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Downstream Interests in Agriculture: The Clean Water Act's Failure to Adequately Address Nonpoint Source Pollution

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ABSTRACT

Agricultural runoff is a major source of nonpoint pollution in the U.S., where portions of fertilizer are carried away as runoff before polluting navigable waters. Commercial fertilizers containing heavy concentrations of nitrate and phosphate are the dominant source of nonpoint pollution. In 1972, the Clean Water Act (CWA) was implemented to protect navigable waters from discharges of point source pollutants. However, currently there are only limited provisions regarding nonpoint source pollution. Instead, regulation is left to the states through a variety of voluntary management programs. To properly address nonpoint source pollution, the CWA needs additional amendments that focus on more comprehensive oversight towards state management programs, including larger incentives for farmers to adopt management programs that tackle nonpoint pollution. Otherwise, agricultural pollution will continue to plague navigable waters and damage local ecosystems.

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I. INTRODUCTION

In U.S. corn belt regions, agriculture is a major industry that serves as the bedrock for local economies.[1] Every year, farmers in these regions apply fertilizer to their fields to attain production demands with high yields, increasing profits and allowing expansion into new, unbroken land.[2] Major problems can occur after fertilizer application when portions of fertilizer are carried away as runoff by precipitation and snowmelt.[3] This subjects drainage tiles, ditches, rivers, and lakes to heavy nitrates and phosphate content.[4] This runoff not only affects local waters where fertilizer is applied but also waters thousands of miles away where the runoff is carried.[5] These agricultural effects create a conundrum; agriculture depends on the environment, requiring rain, sunlight, and other natural resources to survive.[6] Yet, agricultural producers refuse to maintain their local ecosystems despite its central importance to their industry.

Agricultural runoff is a major source of nonpoint source pollution, acting as the primary transport mechanism for fertilizers.[7] A common observation regarding nonpoint source pollution is that "nearly everything in agriculture is nonpoint-source pollution."[8] Nonpoint source pollution can have dangerous effects on waters; one example is rapid algae growth from nutrient loading, which causes reduced oxygen levels in

1. U.S. DEP'T OF AGRIC., *Agriculture in the Midwest*, https://www.climatehubs.usda.gov/hubs/midwest/topic/agriculture-midwest [https://perma.cc/J438-ERPY] (last visited Aug. 6, 2023).
2. Anthony B. Schutz, *Agricultural Discharges Under the CWA: Old Questions and New Insights*, 52 U. PAC. L. REV. 567, 568 (2021).
3. *Protecting Water Quality from Agricultural Runoff*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/sites/default/files/2015-09/documents/ag_runoff_fact_sheet.pdf [https://perma.cc/HH9D-CVFU] (last updated March 2005).
4. *Id.*
5. Bradley R. Finney, *Agricultural Law Stifles Innovation and Competition*, 72 ALA. L. REV. 785, 802–03 (2021) (stating that manure runoff in the Gulf of Mexico traveled from the upper Mississippi River basin from farms in Minnesota and Wisconsin).
6. Schutz, *supra* note 2, at 567.
7. J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 ECOLOGY. L. Q. 263, 288 (2000).
8. Schutz, *supra* note 2, at 591.

waters.[9] States identify nonpoint source pollution as a primary cause of water problems in the United States.[10] Impaired lakes, reservoirs, and ponds from nonpoint source pollution total nearly 2.5 million acres.[11]

Commercial fertilizers are a dominant source of nonpoint pollution in most of the United States, and nitrate and phosphate are primary compounds of fertilizer runoff.[12] Roughly twelve million tons of nitrogen and four million tons of phosphorus fertilizers are applied yearly to agricultural fields in the United States.[13] In Iowa, over two hundred communities' water supplies suffer from high nitrate levels, with periodic "Do Not Drink" orders put in place by local governments.[14] In Nebraska, decades of heavy nitrogen fertilizer application on irrigated crops have led to increasing amounts of groundwater contamination, particularly in rural communities where water is left untreated.[15] With roughly 80% of Nebraska residents relying on groundwater for drinking water, several townships have reported over twenty parts per million[16] (ppm) in nitrate levels.[17] Due to severe health risks associated with digesting high nitrate levels, the Environmental Protection Agency (EPA) recommends that the maximum contaminant level for nitrate-nitrogen in public water be ten milligrams per liter (equivalent

9. Ruhl, *supra* note 7, at 288.
10. *Basic Information about Nonpoint Source (NPS) Pollution*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/nps/basic-information-about-nonpoint-source-nps-pollution [https://perma.cc/B74E-J7EZ] (last updated Dec. 22, 2022).
11. Kevin DeGood, *A Call to Action on Combating Nonpoint Source and Stormwater Pollution*, CTR. AM. PROGRESS (Oct. 27, 2020), https://www.americanprogress.org/article/call-action-combating-nonpoint-source-stormwater-pollution/ [https://perma.cc/M4U4-NXZH].
12. Ruhl, *supra* note 7, at 289.
13. *Nonpoint Source: Agriculture,* U.S. ENV'T PROT. AGENCY, https://www.epa.gov/nps/nonpoint-source-agriculture [https://perma.cc/MLS3-EF37] (last updated July 11, 2022). Farmers tend to apply fertilizer in excess, resulting in portions being lost to various environmental facts. *See* Peter Lehner & Nathan A. Rosenberg, *Legal Pathways to Carbon-Neutral Agriculture*, 47 ENV'T L. REP. 10845, 10869 (2017). Not only is nitrogen fertilizer a substantial expense for many farmers but crops only end up absorbing roughly 40% of the fertilizer applied. Finney, *supra* note 5, at 827.
14. Elizabeth Royte, *The Simple River-Cleaning Tactics That Big Farms Ignore,* FOOD & ENV'T REPORTING NETWORK (Dec. 7, 2017), https://www.nationalgeographic.com/science/article/iowa-agriculture-runoff-water-pollution-environment [https://perma.cc/M6R4-TGV8].
15. Crystal Powers & Katie Pekarek, *Nebraska Nitrate Working Groups-Summary and Call for Action*, NEB. INST. OF AGRIC. & NAT. RESOURCES (Aug. 13, 2021), https://water.unl.edu/article/nitrate/nebraska-nitrate-working-groups-summary-and-call-action [https://perma.cc/ZKF5-CPN5].
16. "Parts per million" is the concentrated measure of a substance (e.g., nitrate) in water. *See* Terrie K. Boguski, *Understanding Units of Measurement*, CENTER HAZARDOUS SUBSTANCE RES. (Oct. 2006), https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.files/fileid/14285 [https://perma.cc/ZT35-T4BZ].
17. Powers & Pekarek, *supra* note 15.

to ten parts per million).[18] Accordingly, the EPA estimates an annual cost of approximately $21 billion for drinking water systems affected by nonpoint source pollution.[19]

The Clean Water Act (CWA), initially implemented to tackle "point source" pollution, includes only limited provisions when it comes to nonpoint source pollution and no federal regulatory requirements.[20] The CWA defines point source as:

> [A]ny discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete, fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants[21] are or may be discharged.[22]

