

CAFOS AND WATER POLLUTION

BY

DAVID FUSCO*

*The industrialization of food production in America has created a dire threat to the nation's water quality. Concentrated Animal Feeding Operations (CAFOs) produce massive amounts of food, and similarly huge quantities of animal waste, much of which flows into our water systems. This Note surveys the issue of water pollution caused by CAFOs, exploring the federal regulatory failures that have allowed this environmental and public health hazard to persist. The Note also highlights several state-level efforts that have attempted to fill the gap, and concludes by advocating for these and other changes that could provide a solution.**

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* J.D. Candidate '26, Lewis & Clark Law School. His primary focus has been environmental and natural resources law. He plans to practice public interest environmental litigation.

I. INTRODUCTION

The rise of industrial animal agriculture in the United States has revolutionized food production—but at a serious environmental cost. Central to this system are Concentrated Animal Feeding Operations (CAFOs), which confine thousands of animals in limited spaces to maximize efficiency.¹ While these operations produce enormous quantities of meat, dairy, and eggs, they also generate vast amounts of animal waste, much of which enters nearby waterways.² Manure discharge from CAFOs has become one of the largest and most poorly regulated sources of water pollution in the country, threatening ecosystems, drinking water supplies, and public health.³ Despite decades of federal regulation under the Federal Water Pollution Control Act (Clean Water Act),⁴ CAFO pollution continues largely unchecked due to legal loopholes, weak enforcement, and resistance from agricultural interests.⁵

This Note argues that the existing legal framework—centered on the Clean Water Act’s National Pollutant Discharge Elimination System (NPDES) permitting regime—has failed to effectively regulate CAFO-related water pollution. It highlights how structural exemptions, limited agency authority, and under-enforcement have enabled CAFOs to operate without meaningful accountability. At the same time, it examines how state and local governments are beginning to experiment with more responsive regulatory models. Drawing from statutory law, administrative regulations, and case law, the Note evaluates the gaps in current federal oversight and offers recommendations for a more effective, equitable, and enforceable approach to CAFO regulation.

The Note proceeds in eight parts. Part II provides a detailed statement of the problem, including the scale of CAFO operations and their legal and environmental significance. Part III explains the primary sources of water pollution from CAFOs and their causes, focusing on manure emissions, land application runoff, and the release of hazardous substances. Part IV outlines the federal regulatory framework, particularly the Clean Water Act and NPDES permitting, and describes the exemptions and definitional loopholes that limit their reach. Part V discusses leading court decisions interpreting the Clean Water Act’s application to CAFOs, including *Waterkeeper Alliance v. U.S. Environmental Protection Agency (Waterkeeper)*⁶ and *Concerned Area Residents for the Environment v. Southview Farm*.⁷ Part VI shifts to state

¹ N. William Hines, *CAFOs and U.S. Law*, 107 IOWA L. REV. ONLINE 19, 20–21 (2022).

² Christopher R. Brown, *The EPA’s Proposed CAFO Information Disclosure Rules and Their Potential to Improve Water Quality*, 3 ARIZ. J. ENV’T L. & POL’Y 47, 51–52 (2012).

³ Natalee Codispot, *You Are What You EATS: Opposing Potential New Legislation*, 12 JOULE: DUQ. ENERGY & ENV’T L.J. 3, 22–24 (2024).

⁴ 33 U.S.C. §§ 1251–1387 (2018).

⁵ See discussion *infra* Part II.

⁶ 399 F.3d 486 (2d Cir. 2005).

⁷ 34 F.3d 114 (2d Cir. 1994).

and local regulation, examining recent innovations such as Oregon's Senate Bill 85⁸ and other state-led efforts to control CAFO pollution. Finally, Part VII offers recommendations for reform, including strengthening federal oversight, supporting state innovation, and empowering communities most affected by factory farm pollution. The Note concludes with a summary of key findings and a call for a more comprehensive and enforceable regulatory approach to industrial agricultural pollution.

II. STATEMENT OF THE PROBLEM

Concentrated Animal Feeding Operations (CAFOs) are a defining feature of modern industrial agriculture in the United States. These facilities confine hundreds to hundreds of thousands of animals—typically cattle, swine, or poultry—within relatively small areas for extended periods.⁹ Although efficient from a production standpoint, this model generates immense quantities of waste.¹⁰ Unlike human waste, which is typically treated in municipal wastewater systems, CAFO waste is often stored in open-air lagoons or applied to land as fertilizer with minimal oversight.¹¹ The scale and concentration of this waste, combined with poor containment and runoff controls, have made CAFOs one of the most significant contributors to nutrient pollution and pathogen contamination in American waterways.¹²

The scope of the problem is enormous. According to the Environmental Protection Agency (EPA), a single large CAFO can produce as much waste as a small city, yet these operations are not subject to the same treatment and disposal requirements as municipal sources.¹³ Animal waste contains not only nutrients like nitrogen and phosphorus—which can trigger harmful algal blooms and dead zones in aquatic ecosystems—but also pathogens, antibiotics, hormones, and heavy metals.¹⁴ These pollutants routinely enter surface waters through direct discharges, overflows, or land application runoff, particularly

⁸ Act of July 27, 2023, ch. 465, 2023 Or. Laws 1256.

⁹ Hines, *supra* note 1, at 21.

¹⁰ Brown, *supra* note 2, at 49, 52.

¹¹ *Id.* at 52.

¹² Codispot, *supra* note 3, at 22–23.

¹³ Adam Scott Carlesco, *The Sidestepping of National Pollution Discharge Elimination System Permitting Requirements by Concentrated Animal Feeding Operations*, J. ANIMAL & ENV'T L., Fall 2014, at 43, 51; Hines, *supra* note 1, at 27.

