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Comment: Voluntary Public-Private Nonpoint Source Pollution Projects: A Welcome Response to Regulatory Shortcomings Under the Clean Water Act

by

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VOLUNTARY PUBLIC-PRIVATE NONPOINT SOURCE POLLUTION PROJECTS: A WELCOME RESPONSE TO REGULATORY SHORTCOMINGS UNDER THE CLEAN WATER ACT

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I. INTRODUCTION

The Environmental Protection Agency's (EPA) latest National Water Quality Inventory indicates that the Clean Water Act (CWA) needs revision.[1] Although the CWA sets lofty standards for America's waters,[2] it

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1. U.S. ENVIRONMENTAL PROTECTION AGENCY, NATIONAL WATER QUALITY INVENTORY (1996) [hereinafter Inventory]. The National Water Quality Inventory is a biennial report submitted to Congress by the EPA as required under Section 305(b) of the CWA. The report is supposed to describe the water quality of all navigable water bodies of each state and list all relevant pollution sources in each state. However, the 1996 report only covers nineteen percent of rivers and streams and forty percent of lakes, ponds and reservoirs. Because the extent of the reporting varies with each report, the inventories are not intended to be used to determine trends

rum on Nonpoint Source Pollution. Section V evaluates two projects championed by the Forum, and section VI offers policy recommendations.

II. INTRODUCTION TO NPS POLLUTION

A. DEFINITION OF NPS

Although the CWA[8] does not define NPS pollution, it does define point sources.[9] The CWA implies that NPS pollution refers to pollution entering water bodies from all areas other than point sources.[10] EPA defines NPS pollution as contamination "caused by diffuse sources that are not regulated as point sources and normally is associated with agricultural, silvicultural and urban runoff, runoff from construction activities, etc."[11] According to the 1992 National Water Quality Inventory, NPS pollution "generally results from land runoff, atmospheric deposition, drainage, or seepage of contaminants."[12] It also states that "nonpoint sources deliver pollutants to water bodies in a dispersed manner rather than from a discrete pipe or other conveyance."[13] NPS pollution constitutes "polluted" runoff caused by human land-use activities such as "farming, harvesting trees, constructing buildings and roadways, mining, and disposing of liquid and solid wastes."[14] These activities center on disturbances of soil and the application of chemicals to soils.[15] One should also include sedimentation in NPS pollution because the accumulation of sediment, even particles to which nutrients such as nitrogen and phosphorous have not attached, has severe impacts on aquatic systems and the life forms they sustain.[16]

B. NPS POLLUTANTS AND IMPACTS

The major NPS pollutants are sediment, oxygen-depleting substances, nutrients such as phosphorous and nitrogen, toxic metals, pesticides, pathogens, salinity, total dissolved solids, acids and heat.[17] The most prominent

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8. 33 U.S.C. §§ 1251-1387 (1986 & Supp. 1998).
9. *See id* § 1362 (14). The CWA defines "point sources" as:
   any discernable, confined and diserete 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 are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.

Id.

10. *See* National Wildlife Fed'n v. Consumers Power Co., 862 F.2d 580, 582 (6th Cir. 1988) ("[N]onpoint source . . . is defined by exclusion and includes all water quality problems not subject to [the CWA's point source permitting section].")(citation omitted).
11. U.S. ENVIRONMENTAL PROTECTION AGENCY, REGULATIONS AND STANDARDS, NONPOINT SOURCE GUIDANCE 3 (1987).
12. U.S. ENVIRONMENTAL PROTECTION AGENCY, NATIONAL WATER QUALITY INVENTORY, 1992 at 247.
13. *Id.* at ES-9.
14. *Id.* at 239.
15. *Id.*
16. DAVID J. WELSCH, U.S. DEP'T. OF AGRICULTURE, RIPARIAN FOREST BUFFERS: FUNCTION AND DESIGN FOR PROTECTION AND ENHANCEMENT OF WATER RESOURCES 7 (1996).
17. *See* P. AARNE VESILIND & J. JEFFREY PIERCE, ENVIRONMENTAL ENGINEERING 242 (1982); *see also* NOVOTNY & OLEM, *supra* note 7, at 681-89.

of these are sediment, oxygen-depleting substances, and nutrients.

Sedimentation refers to soil particles entering the water from an adjacent area, such as an agricultural field.[18] These fine particles degrade aquatic communities by clogging fish gills, suffocating fish eggs and bottom-dwelling aquatic creatures, carrying attached pollutants into the water, and reducing water clarity.[19] Dissolved oxygen is necessary for healthy aquatic ecosystems, but many human activities send large quantities of biodegradable organic materials into water bodies.[20] When these materials decompose, they use up oxygen. Although nutrients, such as phosphorus and nitrogen, are naturally occurring in aquatic communities, in large quantities they are detrimental because they overstimulate growth of aquatic plants.[21] Excess alga growth clogs navigable waters, which outcompetes native submerged aquatic vegetation, and results in a lack of oxygen after decomposition.[22]

Agricultural NPS has a significant impact on groundwater.[23] "Because fertilizer is used year after year, it is expected that in many areas some of the [nitrogen, phosphorous, or potassium] is carried by infiltrating water downward to the water table, where it can migrate in the groundwater flow regime."[24] Despite the impacts of both point sources and nonpoint sources on groundwater, the CWA focuses on "navigable waters."[25] Furthermore, although the CWA's two sections concerning NPS pollution — Sections 208[26] and 319[27] — do mention groundwater, they focus almost entirely on surface water contamination. Therefore, this paper exclusively addresses surface water pollution.[28]