The CWA fails to define "nonpoint source pollution."[23] While a point source usually relates to a discharge from a pipe or similar conveyance, a nonpoint source is generally pollutant runoff.[24] The EPA describes nonpoint sources as:

> [P]ollution caused by rainfall or snowmelt moving over and through the ground and carrying natural and human-made pollutants into lakes, rivers, streams, wetlands, estuaries, other coastal waters and ground water. Atmospheric deposition and hydrological modification are also sources of nonpoint pollution.[25]

Unlike point source pollution, regulation for nonpoint source pollution is left to the states through a variety of voluntary management programs.[26]

While most agricultural runoff into navigable waters results from underground water conveyances, the CWA expressly excludes "agricultural stormwater discharges" from its statutory text of the term point source.[27] This exemption precludes the majority of agriculture nonpoint

18. *Estimated Nitrate Concentrations in Groundwater Used for Drinking*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/nutrient-policy-data/estimated-nitrate-concentrations-groundwater-used-drinking [https://perma.cc/9CX5-7EAH] (last updated Jan. 11, 2023).
19. Finney, *supra* note 5, at 803.
20. *Federal Environmental Laws Affecting Agriculture*, USDA 7, https://efotg.sc.egov.usda.gov/references/public/NY/Federal.pdf [https://perma.cc/8P3M-N5X9] (last visited May 29, 2022) [hereinafter Federal Environmental Laws].
21. The CWA defines "pollutant" as "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials . . . and agricultural waste discharged into water." 33 U.S.C. § 1362(6).
22. 33 U.S.C. § 1362(14).
23. Schutz, *supra* note 2, at 574.
24. Edward B. Witte, *Nonpoint Source Pollution Control, in* THE CLEAN WATER ACT HANDBOOK 233, 235 (Mark A. Ryan ed., 4th ed. 2018).
25. U.S. ENV'T PROT. AGENCY, NONPOINT SOURCE PROGRAM AND GRANTS GUIDELINES FOR STATES AND TERRITORIES 1, 7 n.2 (2013) https://www.epa.gov/sites/default/files/2015-09/documents/319-guidelines-fy14.pdf [https://perma.cc/K3TX-9LCU] [hereinafter Grants Guidelines].
26. Federal Environmental Laws, *supra* note 20, at 7.
27. 33 U.S.C. § 1362(14).

source pollution. For example, in the northern plain's region, drainage tile that runs throughout agricultural fields carries large amounts of water and fertilizer runoff into local lakes and streams after rainfall or snowmelt.[28] This fertilizer runoff through drainage tile is likely considered an "agricultural stormwater discharge,"[29] even though the fertilizer applied by the farmer directly to the field is considered a "point source." Therefore, under the exemption, the fertilizer is not treated as point source.

Although Congress clearly did not intend to regulate agricultural nonpoint pollution at the federal level, the CWA exacerbates the ambiguity between "point source" and "nonpoint source" in its "Concentrated Animal Feeding Operations" (CAFO) and "Total Maximum Daily Load" (TMDL) provisions. Under these provisions, CAFOs are included in the definition of "point source" pollutants.[30] Yet, CAFOs are often subject to what many would identify as fertilizer runoff, also known as "nonpoint source pollution." Similarly, TMDL provisions, which establish the daily amount of pollution permitted to enter identified impaired waters, offer no scope to the "type" of pollution permitted to enter waters. Several district courts have broadly interpreted these regulations.[31]

Water law is complex and difficult to regulate. Therefore, for nonpoint pollution, courts have mostly struggled to go beyond the limiting language of the CWA to include agricultural nonpoint source pollution.[32] A recent Supreme Court case involving CAFOs and nonpoint source pollution provided little guidance.[33] This Comment argues that the CWA does not properly address the problems associated with agricultural nonpoint pollution. Therefore, this Comment advocates for broader comprehensive government oversight for nonpoint pollution in agriculture and explores alternative incentive-based approaches for farmers to adopt.

This Comment precedes as follows: Part II provides background information about the CWA and its provisions that address agriculture nonpoint pollution. Part III discusses the lack of clarity around

28. Schutz, *supra* note 2, at 595.
29. *See also* Alt v. EPA, 979 F. Supp. 2d 701 (N.D.W. Va. 2013) (holding that rainfall-related conveyances of pollutants from chicken CAFOs were not discharges because they fell within the agricultural-stormwater discharge exemption).
30. 33 U.S.C. § 1362(14).
31. *See* Pronsolino v. Nastri, 291 F.3d 1123 (9th Cir. 2002) (holding that § 303(d) of the CWA was best read to include waters impaired by nonpoint sources of pollution); *see also* Concerned Area Residents for the Env't v. Southview Farm, 34 F.3d 114 (2d Cir. 1994) (finding the defendant's liquid manure spreading operation a point source and therefore not subject to the agricultural exemption).
32. Jan G. Laitos & Heidi Ruckriegle, *The Clean Water Act and the Challenge of Agriculture Pollution*, 37 VT. L. REV. 1033, 1070 (2013).
33. *See* Cnty. of Maui v. Haw. Wildlife Fund, 140 S. Ct. 1462 (2020) (stating time and distance as the most important factors distinguishing point source and nonpoint source pollution).

nonpoint source pollution in the CWA. Part IV explores alternative approaches to addressing nonpoint pollution issues in agriculture. Lastly, Part V concludes that the federal government needs to address nonpoint source pollution issues, particularly in agriculture, before water bodies in the United States suffer irrevocable harm.

II. HISTORY OF THE CWA AND NONPOINT SOURCE POLLUTION

In 1972, Congress enacted the Clean Water Act, a revised and recodified version of the Federal Water Pollution Control Act (FWPCA).[34] The CWA was designed to protect navigable waters from discharges of point source pollutants.[35] Section 301(a) of the CWA prohibits the "discharge of any pollutant by any person" from "point source" into "navigable waters"[36] of the United States unless otherwise permitted.[37] Under § 502(12), "discharge of a pollutant" refers to "any addition of any pollutant to navigable waters from any point source."[38] This definition has led to many questions regarding the scope of the terms "addition," "pollutant," "point source," and "navigable waters."[39]

In response to a flood of litigation regarding the alleged direct discharge of pollutants unlawfully under the Rivers and Harbors Act, Congress established, under the CWA, the National Pollutant Discharge Elimination System (NPDES) permit program, replacing the Rivers

34. Theodore L. Garrett, *Overview of the Clean Water Act, in* THE CLEAN WATER ACT HANDBOOK 1, 2 (Mark A. Ryan ed., 4th ed. 2018).

35. Georgia D. Reid, *Muddying the Waters: The Need for More Clarity Under the Clean Water Act*, 28 BUFF. ENV'T L.J. 77, 87 (2020).

36. The CWA defines navigable waters as "waters of the United States, including the territorial seas." 33 U.S.C. § 1362(7). Recently, the U.S. Supreme Court established a more stringent test in interpreting "waters of the United States" and whether the CWA applies. *See* Sackett v. EPA, 598 U.S. __ (2023) (describing that for a wetland to be considered waters of the United States, it must be (1) adjacent to or connected to a permanent body or water and (2) have "continuous surface connection with that [permanent water body]."). Following this case, the EPA amended the definition of "Waters of the United States." *See Revising the Definition of "Waters of the Unites States",* U.S. ENV'T PROT. AGENCY (Sept. 8, 2023), https://www.epa.gov/wotus/revising-definition-waters-united-states [https://perma.cc/U2KJ-KHJZ]; 33 C.F.R. § 328.3(a) (2023).