¹⁴ *The Effects: Environment*, U.S. ENV'T PROT. AGENCY: NUTRIENT POLLUTION (Apr. 11, 2025), <https://www.epa.gov/nutrientpollution/effects-environment> [<https://perma.cc/9FQW-E78P>]; Jan G. Laitos & Heidi Ruckriegle, *The Clean Water Act and the Challenge of Agricultural Pollution*, 37 VT. L. REV. 1033, 1037 (2013); Michael Steeves, *The EPA's Proposed CAFO Regulations Fall Short of Ensuring the Integrity of Our Nation's Waters*, 22 J. LAND RES. & ENV'T L. 367, 369 (2002).

during rain events.¹⁵ Groundwater is also at risk, as lagoons or spreading practices may cause animal waste to leach into aquifers.¹⁶

Despite the gravity of those impacts, CAFO regulation under the Clean Water Act (CWA) has proven to be weak and inconsistent. While CAFOs theoretically qualify as “point sources” subject to National Pollutant Discharge Elimination System (NPDES) permits, regulatory exemptions and definitional ambiguities often shield them from enforcement.¹⁷ Many CAFOs operate without a permit, claiming their discharges fall under the “agricultural stormwater” exemption.¹⁸ Others are required to obtain permits but are allowed to self-monitor and self-report, creating incentives for undercompliance.¹⁹ In practice, enforcement actions are rare, and even large polluters often avoid scrutiny.²⁰

Political and institutional barriers compound those regulatory failures. Agricultural interests have lobbied aggressively against stricter controls,²¹ and enforcement has been further hampered by limited resources at both the federal and state levels.²² At the same time, communities near CAFOs—often rural, low-income, or communities of color—bear the brunt of the pollution, with little recourse or representation in environmental decision-making.²³ The resulting regulatory landscape is one in which some of the nation’s most dangerous and pervasive water pollutants are subject to the least comprehensive legal oversight.

The challenge, then, is not simply technical—it is legal and political. CAFO pollution presents a textbook example of regulatory capture, underenforcement, and environmental injustice. Addressing it will

¹⁵ Brown, *supra* note 2, at 52.

¹⁶ Steeves, *supra* note 14, at 369.

¹⁷ Clean Water Act, 33 U.S.C. § 1362(14) (2018); 40 C.F.R. § 122.23 (2025); Mark Ryan, *The Clean Water Act’s Agriculture Exemptions*, 59 THE ADVOCATE, 48, 48 (2016).

¹⁸ 33 U.S.C. § 1362(14); Codispot, *supra* note 3, at 10.

¹⁹ See Scott Jerger, *EPA’s New CAFO Land Application Requirements: An Exercise in Unsupervised Self-Monitoring*, 23 STAN. ENV’T L.J. 91, 116 (2004) (“[T]he nationwide effluent limitations guidelines developed by EPA for land application are actually field-specific determinations made by the CAFO owner or operator in accordance with state-based technical standards.”).

²⁰ Bill Shultz, *Who Will Keep the Poop Out of the Water?: The Latest in the Saga of CAFO Regulation Under the Clean Water Act*, GEO. ENV’T L. REV. BLOG (Dec. 4, 2023), <https://www.law.georgetown.edu/environmental-law-review/blog/who-will-keep-the-poop-out-of-the-water-the-latest-in-the-saga-of-cafo-regulation-under-the-clean-water-act/> [<https://perma.cc/M5QC-XMM8>].

²¹ See Anthony B. Schutz, *Agricultural Discharges Under the CWA: Old Questions and New Insights*, 52 U. PAC. L. REV. 567, 569 (2021) (“From statutory exemptions concerning wetlands regulation to definitional exclusions on key terms, the farm lobby’s fingerprints are all over [the CWA].”).

²² Laitos & Ruckriegle, *supra* note 14, at 1046.

²³ ARBOR J.L. QUIST, JILL E. JOHNSTON & MIKE DOLAN FLISS, DISPARITIES OF INDUSTRIAL ANIMAL OPERATIONS IN CALIFORNIA, IOWA, AND NORTH CAROLINA 1, 3, 6–7 (2022), https://earthjustice.org/wp-content/uploads/quistreport_cafopetition_oct2022.pdf [<https://perma.cc/EZ6G-S8WD>].

require a reassessment of federal authority, a reevaluation of agricultural exemptions, and a willingness to support stronger state and local initiatives. The following Parts of this Note will explore how and why current laws fall short, and what changes might be necessary to protect both environmental quality and public health in the face of unchecked industrial animal agriculture.

III. BACKGROUND: WATER POLLUTION FROM CAFOS

A. Manure and Nutrient Emissions

The pollution generated by CAFOs has far-reaching consequences for water quality, especially in rural and agricultural regions. One of the most immediate impacts is the contamination of surface waters such as rivers, lakes, and streams, which receive runoff and discharges containing high concentrations of nutrients, pathogens, heavy metals, and other harmful substances.²⁴ CAFOs generate hundreds of millions of tons of manure annually—far more than can be safely applied to surrounding cropland.²⁵ Unlike municipal wastewater, which must be treated in accordance with strict federal standards, CAFO manure is often stored in large open-air lagoons or pits that are poorly regulated and vulnerable to structural failure.²⁶ Those storage systems routinely leak or overflow, particularly during periods of heavy rainfall or flooding.²⁷ Even in the absence of such events, pollutants may still enter groundwater through seepage from unlined lagoons or reach surrounding areas via spray drift or evaporation.²⁸ Despite this, groundwater impacts from CAFOs are rarely monitored systematically, and federal regulations generally treat groundwater contamination as a nonpoint source outside the jurisdiction of the CWA.²⁹

The primary contaminants of concern in CAFO manure are nutrients—namely nitrogen (often in the form of ammonia or nitrate) and phosphorus.³⁰ When those nutrients enter water bodies in excessive quantities, they trigger eutrophication, a process that leads to explosive algal growth.³¹ These algal blooms can deplete oxygen in the water, kill

²⁴ Laitos & Ruckriegle, *supra* note 14, at 1038–39.

