WATER QUALITY TRADING

Polluting Public Waterways for Private Gain

food&waterwatch

About Food & Water Watch

Food & Water Watch champions healthy food and clean water for all. We stand up to corporations that put profits before people, and advocate for a democracy that improves people's lives and protects our environment. We envision a healthy future for our families and for generations to come, a world where all people have the wholesome food, clean water and sustainable energy they need to thrive. We believe this will happen when people become involved in making democracy work and when people, not corporations, control the decisions that affect their lives and communities.

Food & Water Watch has state and regional offices across the country to help engage concerned citizens on the issues they care about. For the most up-to-date contact information for our field offices, visit *foodandwaterwatch.org*.

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Glossary

Best Management Practices (BMPs) – Best Management Practices are agency-mandated processes that can avoid emissions or runoff to a body of water. Both point sources and non-point sources can implement BMPs to reduce their impact on the environment. In point sources, these can include scheduling maintenance or procedures to discharge the least amount of pollutants, when it will have the smallest impact on the environment. On farms, BMPs can include changing how the farm operates to sequester the pollutants in the ground, or planting buffers between the farm and the waterway to reduce the amount of pollution that runs off to the river or stream.

Best Available Technology (BAT/BATEA) – The CWA requires point sources to attain pollution discharge limits that result from the "Best Available Technology Economically Achievable," or BATEA. In practical terms, this means that industries are supposed to do the best they can, using the most advanced technologies available, to reduce their discharges of pollution to our waterways, while ensuring that chasing the last bit of reduction does not become cost prohibitive.

Clean Water Act (CWA or the Act) – Landmark 1972 (amended in 1977 and 1987) law that sets limits on discharges to America's waterways. The stated goal of the CWA is zero discharges to waterways.

Concentrated Animal Feeding Operations (CAFOs) – A CAFO confines animals in areas with no vegetation during the annual growing season. Most CAFOs are what we think of when we think of "factory farms." While CAFOs are theoretically controlled under the CWA, neither federal nor state environmental agencies actually provide the CWA oversight that they do with other pollution sources, leaving many CAFOs without permits (see NPDES permit) and largely unregulated.

National Pollutant Discharge Elimination System (NPDES) permit program – Under the CWA, the NPDES permit program regulates point sources that discharge pollutants into waterways. All point sources of pollution are required to obtain a permit stating the limits of what will be discharged and setting up monitoring for their discharges.

Nonpoint sources – Nonpoint sources pollute waterways through runoff caused by rainfall or snowmelt moving over and through the ground to waterways. As the water moves, it picks up both natural and man-made pollutants. The pollutants are then deposited into lakes, rivers, wetlands, coastal waters and ground waters. Traditionally, row crops are not covered under the CWA, as they are considered nonpoint sources of pollution.

Nutrient pollution – While nutrients such as nitrogen and phosphorus contained in manure and other fertilizers are helpful for crop growth, excess application leads to runoff into waterways. The nutrients encourage the growth of algae, which blocks light, killing sea grasses below the surface. When the algae and the sea grasses die, their decomposition uses up the oxygen in the water, leading to hypoxia, or reduced oxygen levels — which, in turn, kills fish and other aquatic animals. These "dead zones" appear in many bodies of water. The second largest dead zone in the world occurs in the Gulf of Mexico every spring, due largely to nutrient pollution (see cover photo).

Point sources – Point source polluters discharge via man-made discrete conveyances, such as a pipe or man-made ditch, that allows runoff to flow into surface water. Factories, power stations and municipal wastewater and runoff treatment facilities fall under this category.

Total Maximum Daily Load – This is essentially a restriction on the amount of pollution that can flow into a waterway or watershed. If a watershed cannot achieve meaningful progress in water quality, the U.S. Environmental Protection Agency works with state agencies to set a total amount of pollution that the waterway can handle. Point sources then are limited further in total discharges.

Water Pollution Control Act (WPCA) – Predecessor to the CWA, the WPCA was first passed in 1948 and amended in 1965. There was no individual accountability for pollution, so there were no specific targets in even the most polluted waterways.

Executive Summary

A tidal wave of deregulation is sweeping across our nation's waterways. After over 40 years of effective Clean Water Act control of many of our biggest sources of pollution, industries have finally found a way to evade meaningful and enforceable limits on their discharges. Water pollution trading — or water quality trading, as proponents call it — is allowing polluters to opt out of installing pollution reduction technologies and, instead, to purchase pollution "credits" from other sources that may or may not be controlling their own discharges. This pay-to-pollute scheme is not only endangering our rivers, streams and lakes, but also threatening the very underpinnings of our successful water quality laws.

This report provides an in-depth examination of how water pollution trading is being implemented in two key states: Pennsylvania and Ohio. While this market-based approach to water pollution control is quietly being introduced throughout the country, its supporters, including many in the environmental movement, continue to focus on trading as an abstract concept full of promise. This report cuts through the theory and abstractions and establishes what water pollution trading really is: a regulatory avoidance scheme fraught with unaccountability that is destined to destroy waterways and communities.

Food & Water Watch filed Pennsylvania Right to Know Law requests for two trading participants in the state — Red Barn and Brunner Island — and received 942 documents. We also requested documents related to the Alpine Cheese trading program through Freedom of Information Act requests to the Ohio Environmental Protection Agency. The findings of this report are based on the analysis of these documents.

Key Findings:

- Water pollution trading seriously undermines the Clean Water Act, allowing previously accountable pollution dischargers to hide behind pollution credits and to discharge without any real limits:
  - ▷ Pennsylvania's Brunner Island coal-fired power plant now operates under a fictitious "net zero" nutrient discharge permit, whereby the facility is free to discharge as much nutrient pollution as it can purchase credits for. It was the third largest buyer of nitrogen credits in Pennsylvania in both 2013 and 2014, purchasing 87,000 credits in 2013 and 78,000 in 2014 — amounting to almost 10 percent of all credits purchased statewide in those years. With this new limitless discharge allowance, Brunner Island cannot be sued for polluting the local river.
  - ▷ In Ohio, chronic violators of our clean water laws are using pollution trading to continue their violations and to further destroy already impaired rivers. The Alpine Cheese Company was allowed to increase its phosphorous load to 972 pounds per year — a 200 percent increase from the stated target for the waterway — by increasing its phosphorous-containing wastewater discharge to 36.4 million gallons per year. This represents a 600 percent increase in wastewater discharge over what should have been allowed to protect local water quality. Between 1999 and 2014, Alpine Cheese had a combined total of some 928 limit violations and about 323 reporting violations, for a total of about 1,251 permit violations over the last 15 years. Tellingly, the bulk of these violations occurred between 2005 and 2011, while the nutrient trading pilot program was being developed and later implemented.

Excess application of manure and other fertilizers, high in nutrients such as nitrogen and phosphorus, leads to runoff in waterways, where these nutrients encourage the growth of light-blocking algae.

- Regulatory agencies that should be overseeing these practices and protecting our waterways are subjected to political interference, leaving them uninvolved while for-profit companies and pro-industry entities control our water quality future:
  - In Pennsylvania, all of the authority, verification and trading of water pollution credits has been placed in the hands of for-profit companies like Red Barn.
  - In Ohio, a then-state representative warned the state Environmental Protection Agency, which oversees trading, to stay off of farms where trading is being implemented. Meanwhile, a trading program in the state required 10 semi-annual status reports over the five-year trading program; state regulators only disclosed two of those reports.
- Pollution credits generated by agricultural operations for sale to other industry polluters are unverified and uncertain, and often are based on unsustainable practices that lead to likely increased pollution in our waterways.
  - In Pennsylvania, pollution credits are being generated by moving millions of pounds of animal manure from one impaired watershed to another, simply shifting the burden to other communities instead of solving the problem.
  - In Ohio, verification of agricultural pollution reductions consists of lax, infrequent visual inspections of pollution management practices at participating farms with weak attempts to actually quantify, through sampling, reductions in pollution loads to local waterways.

Recommendations

To hold polluters accountable and to protect our waterways, Food & Water Watch recommends that:

- Congress needs to reaffirm that the Clean Water Act does not allow for point source pollution trading by, among other things, defeating attempts to amend the Act to include a trading program and prohibiting states from spending any funds on implementing trading programs.
- Federal agencies, particularly the U.S. Department of Agriculture, need to stop spending taxpayers' dollars to promote these pay-to-pollute schemes across the country.
- State and federal governments need to replace voluntary pollution control approaches with mandatory measures in the nonpoint and agricultural source sector.
- Federal agencies must fund agricultural Best Management Practices without compromising current point source controls.
- The environmental community needs to wake up to the dangers of water pollution trading.
- Advocacy groups need to legally challenge water pollution as a violation of the Clean Water Act.

PHOTO BY U.S. GEOLOGICAL SURVEY

Introduction

Clean water is not only the most vital natural resource on Earth — it is also something that many people in the United States take for granted, since clean drinking water is readily available for most of our communities. However, as Toledo, Ohio experienced in the summer of 2014, there are no guarantees that clean water will always flow from our taps. As industries continue to pollute and use their increasing political influence to move away from the protective environmental policies that we now have in place, clean water will become even more scarce.[1]

Increasingly, corporations and governments that are charged with protecting their citizens are pushing for deregulation of pollution controls using market-based approaches.[2] In the United States, the marketplace is replacing our suite of environmental laws, such as the Clean Water Act (CWA, or Act). In the marketplace, pollution reduction is determined by profitability and attained through the purchase of pollution "credits" and offsets.[3] To date, pollution trading has focused mainly on air and climate problems, but we are witnessing an increasing effort to undo the CWA by creating a market for water pollution control. Regional water pollution trading programs are taking off in the Chesapeake Bay watershed and in the Ohio River Basin, currently covering nine states.[4] Water pollution trading also is being contemplated, either in active projects, pilot programs, regulations, policy or guidance, in locations like Arkansas, Colorado, Connecticut, the District of Columbia, Florida, Georgia, Idaho, Minnesota, Montana, North Carolina, Oregon, Utah, Wisconsin, and Washington.[5]

States Involved in Water Pollution Trading Programs

Arkansas	Kentucky	Pennsylvania
Colorado	Maryland	Utah
Connecticut	Minnesota	Virginia
Delaware	Montana	Washington
Florida	New York	West Virginia
Georgia	North Carolina	Wisconsin
Idaho	Ohio	
Indiana	Oregon	

These pay-to-pollute schemes are being quietly implemented with the active endorsement and funding of federal agencies like the U.S. Department of Agriculture (USDA) and the Environmental Protection Agency (EPA).[6] And while polluting industries are, as expected, actively pushing toward pollution trading over regulation, the country's environmental community has either openly embraced water pollution trading or sits on the sidelines, unaware or unengaged.[7]

Water pollution trading — or water quality trading, as it is called by proponents — is an overly complex and convoluted system of pollution control that is inherently subject to mismanagement, unaccountability and ineffectiveness, yet trading adherents continue to issue reports that make abstract promises, embracing make-believe ideals of accountability and verification.[8] Just this year, the National Network on Water Quality Trading (NNWQT)[a] put out a manual detailing its views on what it called "successful" pollution trading programs.[9]

The NNWQT report builds off a false foundation, stating that pollution trading is "guided by the same goals as those set out in the Clean Water Act."[10] However, pollution trading is inherently antithetical to the goals of the CWA; while the Act calls for the elimination of pollution from our waterways, water pollution trading sanctions acceptable discharges of pollution under a market scheme of credit swapping.