37. 33 U.S.C § 1311(a).

38. 33 U.S.C. § 1362(12)(A).

39. Karen M. McGaffey et al., *Water Pollution Control under the National Pollutant Discharge Elimination System, in* THE CLEAN WATER ACT HANDBOOK 35, 36–40 (Mark A. Ryan ed., 4th ed. 2018) (while the statute does not define the term "addition", it does define "pollutant", "point source", and "navigable waters," yet, courts have struggled with how far to expand such terms with regards to pollution). *See, e.g.,* Nat'l Wildlife Fed'n v. Gorsuch, 693 F.2d 156 (D.C. Cir. 1982) (holding that the flow of water over a dam resulting in supersaturation of entrained gases was not considered an addition of pollutants to the water); *cf.* Rybachek v. EPA, 904 F.2d 1276 (9th Cir. 1990) (finding that pollutants were being added to water via placer mining activities).

and Harbors Act permit program.[40] The NPDES operates by requiring permits for point source discharges,[41] while the Environmental Protection Agency (EPA) implements and enforces such CWA provisions.[42] At the time, Congress declared "the objective of this chapter is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[43]

When enacted in 1972, the CWA included within the definition of "point sources" any "concentrated animal feeding operation" (CAFO).[44] Although the CWA does not define or offer any scope to a "concentrated animal feeding operation," the EPA defines CAFOs to include any "animal feeding operation" that contains a specified number of animals that is a "significant contributor of pollutants."[45] Therefore, CAFOs are treated as point sources and cannot discharge into U.S. waters without an NPDES permit.[46] CAFOs are the only agriculture-related sector regulated by the CWA.[47] This regulation, however, is subject to the exemption of "agricultural stormwater discharges and return flows from irrigated agriculture."[48]

To better understand CAFOs, consider a farmer's application of manure to agricultural land for fertilization. The problem with CAFOs is the extent to which precipitation carries away these pollutants to nearby waters.[49] Under the CWA, the link between CAFOs source of origin and its ultimate navigable water destination is unclear.[50] In a recent Supreme Court case, *County of Maui v. Hawaii*, the court identified several factors to determine whether runoff pollutants arriving at

40. Garrett, *supra* note 34, at 2.
41. A separate but express exception from the CWA includes "concentrated animal feeding operations" (CAFOS). Although CAFOS are subject to nonpoint pollution issues like other agricultural runoffs, they are not technically considered nonpoint sources because they are expressly included in the CWA's definition of point sources. CAFOS are allowed to have discharges in stormwater with a permit under the NPDES program. Laitos & Ruckriegle, *supra* note 32, at 1065.
42. *Clean Water Act – An Overview*, NAT'L. AGRIC. L. CTR., https://nationalaglawcenter.org/overview/cw/ [https://perma.cc/SU65-DK24] (last visited May 27, 2022).
43. 33 U.S.C. § 1251(a).
44. 33 U.S.C. § 1362(14).
45. Randolph L. Hill & Sylvia Horwitz, *Wet Weather Regulations: Control of Stormwater and Discharges from Concentrated Animal Feeding Operations and Other Facilities, in, in* THE CLEAN WATER ACT HANDBOOK 205, 222 (Mark A. Ryan ed., 4th ed. 2018); *see also Regulatory Definition of Large CAFOs, Medium CAFOs, and Small CAFOs,* U.S. ENV'T PROT. AGENCY, *https://www3.epa.gov/npdes/pubs/sector_table.pdf* [https://perma.cc/FY5Y-RZ7M] (last visited Aug. 6, 2023) (showing the threshold number of farm animals per animal sector before being considered a "significant contributor of pollutants").
46. 33 U.S.C. § 1311(a).
47. Hill & Horwitz, *supra* note 45, at 222.
48. 33 U.S.C. § 1362(14).
49. Schutz, *supra* note 2, at 571.
50. *Id.*

navigable waters are from a point source.[51] However, little was resolved when reconciling such linkages.

In *County of Maui*, petitioners operated a wastewater facility that collected and treated sewage from its surrounding area.[52] After treatment, this sewage pumped through a collection of underground wells several hundred feet below.[53] Eventually, this liquid waste traveled and deposited into the Pacific Ocean.[54] Respondents, consisting of several environmental groups, brought a citizen suit under the CWA claiming that petitioners were "'discharging' a 'pollutant' into 'navigable waters'" without a permit.[55] The Supreme Court wrestled with whether the wastewater consisted of a point source even though it traveled through other sources before reaching the ocean.[56] Recognizing a possible discharge into navigable waters, the Court found the CWA to require a permit when a direct discharge from a point source reaches navigable waters via other sources and is the functional equivalent of a direct discharge from a point source into navigable waters.[57] When determining whether a pollutant arriving at navigable waters comes from a point source, the Court noted distance and time as the most important factors.[58]

Besides CAFOs, most other agriculture pollution comes from field runoff into drainage tile, which eventually flows to local waters. Known as nonpoint source pollution, such pollution is largely absent from the CWA's regulating provisions. Instead, nonpoint source pollution issues are left to the states.[59] In agriculture, much of the pollution comes from the drainage of fertilizers and pesticides by wastewater and stormwater.[60] Provisions for discharges of agricultural wastewater and stormwater are absent in the CWA.[61] However, the CWA does label

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51. The Court noted the following factors regarding whether a pollutant is "from" a point source:

> (1) transit time, (2) distance traveled, (3) the nature of the material through which the pollutant travels, (4) the extent to which the pollutant is dilute or chemically changed as it travels, (5) the amount of pollutant entering the navigable waters relative to the amount of the pollutant that leaves the point source, (6) the manner by or area in which the pollutant enters the navigable waters, (7) the degree to which the pollution (at that point) has maintained its specific identify.

Cnty. of Maui v. Haw. Wildlife Fund, 140 S. Ct. 1462, 1476 (2020).

52. *Id.* at 1469.
53. *Id.*
54. *Id.*
55. *Id.*
56. *Id.* at 1470.
57. *Id.* at 1476.
58. *Id.* at 1477.
59. William Droze & Mandi Moroz, *Senators Examine Section 319 Nonpoint Source Management Program*, ENVTL L. & POL'Y MONITOR (Jan. 13, 2020), https://www.environmentallawandpolicy.com/2020/01/senators-examine-section-319-nonpoint-source-management-program/ [https://perma.cc/3CYQ-564P].
60. Schutz, *supra* note 2, at 591–92.
61. Ruhl, *supra* note 7, at 293–94.

"agricultural . . . activities, including runoff from fields and crop and forest lands" as "nonpoint sources of pollution."[62]

In its original enactment, only two sections vaguely addressed nonpoint source pollution. Sections 208 and 303(e) provided federal grants to state and local planning agencies in assessing nonpoint source pollution.[63] Section 208 provided for the development of a "water quality management program," designed to identify sources of pollution from agriculture.[64] More specifically, these programs included a process for identifying nonpoint sources of pollution and establishing possible control measures,[65] whereas § 303(e) required states to have continuous planning processes from these areawide management programs.