²⁵ Kate Celender, Note, *The Impact of Feedlot Waste on Water Pollution Under the National Pollutant Discharge Elimination System*, 33 WM. & MARY ENV'T L. & POL'Y 947, 947–48, 960 (2009).

²⁶ *Id.* at 960; *Sources and Solutions: Wastewater*, U.S. ENV'T PROT. AGENCY: NUTRIENT POLLUTION (Oct. 29, 2025), <https://www.epa.gov/nutrientpollution/sources-and-solutions-wastewater> [<https://perma.cc/HN3F-CZ7S>].

²⁷ Steeves, *supra* note 14, at 369.

²⁸ Brown, *supra* note 2, at 52.

²⁹ Ryan, *supra* note 17, at 48–49.

³⁰ Steeves, *supra* note 14, at 369.

³¹ *Sources and Solutions: Agriculture*, U.S. ENV'T PROT. AGENCY: NUTRIENT POLLUTION (Mar. 20, 2025), <https://www.epa.gov/nutrientpollution/sources-and-solutions-agriculture> [<https://perma.cc/2T5F-KVF9>].

fish and other aquatic life, and produce toxins harmful to both humans and animals.³² One of the most well-known examples of the phenomenon is the Gulf of Mexico “dead zone,” which is fed by nutrient runoff from the Mississippi River Basin—much of it linked to Midwestern livestock operations.³³ Increased nitrate exposure is also linked to methemoglobinemia, or “blue baby syndrome,” a potentially fatal condition in infants resulting from low blood-oxygen levels.³⁴

B. Other Hazardous Substances

Beyond nutrients, CAFO manure contains a wide array of harmful substances that threaten both environmental and human health; among the most concerning are pathogens, antibiotics, hormones, and heavy metals.³⁵ Pathogens such as Salmonella and Cryptosporidium are common in animal waste and can contaminate drinking water, especially in rural areas that rely on wells for water.³⁶ Veterinary antibiotics regularly used in feed pass through livestock into manure and can contribute to the development of antibiotic-resistant bacteria when introduced into waterways.³⁷ Hormones given to farmed animals, including estrogen and testosterone, can disrupt the endocrine systems of many species, including humans, even at low concentrations.³⁸ Heavy metals like copper and zinc, used as feed additives, accumulate in soils and water bodies, threatening human and animal life as well as soil productivity.³⁹ Despite these dangers, CAFO permits do not require treating waste for pollutants, and regulatory loopholes in the CWA (discussed later in Part IV) render it inadequate to prevent their discharge.⁴⁰

³² Carlesco, *supra* note 13, at 49.

³³ *The Effects: Environment*, *supra* note 14.

³⁴ Celender, *supra* note 25, at 958; *Infant Methemoglobinemia (Blue Baby Syndrome)*, WIS. DEPT OF HEALTH SERVS. (Jan. 3, 2025), <https://www.dhs.wisconsin.gov/water/blue-baby-syndrome.htm> [<https://perma.cc/UH4D-NYHF>].

³⁵ See *supra* note 14 and accompanying text.

³⁶ Steeves, *supra* note 14, at 371, 374.

³⁷ Carrie Givens et al., *Simultaneous Stream Assessment of Antibiotics, Bacteria, Antibiotic Resistant Bacteria, and Antibiotic Resistance Genes in an Agricultural Region of the United States*, SCI. TOTAL ENV'T, Dec. 15, 2023, at 1, 2, <https://www.sciencedirect.com/science/article/abs/pii/S0048969723053780> [<https://doi.org/10.1016/j.scitotenv.2023.166753>].

³⁸ Steeves, *supra* note 14, at 374; *Overview of Endocrine Disruption*, U.S. ENV'T PROT. AGENCY: ENDOCRINE DISRUPTION (Dec. 19, 2024), <https://www.epa.gov/endocrine-disruption/overview-endocrine-disruption#effects> [<https://perma.cc/SS7B-QKEY>].

³⁹ Steeves, *supra* note 14, at 371.

⁴⁰ Hines, *supra* note 1, at 32.

C. Land Application and Runoff

The most common method of manure disposal is land application, in which waste is sprayed, injected, or spread across agricultural fields.⁴¹ Although manure disposal is nominally regulated under NPDES permitting for CAFOs, it remains a major source of water pollution due to improper storage and application.⁴² Excess manure, applied in amounts that exceed the land's absorptive capacity or applied to saturated ground, is especially prone to runoff.⁴³ During storm events, these nutrients and other pollutants can wash directly into ditches, streams, and rivers, bypassing soil filtration altogether.⁴⁴

Under NPDES regulations, land application of manure is exempt from regulation when runoff qualifies as "agricultural storm water discharge."⁴⁵ The exemption is controversial because it effectively removes oversight from one of the most pollution-prone practices used by CAFOs. Although nutrient management plans (NMPs) are technically required for permitted facilities, enforcement is lax and data is sparse.⁴⁶ The EPA and state agencies often rely on self-reporting, which has led to widespread undercompliance and difficulty tracking violations.⁴⁷ Moreover, most CAFOs claim they do not discharge, allowing them to bypass nutrient management requirements and avoid permitting altogether.⁴⁸

IV. FEDERAL REGULATORY FRAMEWORK

A. The Clean Water Act and the NPDES Program

The principal federal statute governing water pollution in the United States is known as the Clean Water Act.⁴⁹ Enacted in 1972, the CWA aims "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."⁵⁰ Its primary regulatory tool is the NPDES program, which requires permits for any discharge of a pollutant from a point source into navigable waters.⁵¹ Under the CWA, a "point source" includes "any discernible, confined and discrete conveyance," explicitly

⁴¹ Brown, *supra* note 2, at 51–52.

⁴² Laitos & Ruckriegle, *supra* note 14, at 1038.