Even more disconcerting is the lack of polluter accountability built into water pollution trading. Individual polluter accountability is the hallmark of success of the CWA and its implementing regulations, while water pollution trading is designed and implemented so that polluters can evade responsibility for their discharges to our waterways. Some of the members of the NNWQT know first-hand how pollution trading destroys accountability and the rights of citizens to protect their waterways — another cornerstone of the Act — yet they still continue to promote the practice as the future of water quality control.[11]

This report exposes the problems with water pollution trading by looking closely at its implementation in both Pennsylvania and Ohio. This investigation reveals that water pollution trading is not a cost-effective fix to our ongoing water quality problems, as proponents claim.[12] Instead, it is a broken system of inherently unaccountable and highly questionable practices that will only pollute our waterways and threaten our communities.

a The NNWQT includes a number of industry, municipal and environmental groups. Although polluters trade pollution credits, proponents insist on euphemistically referring to the practice as Water Quality Trading. This report refers to the selling and purchasing of pollution credits more accurately as water pollution trading.

Background on Water Pollution Control in the United States

Water Pollution Crisis: Declining U.S. Water Quality in the 1960s

By the beginning of the second half of the twentieth century, the increasing industrialization of the country had taken a dramatic toll on U.S. rivers and lakes. This water quality crisis is most often epitomized by the case of the Cuyahoga River in Cleveland, Ohio. By the 1960s, the stretch of river that ran through the city was so polluted with industrial waste that *Time* magazine said that it "oozes rather than flows."[13] The river also regularly caught fire.[14]

Although the Cuyahoga is perhaps the most famous example of declining U.S. water quality, it is certainly not the only one. By the late 1960s, Lake Erie was officially declared "dead" because of excess levels of nutrients,[15] prompting Dr. Seuss to include the following passage in the first printing of his 1971 book, *The Lorax*:

> *They'll walk on their fins and get woefully weary*
> *in search of some water that isn't so smeary.*
> *I hear things are just as bad up in Lake Erie.*[16]

The United States in the 1960s was not without water pollution laws. The Water Pollution Control Act of 1948 (WPCA) and its subsequent iterations all had minimal protections for water quality, but their biggest downfall was the lack of individual polluter accountability.[17] For example, while the 1965 WPCA Amendments provided for ambient water quality monitoring, there was no attempt to hold individual polluters responsible for their discharges.[18] That meant that even when waterways were found to be heavily polluted, there was no way to trace the problem back to the source and to remedy the problem.

The Clean Water Act and Source-by-Source Controls: 40+ Years Controlling Point Source Pollution

Congress responded to the emerging U.S. water quality crisis by enacting a set of environmental laws and creating the Environmental Protection Agency "to protect human health and the environment."[19] Perhaps most important among the new laws was the Clean Water Act, which was enacted in 1972 "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[20] The principal shift from earlier failed water pollution laws was that the CWA implemented a source-by-source accountability approach as part of its "national goal that the discharge of pollutants into the navigable waters be eliminated by 1985."[21]

Point Sources of Pollution

Under the CWA, each industrial facility that discharged pollutants into a waterway through a pipe or any other kind of "discrete conveyance" was required to get a discharge permit issued by the EPA or the state agency authorized to administer the program.[22] Importantly, these "point source" polluters also were required to monitor their discharges and to report the results to the EPA and to any member of the public who wanted this information.[23] This fundamental shift in clean water protection meant that when water quality problems were found, sources could easily be identified and remedied.

CWA-permitted facilities were expected to install state-of-the-art pollution reduction technologies to minimize their discharges.[24] For most industrial discharges, the standard of reduction is known as Best Available Technology, or BAT.[25] These permits are to be reviewed and reissued every five years to incorporate any new reduction technologies available, giving the Act its technology-driving approach needed to eliminate discharges.[26]

Other important aspects of the 1972 CWA were transparency and citizen empowerment. In recognition of the fact that federal and state environmental agencies would not always have the resources (or the will) to hold polluters liable for violating the terms of their permits, Congress wrote "citizen suit" provisions into many of our modern environmental laws, including the CWA.[27] These provisions allow any person to obtain copies of permits, discharge monitoring reports and all other records related to point sources of pollution, and to bring permit violators to court to seek injunctions against further violations.[28]

Although far from perfect, the CWA has proven to be a tremendous success.[29] In Lake Erie, catches of walleye, the dominant fish species in the lake, grew from 112,000 in 1975 to 4.1 million in 1985.[30] The largest polluters of our waterways — coal-fired power plants, wastewater treatment plants and manufacturing plants — now had to adhere to science-based pollution reductions and, when caught violating, had to immediately come into compliance and pay fines. But the CWA did not succeed in remedying all of our water quality problems. The EPA's latest water quality data show that over 580,000 miles of U.S. rivers and streams and over 13 million acres of lakes remain pollutant-impaired.[31] Fifty-four percent of assessed rivers and streams still suffer from excess pollution.[32]

Nonpoint Sources of Pollution

The biggest breakdown in CWA regulation has been with sources of pollution that are not considered point sources under the Act. These "nonpoint sources" include all of the diffuse runoff that is not associated with discrete, point source industrial pollution. Chief among these polluting sources is the agricultural sector, which, despite more than 40 years since the introduction of the CWA, remains largely unregulated.[b] Ironically, it is this refusal to properly regulate agricultural pollution that has, in part, spurred the growth of water pollution trading as yet another in a long line of attempts to get the industry to voluntarily clean up its discharges.

The Move to the Market in the Chesapeake Bay and the Ohio River Basin

In recent decades, water pollution trading has been introduced on a small scale in various states, typically to address nutrient-impaired waterways.[33] In recent years, however, there has been a renewed push by industries to replace the CWA source-by-source mandate with a market-based approach that allows point source facilities that do not want to pay to upgrade their pollution control technology to purchase credits in lieu of upgrades.[34] (See "The Story of Water Pollution Trading" on pages 14-15.)

Some of the early attempts at water pollution trading, such as Connecticut's Long Island Sound nitrogen program, involved placing a pollution cap on a number of point source facilities within the same industry sector and then allowing each facility some flexibility with permit compliance as long as the aggregate cap limit was met.[35] These types of point-to-point source programs, which are, in effect, a Clean Water Act "bubble permit" approach, have been replicated in Virginia's wastewater treatment industry and elsewhere.[36]

However, point-to-point source trading has not provided industry with the wide-scale solution that they really seek: a readily abundant and cheap way to avoid permit compliance, which point-to-point source trading simply cannot fulfill. Water pollution trading programs are increasingly nonpoint-to-point source trading programs, with industrial point sources looking to largely unregulated nonpoint agricultural sources as low-cost credit suppliers so that they can continue onsite discharges or even exceed permit limits. The biggest nonpoint-to-point source trading programs are being implemented in the Chesapeake Bay watershed and the Ohio River Basin.[37]

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Chesapeake Bay's Total Maximum Daily Load

"TMDLs" are the Total Maximum Daily Loads of pollutants that can be discharged and still allow a water body to meet water quality standards set by the states under the Clean Water Act.[38] These pollutants come from energy facilities, factories, factory farms (also known as concentrated animal feeding operations, or CAFOs) and wastewater treatment plants, as well as from harder-to-control nonpoint sources such as many of the Bay's agricultural operations.[39] In 1972, Congress required that TMDLs be adopted for all water bodies if, after the application of modern sewage and wastewater treatment technologies, the waters continued to violate quality standards.[40] The Chesapeake Bay TMDL was formally adopted by the EPA on December 29, 2010, after the Bay states, including Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia, avoided adopting TMDLs for decades.[41] The Bay TMDL focuses on some of the biggest threats to the Bay watershed: nutrients, namely nitrogen and phosphorus.[42]

In the simplest sense, the TMDL is a rationing plan. It seeks to allocate pollution loads to waterways among the many sources of pollution in the Bay. To implement TMDLs, the EPA and the states must use their respective authority to ratchet down or restrict pollutant discharges through permits and other state regulatory programs. According to the EPA, the Bay TMDL should restore water quality in the Bay at some unspecified time after the year 2025.[43]

b Although crop operations are considered to be nonpoint sources under the Clean Water Act, concentrated animal feeding operations (CAFOs) are designated as point sources under the Act. However, the EPA and state agencies refuse to force CAFOs to adhere to the many protective provisions that other point sources must abide by. For example, CAFOs are not required to monitor and report their discharges of pollution.

One of the primary pollution problems facing the Chesapeake Bay is nutrients from agricultural operations.[44] Estimates from 2014 place agriculture's contributions to Bay nitrogen and phosphorus loads at 42 percent and 55 percent, respectively.[45] For decades, the Bay states and the federal government have plied the agricultural industry with taxpayer funds to implement voluntary practices, to little or no avail.[46] Although cost-share programs, manure storage sheds, cover crop initiatives and other "Best Management Practices" have been implemented to the tune of hundreds of millions of dollars, the health of the Bay continues to decline.[47]

However, the failure of voluntary approaches in agriculture-related restoration efforts did not stop the EPA from relying on yet another voluntary, incentive-based approach in the TMDL.[48] The EPA's Bay cleanup plan contemplates nutrient pollution trading as one of the main components of Bay restoration, and, instead of taking on any responsibility for overseeing and implementing this untested practice, the EPA is allowing the Bay states to come up with their own patchwork approach to pollution trading.[49]

One such Bay state-implemented water pollution trading program is in Pennsylvania (see page 9). Pennsylvania has the longest running trading program of any Bay state. In 2014 alone, credits for more than 1.6 million pounds of nitrogen and over 100,000 pounds of phosphorous were generated from agriculture-related operations that went to industrial point sources like wastewater treatment plants and coal-fired power plants.[50] This investigation of trading in Pennsylvania relies on public documents regarding a nutrient credit broker, Red Barn Trading Company, as well as on other state agency documents. Our inquiry shows a fundamentally broken and unaccountable system of credit swapping, whereby industries are free to pollute under a "sky's-the-limit" permitting system while manure from agricultural operations is trucked from one impaired watershed to another to generate credits.

Ohio River Basin's Industry-led Trading Program

Whereas state regulators are driving water pollution trading in the Bay region with the Bay TMDL, it is an industry-backed group, the Electric Power Research Institute (EPRI), that is working to bring the practice to the Ohio River Basin on behalf of its power plant membership.[51]

With the implementation of new Clean Air Act pollution control requirements, the coal-fired power plant industry found itself in a quandary. New air scrubbing technologies resulted in a dramatic increase in wastewater discharges of nitrogen and phosphorus from the plants directly into local rivers.[52]

The Ohio River Basin contributes significantly to the massive, nutrient-caused dead zone in the Gulf of Mexico each summer, accounting for 37 percent of nitrogen loads and 32 percent of phosphorus loads into the Mississippi River and then out into the Gulf.[53] The Basin is also home to 53 of these coal-fired power plants, and their impact on already nutrient-impaired waterways is significant.[54]

Faced with the burden of technology upgrades to reduce or eliminate these water nutrient discharges, the industry turned to EPRI to launch a water pollution trading pilot program in the Basin to relieve the industry of having to upgrade their facilities.[55] Funded in 2012 by $1 million in taxpayer money through a USDA grant, the EPRI Ohio River Basin two-year pilot project is slated to end in 2015, but EPRI has already gone on record as holding out several individual trading programs as indicative of success.[56] In a 2013 technical report entitled *Case Studies of Water Quality Trading Being Used for Compliance with National Pollutant Discharge Elimination System Permit Limits*, EPRI listed the Alpine Cheese Company in Ohio as an example of a successful nutrient trading program.[57]

Alpine Cheese has been used time and again by trading proponents as the poster child for water pollution trading, most notably by Richard H. Moore from Ohio State University, whose group at the university was paid by Alpine Cheese as part of the pilot.[58] Contrary to the representations made, the trading program is rife with a lack of accountability, ongoing permit violations and no attendant improvement in water quality. In fact, the Alpine Cheese case is a prime example of water pollution trading only in that it underscores all that is *wrong* with this reckless approach to water quality (see page 16).

