KANSAS GROWERS AND THE ENVIRONMENTAL PROTECTION AGENCY: ON THE SAME SIDE? A LOOK AT KANSAS' IMPLEMENTATION OF THE SURFACE WATER NUTRIENT REDUCTION PLAN

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> "While we are often on the other side of EPA, what we are saying is that EPA is actually trying to do the right thing when it comes to nutrient management. They are working with the individual states on nutrient management issues. The environmental groups want a one-size-fits-all solution, but even EPA says that isn't the best approach." – Jere White, Executive Director, Kansas Corn Growers Association.[1]

I. INTRODUCTION

On April 3, 2012, the Gulf Restoration Network filed for declaratory and injunctive relief in the Eastern District of Louisiana against the United States Environmental Protection Agency (EPA). The suit was filed in response to EPA's 2008 denial of a petition that would require it to establish water quality standards to address the excessive nitrogen and phosphorous (nutrient) pollutant loads in the Mississippi River Basin and the Gulf of Mexico.[2] Petitioners argue that excessive nutrient pollution in the Mississippi River Basin and northern Gulf of Mexico plays a part in causing a massive low-oxygen "dead zone" in the Gulf of Mexico.[3] The dead zone results from extensive water quality degradation and causes "substantial harm to aquatic life, human health, and the economic, aesthetic, and recreational values of rivers, lakes, streams, and oceans."[4] Declining water quality has become a

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1. Press Release, Kansas Corn Growers Assoc., Kansas Corn Growers Association Granted Intervenor Status in Mississippi River Basin Lawsuit (July 2, 2012) [hereinafter Kansas Corn Growers], http://www.kscorn.com/2012/07/kansas-corn-growers-granted-intervenor-status-in-mississippi-river-basin-lawsuit/.

2. Amended Complaint for Declaratory and Injunctive Relief at ¶ 2, Gulf Restoration Network v. Jackson, No. 2:12-cv-00677, 2012 WL 1343169 (E.D. La. Apr. 3, 2012).

3. *Id.*

4. *Id.*

national problem in recent decades, and though the Gulf of Mexico might seem remote, the causes of this decline have been traced, in part, to Kansas sources.[5]

The Kansas Farm Bureau and the Kansas Corn Growers Association were granted intervenor status in the case. Both organizations were signatories on a brief filed in opposition to the Gulf Restoration Network's petition.[6] Intervenors argue that federal action is not necessary at this point because EPA has not found that federally established water quality criteria are "required to address a water quality concern and that a particular state's actions have failed and will continue to fail to adequately address the concern."[7] They also argue that individual states, not EPA, are better positioned to address site-specific water quality issues within their boundaries.[8] Promulgation of federal standards would particularly cause Kansas growers and municipalities to shoulder great costs to develop nutrient management plans without necessarily improving the methods that currently handle nutrients in the states.[9]

This note connects water quality degradation in Kansas to a national decline in water quality. It specifically focuses on the issues surrounding an increase in nitrogen and phosphorous in the Mississippi River Basin watershed and examines EPA's decentralized approach to developing stricter water quality standards for these elements. Part I of this paper discusses the scientific cause-and-effect relationship between nutrients and water quality degradation. Part II examines EPA's decentralized strategy to more tightly control nitrogen and phosphorous loads on a national level. It also discusses Kansas' response to this plan and its efforts to reduce nutrient loads within the state. Part III discusses the effectiveness of pollution control programs. Part IV offers recommendations for future EPA actions. Finally, Part V concludes by stating that EPA's hands-off approach to nutrient control is not the most effective method for implementing nutrient standards. Instead, the note recommends that EPA continue to encourage individual states to develop and implement nutrient reduction plans, but also that the agency institute a timeline that imposes strict consequences on states that are slow to comply. This would give those states incentive to press the difficult to solve issue of nutrient pollution within their own boundaries.

5. Richard B. Alexander et al., *Differences in Phosphorus and Nitrogen Delivery to The Gulf of Mexico from the Mississippi River Basin*, 42 ENVTL. SCI. & TECH. S22, tbl. S4 (2009), *available at* http://pubs.acs.org/doi/suppl/10.1021/es0716103/suppl_file/es0716103.pdf (noting that Kansas contributes respectively 3.1% and 2.6% of the cumulative nitrogen and phosphorous flows into the Gulf of Mexico).

6. Non-State Intervenor-Defendants' Joint Reply Memorandum in Support of EPA's Cross Motion for Summary Judgment and in Opposition to Plaintiff's Motion for Summary Judgment at 29, Gulf Restoration Network v. Jackson, No. 1:12-cv-00677, 2013 WL 5328547, (E.D. La. Sept. 20, 2013) [hereinafter Non-State Intervenor-Defendants' Joint Memorandum], *available at* http://www.fb.org/legal/files/id_64/2013.03.04%20Joint%20Intervenor%20Brief.pdf.

7. *Id.* at 7.

8. *Id.* at 29.

9. Kansas Corn Growers, *supra* note **Error! Bookmark not defined.** (quoting Jere White, Executive Director of the Kansas Corn Growers Association).

II. WATER QUALITY DEGRADATION IS DIRECTLY LINKED TO NUTRIENT POLLUTION

The Kansas Department of Health and Environment (KDHE) issued a news release on October 10, 2013, in which it identified five Kansas water bodies under a Public Health Warning for the presence of toxic blue-green algae.[10] These warnings inform the public that KDHE detected high levels of blue-green algae, water conditions are unsafe, and direct water contact for humans and animals is prohibited.[11] Blue-green algae are composed of a type of bacteria called cyanobacteria, which is capable of producing toxins that affect the liver, skin, and nerve cells.[12] Exposure to the toxic algae causes a variety of symptoms, ranging from dizziness to severe dermatitis, in those who come in contact with it.[13] Dogs that swim in or drink water affected by a harmful blue-green algal bloom or eat dried algae along the shore have become ill or died as a result of this contact.[14] During the summer of 2013, 21 states closed beaches and issued toxic algae advisories similar to the one recently issued in Kansas.[15]

The sight of these algae is a familiar problem in the Midwest, but it is spreading to an increasing number of inland and coastal water bodies in the United States.[16] To better understand the causes and consequences of these harmful algal blooms, this section examines the issue of water quality degradation in U.S. waterways through a discussion of the ecological processes that cause algal blooms and how human intervention affects those processes. The focus then turns to the Gulf of Mexico and the source of the *Gulf Restoration* litigation and concludes with a brief look at the myriad effects of the water quality problem.

A. Algae: Natural and Human-Induced Causes

Algal blooms, like the harmful blue-green type previously discussed, are a

10. *Public Health Advisories, Warnings Concerning Blue-Green Algae in Kansas Waters*, KOAM-TV (*Oct. 10, 2013)*, http://www.koamtv.com/story/23661134/public-health-advisories-warnings-concerning-blue-green-algae-in-kansas-waters.