The National Water Quality Inventory states that agriculture is the greatest contributor to NPS pollution.[29] Twenty-five percent of assessed river miles are impaired by agricultural pollution, whereas municipal point sources, which are a distant second, impair five percent of assessed stream miles.[30] Similarly, eighteen percent of assessed river miles are impaired by siltation and fourteen percent are impaired by nutrients, which are two major NPS pollutants.[31]

This comment focuses on agriculture runoff because it produces the

18. *Inventory*, *supra* note 1, at 12.
19. *Id.*
20. *Id.* at 9.
21. *Id.* at 9-10.
22. *Id.* at 10.
23. Robert D. Fentress, *Nonpoint Source Pollution, Groundwater, and the 1987 Water Quality Act: Section 208 Revisited?*, 19 ENVTL. L. 807 (1989).
24. R. ALLEN FREEZE & JOHN A. CHERRY, GROUNDWATER 442 (1979).
25. 33 U.S.C. § 1251 (1986 and Supp. 1998). The CWA states that "it is the national goal that the discharge of pollutants into navigable waters be eliminated by 1985." *Id.*
26. *See id.* § 1288.
27. *See id.* § 1329.
28. For a discussion of the CWA's effectiveness in controlling NPS impacts groundwater, *see* Fentress, *supra* note 23.
29. *Inventory*, *supra* note 1, at 12.
30. *Id.*
31. *Id.*

greatest amount of NPS pollution. Because most analysts agree that each source of NPS requires specific solutions, the strategies must be tailored to the specific land use in question.[32]

Some analysts have claimed that NPS pollution is the foremost contributor to the vast array of the nation's degraded waters because it is a new or relatively misunderstood phenomenon.[33] The CWA's legislative history indicates that in 1972 NPS pollution impacts were recognized in the Senate.[34] Congress initially chose to regulate at the point source through a permitting system.[35] Indeed, point source pollution was easier to address than nonpoint source because it exits discrete sources. Also, the 1971 conflagration of the Cuyahoga River in Cleveland, Ohio gave industrial point source discharges immediate and national saliency, which contributed to Congress' decision to regulate at the source.[36] Today, having reduced point sources down to a manageable level, the United States is left with an overwhelming nonpoint source problem and few practicable tools with which to address it.

III. NPS PROVISIONS WITHIN THE CWA

A. Overview of the CWA

The CWA, the nation's primary law regulating inland and estuarine water quality,[37] originated in 1948 and was amended five times before its major 1972 revision.[38] In 1972, Congress established the CWA's present structure by setting "nationally uniform technology-based effluent limitations established by the federal EPA for major point sources."[39] The amendment also established the CWA's over-arching goal — "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[40] The CWA boasts the following interim goals: that "the discharge of pollutants into the navigable waters be eliminated by 1985;" that "wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;" and that

32. Peter S. Menell & Richard B. Stewart, Environmental Law and Policy 505 (1994).

33. Robert W. Adler et al., The CWA 20 Years Later 172 (1993).

34. S. Rep. No. 92-414 (1972), *reprinted in* 1972 U.S.C.C.A.N. 3668, 3705.

35. *See* Adler et al., *supra* note 33, at 171. Point sources are regulated through the National Pollutant Discharge Elimination System. 33 U.S.C. § 1342 (1986 and Supp. 1998).

36. *See* Adler Et Al., *supra* note 33, at 171.

37. Other water-related legislation includes the Coastal Zone Management Act (16 U.S.C. §§ 1451-1465 (1986 and Supp. 1998)); the Marine Protection, Research, and Sanctuaries Act (also known as the Ocean Dumping Act) (33 U.S.C. §§ 1401-1445 (1986 and Supp. 1998)); and the Public Health Service Act (the Safe Drinking Water Act)(42 U.S.C. §§ 300f—300j-26 (1986 and Supp. 1998)).

38. Water Pollution Control Act Amendments of 1956, Pub.L. No. 84-660, ch. 518, 70 Stat. 498; Federal Water Pollution Control Act Amendments of 1961, Pub.L. 87-88, 75 Stat. 204; Water Quality Act of 1965, Pub.L. No. 89-234, 79 Stat. 903; Clean Water Restoration Act of 1966, Pub.L. No. 89-753, 80 Stat. 1246; Water Quality Improvement Act of 1970, Pub.L. No. 91-224, 84 Stat. 91.

39. Menell & Stewart, *supra* note 32, at 458.

40. 33 U.S.C. § 1251 (a) (1986 and Supp. 1998).

the "discharge of toxic pollutants in toxic amounts be prohibited."[41] The CWA establishes that, "the discharge of any pollutant by any person shall be unlawful" except when in compliance with a permit.[42] These broad objectives defined the Act in 1972. The 1977 amendments distinguished three categories of pollutants and established a technology-based system of effluent limitations.[43] The 1987 amendments altered the effluent limitation system for industrial point sources.[44] At the same time, Congress established Section 319,[45] the State Nonpoint Source Management Program, in an attempt to expand upon the CWA's only existing nonpoint source language, Section 208.[46]