The Theory of Water Pollution Trading

Simply put, nonpoint-to-point source water pollution trading rests on the belief that it is less costly to reduce nutrient pollution from agricultural sources than it is from industrial point sources like wastewater treatment plants. Adherents of trading, by focusing their attention on downstream receiving water bodies like the Chesapeake Bay or the Gulf of Mexico, take the position that a pound of upstream nutrient reduction is the same regardless of the source, and that a grass buffer filter on a farm is cheaper to install than a nutrient filter on a coal-fired power plant.[59] In addition to the point source cost-saving benefit, trading proponents also highlight the nonpoint-to-point source approach as one that will further incentivize agriculture, the largest source of nutrient pollution in U.S. waterways, to take steps to reduce their own loads (See "The Story of Water Pollution Trading" on pages 14–15).[60]

Point Source Control: Economic Cost Avoidance

The Clean Water Act generally requires industrial point sources to attain pollution discharge limits that result from the "Best Available Technology Economically Achievable," or BATEA.[61] In practical terms, this means that industries are supposed to do the best they can, using the most advanced technologies available, to reduce their discharges of pollution to our waterways. The "economically achievable" part means that at some point, further reductions simply do not become cost-efficient, but the hope is that further, affordable technological advances will make it possible to one day attain the Act's goal of eliminating pollution from our waterways.

Trading theorists suggest that it is these last, incremental reductions that industries should be able to meet through the purchase of agricultural credits, allowing industry to avoid additional reduction costs while still achieving downstream load reductions.[62] However, neither industry nor government has the same view of the limited utility of pollution credits. Instead, power plants are being permitted to use credits to cover their entire discharge of nutrient pollution into nutrient-impaired rivers — in the case of Brunner Island in Pennsylvania, for as much as 87,000 pounds of nitrogen in some years.[63] Also, the ability of industrial point sources to use pollution credits is destroying the individual accountability framework of the CWA, essentially returning us to the failed ambient water quality approach that resulted in the 1960s water crisis.

Nonpoint Source Control: Agriculture and Voluntary Incentive Programs

Trading supporters also claim that pollution trading creates financial incentives for industrial agriculture — the largest source of nutrient pollution in many of our nation's waters — to clean up its mess.[64] They say that trading represents the kind of out-of-the-box thinking that will help restore our many impaired waterways.[65] However, these financial incentives have existed for decades in an ongoing and failing effort to stop agricultural pollution.

The agricultural nutrient pollution problem does not stem from a lack of voluntary and financial incentives. Instead, it is a result of government's steadfast refusal to implement what has worked so well in the point source sector: individual accountability, discharge limits, monitoring and transparency. Yet, rather than bringing some of these successful point source control mechanisms to the agricultural sector, trading adherents are moving some of the failed nonpoint source approaches over to point source industries under the guise of water pollution trading.

Water Pollution Trading Case Studies: Where Reality Contradicts Theory

Red Barn and the Pennsylvania Program

Lack of Oversight and Independent Verification

Proponents who view water pollution trading as a way to improve water quality are all in agreement that there must be careful oversight of credit generating and purchasing, with verification and accountability built into trades. Yet oversight, verification and accountability are all, to a large degree, undefined concepts. Our review of Red Barn and the Pennsylvania program shows that the ideal trading that supporters might envision is far removed from the reality on the ground.

Pennsylvania is one of the biggest sources of nutrients to the Chesapeake Bay, in part because of a long history of ineffective regulation of agricultural operations. Starting in 2005, the state implemented its water pollution trading program as yet another incentive-based approach to agricultural pollution. The application process for agricultural credits includes steps for verifying the eligibility of a farm to generate the credits, checking the Best Management Practice (BMP) planned to generate the credits, a calculation of the amount of nutrient pollution avoided, and a verification plan.[66]

Because of the way that the Pennsylvania trading regulations are structured, the state Department of Environmental Protection (DEP) takes a virtually hands-off approach to water pollution trading, leaving the application and credit verification process largely in the hands of pollution credit broker services that have cropped up in the state. Red Barn Trading Company, located in Lancaster, Pennsylvania, is one such company. In 2014, Red Barn was the third largest source of verified nitrogen credits in the state.[67]

Given the degree of control that for-profit companies like Red Barn have over the credit trading program, Food & Water Watch decided to look at all the ways that Red Barn was working with farmers and state officials. We also wanted to look at the records for the largest non-municipal (and third largest overall) purchaser of credits, PPL Energy, the operator of the Brunner Island Power Plant. We filed Pennsylvania Right to Know Law requests for both Red Barn and Brunner Island and received 942 documents, all of which we analyzed. All references in this report to specific proposals, verification reports or sales in Pennsylvania's pollution trading scheme will refer either to documents received from those requests or to public documents.

The documents reveal that much of the trading process in Pennsylvania is outsourced to Red Barn. All of the authority, verification and trading, which should be under the auspices of employees of state environmental protection departments, has been placed in the hands of the company. Red Barn is a one-stop shop for farms that want to sell pollution credits to other industries. Red Barn works with farms to put together the application for credit-generating to submit to the DEP.[68] Those credit-generation proposals are based on BMPs that Red Barn recommends in Nutrient Management Plans that it creates for the farm.

Once the DEP certifies the proposal, it is Red Barn, not the state, that verifies that the credits are, in fact, being generated by the BMPs that Red Barn included in the farm's Nutrient Management Plan.[69] Red Barn then sells those "verified" credits at an auction run by the Pennsylvania Infrastructure Investment Authority (PENNVEST) to buyers that need the credits to meet their permit needs.[70] Red Barn, through its contracts with farmers and credit purchasers, is involved in every step — from proposal to disposition — of selling water pollution credits.

The lack of agency oversight and the degree to which companies like Red Barn control the trading process from

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cradle to grave create significant potential for abuse. Historically, pollution credit trading regimes, and especially those including offsets, have had difficulty detecting and preventing fraud and abuse. For example, INTERPOL looked at a variety of carbon cap-and-trade schemes, including the European Union's program, the world's largest such scheme, and found a variety of examples of current and potential fraud.[71] Likewise, the U.S. Renewable Fuels Standard (RFS) trading program, perhaps more than any other environmental trading scheme, has been vulnerable to fraud and manipulation. As of November 2011, the EPA believed that about 140 million renewable energy credits (9 percent of the total market) had been fraudulently generated and sold under the RFS program.[72]

Although our review of the Pennsylvania trading program uncovered no direct evidence of fraud, the oversight by regulatory agencies that trading proponents demand as an integral component of water pollution trading is virtually absent in the Pennsylvania program. Leaving private companies that profit from the sale of credits in charge of verifying that those credits do, indeed, exist makes a mockery of the concept of oversight and creates the potential for fraud.

Shifting Pollution From One Impaired Waterway to Another

One of the dominant BMPs that Red Barn and its client farmers engage in to generate nutrient credits under the Pennsylvania program is manure export, or shipping manure from industrialized animal factory farms out of the watershed to another location where it could be used as fertilizer.[73] This is especially attractive for poultry manure, which is fairly dry and therefore amenable to transportation.[74]

Not only does Red Barn like to take advantage of the manure transport system, but poultry litter transport also has been a favorite method of generating credits in Pennsylvania. About 29 percent of all nitrogen credits certified in the state in 2014 came from poultry manure

transport.[75] For Red Barn, poultry litter export has been a huge boon to its business. Red Barn registered about 17 percent of all of Pennsylvania's certified nitrogen credits in 2014.[76] About 92 percent of those came from poultry manure export, purportedly out of the Chesapeake Bay watershed.[77] Indeed, Red Barn alone accounted for over half of the certified nitrogen credits attributable to exporting poultry litter out of the Chesapeake Bay watershed statewide.[78] In the 2010–2011 farm year, which runs from October 1 to September 30,[79] this comprised over 10 million pounds of chicken manure.[80] In 2011–2012, it was over 5 million pounds.

Where Does the Manure Go, and How Is it Tracked?

Where do all those thousands of tons of manure go when they purportedly leave the Bay watershed? According to the documents produced by the DEP, the vast majority of the manure was transferred to a single hay farm in the southwestern part of the state, J&L Hay.[81] In 2010–2011, over 90 percent of Red Barn's manure export went to J&L Hay, while in 2011–2012, all of it was sent to J&L Hay.[82]

J&L Hay is located in the Ohio River Basin, itself the subject of a water pollution trading scheme.[83] Indeed, the farm that is listed as receiving all of this manure sits less than a mile from Wells Creek, which is impaired for both sediment and nutrient runoff.[84]

Once it arrives at J&L Hay, the manure can end up anywhere, because, according to state records, J&L Hay also acts as a manure broker.[85] When Food & Water Watch inquired about the final disposition of the manure, the Pennsylvania DEP responded that it had no records for the farm.[86] The broker can ship the manure to whomever wants it, and the DEP does not keep records for the final disposition.[87]

Simply shifting mountains of manure around the state, from one impaired waterway to another, is not dealing with our water quality problem (which water pollution trading proponents claim is the goal of trading), nor is it forcing the unsustainable factory farm industry to clean up its pollution problem. Instead, a significant number of pollution credits in Pennsylvania are being generated through what can only be described as a shell game, whereby piles of manure move from place to place to pollute local waterways while middlemen brokers skim profits from sales of highly questionable credits.