11. *Vets One of Five Kansas Lakes Under Algae Warning*, GREAT BEND TRIBUNE (Oct. 10, 2013, 3:45 PM), *available at* http://www.gbtribune.com/section/1/article/60886/.

12. RES. MEDIA & NAT'L WILDLIFE FED'N, TOXIC ALGAE: COMING SOON TO A LAKE NEAR YOU? 4-5 (2013) [hereinafter RESOURCE MEDIA], *available at* http://www.toxicalgaenews.com/toxic-algae-report-2013.php.

13. NATIONAL RES. DEF. COUNSEL, TESTING THE WATERS 2010 25 (2010) [hereinafter NATIONAL RESOURCE DEFENSE COUNSEL], *available at* http://www.nrdc.org/water/oceans/ttw/chap2.pdf.

14. *Kansas Waterfowl Hunters Cautioned About Blue Green Algae*, KAKE TV (Sept. 27, 2013), http://www.kake.com/home/headlines/Waterfowl-Hunters-Cautioned-About-Blue-Green-Algae-225522602.html.

15. Darryl Fears, *Report: Polluted Farm Runoff Linked to Toxic Green Algae in U.S. Waters*, WASH. POST (Sept. 26, 2013), *available at* http://www.washingtonpost.com/national/health-science/report-polluted-farm-runoff-linked-to-toxic-green-algae-slime-in-us-waters/2013/09/26/591a75a2-25f1-11e3-b75d-5b7f66349852_story.html.

16. RESOURCE MEDIA, *supra* note 12, at 1.

key symptom of eutrophic conditions in a body of water.[17] Eutrophication is "the process of becoming rich in dissolved nutrients."[18] It is a naturally occurring ecological process characterized by a high level of plant and algal growth and is caused by an increase in available factors needed for photosynthesis.[19] Nitrogen and phosphorous, types of nutrients necessary for plant growth, are two of these factors and are often cited as the primary drivers of eutrophic conditions. Nutrients occur naturally in limited amounts, and this natural limitation acts to constrain the amount of plant and algal growth possible.[20] When nutrients are present in unnaturally high concentrations, they are associated with an increase in the rate of eutrophic plant and algal growth.[21] While eutrophication does occur naturally over time, the process typically takes centuries to have a significant effect on a body of water.[22] In recent times, however, human activities have greatly sped up the rate and extent of its occurrence;[23] now, the process can take less than a decade.[24]

Agricultural, industrial, and sewage disposal activities are all linked to increasing groundwater nutrient levels and increase the speed at which eutrophication occurs.[25] Nutrients reach the waters in one of two ways: through point and nonpoint source pollution. EPA defines point source pollution as "a stationary facility from which pollutants are discharged or emitted [or] any single identifiable source of pollution (e.g., a pipe, ditch, ship, ore pit, factory smokestack)."[26] Nonpoint source pollution, in contrast, is "caused by rainfall or snowmelt moving over and through the ground[, which] picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters."[27] Urban and point source discharges are estimated to contribute

17. Daniel J. Conley et al., *Controlling Eutrophication: Nitrogen and Phosphorous*, 323 SCIENCE 1014, 1014 (2009).

18. J.W. Lund, *Eutrophication*, 214 NATURE 557, 557 (1967).

19. M.F. Chislock et al., *Eutrophication: Causes, Consequences, and Controls in Aquatic Ecosystems*, 4 NATURE EDUC. KNOWLEDGE (2013), *available at* http://www.nature.com/scitable/knowledge/library/eutrophication-causes-consequences-and-controls-in-aquatic-102364466.

20. Conley, *supra* note 17.

21. Chislock, *supra* note 19.

22. Edward Carney, *Relative Influence of Lake Age and Watershed Land Use on Trophic State and Water Quality of Artificial Lakes in Kansas*, 25 LAKE & RESERVOIR MGMT., 199, 199 (2008).

23. COMM. ON ENV'T AND NATURAL RES., SCIENTIFIC ASSESSMENT OF HYPOXIA IN U.S. COASTAL WATERS, COMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES 1 (2010), http://www.whitehouse.gov/sites/default/microsites/ostp/hypoxia-report.pdf [hereinafter ENV'T AND NATURAL RES.].

24. Carney, *supra* note 22.

25. Chislock, *supra* note19; NATIONAL RESOURCE DEFENSE COUNSEL, *supra* note 13.

26. EPA, *Great Lakes Glossary*, http://www.epa.gov/greatlakes/glossary/Glossary.html.

27. EPA, *What is Nonpoint Source Pollution?*, http://www.water.epa.gov/polwaste/nps/whatis.cfm (Nonpoint source pollution is "any source of pollution that does not meet the definition of 'point source.'") (last updated Aug. 27, 2012); KAN. ADMIN. REGS. § 28-16-28b (2014) ("Nonpoint Source means any activity that is not required to have a national pollutant discharge elimination system permit and that results in the release of pollutants to waters of the state. This release may result from precipitation runoff, aerial drift and deposition from the air, or

approximately 10% of the groundwater nutrient loads.[28] Point source discharges are regulated through the Clean Water Act's mandated National Pollutant Discharge Elimination System permitting program.[29] In contrast, largely unregulated nonpoint sources contribute to more that 70% of the nutrient loads in the waters of the Mississippi River Basin.[30] In Kansas, 82% of the nitrogen leaving the state and 75% of phosphorous are attributable to nonpoint source pollution sources.[31] These exported nutrients thus contribute to increased rates of eutrophication, both in Kansas and beyond, as the state's waters empty into the Mississippi River basin.

B. The "Dead Zone" in the Gulf of Mexico

The Gulf of Mexico's seasonal "dead zone" is likely one of the best-known illustrations of the eutrophication problem. The dead zone is an area in the Gulf located off the coast of Louisiana and Texas, and is the second largest eutrophication-related hypoxic (lacking oxygen) zone in the world.[32] It is directly linked to nutrient pollutants discharged into the Mississippi and Atchafalaya Rivers.[33] Eutrophic conditions in the Gulf cause an overabundance of algae, far beyond what the ecosystem is able to naturally balance.[34] The algal blooms consume oxygen and create hypoxic or "dead" zones that kill fish and other marine life.[35] As these algae die, they descend to the ocean floor where they are decomposed by bacteria.[36] The decomposition

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the release of subsurface brine or other contaminated ground waters to surface waters of the state.").

28. EPA, *Nutrient Policy Data: Gulf of Mexico*, http://www2.epa.gov/nutrient-policy-data/gulf-mexico (last visited Oct. 10, 2013) [hereinafter *Nutrient Policy Data*].

29. Clean Water Act (CWA), 33 U.S.C. § 1342 (2006); Kristi Johnson, Comment, *The Mythical Giant: Clean Water Act Section 401 and Nonpoint Source Pollution*, 29 ENVTL. L. 417, 417 (1999); *see generally* U.S. EPA, *National Pollutant Discharge Eliminations System (NPDES)*, http://www.cfpub.epa.gov/npdes/ (last visited Nov. 15, 2013) (giving an overview of the NPDES program).