⁴³ Celender, *supra* note 25, at 959–60.

⁴⁴ See Quist, Johnston & Fliss, *supra* note 23, at 3.

⁴⁵ 40 C.F.R. § 122.23(e) (2025).

⁴⁶ *Id.* § 122.42(e)(1); *EPA Ducks Responsibility to Gather Information on CAFOs*, NAT'L SUSTAINABLE AGRIC. COAL. BLOG (July 18, 2012), <https://sustainableagriculture.net/blog/cafo-reporting-rule-withdrawn/> [<https://perma.cc/KDU9-CA3K>].

⁴⁷ 40 C.F.R. § 122.42(e)(4); Jerger, *supra* note 19, at 123–24.

⁴⁸ Shultz, *supra* note 20.

⁴⁹ Clean Water Act, 33 U.S.C. §§ 1251–1387 (2018).

⁵⁰ *Id.* § 1251(a).

⁵¹ *Id.* §§ 1342(a), 1362(12).

listing “concentrated animal feeding operation[s]” among covered entities.⁵²

The Environmental Protection Agency (EPA) and authorized state agencies issue NPDES permits that set effluent limitations, monitoring requirements, and operational conditions.⁵³ For CAFOs, the EPA’s regulations at 40 C.F.R. § 122.23⁵⁴ establish criteria for what constitutes a CAFO and when such operations must obtain a permit.⁵⁵ Large CAFOs, defined based on animal units (e.g., 1,000 cattle or 2,500 swine), are presumptively regulated if they discharge or propose to discharge pollutants.⁵⁶

Despite this framework, many CAFOs avoid NPDES permitting. In part, this is due to the distinction between “actual” and “potential” discharges. After the Second Circuit’s decision in *Waterkeeper Alliance*, the EPA revised its CAFO rules to eliminate the requirement that operations with a “potential to discharge” must obtain a permit.⁵⁷ As a result, facilities may claim they do not discharge and thus are not subject to regulation unless the EPA or a state agency has evidence that a facility is actively discharging, which is difficult without the resources to conduct effective monitoring.⁵⁸

The CWA also includes a controversial exemption for “agricultural stormwater discharges.”⁵⁹ This provision, codified in the definition of “point source,” allows CAFOs to escape regulation if pollutant runoff is associated with precipitation events on land where manure has been applied “in accordance with site specific nutrient management practices.”⁶⁰ In practice, this exemption has long been used to avoid liability for discharge through runoff, so long as the CAFO is following its internally developed nutrient management plan.⁶¹

B. Agricultural Exemptions and Regulatory Loopholes

Beyond the stormwater carveout, CAFOs benefit from a broad set of agricultural exemptions embedded in environmental and administrative law. Most notably, nonpoint source pollution—which includes diffuse runoff from agricultural fields—is not subject to federal permitting under

⁵² *Id.* § 1362(14).

⁵³ *Id.* § 1342(a)–(b).

⁵⁴ 40 C.F.R. § 122.23 (2025).

⁵⁵ *Id.*

⁵⁶ *Id.* § 122.23(a), (b)(2), (b)(4).

⁵⁷ *Waterkeeper*, 399 F.3d 486, 506 (2d Cir. 2005).

⁵⁸ See Carlesco, *supra* note 13, at 58 (explaining that EPA’s revised rule replaced prior determination procedures with a voluntary certification system); Codispot, *supra* note 3, at 11 (explaining that a “lack of consistent and complete data at the state level” raises serious concerns about states monitoring CAFOs).

⁵⁹ Clean Water Act, 33 U.S.C. § 1362(14) (2018).

⁶⁰ 40 C.F.R. §§ 122.23(e), 122.42(e)(1) (2025); see Jerger, *supra* note 19, at 110–12 (discussing the agricultural stormwater exception).

⁶¹ Hines, *supra* note 1, at 33.

the CWA.⁶² While CAFOs are technically classified as point sources, the use of land application as a disposal strategy often places their runoff into a regulatory gray area, especially when manure is applied outside the immediate boundaries of the facility.⁶³ EPA regulations require that permitted CAFOs develop and implement nutrient management plans (NMPs), which are intended to ensure proper manure application, minimize runoff, and protect water quality.⁶⁴ However, the terms of these NMPs are largely left to the discretion of CAFO operators and balanced against the economic interest of the industry.⁶⁵

In 2012, the EPA withdrew a proposed rule that would have required CAFOs to submit basic operational information (such as size, location, and waste management practices) due to industry opposition.⁶⁶ As a result, there is no comprehensive federal database of CAFOs, and many state-level inventories are outdated or incomplete.⁶⁷ Without such transparency, enforcement is exceedingly difficult, and the regulated community is largely self-policing, meaning that operators are expected to track and report their own compliance with manure application limits, discharge events, and waste storage standards.⁶⁸ This system creates perverse incentives and leaves agencies with little capacity to detect underreporting or falsified records. Moreover, a lack of public access makes it difficult for communities and environmental groups to monitor CAFO pollution or bring enforcement actions under the CWA's citizen-suit provision.

Additionally, the federal government has historically underfunded regulatory oversight of CAFOs.⁶⁹ The EPA has delegated permitting authority to forty-seven states, many of which face pressure from powerful agricultural lobbies and are reluctant to impose strict conditions or penalties.⁷⁰ The EPA and its state partners often lack the staff and resources to conduct inspections or pursue enforcement actions, especially in rural areas with large agricultural constituencies.⁷¹ In some states, regulators inspect permitted CAFOs as little as once every five years, and even major polluters often receive little more than informal

⁶² Laitos & Ruckriegle, *supra* note 14, at 1035.

⁶³ See *infra* Part V.

⁶⁴ 40 C.F.R. § 122.42(e)(1).

⁶⁵ Hines, *supra* note 1, at 32–34.