B. SECTION 208

Section 208, which is part of the 1972 amendments, represents Congress' original attempt to control NPS pollution through the CWA.[47] This section requires each Governor to identify each area within the state "which, as a result of urban-industrial concentrations or other factors, has substantial water quality problems."[48] The Governor is also directed to designate a committee "capable of developing effective area-wide waste treatment management plans (WTM)" for these degraded areas.[49] The plans must include "a process to identify, if appropriate, agriculturally and silviculturally related nonpoint sources of pollution . . . and set forth procedures and methods (including land use requirements) to control to the extent feasible such sources."[50] The EPA Administrator's approval of a WTM plan is required before a state may receive federal funding of publicly owned treatment works.[51] Section 208 also requires the Secretary of Agriculture to establish and administer the Rural Clean Water Program[52] in which farmers enter into cost sharing contracts with the Department of Agriculture to implement best management practices.[53] Because the CWA does not state otherwise, these contracts appear to be purely voluntary.

By 1987 Congress felt that Section 208 had done little to curb NPS pollution.[54] Several aspects of the section made it vulnerable to inaction. Some analysts believe that Section 208's voluntary provisions gave the

41. *Id.*
42. *See id.* § 1311 (a).
43. MENELL & STEWART, *supra* note 28, at 456.
44. *Id.*
45. 33 U.S.C. § 1329 (1986 and Supp. 1998).
46. *See id.* § 1288.
47. Albert P. Barker, *Agricultural Chemicals and Groundwater Protection: Navigating the Complex Web of Regulatory Controls*, 30 IDAHO L. REV. 443, 468 (1993/1994).
48. 33 U.S.C. § 1288 (a) (2) (1986 and Supp. 1998).
49. *Id.*
50. *See id* § 1288 (b) (2) (F).
51. *See id* § 1284 (a) (5).
52. The Rural Clean Water Program is a 1977 amendment to Section 208. Pub. L. No. 95-217, § 35, § 208, 91 Stat. 1579 (1977) (codified as amended at 33 U.S.C. § 1288 (j) (2) (1986 and Supp. 1998)).
53. 33 U.S.C. § 1288 (j) (l) (1986 and Supp. 1998).
54. *See* 133 CONG. REC. S1581 (daily ed. Jan. 21, 1987) (statement of Sen. Durenberger).

states too much discretion in determining the NPS control to implement.[55] This discretion resulted in a situation where "most states had spent the funds allocated for complying with Section 208, completed their plans, and forgotten for the time being about polluted run-off."[56]

Similarly, Section 208 lacked enforcement mechanisms to ensure that states carried out the plans. Unlike its extensive power to enforce point source provisions within the CWA, EPA has no regulatory power to enforce the WTM plans under Section 208.[57] Having given the states unlimited autonomy to allocate federal funding as they see fit, the EPA is unable to force the states to spend the money on NPS control.

Faced with widespread criticism of Section 208 and an increasingly visible NPS problem, Congress attempted to strengthen the federal NPS regulations by creating Section 319 in 1987. Although Section 319 did not replace Section 208, the nation's NPS policy has centered on Section 319 since its inception in 1987.[58]

C. SECTION 319

Section 319 requires each state to submit to the EPA an assessment report and management program.[59] The assessment report must identify "those navigable waters within the State which, without additional action to control nonpoint sources of pollution, cannot reasonably be expected to attain or maintain applicable water quality standards."[60] The reports should also identify the nonpoint sources responsible for these degraded waters.[61] They must also "describe the process, including intergovernmental coordination and public participation, for identifying the best management practices and measures to control each category and subcategory of nonpoint sources and to reduce, to the maximum extent practicable, the level of pollution resulting from such category, subcategory, or source."[62]

In addition to the initial 319 (a) report, each Governor is required to submit to the EPA a management program that the state will implement within four fiscal years of its submission.[63] The program should identify the best management practices that the state will adopt at the earliest practicable date to reduce pollutant loadings from the previously identified

55. Fentress, *supra* note 23, at 818; Lawrence P. Wilkins, *The Implementation of Water Pollution Control Measures — Section 208 of the Water Pollution Control Act Amendments*, 15 LAND & WATER L. REV. 479 (1980).

56. Charles F. Gauvin, *How Clean is Clean Enough? Making the CWA Work for Trout*, TROUT, Spring 1993, at 32.

57. *Id.*

58. ADLER ET AL., *supra* note 33, at 185-86.

59. 33 U.S.C. § 1329 (1986 and Supp. 1998).

60. *See id.* § 1329 (a) (1) (C).

61. *See id.* § 1329 (a). Section 319 (a) reports are one-time assessments that should not be confused with the biennial 305 (b) reports. The 305 (b) reports address all navigable water bodies and all relevant pollution problems, whereas the 319 (a) reports specifically concern nonpoint source pollution. *See id* § 1315 (b).

62. *Id.* § 1329 (a) (l) (C).