Other Questionable Credit-Generating Practices

The single-largest sector source of nutrient credits in Pennsylvania is wastewater treatment plants[c] that are below their effluent limits from their National Pollution Discharge Elimination System (NPDES) permits (see Figures 1–2).[88]

Fig. 1 • Phosphorous Credits BY SOURCE TYPE

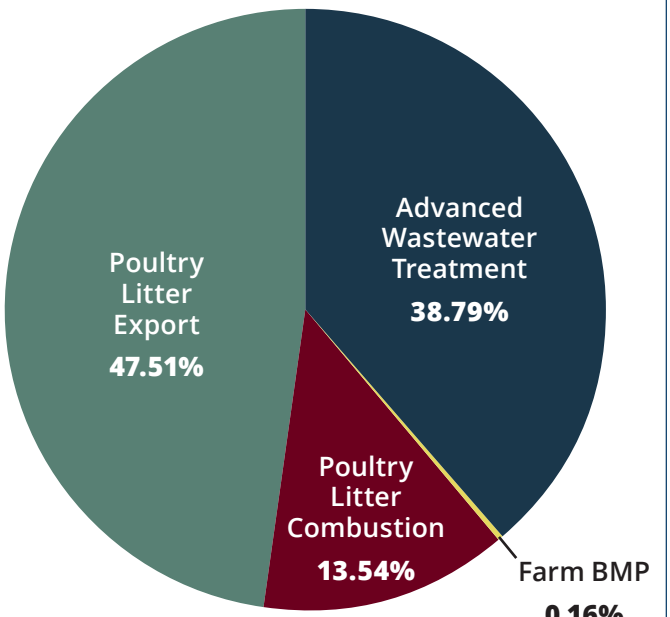
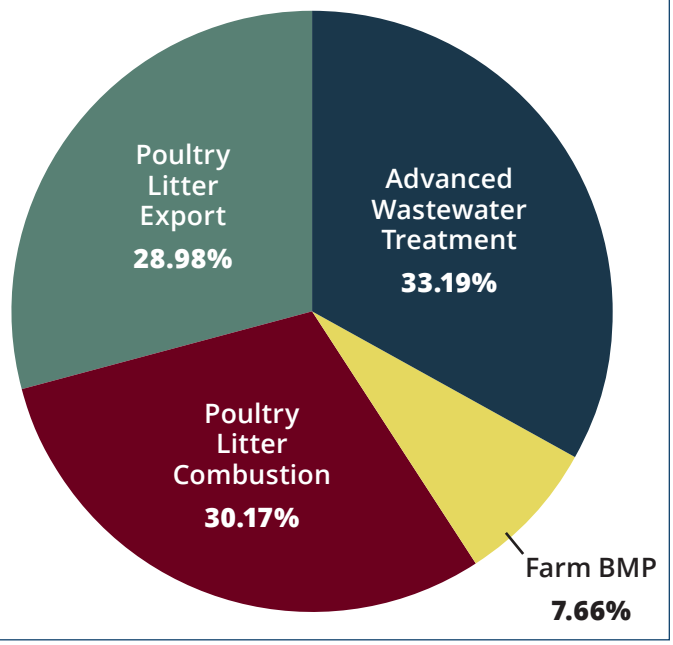


Fig. 2 • Nitrogen Credits BY SOURCE TYPE



SOURCE: Pennsylvania Department of Environmental Protection. "Certified Nutrient Credit Generator Proposals." Updated November 14, 2014.

c Pennsylvania distinguishes between poultry litter export and poultry litter incineration in calculating nutrient generation, leaving wastewater treatment plants as the single largest credit generator. However, when these two sources are combined, poultry litter from factory farms generates more nutrient credits than any other source, with 51 percent of phosphorus and 59 percent of nitrogen.

Under the Pennsylvania water pollution trading scheme, if a wastewater treatment plant discharges fewer pollutants than it is allowed under its permit, it can convert this excess, known as "headroom," to credits and sell them to other polluters.

The notion that point source facilities can even generate credits runs counter to the fundamental premise of the Clean Water Act. The very first section of the Act states that the goal is to eliminate discharge of pollutants to our waterways.[89] The CWA point source permitting system is designed to control discharges by imposing the greatest pollution controls that are economically feasible for each specific industry under regulation.[90] These standards are continually ratcheted down through annual review of the regulations and are revised to match changes in the regulated industry or in the available pollution control technologies.[91]

In short, point source facilities are required to be designed, operated and permitted in a manner that results in the least amount of discharge; there is no room for "headroom" in the permit. Allowing this headroom to be used to generate credits results in net increases of pollution to waterways, in direct contradiction of the goals of the CWA. In Pennsylvania, over 200,000 pounds of nitrogen credits were generated this way in 2014 alone.[92] That means that over 100 additional tons of nitrogen were discharged into the state's waterways because of trading.

The same problem can be found in agricultural credits certified by the state. For example, one farm received credit for three BMPs: a 35-foot riparian buffer, a 100-foot setback on which there was no mechanical manure spreading and continuous no-till farming.[93] While all of these may somewhat limit the nitrogen runoff from the farm, all three were already in place when the operations applied for the credits.[94] Therefore, the credits generated from these practices represented a net increase of pollutant loads to waters of the state.

Paradoxically, wastewater treatment plants not only generate a large amount of nutrient credits by selling off permit headroom, but those that are unable to meet protective permit limits can simply purchase credits from other sources to pollute. In the summer of 2014, the Scranton Sewer Authority entered into a multi-year contract with EnergyWorks — a company that converts chicken manure into energy — to allow the Scranton facility to operate above their permit cap limits.[95]

While trading proponents among the environmental community continue to insist that the practice is intended to clean up waterways, the joint press release from Scranton Sewer Authority and Energy Works' parent company leaves little doubt as to the real goal of pollution trading: "Pennsylvania law allows municipalities and businesses operating above their permit cap limits to purchase offsetting credits from facilities that are certified to produce verifiable reductions in the flow of nutrient pollution to the Chesapeake Bay."[96] But using credits to exceed permit limits is not "compliance" — it is simply attempting to excuse permit violations and avoid accountability.

Loss of Accountability Under the CWA Point Source Program

What is perhaps most disturbing about the Pennsylvania trading program is the destruction that it brings to the most successful part of the 40-year old Clean Water Act: the oversight and control of industrial point sources of pollution.

Brunner Island Steam Electric Station is a 1.4 gigawatt coal-fired power plant in Pennsylvania.[97] It has a history as a polluter, ranked as the 27th dirtiest power plant in the nation in 2006 for its sulfur dioxide (SO_2) emission rate, and as number 19 for total tons of SO_2 emissions.[98] In 2011, the PennEnvironment Research & Policy Center released a report calling Brunner Island the 59th most polluting power plant in the country.[99] This is shocking, given that there were over 7,300 power plants in the United States in 2013.[100] The EPA reports that Brunner Island has

been in noncompliance for nitrogen discharges two out of the last three times it was tested, dating back to 2012.[101]

Thanks to water pollution trading, Brunner Island's CWA permit compliance problems for nitrogen discharges are over. Before Pennsylvania engaged in water pollution trading, facilities like Brunner Island were given a permit to discharge pollutants within concrete, measured and verified limits. Facilities could discharge 100 or 1,000 or 10,000 pounds of nitrogen per year, but they needed to show, through regular end-of-the-pipe water sampling, that they met the limit. Over time, as reduction technologies improved, permit limits were ratcheted down to smaller amounts. That technology-driving, source-by-source approach has brought many of our waterways from the brink of disaster in the 1960s to relatively good health today.

Water pollution trading has put an end to accountable CWA permitting.

Brunner Island now operates under a fictitious "net zero" nutrient discharge permit, free to discharge as much nutrient pollution as it purchases credits for.[102] And Brunner Island has been taking full advantage of the scheme. It was the third largest buyer of nitrogen credits in Pennsylvania in both 2013 and 2014, purchasing 87,000 credits in 2013 and 78,000 in 2014.[103] That amounts to almost 10 percent of all credits purchased statewide each year.[104]

Even some of trading's proponents are frustrated in their efforts to hold point source credit purchasers like Brunner Island accountable. In 2012, the USDA gave a grant of just over $700,000 to the Chesapeake Bay Foundation, a member of the NNWQT, to help assess water pollution trading in the Bay watershed, specifically in Pennsylvania and Virginia.[105] However, in October 2014, the Chesapeake Bay Foundation filed a 60-day notice of intent under the CWA to file suit against Brunner Island for its questionable use of nutrient credits, some of which were purchased from Red Barn.[106] Such notices are a common enforcement strategy under the Act that allows private citizens to sue permittees that are alleged to be in violation of a permit.[107] This has been a powerful tool for environmental activists, as it allows them to enforce the law even if state and federal agencies cannot or will not.

In its notice letter, the Chesapeake Bay Foundation pointed to the problems that Food & Water Watch has been pointing to for years: that the agricultural credits being purchased were not verified and that there is no proof that the claimed credit-generating activities actually took place.[108] In sum, the Chesapeake Bay Foundation said the Pennsylvania DEP failed to show that there is, through trading, a net reduction in pollution.[109]

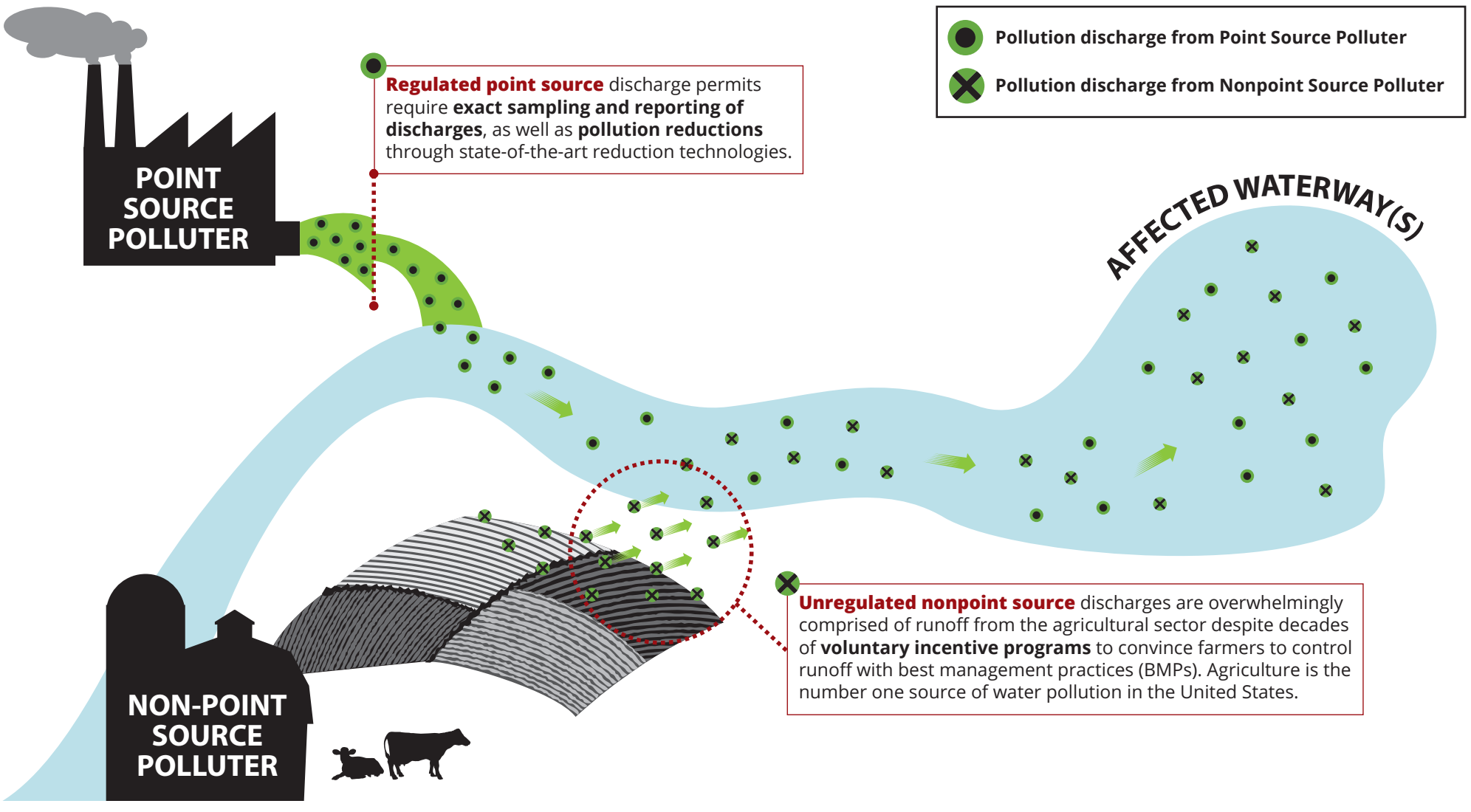
Unfortunately, despite the threat of litigation, no suit was ever brought forward, even long after the expiration of the 60-day notice period, nor could it. Brunner Island no longer has permit limits that citizens can monitor and enforce; it essentially operates under a nutrient discharge allowance that is limited only by the number of credits that the facility purchases. Unfortunately, our waterways will bear the burden of this unaccountable approach; water pollution trading means the end of the CWA as we know it.