30. *Nutrient Policy Data*, *supra* note 28.

31. KAN. DEP'T OF HEALTH & ENV'T, KAN. NONPOINT SOURCE POLLUTION MANAGEMENT PLAN, 2010 UPDATE 14 (2010) [hereinafter NPS 2010 UPDATE], http://www.kdheks.gov/nps/resources/KS/KSNPSMgmtPlain_04-29-2011_final.pdf.

32. ENV'T AND NATURAL RES., *supra* note 23.

33. *Id.*

34. LOUISIANA UNIVERSITIES MARINE CONSORTIUM, *What is Hypoxia?*, http://www.gulfhypoxia.net/Overview/; *see generally* NANCY N. RABALAIS ET AL., NAT'L OCEANIC AND ATMOSPHERIC ADMIN., SCIENCE FOR SOLUTIONS: CHARACTERIZATION OF HYPOXIA, TOPIC 1 REPORT OF THE INTEGRATED ASSESSMENT OF HYPOXIA IN THE GULF OF MEXICO (1999), *available at* http://www.oceanservice.noaa.gov/products/hypox_t1final.pdf (giving more detailed scientific explanation of the origin of the Gulf of Mexico hypoxic zone).

35. Mindy Selman, *Extreme Weather: A Mixed Bag for Dead Zones*, WORLD RES. INST. (Oct. 10, 2012), http://www.wri.org/blog/extreme-weather-mixed-bag-dead-zones; Marc O. Ribaudo et al., *Least-cost management of nonpoint source pollution: source reduction versus interception strategies for controlling nitrogen loss in the Mississippi Basin*, 37 ECOLOGICAL ECON. 183, 184 (2010).

36. LOUISIANA UNIVERSITIES MARINE CONSORTIUM, *supra* note 34.

process further depletes oxygen in the area, thus creating the hypoxic zone.[37] Mobile marine life flees, while stationary life remains and suffers stress or dies.[38]

Eutrophic conditions persist through the summer months when the Gulf waters mix at a low rate, which leave the ocean floor without a naturally replenished oxygen supply.[39] Throughout the past 50 years, the number of hypoxic zones has increased from fewer than 25 (reported) to more than 500.[40] Eutrophication is currently a leading cause of water quality impairment.[41] In the summer of 2013, the Gulf of Mexico's hypoxic zone covered 5,800 square miles.[42] At its largest, it stretched over 7,000 square miles.[43]

The existence and size of the Gulf's hypoxic zone are tightly linked to nutrients flowing from the continental United States into the Mississippi River, which are then discharged into the northern Gulf of Mexico.[44] Approximately 40% of the land area in the continental United States drains into the Mississippi River Basin, which in turn flows into the Gulf. [45] The river basin stretches east to west from the Allegheny Mountains to the Rocky Mountain Continental Divide, and north to south from southern Canada to southern Louisiana.[46] It encompasses parts of two Canadian provinces and 31 states, including Kansas.[47] Within the drainage area, the Mississippi River Basin waterways collect nutrients from a variety of sources, including agricultural operations, urban and suburban runoff areas, and wastewater treatment plants. [48] These increased nutrient loads cause an over-enrichment of the water and result in eutrophic algal blooms in the northern Gulf of Mexico and within inland waterways, including those that KDHE alerted the state to.[49]

37. *Id.*

38. Selman, *supra* note 35, at 184.

39. LOUISIANA UNIVERSITIES MARINE CONSORTIUM, *supra* note 34.

40. Selman, *supra* note 35.

41. WORLD RESOURCES INSTITUTE, *About Eutrophication*, http://www.wri.org/our-work/project/eutrophication-and-hypoxia/about-eutrophication (last visited Oct. 25, 2013).

42. MISSISSIPPI RIVER GULF OF MEXICO WATERSHED NUTRIENT TASKFORCE, *Northern Gulf of Mexico Hypoxic Zone*, http://water.epa.gov/type/watersheds/named/msbasin/zone.cfm (last visited Nov. 15, 2013).

43. Ribaudo, *supra* note 35.

44. Robert J. Diaz & Rutger Rosenberg, *Spreading Dead Zones and Consequences for Marine Ecosystems*, 31 SCI. 926, 928 (2009).

45. MICHELLE PEREZ ET AL., WORLD RES. INST., NUTRIENT TRADING IN THE MRB: A FEASIBILITY STUDY FOR USING LARGE-SCALE INTERSTATE NUTRIENT TRADING IN THE MISSISSIPPI RIVER BASIN TO HELP ADDRESS HYPOXIA IN THE GULF OF MEXICO 14 (2009).

46. MISSISSIPPI RIVER GULF OF MEXICO WATERSHED NUTRIENT TASK FORCE, *The Mississippi-Atchafalaya River Basin (MARB)*, http://water.epa.gov/type/watersheds/named/msbasin/marb.cfm (last visited Sept. 25, 2013).

47. *Id.*

48. PEREZ, *supra* note 45; Chislock, *supra* note 19.

49. PEREZ, *supra* note 45.

C. Costs and Consequences

The environmental, economic, and public health costs of nutrient pollution are high. As previously discussed, nutrient pollution can lead to algae-induced hypoxia, which disrupts food webs as aquatic life are forced out of their habitat.[50] A 2008 study estimates that nationally, the total cost for the combined effects of nutrient pollution in U.S. freshwaters totals more than $2.2 billion annually.[51] The authors of the study consider this estimate conservative, however, and estimate the true costs at more than $4.3 billion.[52] Factors taken into consideration include increased drinking water treatment costs and losses related to recreational water use, declining property values, and wildlife recovery efforts.[53]

Human health costs are similarly significant. Cyanobacteria (the bacteria that compose blue-green algae) blooms are most connected to human health risks because they produce compounds that can cause a multitude of symptoms or even death when they come in contact with humans and their pets.[54] The biggest risk comes from engaging in recreational water activities that cause an individual to come into full body contact with or ingest the toxins.[55] Toxins can affect the liver or nervous system, or cause other bodily symptoms such as blistering around the mouth, vomiting, asthma attacks, rashes, or muscle and joint pain.[56] In 2011, Kansas reported that algal blooms affected 38 water bodies.[57] Seven cases of human illnesses were positively linked to the blooms, and five more cases were likely linked.[58] Additionally, five dog deaths were linked to algal blooms.[59] Nationwide, the estimated cost to combat these health effects is $37 million each year.[60]

At the state and national level, nutrient related-eutrophication and the growth of toxic algal blooms is on the rise. Fortunately, the growing awareness of and concern over agriculture's causal role in this water quality degradation is reflected in policy discussions and the development of

50. Conley, *supra* note17.

51. Walter K. Dodds et al., *Eutrophication of U.S. Freshwaters: Analysis of Potential Economic Effects*, 43 ENVTL. SCI. TECH. 12, 12 (2009).