63. *Id.* § 1329 (b) (2).

nonpoint sources.[64] The program should also identify all sources of funding for NPS pollution, certify that all state laws have adequate authority to implement the programs and propose a schedule for implementation of the program.[65] If a state fails to submit a management program, Congress authorizes the EPA to develop a management program for the state.[66] By January 1997, every state had submitted a management program that was approved by EPA.[67]

Section 319 also requires, to the maximum extent practicable, that the state should develop and implement the program on a watershed-by-watershed basis.[68] This mention of the watershed as the appropriate scale on which to develop a management program (rather than traditional, arbitrarily defined boundaries), is noteworthy because even recently the EPA and others focused on improving water quality are still campaigning for the implementation of watershed approaches to water quality management.[69]

IV. STATE COMPLIANCE AND FEDERAL FUNDING UNDER THE CWA

Under Section 319, the CWA authorizes $400 million for implementation of the state management programs.[70] Congress, however, was slow to allocate the funds. Although all $400 million has been appropriated, one-half of the total was distributed in fiscal years 1994 and 1995.[71] Some government officials claim the delays prevented their states from making significant progress under Section 319.[72] Furthermore, concern over federal funding of Section 319 may persist, in the author's opinion, because of recent congressional support for legislation limiting unfunded federal mandates.

"Unfunded federal mandates" are requirements imposed by the federal government on the states for which the federal government does not provide funding. States argue that Section 319 is a prime example of an unfunded mandate because the federal government required the states to carry out these management programs, yet it did not provide the entire funding.[73] Indeed, the CWA, like the Clean Air Act (CAA),[74] apparently

64. *Id.* § 1329 (b) (2) (A)-(C).

65. *Id.* § 1329 (b) (2) (C)-(F). Section 319 (h) (3) asserts that the federal government may only pay up to sixty percent of the total cost of a state's Section 319 program. The states must fund the other forty percent. This funding scheme is important given the current debate, described *infra*, concerning the federal government's capacity to impose regulatory burdens on the states without providing adequate funding.

66. *Id.* § 1329 (e).

67. *See* ENVIRONMENTAL PROTECTION AGENCY, THE NONPOINT SOURCE MANAGEMENT PROGRAM: POINTER NO. 42 (1991).

68. *Id.* § 1329 (b) (4).

69. MENELL & STEWART, *supra* note 32, at 514-16 (citing William Pederson, *Turning the Tide on Water Quality*, ECOLOGY L. Q. 69, 70-73 (1988)); *Inventory*, *supra* note 1, at 33-34.

70. Claudia Copeland, *CWA Reauthorization*, 6 CONG. RES. SERVICE, NOV. 21, 1994.

71. *Id.* (The funds became available in fiscal year 1990).

72. *See generally* ADLER ET AL., *supra* note 33, at 188-89.

73. *See* GENERAL ACCOUNTING OFFICE, WATER POLLUTION: GREATER EPA LEADERSHIP NEEDED TO REDUCE NONPOINT SOURCE POLLUTION 28-29 (1990).

adopted a shared responsibility between the federal government and the states with each providing the funding for the respective programs. Critics of the unfunded mandates legislation argue that it represents a vehicle with which state and local leaders who are opposed to federal environmental regulation may abandon their responsibilities under the CAA and CWA.[75]

On March 22, 1995, President Clinton signed the unfunded mandates bill into law.[76] The provision requires the Congressional Budget Office to inform Congress when a federal bill would impose a cost of $50 million on the states.[77] Congress, in turn, must provide one hundred percent of the funding for the regulation.[78]

Many environmentalists fear that the passage of the unfunded mandate law may further hinder implementation of the Section 319 requirements.[79] Thus, EPA must identify and promote innovative funding mechanisms that allow the federal government to require significant actions by the states without imposing on them an unreasonable financial burden.[80] Although Congress should not abandon the notion of regulating land-use activities, the current political climate makes it unlikely that such legislation will be enacted or that it will be adequately funded. As is discussed in section III(C) of this paper, industry may have several incentives to fund such environmental projects.

V. THE NATIONAL FORUM ON NONPOINT SOURCE POLLUTION

A. Overview of National Forum on Nonpoint Source Pollution

Voluntary public-private NPS programs may become promising vehicles with which to make significant progress in the area of NPS pollution. Whereas direct land-use regulation faces both political and administrative costs, voluntary efforts such as those proposed by the National Forum on Nonpoint Source Pollution can avoid many of these problems. The Forum, chaired by Governors John Engler of Michigan and Howard Dean of Vermont, was a collaborative effort consisting of leaders of public, private and nonprofit associations. The Forum aimed to reduce NPS pollution through

74. 42 U.S.C. §§ 7401-7671q (1986 & Supp. 1998).

75. *See* Martin R. Lee, *Environmental Protection and the Unfunded Mandates Reform Act of 1995*, 1 Cong. Res. Service (1994).

76. Unfunded Mandates Reform Act of 1995, Pub. L. No. 104-4, 109 Stat. 48. *See also* Ann Devroy & Helen Dewar, *Hailing Bipartisanship, Clinton Signs Bill to Restrict Unfunded Mandates*, Wash. Post, Mar. 23, 1995, at A10.

77. Unfunded Mandates Reform Act of 1995, Pub. L. No. 104-4. 109 Stat. 48.

78. *Id.*

79. *See* Lee, *supra* note 75, at 1.

80. Political strategies that call for spending cuts on environmental programs may require the EPA to prioritize its NPS program. 33 U.S.C. § 1329 (h) (5). The CWA, in fact, establishes a priority system for the disbursement of federal grants. States intending to address particularly difficult or serious NPS problems as well as those intending to use innovative methods of control are granted priority. Also, states addressing interstate NPS problems and those addressing certain groundwater NPS problems have priority for federal grants. *Id.*

economic incentives, education, and voluntary initiatives. With respect to agriculture, the Forum's voluntary programs were designed to provide farmers with opportunities to reduce NPS pollution through efficient, cost-effective mechanisms.