Since then, few amendments relating to nonpoint source pollution have been added. Building off both §§ 208 and 303(e), § 319 was another attempt by Congress to influence state water quality planning.[66] Enacted by Congress in 1987 amidst growing awareness of the threat that nonpoint source pollution posed, § 319 requires states to identify nonpoint sources that are contributing to poor water standards and to develop various best management practices (BMPs) for curbing pollution.[67] States can then develop a comprehensive management plan to control nonpoint source pollution and submit it to the EPA for approval.[68] These management programs include enforcement mechanisms, financial assistance, and training programs for implementation.[69]

Under state prescribed BMPs, § 319 does not require states to penalize nonpoint source polluters who fail to adopt such management practices.[70] Rather, it provides for grants to encourage the adoption of these practices.[71] Once approved, the state becomes eligible for federal grants to implement these management programs between the state and farmer or rancher.[72]

Finally, § 303(d) attempts to address impaired waters by mandating that states identify impaired waters and establish a priority ranking

62. 33 U.S.C. § 1314(f)(A).
63. Witte, *supra* note 24, at 236.
64. *Id.*
65. Laitos & Ruckriegle, *supra* note *32*, at 1046.
66. *Id.* at 1043.
67. Robin M. Rotman et al., *Realigning the Clean Water Act: Comprehensive Treatment of Nonpoint Source Pollution*, 48 ECOLOGY L.Q. 115, 157 (2021).
68. Federal Environmental Laws, *supra* note 20, at 7.
69. 33 U.S.C. § 1329(b)(2)(B).
70. Robin Kundis Craig, *Local or National? The Increasing Federalization of Nonpoint Source Pollution Regulation*, 15 J. Env't L. & LITIG. 179, 190 (2000) ("As a practical matter, nonpoint source control was left largely to the individual states' discretion.").
71. *Id.*
72. Federal Environmental Laws, *supra* note 20, at 7.

from the list to submit to the EPA every two years.[73] Once identified, states prioritize a list based on severity.[74] For each impaired waterbody on the list, the CWA requires states to establish a total maximum daily load (TMDL) for those pollutants.[75] The TMDL is the daily amount of pollution permitted to enter impaired waters while still meeting the state's water quality standards.[76] TMDLs can account for nonpoint source pollutants.[77] Similar to §§ 319 and 208, § 303(d) offers financial incentives for implementing safety measures to reduce agriculture runoff.[78] However, the text of § 303(d) does not provide for any mandatory implementation of such TMDL plans.[79]

These CWA sections have provided little effect in controlling agricultural pollution. Although circuit courts have tried reconciling nonpoint source pollution by trying to capture it within the meaning of a point source,[80] their efforts have generally been ineffective.[81] The lack of clarification and enforcement regarding pollution in agriculture can likely be traced back to agricultural lobbyists.[82] While mandatory enforcement may not be the answer, Congress needs to aggressively change its approach regarding the statutory language of the CWA and its investments in agriculture.

III. THE CWA DOES NOT PROPERLY ADDRESS NONPOINT SOURCE POLLUTION

The CWA fails to adequately address nonpoint source pollution, particularly regarding agricultural fertilizer runoff. While the CWA clearly outlines "point source" pollution and how to adequately address it, "nonpoint source" pollution is largely excluded. Several sections of the CWA vaguely address nonpoint solutions.[83] However, these CWA sections leave much of the responsibility to individual states through voluntary implementation measures.[84] Furthermore, the CWA lacks

73. Laitos & Ruckriegle, *supra* note 32, at 1048–49.
74. 33 U.S.C. § 1313(d)(1)(A).
75. Laitos & Ruckriegle, *supra* note 32, at 1049.
76. *Id.*
77. Witte, *supra* note 24, at 241. *See also* Pronsolino v. Nastri, 291 F.3d 1123 (9th Cir. 2002) (waters may be impaired only by nonpoint sources, only by point sources, or a combination of the two).
78. Rotman et al., *supra* note 67, at 127.
79. *Id.* at 128.
80. *See* Concerned Area Residents for the Env't v. Southview Farm, 34 F.3d 114 (2d Cir. 1994) (court finding the defendant's liquid manure spreading operation a point source and therefore not subject to the agricultural exemption); Nat'l Cotton Council of Am. v. EPA, 553 F.3d 927 (6th Cir. 2009) (pesticide pollutant discharges are subject to NDPES permits under the CWA).
81. Laitos & Reckriegle, *supra* note 32, at 1070.
82. Schutz, *supra* note 2, at 569.
83. *See supra* Part II.
84. *See supra* text accompanying notes 66–72.

adequate assessment limits of agricultural nonpoint source pollution and how it is distinguished from point source applications.[85]

While the CWA fails to define "nonpoint" source pollution, it also contains numerous exemptions regarding agriculture pollution. As mentioned, the EPA describes nonpoint pollution as sources running over and through the ground by precipitation, carrying pollutants into nearby waters.[86] However, the statutory text of the CWA excludes "agricultural stormwater discharges."[87] Commonly referred to as the CWA's "agricultural exemption," this exclusion is significant in exempting most agriculture pollutants from enforcement under the CWA,[88] apart from perhaps TMDLs. Additionally, no NPDES permit is required for discharges of agriculture pollutants to groundwater or wells.[89] Even the EPA expressly excludes groundwater from the definition of "water of the United States."[90]

Much of the nonpoint agricultural pollution results from the exemptions of stormwater and groundwater discharges. Groundwater results from precipitation infiltration through soil particles, and is often responsible for filling rivers, ponds, and lakes.[91] Water that cannot be filtered due to saturated soils collects on the ground surface, creating runoff.[92] Therefore, portions of a farmer's applied commercial fertilizer will either filter into groundwater, contaminating the groundwater before draining into navigable waters, or drain off the ground's surface as runoff.[93] This runoff either flows into drainage tile or local waterways, eventually making its way into navigable waters. Similarly, "stormwater" is generated from precipitation that flows over land surfaces, collecting pollutants before arriving at navigable waters.[94] In agriculture, stormwater plays a major role in carrying pollutants to nearby waters.[95] These statutory text exemptions regarding agriculture create major loopholes for fertilizer pollution in U.S. waters.