⁶⁶ Carlesco, *supra* note 13, at 62–63.

⁶⁷ Brown, *supra* note 2, at 53.

⁶⁸ 40 C.F.R. § 122.42(e)(4).

⁶⁹ MICHELE M. MERKEL, EPA AND STATE FAILURES TO REGULATE CAFOS UNDER FEDERAL ENVIRONMENTAL LAWS: OUTLINE OF REMARKS PREPARED FOR THE NATIONAL COMMISSION ON INDUSTRIAL FARM ANIMAL PRODUCTION MEETING ON SEPTEMBER 11, 2006, at 7 (2006), https://environmentalintegrity.org/pdf/publications/EPA_State_Failures_Regulate_CAFOS.pdf [<https://perma.cc/W5M9-22ZA>].

⁷⁰ Hines, *supra* note 1, at 31–32, 46.

⁷¹ KEENE KELDERMAN ET AL., THE CLEAN WATER ACT AT 50: PROMISES HALF KEPT AT THE HALF-CENTURY MARK 4, 7, 26 (2022), <https://environmentalintegrity.org/wp-content/uploads/2022/03/CWA-report-3.22.22.pdf> [<https://perma.cc/R9K4-FN8B>].

warnings.⁷² In many cases, states have regularly undermined their own permitting standards and enforcement efforts in order to appease their agricultural industries.⁷³

As a result, the deterrent effect of the CWA's permitting regime is significantly weakened. The cumulative effect of those structural weaknesses is a system where thousands of CAFOs operate with little meaningful oversight, despite well-documented risks to water quality. The failure to regulate CAFOs effectively has led to significant gaps in environmental protection. While the CWA has achieved measurable successes in reducing pollution from industrial and municipal sources, it has not kept pace with the scale or complexity of modern industrial agriculture. The next Part will explore how courts have interpreted these regulatory obligations, and how litigation has both clarified and constrained the EPA's authority in this area.

V. CASE LAW INTERPRETING CAFO REGULATION

A. *Concerned Area Residents for the Environment v. Southview Farm*

Early litigation seemed to lay the groundwork for interpreting CAFOs as point sources under the CWA. In *Concerned Area Residents for the Environment v. Southview Farm*, residents sued a large dairy operation for unauthorized discharges of liquid manure.⁷⁴ The farm contended that any manure runoff was a nonpoint source and therefore not subject to permitting.⁷⁵ The court found otherwise.⁷⁶ Based on aerial photos and testimony, the court concluded that the farm had deliberately piped or channeled manure onto fields in ways that caused runoff into nearby streams.⁷⁷ As such, the court held that these discharges constituted a "point source" under the CWA.⁷⁸

The decision showed that even when pollution occurs outside the CAFO's physical footprint—such as from land application areas—it can still be regulated if the method of discharge is foreseeable and traceable to human activity.⁷⁹ The ruling remains important because it broadens the interpretation of what constitutes a "point source" in the context of CAFO manure management, supporting the argument that land application areas affiliated with CAFOs may be subject to NPDES permitting when runoff is sufficiently discrete or engineered. However, later decisions and regulatory actions have limited the reach of this

⁷² See Carlesco, *supra* note 13, at 64 ("Indiana inspectors, with three positions sitting vacant, survey an estimated 1,600 farming operations once every five years.")

⁷³ Celender, *supra* note 25, at 956.

⁷⁴ *Southview Farm*, 34 F.3d at 115.

⁷⁵ *Id.* at 121.

⁷⁶ *Id.* at 123.

⁷⁷ *Id.* at 118.

⁷⁸ *Id.*

⁷⁹ *Id.*

interpretation, particularly when runoff is labeled “agricultural stormwater.”⁸⁰

B. Waterkeeper Alliance, Inc. v. U.S. EPA

One of the most significant judicial decisions interpreting the CWA’s application to CAFOs is *Waterkeeper*. In that case, several environmental organizations and agricultural industry groups challenged the EPA’s 2003 CAFO Rule.⁸¹ The agricultural petitioners opposed the provision which required all CAFOs with the “potential to discharge” to obtain a NPDES permit.⁸² The EPA justified this rule based on the observation that CAFOs are inherently likely to discharge pollutants and that proactive permitting was necessary to prevent widespread unregulated pollution.⁸³ The Second Circuit, however, disagreed.⁸⁴ The court held that the CWA only authorizes permitting for actual discharges, not potential ones.⁸⁵ As a result, the requirement that CAFOs with a “potential to discharge” obtain a permit was invalidated.⁸⁶

On the other side, environmental groups challenged several provisions of the rule.⁸⁷ Firstly, they contended that the rule improperly failed to require agency review of CAFO nutrient management plans and to include the terms of those plans in the NPDES permit; the court agreed with petitioners on both points.⁸⁸ Similarly, the court held that the rule improperly deprived the public of the opportunity to participate in decision-making by withholding nutrient management plans from public access.⁸⁹

Perhaps most importantly, however, the court rejected the environmental petitioners’ argument against the agency’s application of the stormwater exemption to manure runoff.⁹⁰ Attempting to reconcile the statutory contradiction in the CWA between identifying CAFOs as point sources subject to regulation, and excluding agricultural stormwater discharge from regulation, the court gave credit to the agency’s approach that the exemption applied so long as the manure was applied in line with appropriate nutrient management practices.⁹¹ The court reinforced the *Southview Farm* holding that the question of liability

⁸⁰ Carlesco, *supra* note 13, at 57–59.

⁸¹ *Waterkeeper*, 399 F.3d 486, 492 (2d Cir. 2005).

⁸² *Id.* at 504–06.

⁸³ *Id.* at 505.

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ *Id.* at 506.

⁸⁷ *Id.* at 498, 503.

⁸⁸ *Id.* at 498.

⁸⁹ *Id.* at 503.

⁹⁰ *Id.* at 507.

