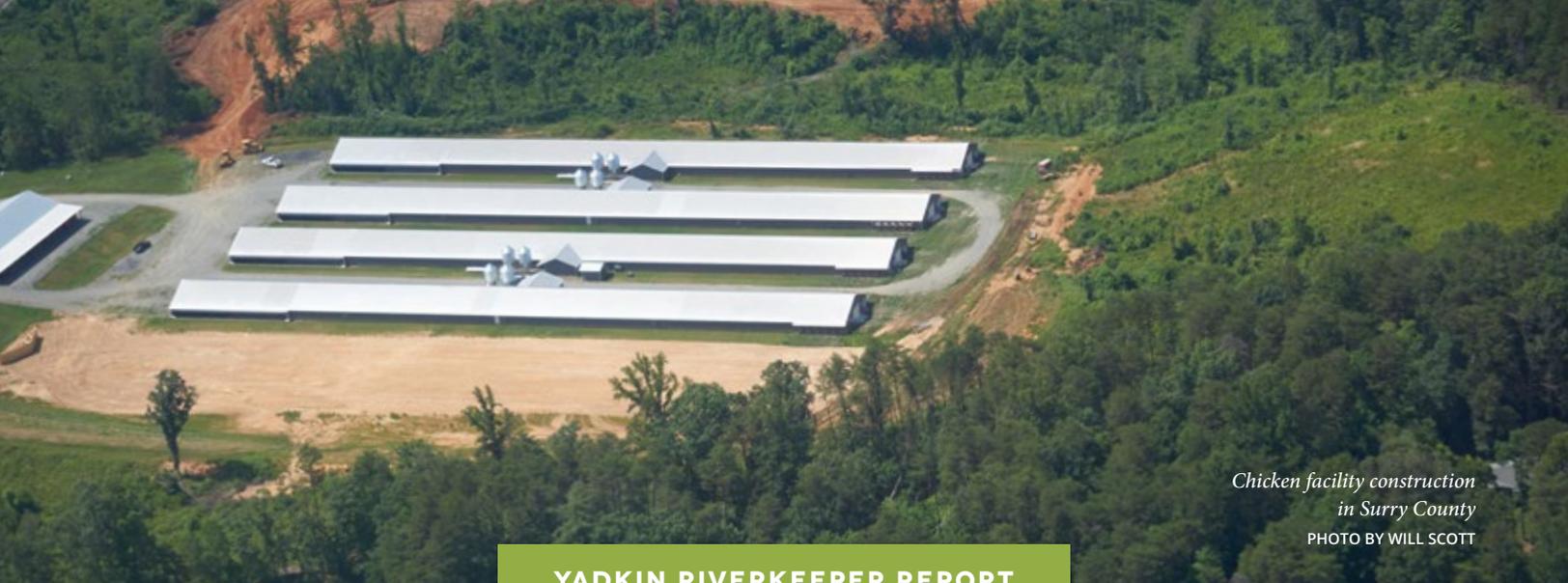
Catawba Riverkeeper began sampling around the perimeters of coal ash sites in 2012. We found unpermitted discharges with high levels

of metals and reported them to state and federal authorities. That evidence became a part of the record \$102 million fine issued by the Federal government in 2015 for violations of the Clean Water Act across the state.

The coal ash problem is not confined to North Carolina. The Catawba Riverkeeper first engaged in coal ash litigation in May 2012, when it filed a lawsuit against South Carolina Electric & Gas (SCE&G). By August 2012, SCE&G agreed to clean up its coal ash, moving it away from water to a lined, monitored site and to reuse some of the ash in concrete. Soon after, another South Carolina utility, Santee Cooper, agreed to a similar settlement at a site near Myrtle Beach. Since then, other South Carolina utilities have now agreed to clean up their coal ash.

Meanwhile, Duke Energy in North Carolina has fought coal ash cleanup at every turn. In 2015, well testing at Duke Energy sites revealed hundreds of nearby residential wells contaminated with metals associated with coal ash. In 2016, North Carolina ordered Duke to run water to neighbors. Still, the company continues to fight against cleaning up of some of its sites. Instead, they want to bury ash in unlined pits next to rivers and leave it there permanently.

As of the summer of 2016, Duke is under court order to clean up seven of its sites. The other seven, including sites on the Catawba, remain in limbo. Riverkeepers continue to litigate to protect rivers and drinking water reservoirs across the state.