For example, in *Alt v. EPA*, a federal district court analyzed rainfall-related pollutant conveyances resulting from CAFO-designated

85. Schutz, *supra* note 2, at 574–75.
86. Grants Guidelines*, supra* note 25.
87. Schutz, *supra* note 2, at 577.
88. McGaffey et al., *supra* note 39, at 39.
89. *Id.* at 41.
90. *Id.* at 42.
91. *Groundwater*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/sites/default/files / documents/groundwater.pdf [https://perma.cc/H8YN-TAG3] (last visited Sept. 4, 2022).
92. *Id.*
93. *Id.*
94. *Problems with Stormwater Pollution,* U.S. ENV'T PROT. AGENCY, https://www.epa.gov/npdes/npdes-stormwater-program [https://perma.cc/LJ2Z-5LTA] (last updated Feb. 2, 2023).
95. *See* Schutz, *supra* note 2, at 577 ("[A]griculture is a widespread contributor of large amounts of pollutants into the environment, which are carried to navigable water through the hydrologic system.").

chicken farms and addressed the agricultural stormwater discharge exemption directly.[96] The pollutants were found outside poultry barns after being deposited there by ventilation fans.[97] After rainfall, the pollutants washed into U.S. waters without an NDPES permit.[98] Finding that the pollutant conveyances fell within the agricultural stormwater discharge exemption, the court held that these discharges were not subject to permits under NPDES.[99] While *Alt* deals with precipitation that plays a role in the pollutants discharge, it fails to consider whether the pollutant runoff would have occurred "but-for" the precipitation.[100] It is as if the court is claiming there was no discharge to begin with.[101]

Adding to the confusion, the CWA includes CAFOs within the definition of "point sources," prohibiting discharges into navigable waters without an NPDES permit.[102] CAFOs, much like regularly applied commercial fertilizers, are subject to the same runoff as nonpoint source pollution. As addressed in *County of Maui*, this creates difficulty in drawing a line between point source and nonpoint source pollution.[103] While the court noted distance and time as the most important factors when deciding whether a discharged pollutant comes from a point source, the problem in *County of Maui* was that the court did not identify how much time and distance is too much before a discharged pollutant is not considered a point source.[104]

Importantly, the issues addressed in *County of Maui* would be the same regarding all other nonpoint source pollution. While circuit courts have interpreted point source broadly,[105] instead of an arbitrary line concerning time and distance, it is important to establish a framework for the scope of when a point source becomes nonpoint source pollution. Consider the following questions: (1) At what point is the distance from the point source runoff too far? (2) How does the topography of the land affect distance in comparison to pollutant travel time?

A farmer who directly applies fertilizer to a field, only to have portions carried away by drain tile that emits directly into a local waterway, creates a very close distance. However, issues arise regarding low annual precipitation, potentially creating a longer period for when the pollutants are carried away. As for topography, downhill slopes that create a high percentage of runoff will likely have faster runoff travel time. It is unclear how this would influence the factor analysis because

96. Alt v. EPA, 979 F. Supp. 2d 701 (N.D.W. Va. 2013).
97. *Id.* at 705.
98. *Id.*
99. *Id.* at 715.
100. Schutz, *supra* note 2, at 589.
101. *Id.* at 590.
102. 33 U.S.C. § 1362(14).
103. Cnty. of Maui v. Haw. Wildlife Fund, 140 S. Ct. 1462 (2020).
104. Schutz, *supra* note 2, at 580.
105. McGaffey et al., *supra* note 39, at 39.

travel time would decrease but the distance is further. The difficulty in tracing pollutants from polluted waters to specific sources or points of origin creates major problems.[106] Therefore, this ambiguity makes it unfeasible to claim that every fertilizer pollutant release is a point source discharge.[107]

Difficulties concerning the scope of point source pollution versus nonpoint source pollution certainly will impact the ability to include mandatory enforcement provisions in the CWA. However, current CWA exemptions and lack of provisions regarding agricultural nonpoint pollution indicate Congress's lackluster efforts to even address the issue. Congress has left states with the discretion to determine how to best regulate such pollution through a variety of management programs.[108] In *County of Maui,* the Court noted that "Congress left substantial responsibility and autonomy to the States" under the CWA and gave the EPA no authority that could interfere with the state's responsibility to address groundwater and nonpoint source pollution.[109]

Yet, the CWA lacks any meaningful enforcement mechanism to foster state compliance.[110] The two sections implemented by Congress to tackle nonpoint pollution only require assessment reports and provide little financial incentives for adopting agricultural fertilizer inhibiting practices.[111] However, while difficult to trace, in theory it is possible to distinguish point source versus nonpoint source and identify sources of origin in agriculture pollution through state-based management programs.

For example, in Minnesota, farmers can enroll in a term of years state program that requires them to plant riparian buffer strips at a certain width along drainage ditches or streams in return for financial incentives.[112] Although beneficial to an extent, much of the fertilizer runoff from fields in Minnesota comes from drainage tile intakes after rainfall or snowmelt.[113] Therefore, in Minnesota, where lakes and streams are abundant, BMPs under the CWA should include buffer

106. Schutz, *supra* note 2, at 593.
107. *Id.* at 592.
108. Federal Environmental Laws, *supra* note 20, at 3.
109. Cnty. of Maui v. Haw. Wildlife Fund, 140 S. Ct. 1462, 1465 (2020).
110. Rotman et al., *supra* note 67, at 130.
111. *See* Laitos & Ruckriegle, *supra* note 32, at 1043; Rotman et al., *supra* note 67, at 130.
112. MINN. STAT. § 103F.48 (2021).
113. *See* Dennis Anderson, *Unregulated Farm Tiling Puts State's Waters at Risk*, STARTRIBUNE (Mar. 25, 2018), https://www.startribune.com/unregulated-farm-tiling-puts-state-s-waters-at risk/477830043/#:~:text=Modest%20stream%20buffers%20won't,in%20southern%20and%20western%20Minnesota.&text=Someday%20soon%2C%20water%20management%20as,state%20will%20be%20considered%20primitive [https://perma.cc/586H-M9SU].

strips placed along drainage ditches and waterways.[114] The drainage tile collects not only surface water, but also groundwater, which eventually drains into local streams and lakes.[115] To increase the filtration of agricultural fertilizer and pollutants, state management practice programs need to consider buffer strips along tile intakes. However, without any enforcement mechanisms to adopt a BMP, nonpoint pollution in agriculture will not properly be controlled.[116]

Under § 303(d), there has been some success regarding agriculture nonpoint source pollution.[117] Despite the CWA's ambiguity,[118] TMDLs can incorporate both nonpoint source and point source pollution.[119] For example, in *Pronsolino v. Nastri*, landowners of a heavily logged timber area in the Garcia River watershed applied for a harvesting permit.[120] Once granted the permit, landowners were required to comply with the EPA's TMDL requirements for the Garcia River.[121] Such requirements included limiting their road-related sediment run-off and restrictions on harvesting trees.[122] Discovering that the forester restrictions imposed high costs, landowners brought suit against the EPA, claiming it did not have the authority to regulate nonpoint source pollution under the CWA § 303(d).[123] Acknowledging that point and nonpoint pollution are treated differently under the CWA, the court held that § 303(d) applies regardless of the pollutant source at issue.[124] In *Pronsolino*, the court followed the EPA's interpretation of TMDLs which conceives of TMDLs as applying to both point and nonpoint source pollution.[125] The court also noted that nothing under § 303(d) suggests that Congress