The Story of Water Pollution Trading

POINT SOURCE POLLUTER: Under the Clean Water Act, industrial facilities that discharge pollutants into a waterway through a pipe or any other kind of "discrete conveyance" are required to get a discharge permit issued by the EPA (or the state agency authorized to administer the program) and monitor and report their discharges to regulators and the public. CWA-permitted facilities are expected to install state-of-the-art pollution reduction technologies to minimize their discharges.

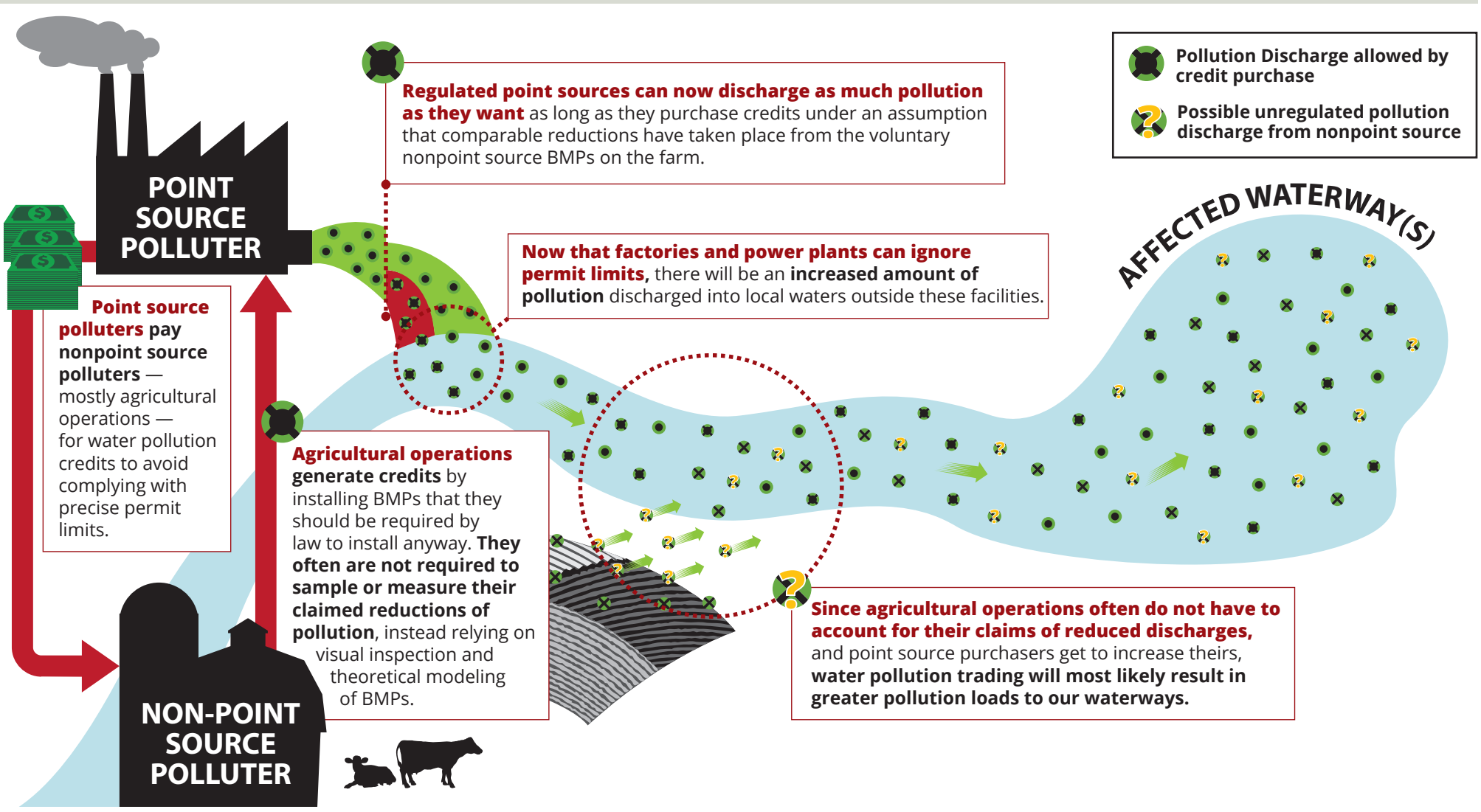
NONPOINT SOURCE POLLUTER: Nonpoint sources include all of the diffuse runoff that is not associated with discrete, point source industrial pollution. Chief among these polluting sources is the agricultural sector, which, despite more than 40 years since the introduction of the Clean Water Act, remains largely unregulated.

Pollution Discharge **WITHOUT** Water Pollution Trading



Water pollution trading is a pay-to-pollute scheme that brings the worst of our failed voluntary nonpoint source approaches to the point source sector, giving factories, wastewater facilities and power plants a way out of complying with their current discharge limits and threatening our already impaired waterways. The Clean Water Act has successfully reduced pollution from power plants, wastewater treatment plants and other point source polluters into our public waterways. However, nonpoint source discharges from agriculture and other diffuse sources have remained largely unregulated, resulting in significant pollution into rivers and lakes.

Pollution Discharge **WITH** Water Pollution Trading



Alpine Cheese Company in Ohio

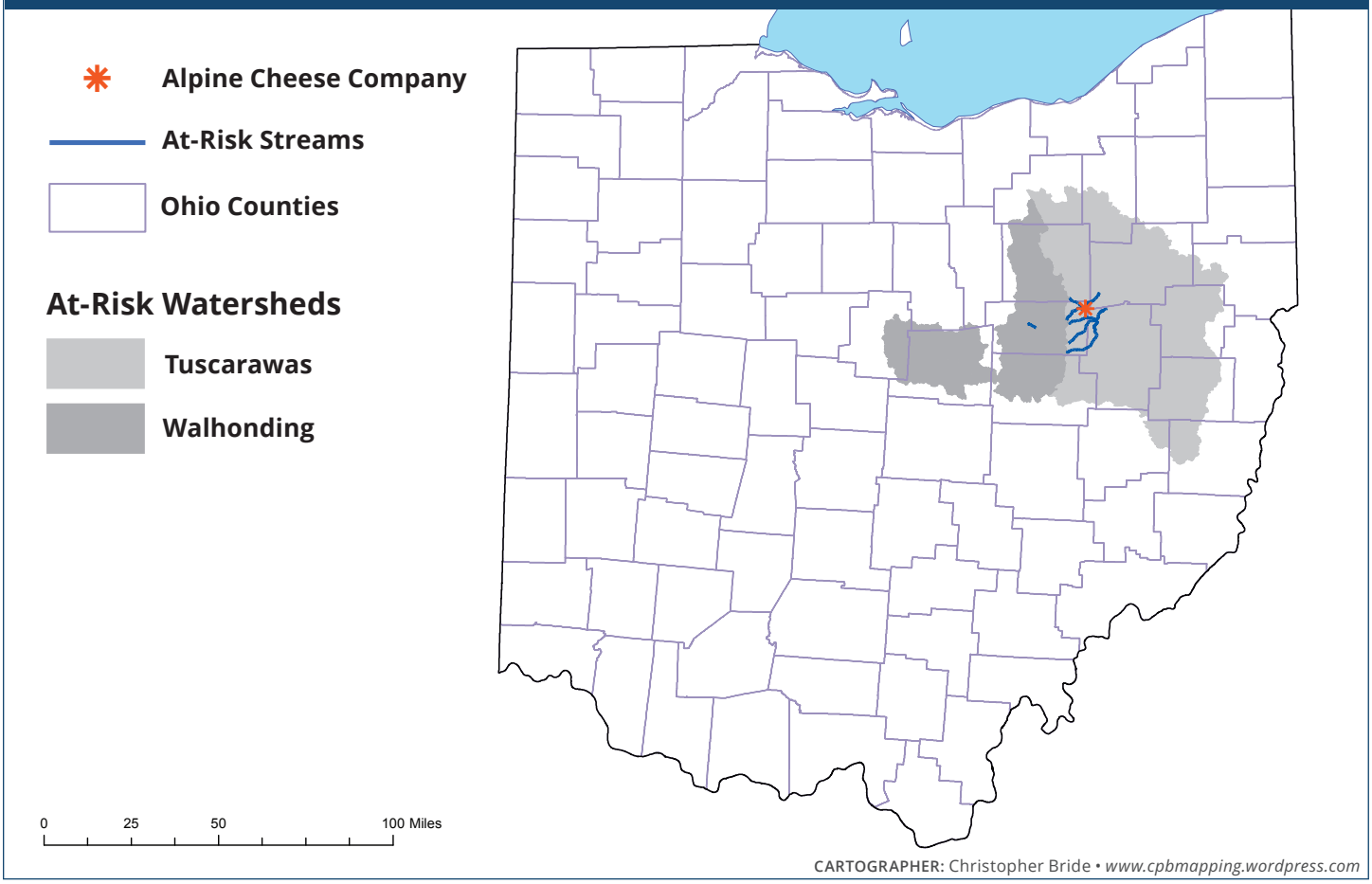
Pennsylvania is not the only example of how water pollution trading is destroying the Clean Water Act and handing our waterways over to the highest pollution credit bidders. Thanks to the Electric Power Research Institute (EPRI), working on behalf of its power plant clients, a broad, multi-state water pollution trading program is being implemented in the Ohio River Basin. States like Ohio have followed Pennsylvania's lead and have begun their own state-based trading programs.

In 2005, planning of a water pollution trading pilot program began when the Alpine Cheese Company of Winesburg, Ohio — a point source polluter — wanted to expand its operations.[110] This expansion meant increased amounts of wastewater discharge into local, impaired waterways — primarily Middle Fork Sugar Creek and other tributaries of Sugar Creek within the Tuscarawas Watershed of the Ohio River Basin.[111]

Under a TMDL for Middle Fork Sugar Creek, Alpine Cheese should have been allowed to discharge only 1.23 pounds per day of phosphorous, or 319 pounds each year, via wastewater discharges of 1 milligram per liter (mg/l) of phosphorous at a total wastewater volume of 0.02 million gallons per day (MGD), or 5.2 million gallons per year.[112] However, under its expansion and subsequent participation in the trading program, Alpine Cheese was permitted to increase its phosphorous discharge levels to 3.74 pounds of phosphorous per day, or 972 pounds per year, via wastewater discharges of 3.2 mg/l at a total wastewater volume of 0.14 MGD, or 36.4 million gallons per year.[113] This equates to a 200 percent increase in pounds of phosphorous released into waterways, or a 600 percent increase in phosphorous-containing wastewater discharge over what should have been allowed to protect local water quality.[114]

In order to comply with the TMDL limits, Alpine Cheese was facing wastewater treatment upgrades at a projected cost of about $1 million.[115] Rather than pay for these tried-and-true upgrades, however, the Alpine Cheese Phosphorous Nutrient Trading Plan was created in 2005 as an alternative — a project estimated to cost about $800,000.[116] Unfortunately, the $200,000 in savings does not reflect the continued costs to public waterways, such as Sugar Creek, that remain impaired.