52. *Research Notes: Nitrogen and Phosphorous Pollution Costs a Bundle*, WATER ENV'T. FED'N (Feb. 2009), http://www.wef.org/publications/page_wet.aspx?id=2513&page=ca& section=Research% 20Notes.

53. Dodds et al., *supra* note 51.

54. KAN. DEP'T OF HEALTH & ENV'T, *Harmful Algal Blooms, Frequently Asked Questions*, http://www.kdheks.gov/algae-illness/download/Harmful_Algae_Blooms_Q_and_A.pdf.

55. *Id.*

56. KAN. DEP'T OF HEALTH & ENV'T, PHYSICIAN'S GUIDE HARMFUL ALGAL BLOOMS (HAB) 1, *available at* http://www.kdheks.gov/algae-illness/download/ physicians_brochure.pdf.

57. *Id.*

58. *Id.*

59. *Id.*

60. NAT'L CTRS. FOR COASTAL OCEAN SCI., ECON. IMPACTS OF HARMFUL ALGAL BLOOMS 1, *available at* http://www.cop.noaa.gov/stressors/extremeevents/hab/current/econ impact_08.pdf.

regulatory frameworks at both the federal and state levels.[61]

III. EXAMINATION OF NATIONAL AND STATE LEVEL NUTRIENT REDUCTION FRAMEWORKS

In 2008, Gulf Restoration Network petitioned EPA to conduct a rulemaking to establish numeric water quality criteria for nutrients, including nitrogen and phosphorous, for all navigable waters in the U.S. where such criteria did not already exist, or to promulgate such standards, specifically for the Mississippi-Atchafalaya River Basin and the Northern Gulf of Mexico.[62] EPA roundly denied this request in 2011 and instead re-emphasized the same decentralized approach that it has encouraged for the past 20 years.[63] Doing so left the agency working hand in hand with individual states to attempt to develop tailored nutrient reduction programs.[64]

The denial spurred the Gulf Restoration Network to file suit in the Eastern District of Louisiana under the theory that this "hands off" approach was failing to sufficiently limit the nutrient loads originating in the Mississippi River Basin watershed.[65] In ruling partially for the plaintiffs, the court ordered EPA to make a necessity determination by March 19, 2014 as to whether it must establish numeric nutrient criteria for the Mississippi River Basin.[66] To date, EPA has not made its determination; the 5th Circuit Court of Appeals stayed the order and is currently reviewing the case.[67]

The implications of the 5th Circuit's decision will either solidify EPA's current state-based approach, because it will then have behind it the weight of a federal Circuit decision, or cause the agency to establish criteria that have the potential to drastically alter the existing framework. The latter outcome in turn may increase pressure on and costs for nonpoint source agricultural polluters and also increase technology costs for currently regulated point source polluters as they are required to comply with new regulations. This section examines the federal framework and Kansas' nutrient reduction policies as they presently exist.

61. Chislock, *supra* note 19;

62. Letter from Michael H. Shapiro, Deputy Assistant Adm'r, EPA, to Kevin Reuther, Legal Director, Minn. Ctr. for Envtl. Advocacy (July 29, 2011), *available at* http://water.epa.gov/scitech/swguidance/standards/upload/Response-to-Mississippi-River-Petition-07-29-11.pdf.

63. *Id.*

64. *Id.* at 4.

65. Gulf Restoration Network v. Jackson, No. CIV.A.12-677, 2013 WL 5328547, at *2 (E.D. La. Sept. 20, 2013).

66. *Id.* at *7.

67. Brief for Appellant, Gulf Restoration Network v. Jackson (E.D. La. Sept. 20, 2013), [hereinafter Brief for Appellant], *available at* http://www.fb.org/legal/files/id_64/2014.02.27%20EPA%20Opening%20Appellate%20Brief.pdf; *EPA Stays Decision on Mississippi Basin Numeric Nutrient Criteria*, WATER ENV'T. FED'N (Apr. 22, 2014) http://stormwater.wef.org/2014/04/epa-stays-decision-mississippi-basin-numeric-nutrient-criteria/.

A. The Federal Nutrient Reduction Framework

In 1972, Congress adopted the Clean Water Act (CWA), with the goal of restoring and maintaining "the chemical, physical, and biological integrity of the nation's waters."[68] The CWA leaves to the states the responsibility to prevent and reduce pollution, and, if necessary, to restore water resources within the states' territorial bounds.[69] If the states fail to implement pollution reducing standards, EPA has the ability to intervene where it determines that "a revised or new standard is necessary to meet the requirements" of the CWA.[70] It is under this authority that the *Gulf Restoration Network* petitioners argue that nutrient criteria are necessary to meet the requirements of the CWA, and that, given the states' failure to implement these criteria, EPA must intervene and promulgate nutrient standards.[71]

1. Regulation of Point Source and Nonpoint Source Polluters

There is in place a permitting system for all point source dischargers.[72] The CWA gives authority to EPA to delegate to the states the authority to develop and implement the National Pollutant Discharge Elimination System (NPDES).[73] This program requires all facilities that discharge pollutants from any point source (e.g. a pipe or outlet) into waters of the U.S. to obtain a discharge permit.[74] These permits limit the amount and type of pollutants that facilities are legally allowed to discharge.[75] The practical import of this is that nutrient discharges from point source polluters can be easily controlled through the NPDES program and its associated enforcement mechanisms.

In contrast, the CWA does not set forth a comprehensive regulatory scheme to control nonpoint source pollution.[76] This is in part because nonpoint source polluters are far more decentralized and thus difficult to regulate.[77] The task of reducing nonpoint source pollution is primarily accomplished through non-regulatory, state-based voluntary approaches,[78] which then leaves individual states with the responsibility of developing effective nutrient reduction plans.

68. 33 U.S.C. § 1251(a) (2012).

69. *Id.* at § 1251(b).

70. *Id.* at § 1313(c)(4)(B).

71. *Gulf Restoration Network*, 2013 WL 5328547, at *3.

72. 33 U.S.C. § 1342 (2012).

73. *Id.* at § 1314 (a) (2012).

74. *Id.* at § 1342 (2012).

75. EPA, WATER PERMITTING 101, OFFICE OF WASTEWATER MGMT.-WATER PERMITTING 2, *available at* http://www.epa.gov/npdes/pubs/101pape.pdf.

76. Jocelyn B. Garovoy, *A Breathtaking Assertion of Power"? Not Quite. Pronsolino v. Nastri and the Still Limited Role of Federal Regulation of Nonpoint Source Pollution*, 30 ECOLOGY L.Q. 543, 547 (2003).

77. *Id.* at 549.

78. Marc O. Ribaudo et al., *Nitrogen Sources and Gulf Hypoxia: Potential for Environmental Credit Trading*, 52 ECOLOGICAL ECON. 159, 160 (2005).