114. *Vegetated filter strip*, MINN. DEPARTMENT NAT. RESOURCES, https://www.dnr.state.mn.us/water_access/bmp/vegetated_filter_strip_bmp.html [https://perma.cc/VT74-RA8V] (last visited May 27, 2022).
115. Kelly Kennedy, Comment, *19th Century Farming and 21st Century Technology: The Path to Cleaner Water*, 47 ARIZ. ST. L.J. 1385, 1395 (2015).
116. Kyle W. Robisch, Note, *Getting to the (Non)Point: Private Governance as a Solution to Nonpoint Source Pollution*, 67 VAND. L. REV. 539, 553 (2014).
117. For example, Carter Lake, located along the Missouri River between the Nebraska and Iowa border, was subject to elevated phosphate and nitrogen levels, permitting Nebraska to place the lake on its 2006 CWA § 303(d) list. After implementing a water quality management plan which included various restoration efforts targeting fertilizer runoff, the Nebraska Department of Environmental Quality recommended removing Carter Lake from its CWA 303(d) list. *Nonpoint Source Program Success Story,* U.S. ENV'T PROT. AGENCY, https://www.epa.gov/sites/default/files/2015-10/documents/ne_carterlake.pdf [https://perma.cc/LD9U-4NYP] (last visited Sept. 4, 2022).
118. Steven T. Miano et al., *Total Maximum Daily Loads: Section 303(d), in* THE CLEAN WATER ACT HANDBOOK 251, 264 (Mark A. Ryan ed., 4th ed. 2018).
119. Witte, *supra* note 24, at 242.
120. Pronsolino v. Nastri, 291 F.3d 1123, 1130 (9th Cir. 2002).
121. *Id.*
122. *Id.*
123. *Id.*
124. *Id.* at 1139.
125. *Id.* at 1140–41.

intended to distinguish between waters of point and nonpoint source pollution when it comes to states implementing TMDLs.[126]

However, states recognize that implementing TMDL plans are complex, time-consuming, and expensive.[127] Identifying a TMDL requires taking into consideration seasonal variations in water quality which must also account for any margin of safety for "any lack of knowledge concerning the relationship between effluent limitations and water quality."[128] Furthermore, while the CWA requires states to identify TMDLs every two years in their 303(d) lists, the CWA does not require a timeline for those TMDLs to be established.[129] The CWA only requires states to make additional TMDL submittals to the EPA "from time to time."[130]

In accordance with the CWA sections that address nonpoint source pollution, the federal government created a framework where states have the option of planning and implementing programs for the control of nonpoint source pollution.[131] The federal government merely acts as an oversight regulator that encourages states to implement management plans using financial incentives.[132] However, without the power to expressly regulate these pollution sources, the current financial encouragement scheme falls short of achieving the CWA's purpose of restoring and preserving our nation's water quality.

IV. ALTERNATIVE APPROACHES

A. Amendments and More Comprehensive Oversight Towards State Management Programs

To date, the CWA fails to give the federal government any authority to regulate nonpoint source pollution.[133] Instead, the power to regulate is left to the states through various incentives and control measures.[134] Critics often blame the lack of CWA enforcement measures as an exacerbator of nonpoint source pollution.[135] However, states are already acting in this area and a definitive, comprehensive federal government approach would probably prove too difficult[136] due to the complex

126. *Id.* at 1139.
127. Witte, *supra* note 24, at 242.
128. 33 U.S.C. § 1313(d)(1)(C).
129. Miano et al., *supra* note 118, at 260.
130. 33 U.S.C. § 1314(a)(4).
131. Witte, *supra* note 24, at 246.
132. *Id.*
133. *Id.*
134. *Id.*
135. Hill & Horwitz, *supra* note 45, at 234.
136. In the late 1990s, the Environmental Law Institute (ELI) did a series of studies identifying various enforceable state mechanism for nonpoint source pollution. Finding individual states vary significantly in enforcement mechanisms, the ELI identified several ways that when these state mechanisms are viewed as a whole,

nature of ecosystems in different states.[137] Thus, individual states may be more adept[138] at tackling nonpoint pollution issues, specifically concerning their local waters.[139] A more comprehensive federal oversight that directly grants states more enforcement power over nonpoint source pollution provisions is required to adequately address agriculture nonpoint source pollution.

Farmers may consider this an expansion of government authority. However, more federal oversight of nonpoint source pollution does not require the federal government to act as a wholesale, comprehensive land management business.[140] Instead, regional oversight towards addressing and enforcing state management programs laid out in the CWA will help ensure farmers of the potential results in inhibiting agriculture nonpoint pollution. These results provided to farmers could include data on spending towards implementing management programs through the CWA, information on how these management programs impact local waters, and providing information regarding the programs impact toward a farmers' potential yield. This would allow farmers to react and adjust to changing farming conditions.[141]

Under this approach, the federal government should oversee a regional management agricultural water pollution scheme with regulation centered around nonpoint source pollution, thereby ensuring strict compliance with regulations.[142] Arbitrary enforcement will not suffice. Regional plans should include reporting farmer fertilizer application, identifying the scope of nonpoint pollution, and developing a comprehensive nutrient management plan.[143] A nutrient management plan,[144] which would include riparian buffer strips along waterways to

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can effectively control nonpoint pollution. Furthermore, the study claimed that voluntary placement regarding nonpoint source pollution remains the best way for implementation of management practices designed to control nonpoint runoff. ENV'T. L. INST., ENFORCEABLE STATE MECHANISM FOR THE CONTROL OF NONPOINT SOURCE WATER POLLUTION (1997), https://www.eli.org/sites/default/files/eli-pubs/d7.06.pdf [https://perma.cc/3ZKM-DKE3].

137. Witte, *supra* note 24, at 246.

138. *See supra* text accompanying note 140.

139. Nebraska has several state enforcement provisions regarding nonpoint pollution. *See* NEB. REV. STAT. § 2-4606 (Reissue 1986) (any local district may adopt programs for erosion and sediment control and enforce such rules according to its jurisdiction); NEB. REV. STAT. § 46-708 (Reissue 2021) (providing natural resource districts with the legal authority to regulate activities that potentially contribute to groundwater contamination).

140. *See* Craig, *supra* note 70, at 183–84.

141. Laitos & Ruckriegle, *supra* note 32, at 1069–70.

142. *Id.*

143. *See generally id*. (describing a potential local agency responsible for enforcing compliance with water quality standards).

144. *See* U.S. DEP'T OF AG., *Nutrient Management* (Aug. 15, 2022), https://www.nrcs.usda.gov/getting-assistance/other-topics/nutrient-management ("Nutrient Management is the management of nutrients and soil amendments to maximize their economic benefit while minimizing their environmental impact.").

filter out agricultural pollutants, allows for the control over nonpoint source pollution.[145]

However, intensive regional oversight of management programs must include adequate disclosure of the rules and benefits that affect the daily lifestyles of a farmer who implements such plans.[146] With adequate funding, these regional plans can in turn save states, which likely struggle to fund water-treatment facilities,[147] large costs in filtration and treatment facilities that handle contaminated water systems.