⁹¹ *Id.* at 509.

should turn on whether a given discharge was the result of weather events or improper waste disposal methods.⁹²

Although the environmental petitioners appeared to win on many issues, *Waterkeeper* significantly constrained the EPA's authority and created a loophole by which CAFOs could avoid regulation simply by asserting that they do not discharge.⁹³ This loophole has contributed to widespread noncompliance and a permitting regime that largely relies on voluntary participation by regulated entities. The court also missed the opportunity to declare that all discharges from CAFOs should be regulated as point source pollution. The EPA's subsequent 2008 rule revisions reflected those constraints, making the permitting process more limited and less enforceable.⁹⁴

C. Additional Cases and Legal Uncertainty

Other cases have reinforced the challenges of applying the CWA to CAFOs. In *National Pork Producers Council v. U.S. Env't Prot. Agency*,⁹⁵ the court further restricted the EPA's ability to mandate NPDES permits when it invalidated a provision requiring CAFOs that propose to discharge to apply for a permit.⁹⁶ In *Alt v. U.S. Env't Prot. Agency*,⁹⁷ a federal district court held that discharges of manure-laden stormwater from a West Virginia poultry operation did not require a permit because they qualified as agricultural stormwater.⁹⁸ This decision narrowly interpreted EPA authority and signaled judicial skepticism toward expansive readings of the CWA in agricultural contexts.⁹⁹

Courts have also been reluctant to extend permitting requirements to indirect discharges or emissions that move through groundwater before reaching surface waters, a question that remains unresolved despite recent Supreme Court guidance in *County of Maui v. Hawaii Wildlife Fund*.¹⁰⁰ While Maui suggests that indirect discharges into groundwater may require permits if they are the "functional equivalent" of a direct discharge into navigable waters, it is unclear how this applies to CAFOs, particularly in states that do not require groundwater monitoring.¹⁰¹

Collectively, those cases demonstrate the fragility of the legal framework governing CAFO pollution. Although courts have occasionally

⁹² *Id.*

⁹³ Carlesco, *supra* note 13, at 57–58.

⁹⁴ Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations in Response to the Waterkeeper Decision, 73 Fed. Reg. 70418 (Nov. 20, 2008) (codified at 40 C.F.R. pts. 9, 122, 412).

⁹⁵ 635 F.3d 738 (5th Cir. 2011).

⁹⁶ *Id.* at 751.

⁹⁷ 979 F. Supp. 2d 701 (N.D.W. Va. 2013).

⁹⁸ *Id.* at 715.

⁹⁹ See *id.* at 714 (analyzing the agricultural stormwater exception as excluding agricultural operations from regulation under the stormwater program).

¹⁰⁰ 590 U.S. 165 (2020).

¹⁰¹ *Id.* at 170.

upheld broad interpretations of the definition of “point source,” they have more often curtailed regulatory authority in ways that leave large gaps in environmental oversight.¹⁰² The ambiguity created by judicial decisions has contributed to inconsistent enforcement across jurisdictions and further entrenched the underregulation of industrial animal agriculture. In light of the limitations of federal law and judicial interpretation, state and local governments have increasingly turned to alternative regulatory tools, as discussed in Part VI.

VI. STATE AND LOCAL INNOVATIONS IN CAFO OVERSIGHT

A. Oregon’s Senate Bill 85 (2023)

In 2023, Oregon enacted Senate Bill 85 (SB 85), introducing significant reforms to the state’s regulation of CAFOs.¹⁰³ The legislation mandates that applicants for new or expanding large CAFOs submit comprehensive water supply plans, ensuring that water usage is legally authorized and sustainable.¹⁰⁴ SB 85 requires joint preliminary consultations between the Department of Environmental Quality and the State Department of Agriculture, promoting interagency coordination in the permitting process.¹⁰⁵ Additionally, the Department of Agriculture must inspect any CAFO issued a permit to ensure compliance with state water quality regulations.¹⁰⁶ The bill also enhances public participation by stipulating that applicants for permits for new large CAFOs must notify property owners within a half-mile radius about the public comment period for permit applications.¹⁰⁷ Furthermore, SB 85 prohibits the issuance of new permits for large CAFOs that engage in land application of manure and are located within one of the state’s groundwater management areas.¹⁰⁸ This legislation does not solve the problem of CAFO water pollution, but it reflects the state’s commitment to environmental protection and community involvement.¹⁰⁹

¹⁰²*Contrast Southview Farm*, 34 F.3d 114, 118 (2d Cir. 1994) (treating CAFO conveyances as a “point source” where manure runoff is channeled through “the swale coupled with the pipe . . . into the stream” and noting “the definition of a point source is to be broadly interpreted”), *with Waterkeeper*, 399 F.3d 486, 505–06 (2d Cir. 2005) (limiting EPA to “regulate and control only *actual discharges*—not potential discharges”) (emphasis in original), and *Nat’l Pork Producers Council*, 635 F.3d 738, 750–51, 756 (5th Cir. 2011) (vacating “propose to discharge” permitting provisions in EPA’s 2008 CAFO rule).

¹⁰³Act of July 27, 2023, ch. 465, 2023 Or. Laws 1256.

¹⁰⁴*Id.* at 1259.

¹⁰⁵*Id.* at 1257–58.

¹⁰⁶*Id.* at 1258.

¹⁰⁷*Id.*

¹⁰⁸*Id.* at 1257.

¹⁰⁹*Oregon Legislature Passes Legislation Addressing Harms from Mega-Dairies*, CTR. FOR FOOD SAFETY: MEDIA (June 22, 2023), <https://www.centerforfoodsafety.org/press-releases/6838/oregon-legislature-passes-legislation-addressing-harms-from-mega-dairies#> [<https://perma.cc/J73L-FKJS>].