Fig. 3 • OVERVIEW: Alpine Cheese Nutrient Trading Plan Area



CARTOGRAPHER: Christopher Bride • *www.cpbmapping.wordpress.com*

SOURCE: Food & Water Watch analysis of FOIA documents from Northeast District Office, Ohio EPA. On file at Food & Water Watch.

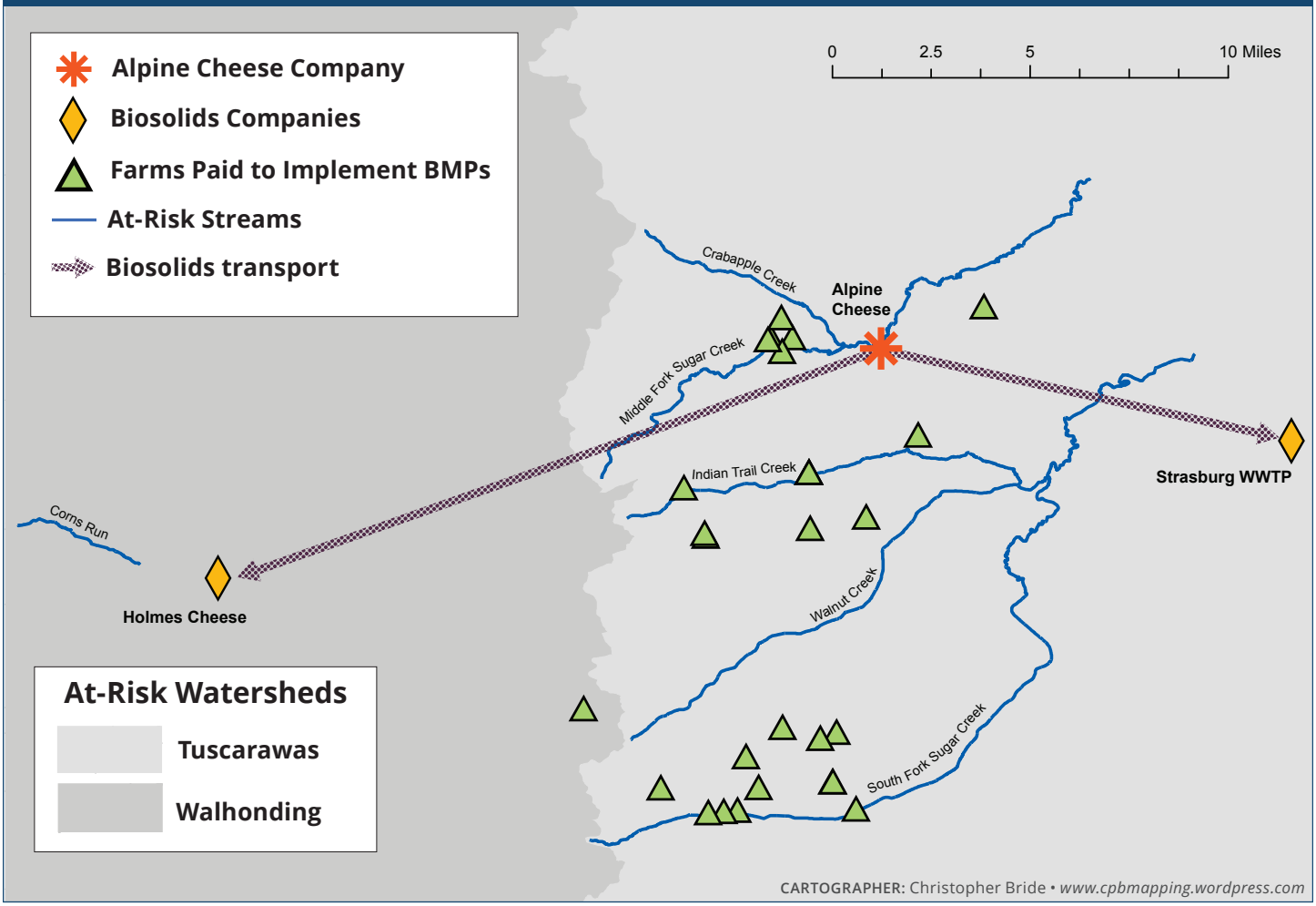
The Alpine Cheese Phosphorous Nutrient Trading Plan

Food & Water Watch requested documents related to the Alpine Cheese trading program through Freedom of Information Act requests (FOIAs) to the Ohio EPA. Based on the documents received, the Alpine Cheese case looks much less like the poster child that its proponents claim it to be; instead it is a program that embraces extensive permit noncompliance and violations, persistently impaired waterways, lax monitoring and verification of BMPs, and biosolids mismanagement, among other problems.

The Alpine Cheese trading program purportedly was designed to result in reduced phosphorous discharges into the Middle Fork Sugar Creek as well as the Indian Trail and Walnut creeks and South Fork Sugar Creek Headwaters. Instead of Alpine Cheese making phosphorus reductions to meet Sugar Creek water quality requirements, the facility was given relaxed discharge standards in a five-year NPDES permit, from 2007 to 2011.[117] In exchange for these relaxed standards, the facility paid 25 farms in the watershed to undertake some 90 BMPs in order to make the needed nutrient discharge reductions.[118] The trading program effectively allowed Alpine Cheese to keep discharging pollution on-site, as well as to increase discharges as part of its production expansion, rather than complying with the appropriate NPDES permit limit. This ultimately created an offsetting system to account for the discharges that Alpine Cheese wanted to continue.

The initiative was a joint effort by the Alpine Cheese Company, Ohio State University, Holmes County Soil and Water Conservation District (SWCD) and the Ohio Environmental Protection Agency.[119] The SWCD was the broker between the farms and farmers, and the Ohio EPA.[120] It also was responsible for verifying and monitoring the BMPs to ensure that reductions were happening.[121] The SWCD's oversight role in the trading program was necessitated, in part, because of political interference. In 2005, U.S. Representative Bob Gibbs, then-Ohio Representative of the 97th District, wrote a letter to the Ohio EPA stating his objection to its intended level of

Fig. 4 • DETAIL: Alpine Cheese Nutrient Trading Plan Area



SOURCE (Figures 5 and 6): Food & Water Watch analysis of FOIA documents from Northeast District Office, Ohio EPA. On file at Food & Water Watch.

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involvement in the Alpine Cheese nutrient trading program.[122] He claimed that:

> *The Ohio EPA insists that they must be given approval in the plan that at any time of their choosing to visit any farm site involved in this Nutrient Trading Program [sic]. Area residents are insistent that for the Ohio EPA to [be] given authority to visit any farm at any time would destroy the program.*[123]

The inability of the Ohio EPA to carry out its environmental oversight function was just the first indicator that the Alpine Cheese trading program was not on the right track for success. That red flag has been borne out in Food & Water Watch's review of documents related to the trading program, which, with its lack of oversight, accountability, verification and water quality improvement, largely mirrors the Pennsylvania experience.

The Real Alpine Cheese Story

The very goal of the Alpine Cheese pollution trading project counters any pretense that water pollution trading is aimed at improving water quality, as opposed to providing a mechanism whereby point source polluters can avoid reducing discharges. Under the plan, success is defined as ensuring that biotic function of the watershed is maintained throughout the time of the pilot, and that phosphorous loading in year five does not exceed the 1.23 pounds per day limit after accounting for phosphorous reductions through BMP offsets at other farms.[124]

The first measure of success sets the tone for just how substandard this program is: the goal is not to improve the waterway beyond its current, impaired state, but rather to maintain the biotic dysfunction of the waterway — in essence, its current state of impairment.[125] As of 2010 (the most recent information available), 87.8 percent of Ohio waterways were impaired for aquatic life (which falls under the biotic functioning of these waterways), with nutrients listed as the fourth leading cause of impairment for 18,234 miles of the state's waterways.[126] Several sections of Sugar Creek were listed as impaired for aquatic life and recreational use, with nutrients listed as one of the causes of impairment for aquatic life.[127]

National Pollution Discharge Elimination System Permit Noncompliance and Violations

Proponents of trading offer it as a way for permit holders to meet permit limits.[128] However, Alpine Cheese has an inexcusable and ongoing history of permit violations. The information that Food & Water Watch received[d] shows that between 1999 and 2014, Alpine had a combined total of some 928 limit violations and about 323 reporting violations, for a total of about 1,251 permit violations over the last 15 years.[129] This number could be even higher, since not all data were disclosed in materials returned from FOIA requests.

Tellingly, the bulk of these violations occurred between 2005 and 2011, while the nutrient trading pilot program was being developed and later implemented.[130] During

d Despite Food & Water Watch's request for all documents related to Alpine Cheese's compliance with its permit, there were some gaps in the records we received.

this period, Alpine Cheese had about 712 limit violations and about 49 reporting violations, for a total of some 761 permit violations over the course of the pilot program (see Figure 5).[131] Again, these numbers could be even higher because of a lack of complete records provided by the Ohio EPA. It is also worth noting that these were not violations of the protective standards that should have been in place under the TMDL, but violations of relaxed standards left in place because of the trading program offsets.

Some of these violations were especially egregious, and, in some cases, Alpine Cheese exceeded permit discharge limits by as much as 3,893 percent and 778 percent.[132] A significant number of the violations were in excess of 50 percent of the required discharge limits.[133] These violations were for nutrients such as phosphorous, nitrogen, fecal coliform and others, and were discharged into the Middle Fork Sugar Creek via an unnamed tributary (see Figure 6).[134]

Fig. 5 • Alpine Cheese: Number of Limit and Reporting Violations

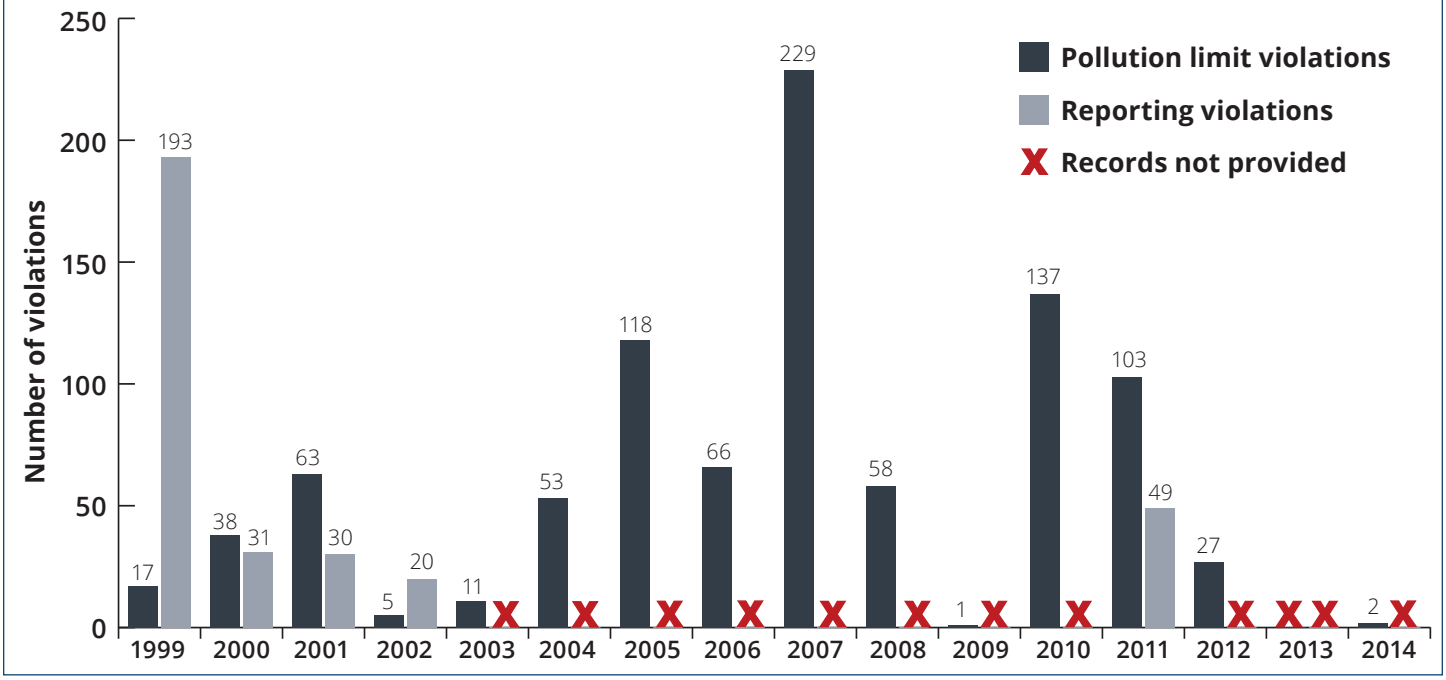


Fig. 6 • Alpine Cheese: Number of Limit Violations by Pollutant

SOURCE: Food & Water Watch analysis of FOIA documents from Northeast District Office, Ohio EPA. On file at Food & Water Watch.