In the spring of 1995, the Forum released its findings in a final report, which consisted of policy recommendations and a list of demonstration projects.[81] These twenty-five projects, for which the Forum solidified funding, reflect the various methods through which the Forum hoped to control NPS pollution.[82]

All Forum demonstration projects were evaluated by the members to meet, to the extent possible, certain criteria.[83] Each project was supposed to illustrate voluntary approaches, pollution prevention, partnerships, cost-effectiveness, models that are easily replicated, and a focus on long-term environmental benefits.[84]

B. Reasons for the Forum's Emphasis on Voluntary Projects

The Forum was based on voluntary, incentive programs because, in the opinion of its founders, NPS pollution, as opposed to point source pollution, does not lend itself to strict regulatory control alone.[85] Although the Forum's demonstration projects were designed to reflect voluntary efforts to control runoff pollution, they can also serve as vehicles with which one may argue that nongovernmental forces such as industry could make an immediate impact on the abatement of NPS pollution. Indeed, one can imagine several reasons why the Forum hesitated to implement a strict regulatory approach to NPS pollution.

First, agricultural NPS pollution is a classic microeconomic externality in that the welfare of an individual or community downstream of a nonpoint source depends on its own actions as well as the actions of the individual responsible for the pollution upstream.[86] In other words, the external cost (water pollution) on those downstream is a cost that the upstream farmer is not required to consider. When the benefits of nonpoint sources all accrue to one upstream community, it is in the community's best interest not to regulate these externalities by making the individual farmers from whose land the pollution originates responsible for the added cost imposed on those downstream.[87]

Secondly, the quantitative effluent limitations used for point sources

81. National Forum On Nonpoint Source Pollution, Water: Taking A New Tack On Nonpoint Source Pollution (1995) (hereinafter Forum).
82. *Id.*
83. *Id.*
84. *Id.* at 23.
85. *Id.*
86. Tom Titenberg, Environmental and Natural Resource Economics 52 (3d. ed. 1992).
87. *See* Robert A. Young, Water Resources Handbook 323 (Larry W. Mays ed., publisher 1996); *See also,* 142 S. Rep. No. 95-370 (1977), *reprinted in* 1977 U.S.C.C.A.N. 4326, 4362.

do not apply to nonpoint sources. Because NPS pollution does not exit a pipe or some other discrete source, it is difficult to monitor quantitatively.[88] Also, rainfall, rather than an individual polluter, often controls the amount emitted.[89] As a result, enforcement of individual farms based on effluent discharges appears to be virtually impossible.

Third, the physical extent of NPS pollution makes regulation difficult. Because runoff flows from every farm and field, most jurisdictions do not even know how to begin monitoring and enforcement.[90] This pervasiveness of NPS pollution renders the typical mechanisms used for point source control useless.[91] Indeed, it is impossible to write effluent-type permits for every farmer.[92]

This author argues that, although the NPS problem may ultimately require a regulatory strategy, significant water quality improvements could be achieved at least on regional levels through voluntary NPS programs. Although the CWA should not be limited to voluntary programs, they may reduce the extent of regulation. One could imagine a program where regulatory requirements decreased as voluntary participation increased across the community.

C. Benefits of Collaborative Efforts such as The National Forum on Nonpoint Source Pollution

Increasingly, corporations are engaging in collaborative efforts such as the National Forum on Nonpoint Source Pollution that bring together environmental groups, academic institutions, corporate enterprises, and government agencies. In these symbiotic relationships, companies may gain an improved public image from their association with the environmental organizations in return for their contribution to the group's stated objective.[93] Often the industry's contribution is financial. The private corporations also benefit from nonadversarial, constructive dialog with regulators. In fact, these partnerships often provide the first opportunity for industry and regulatory agency leaders to discuss a common objective. The Forum, which consisted of the leaders of environmental groups and private corporations such as International Paper, the Monsanto Company, Coors Brewing, the EPA, the Natural Resources Defense Council, the World Wildlife Fund, and several academic institutions, serves as a model of such collaborative

88. *See* Bruce W. Vignon, *The Status of Nonpoint Source Pollution: Its Nature, Extent and Control*, 21 Water Resources Bull. 179 (1985).

89. Daniel R. Mandelter, *Controlling Nonpoint Source Water Pollution: Can it be Done?*, 65 Chi.-Kent L. Rev. 481 (1989).

90. *See* Lawrence A. Selzer & LaJuana S. Wilcher, *Land Use Habits Impair U.S. Waters*, Envtl. Protection, Aug. 1994, at 14.

91. *Id.* at 482.

92. *But see* Foran, et al., *Regulating Nonpoint Source Pollution in Surface Waters: A Proposal*, 27 Water Resources Bull. 479 (1991) for a detailed description of a proposal to regulate agricultural NPS.