Chicken facility construction in Surry County
PHOTO BY WILL SCOTT

YADKIN RIVERKEEPER REPORT

BIG CHICKEN: NORTH CAROLINA'S HIDDEN, SELF-REGULATED INDUSTRIAL POULTRY SYSTEM

BY WILL SCOTT, YADKIN RIVERKEEPER

In the community of Shoals, on the flanks of Pilot Mountain State Park, residents learned the hard way that the state of North Carolina does not give neighbors input into the construction location of an industrial-sized chicken facility, with 100,000 birds. In the spring of 2014, community members saw vast amounts of land being cleared in their community. When they found out the clearings were for industrial poultry production facilities, the upset neighbors went to county and state agencies and elected officials and received the same answer everywhere, "I'm sorry, but there's nothing we can do."

That is, until they came to the Riverkeeper. Our state environmental agency doesn't require permits for poultry facilities, which means they also don't track the locations of these facilities. However, Yadkin Riverkeeper had been working to document the location of all poultry facilities in its 7,200 square mile watershed. We were putting them on the map.

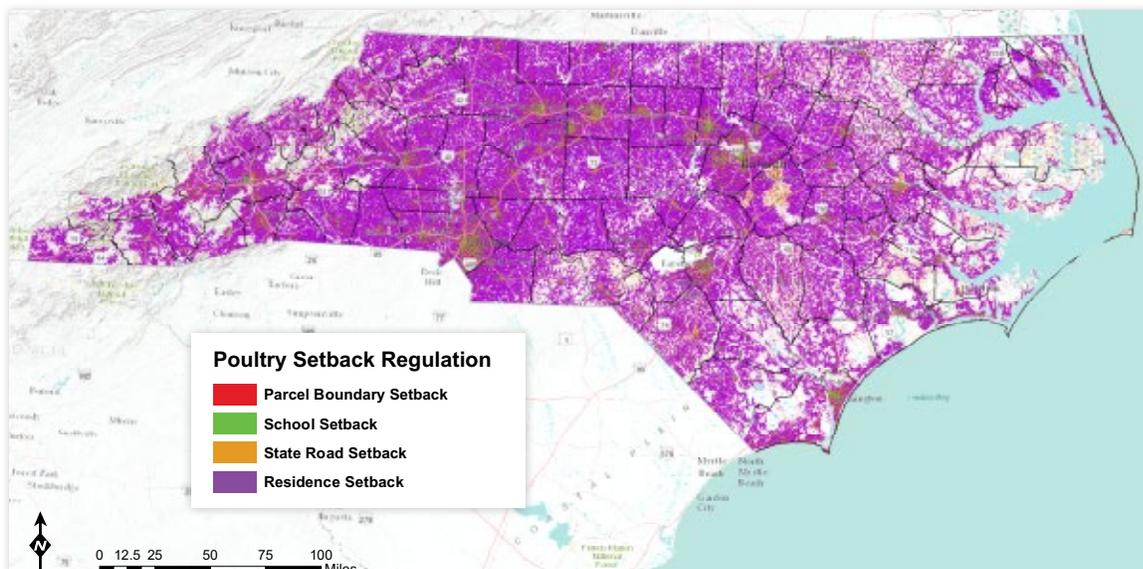
When folks from Shoals came to us, we agreed to help them document the impacts these facilities were having on their quality of life. They told us how, at night, the clouds of ammonia blown out of nearby facilities would settle on their houses, so thick in the air that you could see the waste particles in the beam of a flashlight. They couldn't go out on their back deck to

have a barbeque. The stench trapped them inside their homes.

North Carolina continues to let the poultry industry set its own rules. In 2016, the North Carolina Poultry Federation, the organizing body for the large poultry companies, like Tyson and Perdue, changed their industry "guidance" to require 1,500-foot setbacks of new poultry-growing facilities from occupied homes. That's a long-overdue acknowledgement of the impact these facilities have on neighbors.

It still isn't law and so can't be enforced by anyone but the industry. That leaves neighbors and rivers in the same boat, without real protection from one of the largest sources of fecal waste in the entire state. If you look at the map below, you'll see the areas in purple are where the poultry industry itself says that placing facilities would impact neighbors, but the state of North Carolina refuses to put those protections in law.

PROHIBITED POULTRY PRODUCTION AREAS IN NORTH CAROLINA



CAROLINA WATERKEEPER TRAINS HIMALAYAN WATER PROTECTION GROUPS

BY CHRISTINE ELLIS, DEPUTY DIRECTOR,
WINYAH RIVERS FOUNDATION

On July 19, 2016, after days of travel, our team had arrived in Ladakh, India, tired but excited to train a growing network of Waterkeepers in the Himalayas. This Waterkeeper training was part of Waterkeeper Alliance's Himalayan Water Project, in partnership with Live to Love International and Himalayan Glacier Waterkeeper, to protect Himalayan glaciers and rivers from pollution and climate change.