Congress's ability to amend CWA provisions to require mandatory state enforcement for implementing management programs aimed at addressing nonpoint source pollution is not politically viable.[148] Many farmers and ranchers have strong ideological opposition to federal regulation.[149] Thus, strong agriculture lobbying efforts work to uphold these ideologies. In 2018 alone, agriculture lobbying to U.S. policymakers ranked in the top ten spenders in the United States at roughly $134.8 million.[150] Furthermore, unlike point source pollution, one problem regarding enforcement of nonpoint source pollution in agriculture is identification.[151] It is hard to find and identify the agricultural source causing waters to be impaired.[152] Therefore, BMPs should include land use control measures like buffer strips and crop rotations.[153] To be successful, nonpoint source pollution programs must work within state programs and overcome significant agriculturally backed interest groups who wish to prevent any federal intervention.[154]

Nevertheless, if the CWA goal is "restor[ing] and maintain[ing] [the] chemical, physical, and biological integrity of [the] Nation's waters,"[155] it is time for amendments that clarify and give states more power to implement nonpoint source management plans.[156] Congress should begin by defining nonpoint source pollution.[157] The lack of clarity regarding its scope and the difference between point sources has only caused confusion. Congress should also require the EPA to provide

145. Rotman et al., *supra* note 67, at 127.
146. *See* David Zaring, *Best Practices as Regulatory Regime: The Case of Agricultural Nonpoint Source Pollution*, 34 ENV'T L. REP. 11025, 11031 (2004) (describing how a nonpoint source pollution best practices scheme includes adequate disclosure).
147. Schutz, *supra* note 2, at 597.
148. Rotman et al., *supra* note 67, at 158.
149. *Id.* at 154–55.
150. Finney, *supra* note 5, at 825.
151. Witte, *supra* note 24, at 234.
152. *Id*.
153. *Id.*
154. *Id.*
155. 33 U.S.C. § 1251(a).
156. Rotman et al., *supra* note 67, at 155.
157. *Id.*

more information and guidance to states on management programs, particularly regarding § 319.[158]

Section 208 of the CWA has proven unsuccessful, in part due to a lack of administrative support and federal funding for BMP implementation at the state level.[159] In agriculture, farmers are likely hesitant when enrolling in a state BMP that lacks a comprehensive plan and provides little financial incentive to do so. The time and effort to implement these plans may outweigh the benefits of downstream interests regarding nonpoint pollution. With properly implemented BMPs, states can control the extent of water pollution from agricultural nonpoint sources.[160] Having a strengthened partnership between states and their local agricultural communities will create a stronger basis for farmers to implement management programs that address nonpoint source pollution.[161]

Congress should amend § 303(d) to allow the EPA to require states to develop and implement a TMDL plan, instead of merely requiring submission of plans.[162] This would limit the amount of fertilizer runoff into identified impaired water bodies plagued by nonpoint source pollution. Several states have adopted laws requiring state agencies to to implement TMDL plans.[163] However, under its current structure, the EPA lacks the authority to coordinate state plans regarding TMDLs.[164] To date, states are only required to develop a TMDL plan but there is no enforcement mechanism.[165] Therefore, states may submit plans without regard to water bodies in downstream states.[166] By requiring implementation as well as submission of plans, Congress could better attempt to clean impaired water bodies plagued by excess nitrates and phosphates.

However, Congress is likely unable to amend § 303(d) to include a mandated enforcement mechanism for nonpoint source pollution.[167] As such, the federal government needs to grant states more power in addressing the issue. This would include expanding agencies that address agriculture nonpoint pollution, funding incentives to willing

158. *Id.* at 158.
159. Laitos & Ruckriegle, *supra* note 32, at 1042.
160. *Id.* at 1043.
161. Zaring, *supra* note 146, at 11030.
162. Rotman et al., *supra* note 67, at 156.
163. For example, TMDL implementation is required in Texas for those who live or work near impaired water bodies and to develop an "I-plan." This plan describes how the TMDL plan will be implemented and who will be held responsible along with how progress in made. *See TMDLs and Their Implementation,* TEX. COMM'N ON ENV'T QUALITY, https://www.tceq.texas.gov/waterquality/tmdl/tmdlprogram.html [https://perma.cc/3QX6-9TDR] (last modified Mar. 23, 2023).
164. Rotman et al., *supra* note 67, at 156.
165. Miano et al., *supra* note 118, at 260.
166. Rotman et al., *supra* note 67, at 156.
167. Rotman, *supra* note 67, at 158.

farmers, and research and educational extension programs that provide farmers with the knowledge and results of implementing management practices designed under the CWA.

B. Incentivizing Management Plans for Implementation

Another approach to increasing management plan implementation under the CWA to address nonpoint source pollution in agriculture is a larger, incentive-based approach to farmers. Amending the CWA to include mandatory enforcement provisions concerning nonpoint source pollution is unlikely considering water law intricacies and lobbying efforts in Washington. Furthermore, though many critics blame the lack of enforcement mechanisms in the CWA regarding nonpoint source pollution,[168] mandating such management practices without incentives creates little encouragement towards implementing agriculture nonpoint source solutions in comparison to downstream interests.[169] Therefore, another approach for potential immediate results is a comprehensive financial incentive approach. This approach acts as a driving force for farmers to implement management plans that address nonpoint source pollution.

Studies have shown that the primary driver for farmers' decisions regarding their agricultural practices are economic incentives.[170] Monetary incentives help realign cost-benefit analysis in motivating conservation behavior in farmers.[171] For example, the Conservation Reserve Program (CRP) is a voluntary program where agriculture producers contract with the USDA to devote environmentally sensitive lands to conservation benefits (i.e., not farm or ranch on the land) in exchange for payment.[172] These benefits stem from long-term wildlife preservation in what is now considered retired agricultural land.[173] Authorized by the Food Security Act of 1986 and reauthorized by the Agricultural Improvement Act of 2018, the CRP protects more than 20 million acres in America by reducing erosion and filtering out traveling pollutants to

168. Witte, *supra* note 24, at 234.

169. Growing up in large agricultural community, I oftentimes heard farmers rail against the government as too broad and overreaching; the government does not understand the day-to-day realities of the American farmer. Part of the problem regarding government oversight is the major disconnect between farmers and the government.

170. Mary J. Angelo, *Corn, Carbon, and Conservation: Rethinking U.S. Agricultural Policy in a Changing Global Environment*, 17 GEO. MASON L. REV. 593, 649 (2010).

171. Stephanie Stern, *Encouraging Conservation on Private Lands: A Behavioral Analysis of Financial Incentives,* 48 ARIZ. L. REV. 541, 559 (2006).

172. U.S. DEP'T OF AGRIC., *Conservation Reserve Program: Fact Sheet February 2022* 1 (Feb. 2022), https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/2022/conservation-reserve_program-fact_sheet_2022.pdf [https://perma.cc/LB9G-7EZ8] [hereinafter Conservation Reserve Program].

173. *Id.*

lakes, rivers, ponds, and streams.[174] This program provides for annual rental payments which include possible incentive payments and cost-sharing assistance.[175]

Recently, the 2018 Farm Bill passed by Congress increased the total CRP acreage limitations from 24 million acres to 27 million acres.[176] Although many farmers return their CRP acres to production once their contracts end,[177] this program has been generally successful in helping preserve agricultural lands and reducing the impacts of fertilizer runoff.[178] While the CRP has not eradicated issues of agricultural runoff, its incentive-based success gives farmers an idea of the benefits that come from protecting local waters plagued by nonpoint source pollution.