Regarding the permit compliance status of Alpine Cheese, between 2012 and 2015 alone (the most recent reporting periods), the company was listed as being in "Noncompliance" for 8 quarters out of a total of 12.[135] In addition, between June 2010 and March 2015, Alpine Cheese had instances of noncompliance with its permit every year.[136] Documents obtained from Food & Water Watch's FOIA requests also show a persistent trend of violation and noncompliance between 1999 and 2009.[137]

Despite these ongoing examples of clear noncompliance, the most recent NPDES permit for Alpine Cheese, issued in May 2014, considers allowing Alpine to make changes to its wastewater treatment plant by moving the final outfall (discharge point of pollution) from the smaller unnamed tributary of Sugar Creek directly to the main stem of Middle Fork Sugar Creek.[138] The corresponding Antidegradation Report also discusses expanding the Alpine wastewater treatment plant capacity and hence its average daily flow (or discharge) volume into Sugar Creek from 0.140 million gallons per day to 0.160 MGD, since the main stem of Sugar Creek is a larger stream and can accommodate higher waste load allocations.[139]

In short, despite being able to take full advantage of upgrade avoidance by taking part in a nutrient trading program, Alpine Cheese has been a chronic violator of its discharge permit, with little to no accountability for the past 15 years. And now, after years of consistent noncompliance under cover of a trading program, the facility is seeking to expand and discharge even more pollution. Despite some trading proponents' insistence that permit violators should never be able to avail themselves of pollution trading, permit violators like Alpine Cheese seek to avoid compliance through credit purchasing.

Best Management Practices: Lack of Verification, Monitoring and Transparency

As stated, the Alpine Cheese trading program centers around the company paying nearby farms to implement BMPs to generate the credits it will use in place of making on-site reductions in nutrient discharges (see Figure 4). However, the verification, monitoring and transparency surrounding these BMPs is woefully inadequate, bringing into question the legitimacy of the entire program.

The phosphorous trading plan states that reports on the project will be submitted semi-annually over the five-year trading agreement by Holmes SWCD — the body responsible for monitoring and verifying BMPs — to the Ohio EPA.[140] However, in all of the 1,898 pages of documents that Food & Water Watch received via FOIA requests, there were only two of these semi-annual reports, totaling nine pages.[141] Other information, which may have been information on BMPs, was compiled on a compact disc and could not be fully accessed, or made sense of — not even by Ohio EPA personnel themselves — because of the software used.[142]

The other documents received from Holmes SWCD produced only some 29 pages of sparsely filled-out forms to show for the SWCD's monitoring and verification of the over 90 BMPs.[143] Many of these documents are barely filled out, or are filled out by hand and are often illegible. They are not even properly labeled in many cases, making it difficult to draw any kind of accurate conclusion about the number of credits generated.[144] Some forms consist of checking boxes and marking "yes" or "no."[145] This manner and scarcity of verification reports calls into question whether the verification methods are even accurate.

The lack of oversight becomes even more concerning since the BMP sites are in close proximity to Alpine Cheese, and, with very questionable monitoring and verification, the legitimacy of net reductions in nutrient discharges is highly suspect.[146] If it cannot be said for certain that BMPs are reducing nutrient discharges while Alpine Cheese continues to discharge pollutants above its permit limit, there is an incredible risk of no reductions in nutrient discharges and even net increases in nutrient discharges.

As stated earlier, point source pollution loads to our waterways under the Clean Water Act are subject to monitored and easily verified data. With Alpine Cheese and water pollution trading, we are now allowing a chronic CWA permit violator to swap out these verifiable and measurable discharges for unverifiable and unmeasured credits. Once again, water pollution trading represents a complete erosion of the CWA and its accountability core.

Biosolids (Mis)Management

Keeping in mind that the purported goal of water pollution trading is a net decrease of nutrient pollution to waterways, another disturbing component of Alpine Cheese's trading scheme concerns the company's sludge management. Under its NPDES permit, Alpine Cheese is required to properly manage its sludge byproduct, or biosolids.[147] These nutrient-rich biosolids are produced from the company's production processes, most of which come from the cheese-making facility.[148]

According to Alpine's "Biosolids Management Plan," the company produces 2,000 gallons per day of biosolids, with 260 days of production per year, or 520,000 gallons

per year.[149] The biosolids are treated and held on-site before being transferred off-site to Holmes Cheese Co.,[150] Bull Country Compost (BCC), Agri-Sludge Inc. or the Strasburg wastewater treatment plant for land application (see Figure 4).[151] The portion of biosolids waste that is used for land application is applied on nearby fields in either liquid or solid form, and some receiving sites, like Holmes Cheese Company, are only about 18 miles away from Alpine Cheese (and Sugar Creek).[152]

As of August 2003, Alpine Cheese was transporting about 24,000 gallons per day of sludge each month to the Holmes Cheese Company facility for holding, dewatering and disposal nearby.[153] This process of shipping around biosolids is problematic, however, since "digested biosolids typically [have] significant amounts of nutrients such as nitrogen, phosphorous and potassium."[154] If improper management occurs, this could lead to additional nutrient runoff, and Holmes Cheese's track record of compliance casts significant doubt on whether the facility is properly handling biosolids from Alpine Cheese.

According to the EPA Enforcement and Compliance History Online (ECHO) database, Holmes Cheese Company — run by the same person that owns Alpine Cheese[155] — is listed under the status of "significant noncompliance" (the most severe level of noncompliance possible) for its permit.[156] Between 2006 and 2007 alone, Holmes Cheese had 152 total permit violations, of which 73 were pollution limit violations and 79 were reporting violations.[157] In some instances, there were even discharge limit violations of as much as 4,662 percent for pollutants like phosphorous.[158] Ohio EPA documentation from 2007 found that "[b]ased on the Ohio EPA compliance tracking system, Holmes Cheese is in Significant Noncompliance for both Total Dissolve[d] Solids (TDS) and ammonia [nitrogen]."[159]

Discharge monitoring reports for Holmes Cheese also show rampant violations, exceeding permit effluent limits for several pollutants every year between 2007 and 2015, again including nutrients like phosphorus and nitrogen.[160] In addition, the waterway that Holmes Cheese discharges into, Corns Run, is listed as impaired.[161] Much like the state of the Tuscarawas watershed (which Alpine Cheese falls within), the Walhonding watershed that Corns Run lies within has significant waterway impairment, with the most recent data from 2010 showing that 46 out of 52 waterways are listed as "impaired" and only the remaining 6 are listed as "good."[162]

Another recipient of Alpine Cheese's biosolids, the Strasburg wastewater treatment plant, is also listed as being in a state of noncompliance.[163] Although its violations are not as egregious as Holmes Cheese's, most of the treatment plant's noncompliance is for phosphorous limit violations — the very nutrient that Alpine's trading program is supposed to address — with overages of as much as 79 percent and 48 percent.[164] Between April 2012 and June 2015, the Strasburg wastewater treatment plant is listed as being in noncompliance for 7 of the 12 quarters.[165] Discharge monitoring reports also show noncompliance for phosphorous from 2012 to 2014.[166]

The trend of biosolids mismanagement only raises further concerns that nutrient loads to public waterways are not being reduced, despite misleading claims to the contrary. Alpine Cheese's extensive pollution shifting scheme allows the company to ignore protective nutrient permit limits by purchasing credits from farms that allegedly are implementing nutrient reduction BMPs, and then shipping a portion of its own nutrient-laden biosolids waste off to other farms and facilities to be applied to land and potentially pollute waterways — all the while violating even the relaxed standards contained in the company's own discharge permit.

In the face of the information gleaned from the FOIA documents, claims that the Alpine Cheese trading program is a success appear unfounded. In addition to serving as a case study of how pollution trading is a false solution, Alpine Cheese serves as an example of how offsets continue to fail as a policy.

Bioassessment Inconsistencies and Subjective Congressional Testimony

Proponents of the Alpine Cheese trading program also have depended on a bioassessment report as proof that the trading program is working to clean up the Middle Fork Sugar Creek waterway.[167] This report was carried out by the Center for Applied Bioassessment & Biocriteria (CABB) at the Midwest Biodiversity Institute, and it also is relied upon in Congressional testimony supporting the trading program. [168]

However, the bioassessment was completed in 2010, and data from the U.S. EPA on the years leading up to and including 2010 conflict with the findings of the report.[169] The CABB report claims that the Middle Fork Sugar Creek waterway achieved full attainment status, but EPA data show that the same waterway, as well as surrounding waterways and the overall watershed, are still listed as impaired during the same time period, bringing into question the reliability of this assessment.[170] The bioassessment also relies on the claim that water quality improved because the presence of pollution-tolerant species improved; however, within the same findings it shows that the presence of pollution-intolerant species declined.[171]

Moreover, the monitoring and analysis necessary to determine reductions in phosphorous loading, and subsequent improvements in water quality, must be carried out over at least 10, if not 40, years at several sampling locations.[172] The bioassessment for Alpine Cheese was conducted in 2010 — only three years after the NPDES permit allowing the trading program began. Any assessment of water quality that claims results after only three years, like the bioassessment for Alpine, is wholly unfounded.

Despite the fact the Sugar Creek bioassessment was conducted only three years into the trading project, and at a time when Alpine Cheese was in regular violation of its discharge permit, in 2014 Richard Moore testified in front of Congress that the Alpine trading program was a success. Moore is the executive director of the Environmental Sciences Network at Ohio State University, whose group at the Ohio Agricultural Research and Development Center (OARDC) helped to develop the Alpine Cheese trading program.[173] The OSU team also received payment from Alpine Cheese under the trading program.[174]

In the testimony, Moore claims his group "acted as an impartial body to monitor the streams in the area to determine changes" and "achieved our five-year reduction goal (5,500 lbs. of phosphorous) in three years, and by year five the actual amount of phosphorous remediated was 7,133 lbs."[175] Based on monitoring requirements for detecting decreases in phosphorous loading and improvements in water quality, not enough time has passed nor enough information collected to make these claims.