It took just a couple of days for us to see firsthand the devastating effects of climate change in the Himalayas, and to feel the urgent need for our work. On our drives to meetings and sites, we saw dry stream beds everywhere; in some instances, new developments were being built directly on top of them. This new development is concerning in the face of increasingly volatile wet weather events like cloud bursts. These events are like Himalayan "tsunamis" that are able to devastate communities, taking lives and livelihoods.

Adding to the threat of decreasing water supplies is the pollution of Ladakh's streams. Providing Waterkeepers with the tools and training to monitor the quality of these streams ensures their ability to protect water resources and prevent pollution in the future.

On July 20, at a special event held at the Druk Padma Karpo School, we launched the Himalayan Water Project with Himalayan Glacier Waterkeeper, led by the charismatic and accomplished Padma Tashi. We were also joined by His Eminence Thuksey Rinpoche, one of two spiritual heirs to His Holiness, the Gyalwang Drukpa, leader of the Drukpa lineage of Buddhism and founder of the Waterkeeper network in Ladakh. We were honored by the Chief Executive Councillor of the Ladakh Autonomous Hill Development Council, Dr. Sonam Dawa Lonpo, and joined by Himalayan Glacier Waterkeeper's 20 Affiliates, all of them Drukpa monks responsible for protecting the good of their communities. Also in attendance were Drukpa nuns, students from the school, and members of the community, all of whom have a vested interest in preventing pollution and protecting clean water.

Prior to our launch event, we witnessed locals washing trucks, cars, and carpets in a tributary of the Indus River – despite signs stating that this practice is illegal. Algal blooms in the stream were evidence of the pollution caused by these activities. A day after our launch, we noticed

that these activities had stopped as a result of access to the tributary being blocked. Later we learned that His Eminence had asked the Chief Executive Councillor to intercede and stop these polluting practices by bulldozing entrances to the stream.

We rejoiced in this small but significant first achievement by Himalayan Glacier Waterkeeper and in the news coverage that resulted from our launch: a front page headline in Ladakh's major newspaper and prime-time coverage on television and radio.

From there, our focus turned to our training duties. At Druk Padma Karpo School, the site of the famous Bollywood movie *3 Idiots*, we trained the Himalayan Glacier Waterkeeper team and its 20 Affiliates on the use of YSI's water quality monitoring equipment. We also trained Drukpa nuns and students from the school on how to test water quality using Earth Echo's World Water Monitoring Challenge kits. With these tools, Himalayan Glacier Waterkeeper's community is able to monitor baseline physical and chemical water quality conditions of their local waterways and advocate for the protection of clean water.

In the days following our classroom training, we drove over 500 km through the most spectacular terrain to provide on-site training for our 20 Affiliates. We trained the Drukpa monks streamside within their villages, and experienced their gracious warmth and

hospitality — drinking tea within the gompa (monastery) and by the streams. By the end of our tour, we had tested water quality at 10 sites northwest and southeast of Leh. Our initial testing found the water quality of glacial streams to be generally good (dissolved oxygen at levels supportive of aquatic life, slightly alkaline, low conductivity, high clarity, no excessive nutrients). For the Indus and the Zaskar Rivers, both larger river systems, the main difference was low clarity and highly turbid water resulting from excessive suspended sediments in the water. Ongoing water quality testing will help to establish baseline characteristics of these waterways and allow Waterkeepers to assess and address any changes that may occur from pollution or climate change.

We are thrilled with the level of dedication and enthusiasm of Himalayan Glacier Waterkeeper's team and the Drukpa monk affiliates, all now part of our Waterkeeper family. There is no better group to keep Ladakh's streams and rivers clean. The Ladakhi word for stream is "tokpo," also the word for "friend." Waterkeepers know that streams are our friends, and friends are definitely worth protecting.



Christine Ellis trains Himalayan Waterkeepers

PHOTO BY SHARON KHAN

WATER MONITORING ON THE WATAUGA: RESEARCH AT WORK

IN JANUARY 2016, THE WATAUGA RIVERKEEPER IMPLEMENTED ITS BASIN-WIDE WATER QUALITY MONITORING PROGRAM.