B. North Carolina's Moratorium on Swine Farm Expansion

North Carolina has taken a proactive approach to managing the environmental impacts of swine farming. In 1997, the state implemented a moratorium on the construction or expansion of swine farms utilizing anaerobic lagoons and sprayfield systems for waste management.¹¹⁰ This moratorium aimed to address concerns about water pollution and public health risks associated with these waste disposal methods.¹¹¹ In 2007, the moratorium was made permanent, effectively banning new or expanded swine farms that rely on these traditional waste management systems unless they adopt environmentally protective best management practices.¹¹² North Carolina is one of the nation's largest hog producers, and while the state's policy does not reduce the impact of existing CAFOs, it helps to minimize the harms caused by industry expansion.¹¹³

C. Minnesota's Environmental Review Requirements for Feedlots

Minnesota has established stringent environmental review requirements for large-scale feedlot operations.¹¹⁴ The state mandates the preparation of an Environmental Assessment Worksheet (EAW) for the construction of new feedlots with a capacity of 1,000 or more animal units, or for expansions that increase capacity by 1,000 or more animal units.¹¹⁵ This requirement ensures that potential environmental impacts are thoroughly evaluated before project approval. Additionally, feedlots located in environmentally sensitive areas, such as shorelands or regions with vulnerable groundwater, are subject to EAW requirements at lower thresholds, providing additional safeguards for vulnerable areas.¹¹⁶

D. Washington's Groundwater Monitoring for CAFOs

Washington State has implemented targeted groundwater monitoring requirements for CAFOs to safeguard water quality.¹¹⁷ The

¹¹⁰Act of Aug. 27, 1997, ch. 458, § 1.1(a), 1997 N.C. Sess. Laws 458.

¹¹¹Liam Hesting, *What's That Smell? The Legal Murky Status of Hog Lagoons in North Carolina*, WAKE FOREST L. REV. CURRENT ISSUES BLOG (Oct. 9, 2025), <https://www.wakeforestlawreview.com/2025/10/whats-that-smell-the-murky-legal-status-of-hog-lagoons-in-north-carolina/> [<https://perma.cc/HHD6-Z2KL>].

¹¹²Act of Aug. 31, 2007, ch. 523, § 1(a), 2007 N.C. Sess. Laws 523.

¹¹³Hesting, *supra* note 111.

¹¹⁴*See* MINN. POLLUTION CONTROL AGENCY, wq-f1-10, WHEN IS ENVIRONMENTAL REVIEW REQUIRED FOR FEEDLOTS? (2025) (requiring all feedlot facilities over 1000 animal units, or 500 animal units in sensitive areas, to complete an Environmental Assessment Worksheet that analyzes the facility's potential environmental impacts before it is permitted and can trigger a more extensive Environmental Impact Statement analysis).

¹¹⁵*Id.* at 1–2.

¹¹⁶*Id.* at 2.

¹¹⁷*Concentrated Animal Feeding Operation General Permit*, DEP'T OF ECOLOGY: STATE OF WASH., <https://ecology.wa.gov/regulations-permits/permits->

state's CAFO General Permit necessitates that all medium and large CAFOs situated in areas most vulnerable to nitrate contamination conduct regular groundwater monitoring.¹¹⁸ This measure is designed to detect and prevent nitrate pollution, which poses significant risks to drinking water sources and public health.¹¹⁹ By focusing on high-risk areas, Washington's policy exemplifies a data-driven approach to environmental regulation. The state accepts anonymous tips on pollution concerns and provides public access to CAFO permits, encouraging community awareness and involvement.¹²⁰

VII. RECOMMENDATIONS AND POLICY PROPOSALS

A. Strengthening Federal Law

The federal CWA remains the single most important tool for controlling pollution from CAFOs, but it requires modernization. First and foremost, Congress should amend the Act's definition of "point source" to clarify that discharges from land application areas associated with CAFOs—including those occurring during rainfall—are subject to permitting requirements. This amendment would close the "agricultural stormwater" loophole, which is routinely used to avoid regulation even in cases of significant runoff.¹²¹

Second, Congress or the EPA should categorically require NPDES permits for all large CAFOs, regardless of whether they are actively discharging. This requirement would reverse the limitation imposed by *Waterkeeper* and *Southview Farm*, and acknowledge the reality that all CAFOs may generate pollutants that eventually reach navigable waters. Mandating permits for large-scale operations would enable standardized monitoring, public reporting, and compliance auditing.¹²²

Third, the EPA should finalize a rule requiring CAFOs to submit basic operational data—such as location, facility size, and nutrient management plans—to a centralized public database. This rulemaking would improve transparency and allow agencies and communities to identify problem areas, track compliance, and pursue enforcement. Although the EPA withdrew a similar rule in 2012, modernized data

certifications/concentrated-animal-feeding-operation (last visited Nov. 10, 2025) [<https://perma.cc/CT5T-CKRP>].

¹¹⁸*Id.*

¹¹⁹*Nitrate in Groundwater Data & Assessment*, DEP'T OF ECOLOGY: STATE OF WASH., <https://ecology.wa.gov/regulations-permits/permits-certifications/concentrated-animal-feeding-operation> (last visited Jan. 4, 2026) [<https://perma.cc/JZF5-PEEN>].

¹²⁰DEP'T OF ECOLOGY: STATE OF WASH., 17-10-002, FOCUS SHEET: CONCENTRATED ANIMAL FEEDING OPERATION PERMIT (2022).

¹²¹Steeves, *supra* note 14, at 385–87.