Like the CRP, designed BMPs under § 319 of the CWA act as a similar conservation tool in agriculture. However, under the CWA, the lack of federal funding within states causes problems when it comes to implementing BMPs.[179] Congress has the power to provide more funding, including larger monetary incentives to farmers who wish to implement plans that address nonpoint source pollution. Agriculture in the U.S. receives significant taxpayer subsidies, with over $22 billion in 2019 alone.[180] Furthermore, every five years, Congress unveils a large subsidy program commonly known as the "Farm Bill."[181] These farm bills, dating back to the 1930s to help stabilize farm prices during the Great Depression, give subsidies to farmers and provide funding for federal programs.[182] The most recent 2018 farm bill passed by Congress was roughly $867 billion.[183] Instead of subsidizing farmers when there is market volatility, Congress could provide larger subsidies in the form of monetary incentives for conservation practices, particularly when addressing agriculture nonpoint source pollution. Congress should also require lending services such as the Farm Service Agency (FSA), who play an important role in supporting farmers, to implement programs that provide favorable credit for farmers and ranchers who implement climate-friendly practices under the CWA that address nonpoint source pollution.[184]

174. *Id.*
175. *Id.*
176. Chad. G. Marzen, *The 2018 Farm Bill: Legislative Compromise in the Trump Era,* 30 FORDHAM ENV'T L. REV. 49, 81 (2019).
177. Lehner & Rosenberg, *supra* note 13, at 10864 ("Between 2006 and 2014, for example, an estimated 14 million acres previously protected by the CRP were returned to agricultural production.").
178. *Conservation Reserve Program, supra* note 172.
179. Laitos & Ruckriegle, *supra* note 32, at 1045.
180. Rotman et al., *supra* note 67, at 158.
181. Angelo, *supra* note 170, at 624.
182. *Id.* at 623.
183. Marzen, *supra* note 176, at 77.
184. Lehner & Rosenberg, *supra* note 13, at 10871.

In addition to inadequate funding, another problem under the CWA § 319 is that there is little supporting research and educational training or outreach to farmers.[185] This lack of training and outreach likely creates obstacles for farmers willing to implement management practices that reduce nonpoint source pollution. Environmentalists commonly misunderstand and underestimate the attraction of convenience and maintenance under current regulations.[186] The time, information gathering, and project investment required to implement CWA provisions impose large costs on the agricultural sector.[187]

However, to date, many agricultural extension programs are well respected in rural communities.[188] These extension programs provide farmers with educational information regarding agricultural practices and publicizing payment programs.[189] An additional source of educational agriculture outreach includes agribusiness consultants,[190] who play a major role in relaying important agriculture information and advising farming clients as a result.[191] With adequate funding, such extension programs and agribusiness consultants[192] can help provide farmers with an understanding of the benefits of implementing nonpoint CWA practices.

For example, in the fiscal year 2022, the EPA requested $180 million for state grants for nonpoint source pollution that implement both regulatory and non-regulatory programs.[193] This money also goes towards financial, educational, and technical assistance to those who implement CWA programs under § 319.[194] While this funding will likely fall short of agency expectations, it is key for state officials to implement CWA programs through agricultural extension programs that provide farmers with technical and educational assistance, as well as other agriculture-friendly programs.[195] This may help state officials communicate more effectively with their agricultural communities and

185. *See* Rotman et al., *supra* note 67, at 157.
186. Stern, *supra* note 171, at 561.
187. *Id.* at 559.
188. *Id.* at 581–82.
189. *Id.*
190. Lehner & Rosenberg, *supra* note 13, at 10861.
191. *Id.*
192. *See* CENTROL CROP CONSULTING, https://centrolcrop.com/ (last visited Aug. 8, 2023).
193. U.S. ENV'T PROT. AGENCY, *FY 2022 EPA Budget in Brief* 1, 43 (2022), https://www.epa.gov/sites/default/files/2021-05/documents/fy-2022-epa-bib.pdf [https://perma.cc/J87Y-ZY6R]. The 2022 EPA request also includes $234.6 million for water pollution control grants that help maintain and restore the Nation's waters through programs such as TMDLs and NPDES. *Id.*
194. *Id.*
195. According to the EPA budget brief for fiscal year 2022, the Agency plans to engage with all groups who have an interest in rulemakings related to the CWA. *Id.* at 14. Furthermore, the "EPA will engage with all parties and use the best available science to set policy, communicate with our partners, and provide the regulatory clarity they and the public need." *Id.*

dispense the feeling of what many farmers regard as "environmental bureaucrats."[196]

With more than seventeen different federal programs focused on conservation efforts, critics are quick to point out that under voluntary federal conservation programs, funding only goes to willing farmers and not places where programs are needed most.[197] However, with farmers and ranchers generally drawing on the heavy support system provided by taxpayers, increasing financial incentives through taxpayer subsidies, along with regulation specifically centered around agricultural nonpoint source pollution, can incentivize more farmers into conservation efforts where most needed. While slow-moving at times, change is possible in agricultural communities to keep U.S. waters protected while also improving rural communities and income for farmers.[198]

V. CONCLUSION

Agricultural pollution is a massive, largely unaddressed lacuna in the CWA. With agriculture's substantial role in nonpoint source pollution, properly addressing such issues is vital for the future of our nation's water and ecosystems. After its initial enactment, the CWA substantially cleaned up impaired waters by prohibiting point source pollution.[199] However, little has changed since 1972. Moreover, the CWA has failed to tackle nonpoint source pollution issues with a lack of distinction in the limits of nonpoint pollution, coupled with arbitrary enforcement at the federal level.[200]

To properly address the threats agricultural nonpoint source pollution presents to our nation's waters, Congress must first increase funding for conservation efforts and specifically to states who take on implementing voluntary management programs designed under the CWA. This funding should not only work to incentivize willing farmers who implement BMPs, but also research and educational training for farmers regarding nonpoint pollution. Congress should also further amend the CWA to properly address nonpoint solutions by strongly considering mandating certain practices under §§ 319 and 303(d). At a minimum, retiring the agricultural stormwater exemption would assist in excluding the majority of pollution coming from agriculture, and allow courts to require NDPES permits for known pollutants traveling into navigable waters.

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196. Zaring, *supra* note 146, at 11030.
197. Dan Gunderson, *Random Acts of Conservation: Water Quality Depends on Farmers' Willingness, Not Regulation,* MINN. PUB. RADIO (May 17, 2016), https://www.mprnews.org/story/2016/05/17/water-buffalo-red-river-agriculture-erosion [https://perma.cc/98GP-M2EH].
198. Lehner & Rosenberg, *supra* note 13, at 10876.
199. Robisch, *supra* note 116, at 550.
200. Kennedy, *supra* note 115, at 1387.

With current historically high commodity prices in agriculture,[201] it is unlikely that agriculture demand will slow. Rather, with increasing land production, larger amounts of fertilizer and pesticide application will be used to maximize profits. While conservation efforts may gain traction over the coming decades, it is hard to imagine downstream interests being prioritized over crop production in the near future. Thus, while agriculture depends on the environment, current farming practices will continue damaging local ecosystems. This will likely remain until the CWA's regulation of nonpoint pollution is repaired.

201. *See* Teresa Kroeger, *High Grain Prices Ripples Throughout the Economy,* U.S. BUREAU OF LAB. STATS. (Apr. 5, 2023), https://www.bls.gov/opub/btn/volume-12/high-grain-prices-rippled-throughout-the-economy.htm.