Pollution Laundering and Reduction Evasion

The basis of the Alpine Cheese trading program — paying nearby farms to reduce their pollution discharges via BMPs and generating credits that Alpine can apply toward its NPDES permit limits — is nothing more than an offset scheme. But here, there is no attempt to meet even the minimal offset requirements that even proponents of market-based pollution control claim are necessary.

In this case, the credits generated by the BMPs are the offsets. The entire design of the program is not to improve waterways beyond their state prior to the trading program, but to maintain the impaired *status quo*. It is dangerously inaccurate to say that the Alpine program is a model to improve water quality, when it is nothing more than a way to evade compliance with protective permit standards through BMP offsets.

The Alpine Cheese program does not even meet necessary offset standards. On the issue of "additionality" — the requirement that any reduction in pollutant loadings that generate credits would not have occurred but for the trading program — there is no apparent baseline to determine whether the farm pollution reductions from the BMPs were actually additional and would not have happened but for the Alpine Cheese project. On the issue of "permanence," the program fails outright, as the

farmers contracted to install BMPs and generate credits are often held only under five-year contracts to carry out the BMPs.[176]

On the requirement that offsets be "quantifiable," the missing or minimal oversight and verification information and reporting violations gives very little indication that any level of reliable measurement is occurring — making claims that this program is quantifiable rather incredulous. It is also important to note that excessive reliance on modeling, in place of on-the-ground monitoring data, can actually lead to greater uncertainty of outcomes.[177] Unsurprisingly, enforcement requirements are clearly not met — a case in point is the lack of oversight by Holmes SWCD and the inability of the Ohio EPA to fully do its job because of political interference.

In the end, offsets offer a cheap shortcut, making them attractive to polluters, but they do not actually deliver lasting results. Unfortunately, the cost of these scams is arguably far worse than the cost of tried-and-true methods like technology upgrades and point source reductions. Instead, with offsets and trading, pollution continues to be dumped into our public waterways, the *status quo* is maintained and no meaningful improvements result.

Summary and Recommendations

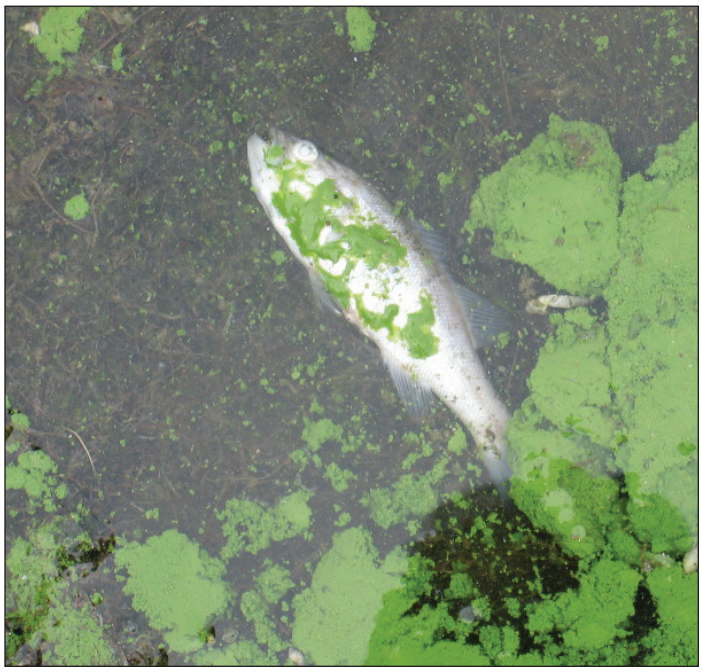
While proponents of water pollution trading put out lengthy, abstract treatises on the potential of idealized trading programs, the fact is that these approaches are being implemented the way that industries want them to be: as a mechanism to avoid permit compliance and expenditures for pollution reduction.[178]

As can be seen in both the Pennsylvania and the Ohio case studies, water pollution trading has not improved water quality and has allowed industries to discharge more pollution into our waterways. Water pollution trading represents the rollback of the Clean Water Act that industry has been seeking for over 40 years, and now many in the environmental community are embracing this market-based approach to undermine our current clean water laws.

Some trading proponents, while recognizing the potential pitfalls of trading, argue that the remedy is in designing "good" water pollution trading programs, with protective standards and strong verification and accountability measures.[179] Sadly, this is a naïve position that fails for a number of reasons. As seen above and in various other current trading projects, it is not the environmental community that will make and implement the trading rules. As is the case in Pennsylvania, the rules will be left to industry, third-party brokers and unengaged state agencies. And when the environmental community tries to use its right under the CWA to intercede in bad trading practices, as the Chesapeake Bay Foundation did with Brunner Island, it will find itself stripped of authority and without remedy.

Not surprisingly, not even the EPA is able or willing to enforce even the minimal water pollution trading standards it put in place in its 2003 trading guidance.[180] In that guidance, the EPA states that it does not support water pollution trading to "comply with existing technology-based" permit limitations.[181] Tech-based limits are those limits in a permit that a facility should be able to attain using Best Available Technologies. Additional limits, called water quality-based limits, can be added into permits when tech-based limits are not enough to attain local water quality.[182] According to the EPA and trading proponents, it is only these higher, water quality-based limits for which point sources should be able to purchase credits.[183] However, with Brunner Island, the EPA is allowing the facility to use credits to offset its entire nitrogen load to the Susquehanna River, regardless of whether those are tech- or water quality-based.

In addition, not even an ideally structured water pollution trading program can remedy the inherent defects in the approach. As the CWA is currently written, point sources are highly accountable for their discharges, and permit compliance is easily verifiable and enforceable. Water



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pollution trading allows this transparent, accountable system to be replaced with one that makes it virtually impossible for anyone to ever properly track point source compliance; credits that these facilities rely on are not the product of any measured decrease in pollutant loads from credit-generating agricultural sources, but from complex models filled with variables and from questionable manure transport programs that simply move pollutants from one impaired waterway to another.

Trading adherents also ignore that the CWA does not allow for water pollution trading as a mechanism for point sources to avoid permit compliance. The Act's permitting provisions are very clear that each point source of pollution must meet individual permit requirements; there are no allowances in the Act to purchase credits in lieu of compliance. While the Clean Air Act specifically allows for some degree of air emissions trading, efforts to amend the CWA to allow for trading have never passed, nor should they.

Pollution trading will not improve our waterways or protect our communities. It will not stop giant algae blooms or keep another Toledo disaster from occurring.

People who care about water quality should never support water pollution trading. Instead, we should be taking steps to strengthen the Clean Water Act, learning from its past successes and remedying its past failures. Some of the things that need to happen are:

- **Congress needs to reaffirm that the Clean Water Act does not allow for point source pollution trading.** It must defeat attempts to amend the Act to include a trading program and prohibit states from spending any funds on implementing trading programs. This groundbreaking statute was enacted in 1972 in order to turn our waterways around. It moved us from a watershed-based, ambient water quality approach to one of individual accountability through a point source permitting program. Water pollution trading is antithetical to that approach.
- **Federal agencies, particularly the U. S. Department of Agriculture, need to stop spending taxpayers' dollars to promote these pay-to-pollute schemes across the country.** The USDA, and to a lesser extent the EPA, are actively funding market-based approaches to water quality control, giving out millions of dollars to nonprofits, industry groups and researchers to set up pilot programs and implement pollution trading. Public funds should not be used to undermine our public trust waterways.
- **State and federal governments need to replace voluntary pollution control approaches with mandatory measures in the nonpoint source sector.** The CWA point source control program has been successful because of accountability and permitting. Regulators have failed to control our largest source of pollution, agriculture, because of our continued reliance on voluntary pollution control measures in that sector. The answer is not to move our failed approaches to the point source industries with water pollution trading, but to employ our successful point source strategies – monitoring, permitting and enforcement – in the agricultural industry.
- **Federal agencies must fund agricultural Best Management Practices without compromising current point source controls.** People rightfully concerned about uncontrolled industrial agriculture pollution see trading as a way to incentivize the adoption of BMPs on farms. But, as this report shows, using trading as an incentive undermines our successful point source control of other industries by allowing permit violators to buy their way into polluting more than they should. A better approach would be to diligently enforce the Clean Water Act against point source polluters who do not comply with their permits, and use the money from those enforcement actions to fund effective farm BMPs.
- **The environmental community needs to wake up to the dangers of water pollution trading.** These programs are being implemented across the county while the environmental community either ignores it or actively supports it. If you are a member of an environmental organization, contact the staff and ask them why it is not fighting against this irresponsible approach to water quality. If you work for an environmental organization, get involved and take a stand against these failing market-based schemes.
- **Advocacy groups need to legally challenge water pollution trading programs.** Any legal advocate who relies on the CWA to keep waterways clean and communities safe should be very concerned about what water pollution trading is doing to citizens' ability to enforce the law against polluters. With such trading, we are rapidly moving away from the ability to hold point sources accountable for permit violations because permits have no real limits and, even when they do, it will be impossible to track the credits used to exceed those limits.

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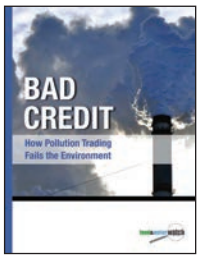
More Food & Water Watch Research on Common Resources



Bad Credit: How Pollution Trading Fails The Environment

Based on an obscure economic theory that gained prominence in the 1960s at the University of Chicago, cap-and-trade was embraced by the Reagan administration as a replacement for regulating air emissions. Since that time, it has gained acceptance among environmental organizations and the largest environmental funders. Unfortunately, cap-and-trade can undermine existing environmental laws like the Clean Water Act, which calls for the elimination of pollutants from our water. While our environmental laws make pollution illegal, cap-and-trade accepts the right of industries to pay-to-pollute while paying others money not to.

No Accounting for Taste: Natural Capital Accounting and the Financialization of Nature

Natural capital accounting is the latest effort to financialize our air, water, forests and land by putting a price on nature to save it. The theory claims that if private companies and countries account for environmental resources used in the production of other goods — accounting for their cost to the environment — we can better see the sustainability of our current economic path. But it is not the solution it appears to be. Natural capital accounting is plagued with myriad problems. To implement it requires assigning a financial value to nature, privatizing it and commodifying it — bringing the environment under economic control.

The Weakest Link: Problems and Perils of Linking Carbon Markets

Proponents of cap and trade increasingly seek to create a globally linked carbon market under the false reasoning that doing so will achieve improved economic efficiency and better emissions reductions than individual markets alone, because carbon dioxide (CO_2) is spread globally throughout our atmosphere. While promoted as a way to reduce carbon emissions, the main drive behind linking is economic efficiency and cost reduction. Focusing on economic concerns downplays the real priority of reducing emissions.

The Truth About Offsets

Under cap-and-trade, polluters are offered the opportunity to “pay to pollute,” turning decades of environmental efforts on their head and undermining improvements in environmental health. The linchpin of these cap-and-trade schemes is offsets, or credits from outside the regulated industry that polluters can buy in order to keep on polluting. But offsets are only a further loophole and avoidance of achieving real, additional and permanent reductions.

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COVER PHOTO: GULF OF MEXICO "DEAD ZONE" AS SEEN FROM SPACE IN APRIL 2009.
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