93. *See National Awards Set Pace for Watershed Protection*, Runoff Rep., Feb. 1998, at 3; *Voluntary Initiatives at Work in the West*, Runoff Rep., Sep./Oct. 1995, at 1.

efforts.[94]

The demonstration projects espoused by the Forum are funded primarily by industry.[95] As a result, the projects do not rely on the appropriation of federal funds that has hindered programs under Section 319. Furthermore, given the passage of the unfunded federal mandates legislation, future CWA programs are unlikely to require significant financial contributions from the states. Meanwhile, the agricultural NPS problem will persist. The Forum and similar collaborative efforts, however, can help to alleviate this conflict between the need for progressive action and Congress' fiscal conservatism by providing industry support for land-use programs. Industry groups stand to gain significant public relations and other benefits through their involvement in such programs.[96]

The Forum and the individual projects it promotes provide an incentive for industry to engage in the search for solutions to environmental issues.[97] Industry involvement in public-private programs can be expected to continue because collaborative efforts such as the Forum are beginning to create a "market" for industry involvement in environmental programs.[98] This market is based on the public relations benefits resulting from the publicity that these partnerships produce.[99] Previously, industry had little incentive to contribute funds to environmental programs because they received little in return. With the advent of well-publicized efforts such as the Forum, industry now realizes considerable public relations benefits.[100] Although not all future collaborative efforts will receive the exposure of those projects selected by the Forum, its prominence demonstrates that environmentally sound partnerships do pay off.[101]

Voluntary programs have been used recently as a species of market-based regulation. As far back as the mid-1970's, the CAA allowed facilities increased flexibility by introducing bubble and offset programs.[102] Today, promising breakthroughs in market-based offset programs are developing in the area of carbon sequestration to address global climate change.[103]

94. *See* FORUM, *supra* note 81.
95. *Id.*
96. FRANCES CAIRNCROSS, COSTING THE EARTH 177-211 (1992).
97. *See id.*
98. *Id.* at 209-11.
99. *Id.*
100. *Id.* at 285-87.
101. *See National Awards Set Pace for Watershed Protection*, *supra* note 93.
102. "Bubble" means that a facility is viewed as one source under the CAA rather than as an area comprised of possibly thousands of discrete sources (pipe, valves, smokestacks), each of which would be regulated individually. Instead EPA envisions that there is a giant bubble covering the facility and regulates only the aggregate emission from that one "source." This concept allows the operator to decide which sources to control based on information known only to the company. *See* WILLIAM H. RODGERS, 1 ENVIRONMENTAL LAW — AIR AND WATER 338-39, 343 (1986). Under Section 173 (c) of the Clean Air Act, "offsets" refers to a facility's opportunity to make up for releases at one facility with equivalent emissions controls at another facility. *See* 42 U.S.C. § 7503 (c) (1986 and Supp. 1998).
103. *See generally* BROWN ET AL., WORLD RESOURCES INST., CARBON COUNTS: ESTIMATING CLIMATE CHANGE MITIGATION IN FORESTRY PROJECTS, WORLD RESOURCES INST. (1997).

This strategy centers on using forests to store carbon so as to reduce atmospheric carbon dioxide, a so-called greenhouse gas.[104] In the market context, companies, including at least one American coal-burning utility, have invested in protecting vast tracts of forest so as to offset their own emissions.[105]

Likewise, voluntary NPS programs may offer industry participants the opportunity to offset their point source emissions against the reductions in NPS loadings they facilitate through voluntary programs they fund. Although this proposal would likely engender extensive governmental debate, it boasts, at least in theory the flexibility and political palatability of other successful market-based programs.

VI. EXAMPLES OF FORUM PARTNERSHIP PROJECTS

A. The Western Barley Growers Project

In 1995, the Coors Brewing Company launched an educational and recognition program to encourage western barley growers to adopt BMPs.[106] Because Coors contracts with more than 1,100 independent barley growers in Colorado, Idaho, Wyoming, and Montana, and is a major buyer of barley in the region, it is able to encourage them to adopt water-friendly practices.[107] After conducting a survey to learn about the growers' environmental practices, attitudes to nonpoint source pollution, and their desire to undertake voluntary environmental projects, Coors provided its suppliers with information about the benefits of installing BMPs.[108] Coors' involvement is limited to providing information about BMPs, recognizing outstanding projects through cash conservation awards, and displaying innovative conservation practices through demonstration projects.[109]

Examples of BMPs that the suppliers have adopted are pipelines and concrete-lined ditches that return irrigation water back to the farm for reuse, minimum tillage practices that reduce the application of chemicals and fertilizers, gated pipes and sprinkler systems that help to reduce water use, filter strips that prevent runoff from entering adjacent water bodies, and settling ponds that filter out sediment before it runs off the farm.[110] One grower has even reduced water and chemical use by injecting ozone into his irrigation water.[111]

Although there is no data indicating whether these projects have resulted in improved water quality, there is evidence that several participating growers are conserving water and applying fewer chemicals. One

104. *Id.*
105. *Id.*
106. Forum, *supra* note 81, at 40.
107. *Id.*
108. *Id.*
109. *Voluntary Initiatives at Work in the West*, Runoff Rep., Sep./Oct. 1995, at 4.
110. *Id.* at 3.
111. *Id.*

farmer estimates that his conservation tillage[112] practice has reduced his labor needs by fifty percent, decreased his fuel costs by sixty percent, and increased his crop yields by thirty percent.[113] He has also seen a decrease in his machinery costs.[114] In addition, this farmer, with the assistance of the United States Department of Agriculture, has used a parasitic wasp on his farm to control beetles and flies and reduce his herbicide applications in the process.[115] Another grower estimates that a new sprinkler system has reduced his fertilizer use by two-thirds.[116]

B. THE GREEN STRIPE PROGRAM

In coordination with the Future Farmers of America (FFA), the Monsanto chemical company provides incentives to farmers to encourage them to install buffer strips adjacent to waterways on their land.[117] In this unique program, which began in 1992 with a demonstration program in Wisconsin, FFA chapters recruit farmers to join the program and document each farmer's participation.[118] In return, Monsanto provides small monetary awards to the chapters for each green stripe installed and to the best chapter in each state.[119] The United States Fish and Wildlife Service matches Monsanto's contribution.[120] Chapters that develop extra programs exceeding the minimum requirements of Green Stripe are eligible for the "best chapter" distinction.[121] Agricultural retailers throughout the East and Midwest provide up to one acre of free grass seed per participating farmer.[122] As a result, the cost of the buffer strips appear to be transferred from the farmer to the companies donating the grass seed.