2. EPA's Efforts to Encourage Nutrient Reduction

In 1998, EPA released the Clean Water Action Plan[79] (Action Plan) in an effort to fill in the gaps left by the CWA and to fulfill its original goal of providing "fishable and swimmable water for every American."[80] The Action Plan called on all levels of government to strengthen existing water quality programs, and it specifically identified the goal of developing numeric nutrient criteria—numeric ranges for acceptable levels of nutrients in water—for nutrient discharges by the year 2000.[81] This was an ambitious plan that failed to fully come to fruition. Several months after the Action Plan's release, EPA did, however, promulgate the National Strategy for the Development of Regional Nutrient Criteria (National Strategy), which described EPA's approach to implementing the Action Plan's mandate.[82]

The National Strategy set forth a non-binding plan, which the agency recommended states follow in their efforts to adopt numeric nutrient criteria.[83] The National Strategy proposed a two-phase effort wherein EPA planned to first develop guidance in the form of numeric nutrient criteria ranges for different types of water bodies and regions.[84] States would then adopt and incorporate into their water quality criteria new numeric nutrient criteria based on this guidance or other scientific processes.[85] These criteria would provide pollution reduction programs thresholds for success and ultimately reduce the levels of nutrients in the U.S.'s water bodies.[86]

In accordance with the National Strategy, EPA published 17 nutrient criteria documents under section 304(a) of the CWA in 2001, which were intended to serve as a broad starting point for states to individually develop their more nuanced criteria.[87] In conjunction with the 17 nutrient criteria documents, EPA also introduced the concept of a nutrient reduction plan.[88] Each state was to develop its own nutrient reduction plan by the end of 2001 and submit it to EPA.[89] Each individual plan was required to address several factors in the criteria adoption process, but most notably, each state also had to develop a timeline for implementation, with the expectation of adoption by

79. EPA, CLEAN WATER ACTION PLAN: RESTORING AND PROTECTING AMERICA'S WATERS (1998).

80. *Id.* at i (internal quotations omitted).

81. *Id.* at iv-v, 58.

82. EPA, OFFICE OF WATER, EPA 822-R-002, NATIONAL STRATEGY FOR THE DEVELOPMENT OF REGIONAL NUTRIENT CRITERIA (1998).

83. *Id.* at vi.

84. *Id.* at 5.

85. *Id.* at 6.

86. Memorandum from Geoffrey Grubbs, Director, Office of Science and Technology, EPA, 12 (Nov. 14, 2001), *available at* http://www.water.epa.gov/scitech/swguidance/standards/upload/ 2009_01_21_criteria_nutrient_nutrientswqsmemo.pdf.

87. EPA, 0W-FRL-6931-1, NUTRIENT CRITERIA DEVELOPMENT: NOTICE OF ECOREGIONAL NUTRIENT CRITERIA, 66 Fed. Reg. 1671 (Jan 9, 2001).

88. *Id.*

89. *Id.*

2004.[90] Over the next six years, however, states made slow progress. In 2007, EPA renewed its efforts and called on states and stakeholders to "take bold steps, relying on a combination of science, innovation and collaboration."[91] These steps consisted of EPA collaboratively providing direct assistance to states, introducing capacity building programs in states that were not far along in their progress, building a scientific base for developing criteria, and communicating the dangers of nutrient pollution to the public and stakeholders.[92]

To follow up on this commitment, EPA published a report in 2008 that outlined the status of state progress in the first ten years since the issuance of the National Strategy.[93] Of the 50 states, 46 had submitted nutrient criteria plans that were being used to guide criteria development at that time.[94] As of 2012, only 24 states had implemented their criteria plans for at least some water bodies in their state. Only Hawaii developed and implemented criteria for all water body types.[95] Kansas was not among the states that implemented numeric nutrient criteria for its water bodies.

B. The Kansas Nutrient Reduction Framework

Nutrients are one of the "greatest impediments to achieving improved quality of surface waters in Kansas."[96] In an effort to combat the nutrient problem and comply with EPA's National Strategy goal of implementing numeric nutrient criteria, Kansas implemented the Kansas Nutrient Reduction Plan in 2004.[97] The state, however, found that a large amount of data collection and analysis was necessary before it could meaningfully implement numeric criteria. In lieu of implementing criteria, Kansas opted to reduce its overall nutrient load by a fixed percentage until such data was collected.[98] It justified this decision in part because, unlike the majority of pollutants, nutrients are overwhelmingly produced by nonpoint agricultural sources.[99] The unregulated nature of these sources would leave point source (NPDES-regulated) polluters, which contribute a lower percentage of nutrients to state

90. *Id.*

91. Memorandum from Benjamin H. Grumbles, Assistant Administrator, U.S. EPA Office of Water, 1 (May 25, 2007), *available at* http://www.water.epa.gov/scitech/swguidance/standards/upload/ 2009_01_21_criteria_nutrient_policy20070525.pdf.

92. *Id.* at 3-4.

93. EPA OFFICE OF WATER, STATE ADOPTION OF NUMERIC NUTRIENT STANDARDS (1998-2008) 5 (2008).

94. *Id.* at 7.

95. EPA Nutrient Pollution Policy and Data, *State Development of Numeric Criteria for Nitrogen and Phosphorous Pollution*, http://www.cfpub.epa.gov/wqsits/nnc-development/ (last visited on Oct. 14, 2013).

96. THE KAN. WATER AUTH., KANSAS WATER PLAN: WATER QUALITY POLICY AND INSTITUTIONAL FRAMEWORK 5 (2009) [hereinafter KANSAS WATER PLAN].

97. KAN. DEP'T OF HEALTH & ENV'T, BUREAU OF WATER, SURFACE WATER NUTRIENT REDUCTION PLAN 2-4 (2004) [hereinafter KANSAS NUTRIENT REDUCTION PLAN].

98. *Id.* at 4.

99. *Id.* at 6.

waters, disproportionately shouldering the burden if numeric criteria were mandated by the regulatory framework.[100]

Conceptually, Kansas' approach is simple: "develop an inventory of nutrients entering the waters of the state and ultimately leaving the state, then establish a fixed reduction target."[101] That target provides a static, measureable goal that all nutrient polluters can mutually work toward attaining. Thus, the state aims to achieve a 30% reduction in nitrogen and phosphorous discharges through both point and nonpoint source controls.[102] The plan focuses its point source reduction efforts on large[103] wastewater treatment facilities and aims to upgrade treatment processes at these facilities to include processes that specifically target nutrients for removal. Such technologies may provide an increase in a given plant's ability to remove nutrients by up to 65%.[104] This reduction would be codified through limits written into an individual point source discharger's NPDES permit, which would restrict a facility's annual allowable nutrient discharge levels.[105] The state also planned to create watershed-based nutrient permits that would allow a group of facilities to collectively discharge up to a given limit.[106] This approach also allows for pollution trading, which is discussed in more detail below.[107]

There are three primary mechanisms in Kansas through which nonpoint pollution is controlled. First, the Source Water Protection Program assists public water supply systems to implement pollution control measures. Second, the Local Environmental Protection Program enables local authorities to develop customized water protection plans, which complement other efforts being implemented at the state and federal level.[108] Finally, the Kansas Water Plan identifies the Watershed Restoration and Protection Strategy (WRAPS) program as the main mechanism through which the state addresses nonpoint nutrient pollution.[109] The Kansas Water Plan was adopted in 2004 and is paid for with federal and state funds totaling more than $2.7 million.[110] It is a planning and management framework intended to engage watershed stakeholders and a) identify watershed restoration and protection needs, b) establish management goals, c) create an action plan to achieve goals, and d)

100. *Id.* at 16.