¹²²*Cf.* Celender, *supra* note 25, at 962–64 (describing the effects mandating permits for small CAFOs would have).

privacy protections and FOIA exemptions could be crafted to address stakeholder concerns.¹²³

Finally, the EPA should revisit its national CAFO rule to require routine monitoring of groundwater and downstream surface water, particularly in vulnerable regions. These monitoring requirements should be built into NPDES permits and made publicly accessible, similar to Minnesota's approach to the problem.¹²⁴

B. Enhancing State-Led Models

While federal law must provide a strong foundation, state and local governments are often best positioned to respond to regional environmental conditions. States should be encouraged to adopt permitting frameworks that include cumulative impact analysis, environmental review requirements for new or expanded CAFOs, and mechanisms for proactive permit denial where groundwater is already contaminated. State regulations such as those discussed in Part VI, which incorporate many of these elements, provide a promising template.¹²⁵

States can also implement tiered oversight based on facility size, proximity to sensitive resources, or compliance history. For example, additional monitoring and reporting requirements could be triggered when facilities operate near drinking water sources or in areas with shallow aquifers. States like Minnesota and Washington have begun to experiment with such hybrid systems.¹²⁶

To support these efforts, Congress should increase funding to state environmental agencies and create a dedicated grant program for CAFO enforcement and community monitoring. Similar to the State Revolving Fund model used for drinking water infrastructure, these funds could be conditioned on meaningful participation by affected communities and adherence to minimum transparency standards.¹²⁷

C. Community-Based and Market-Oriented Solutions

Top-down regulation must be paired with bottom-up empowerment. Rural communities impacted by CAFO pollution often lack the financial, technical, or legal capacity to engage with regulators or pursue remedies. To address these hardships, policymakers should fund legal aid and

¹²³Carlesco, *supra* note 13, at 62.

¹²⁴See *supra* Part VI.C (discussing Minnesota's approach).

¹²⁵See *supra* Part VI (discussing Oregon, North Carolina, Minnesota, and Washington's CAFO oversight laws).

¹²⁶See *supra* Part VI (describing Minnesota and Washington's additional requirements for facilities near environmentally sensitive areas).

¹²⁷*How the Drinking Water State Revolving Fund Works*, U.S. ENV'T PROT. AGENCY (Aug. 20, 2025), <https://www.epa.gov/dwsrf/how-drinking-water-state-revolving-fund-works#tab-1> [<https://perma.cc/8WTQ-28LH>] (explaining that "States may customize loan terms to meet the needs of small and disadvantaged communities" and should prioritize projects that, among other things, "are necessary to ensure compliance").

technical assistance programs focused on agricultural pollution and community water rights. These efforts could help local communities take advantage of public nuisance common law to hold CAFOs accountable for pollution.¹²⁸

In addition, voluntary market mechanisms may support transitions to more sustainable animal agriculture. For example, cost-share programs that incentivize the use of closed-loop manure digesters, vegetative buffers, and advanced water treatment systems can reduce nutrient runoff while improving farm economics.¹²⁹ However, these programs must be carefully designed to avoid subsidizing polluters without measurable environmental gains.¹³⁰

Finally, supply-chain accountability can complement government action. Food companies and retailers increasingly adopt environmental sourcing standards for their producers. Mandating public disclosure of CAFO locations, discharge data, and permit compliance could support more responsible procurement and enable consumer-driven pressure for reform.

VIII. CONCLUSION

Industrial animal agriculture is one of the most significant and least effectively regulated contributors to water pollution in the United States. Through the widespread use of CAFOs, this system generates enormous volumes of waste, much of which enters rivers, lakes, and groundwater systems with little oversight. Although the CWA and the NPDES permitting program were designed to control such pollution, agricultural exemptions, definitional ambiguities, and persistent underenforcement have allowed the problem to grow with minimal accountability. Meanwhile, the environmental and health consequences of CAFO pollution continue to be borne disproportionately by rural, low-income, and marginalized communities.

This Note suggests that the failure to regulate CAFO water pollution is not merely a technical gap, but a systemic legal and political breakdown. The CWA's reliance on a narrow definition of "point source" and its accommodation of "agricultural stormwater" have created opportunities for large-scale operations to evade permitting. Even when permits are required, enforcement is inconsistent and often left to state agencies that lack adequate resources or political support. Court decisions have both clarified and limited federal authority, reinforcing the need for statutory reform and stronger regulatory commitments.

Yet solutions are possible. Some states, including Oregon, North Carolina, Minnesota, and Washington, have taken steps to address CAFO pollution through moratoriums, stricter siting requirements, and

¹²⁸Laitos & Ruckriegle, *supra* note 14, at 1065; Hines, *supra* note 1, at 47.

¹²⁹Celender, *supra* note 25, at 964–68.

¹³⁰*Id.*

enhanced public participation.¹³¹ Those efforts offer models for other jurisdictions and point to the importance of state leadership in environmental governance. At the same time, federal action remains essential to close regulatory loopholes, ensure consistent enforcement, and protect communities and ecosystems across state lines. Strengthening federal definitions, supporting state-level innovations, and elevating the voices of affected communities must all be part of a comprehensive strategy.

To move forward, policymakers must recognize that effective regulation of CAFOs is essential not only for environmental protection but also for public health, climate resilience, and community well-being. This requires closing loopholes in the CWA, requiring NPDES permits for all large animal operations that pose a pollution risk, and eliminating the agricultural stormwater exemption that enables evasion of regulatory control. It also means investing in state regulatory capacity, mandating comprehensive monitoring and reporting, and promoting transparency through public access to environmental data. Finally, a just and sustainable system must empower the communities most affected by industrial agriculture by giving them a voice in permitting decisions, access to legal remedies, and a role in shaping the future of food production. With stronger federal leadership, state innovation, and meaningful community engagement, the legal system can begin to remedy the failures of CAFO regulation and protect the nation's waters for generations to come.

Ultimately, addressing CAFO pollution requires a shift in how the law treats industrial agriculture—not as an exempt or exceptional activity, but as a regulated industry subject to meaningful environmental safeguards. Only by embracing this change can we protect the integrity of the nation's waters, promote environmental justice, and begin to hold industrial agriculture accountable for its most damaging externalities.

¹³¹See *supra* Part VI (discussing state innovations in CAFO oversight).