The Green Stripe program offers several benefits. First, it has a strong educational component. Both the FFA chapter members and the landowners are bound to learn about the physical and sociological reasons for controlling runoff.[123] In fact, each of the first three "Best in the Nation" award-winning FFA chapters made scrap books detailing the results of their projects at various stages, authored research papers on sedimentation and erosion, presented their efforts at trade shows and fairs, and held field days during which they demonstrated their work and discussed the use of

112. Conservation tillage is defined as "any tillage or planting system that maintains at least thirty percent of the soil surface covered by residue after planting to reduce soil erosion by water, and in areas where soil erosion by wind is the primary concern, the maintenance of at least 1,000 pounds per acre of flat, small grain residue equivalent, on the surface during the critical erosion period." ENVIRONMENTAL PROTECTION AGENCY, *Mulch-Till Most Common Conservation Tillage Practice*, NONPOINT SOURCE NEWS-NOTES ISSUE 11, Mar. 1991, at 3.

113. *Voluntary Initiatives at Work in the West*, RUNOFF REP., Sep./Oct. 1995, at 3.

114. *Id.*

115. *Id.* at 4.

116. *Id.* at 4.

117. FORUM, *supra* note 81, at 41.

118. *Id.*

119. *Id.*

120. *Grassroots At Its Best*, RUNOFF REP., Feb. 1998, at 20.

121. *See id.*

122. *Id.*

123. *Id.*

BMPs.[124] Secondly, it is replicable across a variety of sites. Indeed, agricultural retailers throughout the South and Midwest, where farming practices differ significantly, have committed to the program.[125] In addition, 103 FFA chapters from twenty-two states had committed to participate.[126] Finally, the Green Stripe program is a prominent example of the type of incentive program that can benefit industry sponsors, impact water quality, and not impose a financial burden on the landowner. As a demonstration project, its success was never intended to be measured in terms of water quality improvements but in terms of public awareness and participation.[127]

VII. OBSERVATIONS AND POLICY RECOMMENDATIONS

A. VOLUNTARY EFFORTS MAY REDUCE THE NEED FOR LAND-USE CONTROLS

There exists a degree of debate over how much of the national NPS policy should center on land-use regulation, and if in fact it is possible to regulate nonpoint sources. Whereas it is impossible to regulate all nonpoint sources, regulation of subcategories such as agriculture may be possible to some degree. Section 208 requires that the state plans include a process to "set forth procedures and methods (including land use controls) to control to the extent feasible such sources."[128] Yet, most state programs fail to include such regulatory controls.[129] Section 319 also contains ambiguous language with respect to regulatory mandates.[130] Each management program must include "an identification of programs (including, as appropriate, nonregulatory and regulatory programs for enforcement . . .)."[131] Because of this weak construction, it appears that the greatest NPS gains in the near term may come by way of voluntary initiatives. Some argue that although federal funding has constituted enough incentive to get the states to submit Section 319 programs, the EPA has no mechanisms to make the states impose unpopular land use requirements.[132] The nature of NPS pollution makes it difficult for state EPA offices to write permits for every agricultural field as they have done for point sources. According to one article, "[t]he very nature of nonpoint source pollution makes it difficult to imagine how such an approach would work . . . [and] [t]here is no effective way to regulate every parking lot, cultivated field or back yard."[133]

Given the pervasiveness of NPS pollution and the EPA's failure to enforce the few NPS provisions contained in Section 319, a new national

124. *Id.*
125. *Id.*
126. *Id.*
127. *Id.*
128. 33 U.S.C. § 1288 (b) (2) (f).
129. R. BECK & C. GOPLERUD, WATERS AND WATER RIGHTS § 234.2 (B) (3d. ed. 1988).
130. Gould, *supra* note 6, at 490.
131. 33 U.S.C. § 1329 (b) (2) (B).
132. Gould, *supra* note 6, at 495.
133. Selzer & Wilcher, *supra* note 90, at 14.

policy for agricultural nonpoint source pollution is in order. If the physical extent of the NPS problem as indicated by the National Water Quality Inventory were not enough to indicate the need for new action, there is also an economic argument.

With the current NPS programs, to significantly improve water quality, the EPA would have to ratchet down the level of point source emissions to such a stringent level that businesses would have difficulty operating.[134] Instead, EPA maintains the current point source effluent levels and national water quality suffers. Money spent on point sources may be inefficiently spent because of unabated NPS pollution.[135] Instead, incremental improvements in NPS levels would be more cost-effective than equivalent improvements in point source emissions.[136] In other words, a certain amount of money invested in NPS control should result in much greater water quality improvements than the same amount applied to point source pollution. Although this economic argument is not an endorsement of public-private programs, it does indicate that a new policy toward nonpoint sources is in order.