101. *Id.* at 6.

102. *Id.* at 11.

103. *Id.* (Large wastewater treatment facilities are those capable of handling over one million gallons of wastewater per day. Facilities of this size are responsible for approximately 85% of the point source wastewater discharged per day. Thus, targeting these facilities effectively addresses nutrient concerns in the vast majority of the state's point source discharges).

104. *Id.* at 12.

105. *Id.* at 14.

106. *Id.*

107. *Id.*

108. KAN. DEP'T OF HEALTH & ENV'T, KANSAS INTEGRATED WATER QUALITY ASSESSMENT 2012 11 (2012) [hereinafter KANSAS WATER QUALITY ASSESSMENT].

109. KANSAS WATER PLAN, *supra* note 96, at 6.

110. KANSAS WATER QUALITY ASSESSMENT, supra note 108, at 12.

implement the plan.[111] These plans lay out the physical characteristics of a watershed, an assessment of its needs, and pollutant reduction goals and practices to be implemented.[112]

The program represents a "shift from 'top-down' government intervention in watershed issues."[113] Instead, it focuses on the "citizen-stakeholder" approach that brings together funding, technical and non-technical guidance, and local stakeholders to help them reach consensuses on issues impacting their watershed. Together, they design and implement an action plan to address those issues.[114] There are currently more than 35 WRAPS projects in various stages of implementation in Kansas.[115] These plans cover 48% of the state's total land surface.[116]

The Kansas Nutrient Reduction Plan also recommends the implementation of agricultural best management practices to reduce nutrient runoff.[117] Because these sources are largely unregulated, the implementation of best management practices (BMPs) would be primarily voluntary in nature.[118] Additionally, it is difficult to ascertain a point of origin for nutrients entering the water ways from nonpoint sources.[119] Thus, rather than targeting individual farms for reductions, Kansas chose to target the watersheds most in need of nutrient controls throughout the state.[120] Best management practices chosen for implementation within these watersheds should target the causes of nutrient pollution. Specifically, these causes are fertilizers used on farm or home sites, livestock waste, and soil erosion.[121] Best management practices that combat these causes are ones that reduce water runoff and leaching nutrients, sediment, and animal wastes into the water system.[122]

Finally, the plan advocates for the use of nutrient trading between point and nonpoint sources.[123] Trading reduces compliance costs by allowing one source of nutrient pollution that faces high compliance costs to trade with a source that either exceeds the nutrient reduction standards of whose

111. *Watershed Restoration and Protection Strategy*, KAN. DEP'T OF HEALTH & ENV'T, http://www.kdheks.gov/nps/wraps/index.htm.

112. KAN. DEP'T OF HEALTH & ENV'T, CHENEY LAKE WATERSHED RESTORATION AND PROTECTION PLAN 2 (2011), *available at* http://www.kdheks.gov/nps/wraps/CheneyLake_Plan&Summary.pdf.

113. *What is WRAPS?*, KAN. WRAPS, http://www.kswraps.org/content/what-wraps.

114. *Frequently Asked Questions*, KAN. WRAPS, http://www.kswraps.org/faq.

115. *KDHE Approved Nine Element Watershed Plans*, KAN. WRAPS, http://www.kswraps.org/kdhe-approved-nine-element-watershed-plans.

116. KANSAS WATER QUALITY ASSESSMENT, *supra* note 108, at 12.

117. KANSAS NUTRIENT REDUCTION PLAN, *supra* note 97, at 17.

118. KANSAS WATER QUALITY ASSESSMENT, *supra* note 108, at 15.

119. DANIEL L. DEVLIN & POWELL G. MORGAN, KAN. STATE UNIV. DEP'T OF AGRONOMY, NONPOINT SOURCE POLLUTION IN KANSAS 1.

120. KANSAS NUTRIENT REDUCTION PLAN, *supra* note 97, at 15.

121. DEVLIN ET AL., *supra* note 119, at 2.

122. *Id.* at 4.

123. KANSAS NUTRIENT REDUCTION PLAN, *supra* note 97, at 16.

compliance costs are less.[124] This is critical because substantial evidence exists that nonpoint sources can reduce their nutrient loadings and a lower cost than point source polluters.[125] Thus, point source facilities stand to benefit the most from a nutrient trading program.[126] Rather than implementing expensive treatment technology upgrades, they could either purchase nutrient credits from nonpoint sources already utilizing nutrient-reducing BMPs or fund the implementation of these BMPs in exchange for credits. Kansas, however, has yet to institute a formal trading policy.

IV. NUTRIENT REDUCTION SUCCESS, OR LACK THEREOF, IN KANSAS

Despite the lack of a trading policy, the Kansas plan has been met with some success, particularly with point source nutrient pollutions. In 2010, Kansas reported that for 316 lakes assessed for trends related to eutrophication, 16 (~5%) were improving, 150 (~47%) were stable, 43 (~13%) were degrading, and the trends were unknown in 107 (~33.%).[127] The numbers show that while there are sporadic improvements, the overall state of Kansas lakes still requires much work. In light of EPA's new emphasis on requiring states to develop and implement nutrient reduction plans, Kansas needs to continue to show measurable reductions in nutrient loads. This section examines reductions by point and nonpoint sources.

A. Point Source Reductions

Since the Kansas Water Plan's implementation, more than half of the wastewater treatment facilities in Kansas that generate significant nutrient amounts have implemented nutrient removal technologies or are in the process of upgrading.[128] Currently, of the plants targeted under the plan as significant dischargers, 50% meet nitrogen reduction goals and 30% meet phosphorous reduction goals.[129] All new plants and major plant upgrades include the implementation of nutrient reduction wastewater treatment technologies.[130] Unfortunately, plant upgrades are costly and time-consuming activities. The estimated cost to fully upgrade existing technologies at the 60 largest facilities in Kansas is more than $1 billion.[131] Thus, while point sources are easily

124. *Id.* at 15.

125. JEFFERY M. PETERSON ET AL., A WATER QUALITY TRADING SIMULATION FOR NORTHEAST KANSAS, SELECTED PAPER PREPARED FOR PRESENTATION AT THE AMERICAN AGRICULTURAL ECONOMICS ASSOCIATION ANNUAL MEETING 2 (2005), *available at* http:// www.ageconsearch.umn.edu/bitstream/ 19167/1/sp05pe11.pdf.

126. *Id.* at 20.