*Watauga Riverkeeper Andy Hayslip
Collects Water samples*

PHOTO BY MOUNTAINTRUE

BY ANDY HAYSLIP, WATAUGA RIVERKEEPER

In January 2016, the Watauga Riverkeeper implemented its basin-wide water quality monitoring program in partnership with the Environmental Quality Institute (EQI), a nonprofit environmental research laboratory based in Asheville, North Carolina. The data collected becomes part of EQI's Volunteer Water Information Network (VWIN), which is a volunteer-based water monitoring network that has been monitoring the health of Western North Carolina waterways since 1990. Each month, volunteers collect 65 water samples from 13 sites located throughout the watershed, including sites on the Watauga River, the Elk River, and prominent tributaries such as Laurel Creek and Beaverdam Creek. The specific locations were identified using geographic information systems to analyze land use and topography to pinpoint potential areas of concern, while at the same time trying to stratify as many sites as possible throughout the watershed. Sites included the Watauga River's headwaters near the north face of Grandfather Mountain, all the way to East Tennessee where the Watauga meets the South Fork of the Holston River.

Currently, water testing in the Watauga River watershed includes tests

for pH, ammonia-nitrogen, nitrate-nitrite-nitrogen, orthophosphate, total suspended solids (sedimentation), alkalinity, turbidity, and conductivity. This range of tests, combined with the wide distribution of sample sites, provides a good overview of water quality throughout the watershed and should pinpoint problem areas that can be targeted in future restoration, research, and policy work.

While water quality in the Watauga River watershed is generally good due to the mountainous terrain and relative lack of large scale agriculture and industry, there are still plenty of threats to water quality in the basin. As development starts to pick back up in Western North Carolina, increased sedimentation from runoff remains the greatest threat to our region's waterways, as well as their incredible inhabitants such as the eastern hellbender and native brook trout. Many people come to enjoy the Watauga River watershed for its world-class fly fishing and recreational opportunities. Ensuring that our rivers are clean enough to continue to support these activities is one of the main objectives of this program. In addition, strained resources at the state level and the relative remoteness of our watershed mean that it is often up to Watauga Riverkeeper and our amazing volunteers to ensure that its rivers remain clean and healthy.

PROTECTING NORTH CAROLINA'S COAST FROM OFFSHORE DRILLING



THE CRYSTAL COAST WATERKEEPER WILL STAND WITH LOCAL COMMUNITIES IN PROTECTING OUR SHORES FROM UNWANTED FOSSIL FUEL INFRASTRUCTURE PROJECTS.

Cape Lookout Lighthouse
PHOTO BY LARRY BALDWIN

BY LARRY BALDWIN, CRYSTAL COAST WATERKEEPER

Since obtaining a license from Waterkeeper® Alliance on January 12, 2016, the Crystal Coast Waterkeeper® has fought on many fronts to protect the beautiful North Carolina coastline. The Waterkeeper joined citizens, communities and businesses up and down the coast in opposition to offshore drilling – a call that the Obama administration heeded in March 2016 when it announced a five-year ban on offshore Atlantic exploration.

Other threats to North Carolina's coast include seismic blasting and a proposed Liquid Natural Gas (LNG) terminal. As the state of North Carolina reported in 2015, such a facility would be economically unfeasible, given the lack of supporting infrastructure in the state and competition with projects up and down the Atlantic Coast. The Waterkeeper will stand with local communities in protecting our shores from unwanted fossil fuel infrastructure projects.

The Waterkeeper's work will support the fisheries of local commercial oystermen and fishermen. Threats to fisheries come in many forms. Stormwater runoff from developed areas impacts streams, sounds and

the ocean off the coast as does the still-commonplace use of septic systems along the coast and in the Bogue, Back and Core Sounds. The natural beauty and the heritage of this area deserves all the protection that it can get. The Waterkeeper will work with local citizens and communities to protect their waters for generations to come.

Many of the watersheds draining into the sounds of the Crystal Coast suffer from waste pollution by Concentrated Animal Feeding Operations, primarily poultry and swine facilities. The Waterkeeper works to protect water quality downstream and monitors problematic facilities to ensure compliance with state and federal regulations. Because state agencies don't have the resources to watch these facilities, we patrol by land, air and water to protect our downstream coastal waters.

The Crystal Coast is a popular vacation destination for people from all over the country. It is also a sensitive breeding and nursery area for a huge variety of aquatic, land and avian species, many of whose habitats are increasingly threatened. Educating the public to understand that the protection of this wildlife is key to preserving the tourist economy is a crucial part of our mission. As we say, "A Healthy Crystal Coast Makes Sound Sense!"



Watauga River PHOTO BY ANDY HAYSLIP

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WATERKEEPERS CAROLINA THANKS THE PARK FOUNDATION FOR
ITS GENEROUS SUPPORT OF THIS PROJECT.