127. NPS 2010 UPDATE, *supra* note 31, at 13.

128. KANSAS WATER QUALITY ASSESSMENT, *supra* note 108.

129. MIKE TATE, KAN. DEP'T OF HEALTH & ENV'T, Kansas Update- Nutrients, Ammonia Criteria, and Bacteria Criteria Address to 2013 Kansas Environment Association/Kansas American Water Works Association Annual Joint Conference, slide 4 (Aug. 28,2013), http:// *www.ksawwa.org/documents/13KWEA_2013a*.pdf.

130. KANSAS WATER QUALITY ASSESSMENT, *supra* note 108.

131. *Id.* at 14.

regulated, the cost of achievement is much higher than implementing best management practices to control nonpoint source pollution.

B. Nonpoint Source Reductions

KDHE reported in August 2013, that 31 of the 35 completed WRAPS plans address nutrients, and that regionally Kansas leads with integrating nutrient reduction utilizing federal grant funds.[132] KDHE also reported that it may take anywhere from 15 to 40 years to fully implement nonpoint source best management practices and begin to fully realize nutrient reductions from them.[133]

Nutrient enrichment still remains a leading cause of impairment in Kansas streams, lakes, and wetlands.[134] This is not uncommon. A government accounting office report found that although more than 350 water bodies have been restored nationally under the CWA point and nonpoint source pollution control programs since 2000, 28% of the state-led projects did not fully achieve their objectives.[135] Many more faced hurdles to implementation, approximately half of which could be mitigated by better oversight and planning mechanisms.[136] To overcome these common hurdles, Kansas intends to implement statewide strategies to reduce nonpoint nutrient pollution by 2015.[137] This strategy involves essentially implementing the Kansas Nutrient Reduction Plan.[138]

There have, however, been success stories in decreasing nonpoint source pollution to improve water quality. Nutrient runoff into the Banner Creek Reservoir resulted in eutrophication and prompted KDHE to add the reservoir to its list of impaired waters in 2002.[139] In conjunction with its addition to the list, the state also started an aggressive campaign, which included efforts to raise awareness of the water degradation issue, working with landowners to develop nutrient management plans for areas surrounding the reservoir, and grassland restoration projects.[140] The project also utilized CWA Section 319 grant funds to promote farmer participation in the efforts.[141] Sampling of reservoir waters in 2003 and 2007 showed that the average total phosphorous concentration declined during the period of implementation and fell below

132. *Id.* at 4.

133. *Id.* at 5.

134. *Id.* at 40.

135. GAO, NONPOINT SOURCE WATER POLLUTION: GREATER OVERSIGHT AND ADDITIONAL DATA NEEDED FOR KEY EPA WATER PROGRAM *2 (2012), *available at* http://www.gao.gov/assets/600/591303.pdf.

136. *Id.*

137. NPS 2010 UPDATE, *supra* note 31, at 40.

138. *Id.*

139. EPA, SECTION 319 NONPOINT SOURCE PROGRAM SUCCESS STORY KANSAS 1 (2009), *available at* http://www.kdheks.gov/nps/downloads/ks_bannercreek.pdf.

140. *Id.* at 1-2.

141. *Id.* at 2.

EPA's 2001 guidelines.[142] This led Kansas to remove Banner Creek from the impaired waters list in 2008.[143] This success story shows the necessity of involving local land owners and stakeholders through a process of education and implementation that ultimately leads to community-driven success under the nutrient reduction plan.

Overall, though, during the federal fiscal year of 2011, KDHE reported a 357,798 pound nitrogen reduction and a 160,134 pound phosphorous reduction that directly resulted from nonpoint source pollution control programs.[144] When compared to the estimated total annual nonpoint source reduction goal of 25,071,000 pounds of nitrogen and 3,453,000 pounds of phosphorous, the 2011 reductions represent only .0142% and .0464% of the overall 30% nonpoint source reduction required by the Kansas Nutrient Reduction Plan.[145] At this rate, it will take decades for full achievement of the reduction goals to be in place.

V. RECOMMENDATIONS FOR MODIFICATIONS TO THE EXISTING FEDERAL NUTRIENT REDUCTION FRAMEWORK

The *Gulf Restoration Network* court points out that EPA refuses to make a 'necessity' determination, one way or the other, as to whether the CWA requires the agency to promulgate nutrient criteria standards.[146] This determination is a threshold decision that is a prerequisite to the agency establishing water quality standards.[147] The question before the district court was whether EPA can refuse to make a necessity determination and base that refusal on non-scientific factors regarding water quality that are not outlined in the statutory authority.[148] Ultimately, the court allowed EPA 180 days from its ruling, or by March 19, 2014, to make its necessity determination as to whether it should promulgate federal nutrient criteria; however, the court did not preclude the agency from citing the same factors it cited in its initial 2011 denial of the Gulf Restoration Network's rulemaking petition.[149] Thus, though the court ultimately ruled against EPA's motion to dismiss the case, the ruling is still favorable for the agency because, if ultimately upheld, all it must do to comply is restate its reasoning in the rulemaking denial in a formal necessity determination. However, this appears not to be the outcome the agency desired.[150]

142. *Id.*

143. *Id.*

144. NPS 2010 UPDATE, *supra* note 31, at 4.

145. *See* KANSAS NUTRIENT REDUCTION PLAN, *supra* note 97, at 7, tbl. 1.

146. Gulf Restoration Network v. Jackson, No. CIV.A.12-677, 2013 WL 5328547, at *3 (E.D. La. Sept. 20, 2013).

147. *Id.*

148. *Id.* at *4.

149. *Id.* at *7.

150. This may be in part because of the potential for the district court's decision to require the agency to respond to all similar rulemaking petitions in the future, which is a valid consideration. *See* Lauren Sidner, *Numeric Nutrient Standards for Mississippi Rover Basin States*

EPA, in its opening appellate brief, argues that the district court did not even have the authority to review the agency's decision in the first instance.[151] The agency cites both legal and practical considerations for this statement, and ends by noting that "[w]ere the courts to second-guess every EPA decision not to interfere with duly promulgated State water quality standards, Congress's carefully crafted scheme of cooperative federalism would be placed at risk"[152] EPA's arguments skirt the issue though, because it seems to rely on the idea that states have already promulgated actionable water quality standards. As noted above, few states have actually done this in large part because of the difficulties in controlling nonpoint source pollution. Gulf Restoration Network was not asking the agency to overrule or supersede existing nutrient standards. Instead, it was asking for a determination as to whether federal intervention was necessary to promulgate such standards in the first instance to combat a persistent ecological problem that remains insufficiently addressed by both the federal government and individual states.

The current framework allowing states to develop and implement their own nutrient reduction plans has been slow going, at best. For more than 15 years, EPA has exerted pressure on the states to develop and implement nutrient reduction plans, and it has been exploring the issues surrounding the relationship between nutrient loads and eutrophication for even longer. Unfortunately, the high costs of point source nutrient reduction technology implementation coupled with the voluntary nature of the more cost-effective nonpoint source control have made efforts toward increased reductions difficult.

In Kansas, though significant work has been done resulting in measureable reductions to the state's overall nutrient load, there is still a long road ahead. Particularly, the rate of implementation of nonpoint source nutrient reduction should be increased. This demonstrates that there is the potential for the existing system to succeed in creating a partnership between state and federal authorities in combating this problem. Thus, although the Gulf Restoration Network's petition does have merit, their solution may not be the best course of action for achieving nutrient water quality goals.

Rather than promulgate a rulemaking that establishes numeric nutrient criteria, as EPA is better advised simply to hold states accountable for their failure to most fully implement, EPA should "develop [a] comprehensive program" to reduce nonpoint source nutrient pollution in U.S. groundwater.[153] This program should establish a timeline that details achievement dates for states to develop, implement, and achieve nutrient reduction goals established by the states themselves. Unlike past attempts though, this timeline should

- *Necessity Determination on Hold for Now*, VINSON & ELKINS WATER BLOG (Mar. 25, 2014), http://water.velaw.com/NumericNutrientStandardsMississippiRiverBasinStatesNecessityDeterminationonHoldforNow.aspx.

151. Brief for Appellant, *supra* note 67, at 17.

152. *Id.* at 29.

153. *See* 33 U.S.C. § 1252(a) (2012).

also detail the consequences of failing to comply. These consequences could come in the form of, as the *Gulf Restoration Network* petitioners request, federally established standards. Alternatively, states may face a monetary penalty or loss of oversight of federal grant funds used to combat nonpoint source pollution within the state. The *Gulf Restoration Network* intervenors point out that the imposition of federal water quality standards are extraordinary,[154] and that in the CWA's forty-year history, EPA has promulgated nutrient standards only once, as in the case of Florida.[155] Thus, in the face of a decades old problem, EPA should establish the conditions under which it is *necessary* to promulgate federal nutrient criteria standards, thus creating an affirmative specter of federal regulation which may spur states to more rapid action.[156] Its failure to do so up until this point has led to a snails-pace reduction in nutrient runoff and conflicts with the agency's directive. This may incentivize states and stakeholders, such as the Kansas Corn Growers Association and the Kansas Farm Bureau, to more aggressively pursue nonpoint source reduction methods for nutrient reduction.

In Kansas, the Corn Growers Association, as an intervenor signatory, opposes the imposition of federal standards, stating that:

> any court order requiring EPA to issue new numeric standards and TMDLs would directly affect the livelihood and productive commercial capabilities of Kansas Corn Growers Association members by increasing the costs associated with developing and implementing nutrient management plans. Nutrient management is already an expensive part of the operations of a farm. The costs associated with these plans, including man-hours, hiring of engineers and other experts, and implementation of the plans themselves would be expected to increase substantially if plaintiffs were successful in this suit.[157]

This point is well received; however, as with any change, there will always be a cost associated with adaptation. What this issue comes down to is whether that cost is incurred now or over a longer period of time.

If EPA adopts a timeline for compliance, states might incentivize adoption by implementing any number of policy options that will induce agricultural producers to adopt new methods and reduce their nutrient loads.

154. Non-State Intervenor-Defendants' Joint Memorandum, *supra* note 6, at 5.

155. *See* Paul Quinlan, *Industry to Congress - EPA Fight With Fla. Coming to a State Near You*, N.Y. TIMES, Feb. 16, 2011, *available at* http://www.nytimes.com/gwire/2011/02/16/16 greenwire-industry-to-congress-epa-fight-with-fla-coming-85679.html ("While States are free to control nutrient pollution, and many are starting to, EPA has no plans to establish numeric nutrient criteria in any other states," EPA said in a statement yesterday responding to the industry letter. "The establishment of numeric limits of nutrient pollution in Florida was due to specific legal challenges about the State of Florida's implementation of the Clean Water Act.").

156. This course of action would require EPA to determine and promulgate criteria which would cause the agency to find a case "where the Administrator determines that a revised or new standard is necessary to meet the requirements of" the CWA, thus in effect triggering the agency's duty to publish new water quality standards. *See* 33 U.S.C. § 1313(c)(4) (2012).

157. Kansas Corn Growers, *supra* note 1.

States could tax polluting inputs.[158] For instance, the state could raise taxes on fertilizers, which in turn might induce growers to apply them only when necessary to ensure crop production or to apply them in smaller overall amounts. Second, states could subsidize the use of particular best management practices.[159] In Kansas, the WRAPS program guides local actors in their implementation of best management practices on a targeted basis by focusing broadly on water quality issues in 'high impact' watershed areas, and the landowners existing within those areas. However, a dedicated and widely publicized subsidy program targeted specifically on practices designed to reduce nutrient loading may be more effective. The money spent on these subsidies could be recouped when the state has to incur less spending on nutrient pollution related harms (e.g. wildlife restoration) or through an increase in spending on recreational activities. Finally, there is always the option of regulation.[160] The state could mandate implementation of practices widely known to be effective against nutrient loss in a broad variety of applications on agricultural production sites throughout the state as a condition of using, for example, certain levels of fertilizer. Of course, there are enforcement costs associated with this route, but those should be outweighed by costs imposed by an EPA enforcement mechanism.

Additionally, when these practices are combined with tougher regulations on point source polluters, a market for nutrient trading may develop. Accordingly, EPA should encourage states as a part of their nutrient reduction plans to implement such programs. EPA itself could even oversee the regulatory framework for such a market on a national scale, which would allow states that are quick to advance their compliance objectives to trade nutrient credits with states that are slower in their implementation. One study indicated that farmers could make up to $500 per acre by utilizing a grass filter strip, which represents a 33-fold increase in net profit per acre when compared with the average return when those same acres are planted with corn.

V. CONCLUSION

The problem of nutrient-related eutrophication in Kansas waterways is not going anywhere anytime soon. The *Gulf Restoration Network* petitioners are correct in saying EPA's hands-off approach to nutrient control is not effective, and that the agency has a statutory duty to respond to the growing water quality problem.[161] However, resolving this issue by instituting sprawling federal standards for all waters falling under the authority of the CWA, as the Gulf Restoration Network urges,[162] is also not the best answer. EPA's attempts to continue to skirt the issue and its failure to institute any sort of

158. Ribaudo, *supra* note 35, at 185.

159. *Id.*

160. *Id.*

161. Gulf Restoration Network v. Jackson, No. CIV.A.12-677, 2013 WL 5328547, at *3 (E.D. La. Sept. 20, 2013).

162. *Id.* at *2.

binding federal oversights are also not pathways to resolution. Instead, EPA should continue to encourage the individual states to develop and implement nutrient reduction plans but should institute a timeline with teeth to impose consequences on states that are slow to comply. This would give those states an incentive to press the difficult-to-solve issue of nonpoint source pollution within their own boundaries. Likewise, Kansas' WRAPS program is an excellent start; however, it would benefit greatly from expansion and increased stakeholder engagement. Best management practices are relatively simple to implement and have been shown to be effective at reducing nonpoint source nutrient pollution. Perhaps increased federal incentives or penalties will provide the needed spur to action.