Whatever the reasons for the lack of focus on NPS pollution, EPA should foster voluntary programs in partnership with industry leaders to make gains where funds can be used most effectively. Thus, the state programs should promote voluntary implementation of BMPs as a way of avoiding extensive regulation. Ideally, programs such as the Forum would make a variety of BMP's available so that the farmer will have several models from which to choose.[137] The Western Barley Growers Project and the Monsanto Green Stripe program are two examples of locally effective, industry-sponsored initiatives that could serve both voluntary and regulatory ends.

Many analysts call for regulatory action without considering the political impracticality of requiring the state or the landowner to finance the regulation.[138] Others argue that a widespread regulatory regime in which every farmer receives a permit to discharge only so much runoff is necessary.[139] Neither scenario may be possible.[140] Land use control will only be possible if innovative funding mechanisms such as public-private partnerships alleviate the cost of implementation. Indeed, the Forum's demonstration projects reveal that, in many instances, these controls are feasible because they are cost-effective for the farmer.

134. *See generally* Karen B. Carter, *Protecting our Investment in Clean Water*, 57 J. WATER POLLUTION CONTROL FED'N 106, 107 (Feb. 1985).

135. *Id.*

136. *See id.* at 106.

137. *See generally* FORUM, *supra* note 81.

138. *See generally* Rogers & Rosenthal, *supra* note 5, at 11.

139. *Id.*

140. *Id.*

B. The EPA Must Enforce the Content of State Plans

The CWA must require the states to implement their NPS programs according to what is contained within Section 319. All too often, the states have submitted ineffective Section 319 plans only to receive approval and federal funding.[141] In addition, Section 319 requires preparation and submittal of a management plan, but it fails to require the states to implement the plan by a given date.[142] Although the states are not required to impose land-use regulations on landowners, EPA should require state plans to address NPS in some fashion.

Watershed planning is an example of a substantive area in which EPA could control the content of state plans. In keeping with its failure to regulate state programs, the EPA has allowed the states to practically ignore Section 319's watershed approach requirement.[143] A study conducted in 1992 examining ten sample state programs found that the majority does not implement a watershed approach to NPS control.[144]

Some propose that watershed planning should be included in every state's plan because the states will not be able to manage nonpoint source loadings until they consider that NPS pollution is a result of runoff flowing over land and into water bodies (not to mention groundwater and groundwater recharge to surface waters) without regard to political boundaries.[145] States that share watersheds must develop management plans collectively to assess where nonpoint loadings can be most cost-effectively addressed. Often corrective measures taken in one jurisdiction are rendered useless because a downstream state allows its waters to degrade unabated.[146] Furthermore, the relative impacts of NPS pollution on a receiving water body are determined largely by the source's location within the watershed.[147] Using a holistic view of the watershed, states can encourage landowners to implement voluntary BMPs in those regions.

C. Reasonable Implementation Schedule

Although the reauthorized CWA must continue to require the states to set implementation schedules for their Section 319 programs, the CWA should contain reasonable deadlines that encourage the states to take their plans seriously. Unreasonable deadlines usually engender a range of nega-

141. Adler et al., *supra* note 33, at 190-91.

142. Charles W. Howe, *An Evaluation of U.S. Air and Water Policies*, Environment, Sept. 1991, at 32.

143. Adler et al., *supra* note 33, at 189. As mentioned *supra* in the text accompanying note 68, Section 319 (b) (4) requires states to develop and implement their management programs "to the maximum extent practicable" on a watershed-by-watershed basis.

144. *Id.*

145. John H. Davidson, *Thinking About Nonpoint Sources of Water Pollution and South Dakota Agriculture*, 34 S.D. L. Rev. 20, 49 (1989).

146. For a description of a prominent interstate and international pollution situation, *See* Taylor Miller et al., The Salty Colorado 25-30 (1986).

147. William Goldfarb, *Watershed Management: Slogan or Solution?*, 21 B.C. Envtl. Aff. L. Rev. 483, 495 (1994).

tive reactions from a variety of constituents and often lead to delays.[148] Reasonable deadlines resemble "progress milestones" in that they are linked to water quality improvements rather than being just administrative requirements. For example, a state should be considered to have attained its "progress milestone" when, by a given date, the water quality in a particular waterway has improved by a previously determined amount.

VIII. CONCLUSION

The failure of Section 319 can be attributed to delays in federal funding and the Act's lack of regulatory "teeth." Congress has hesitated to pursue regulatory efforts because few analysts have suggested mechanisms with which land-use controls would not severely afflict the state or the landowner. Furthermore, nonpoint sources do not lend themselves to traditional permitting schemes. As a result, innovative public-private partnerships such as those espoused by the National Forum on Nonpoint Source Pollution effectively provide incentives for individuals to participate voluntarily in control programs. Because of well-publicized efforts such as the Forum, industry representatives are realizing that involvement in public-private partnership programs can have both political and public relations benefits. These partnerships "show that we need not rely on prescriptive policies, but instead can concentrate our efforts on cooperative ventures that engage the resources of the public sector and the private sector to achieve a shared goal at the least cost."[149]

Although innovative programs such as those espoused by the Forum provide opportunities for farmers to meet NPS requirements, these voluntary programs should be backed up by enforcement mechanisms.[150] A combination approach that offers farmers incentives to chose an innovative management strategy coupled with an enforcement mechanism to ensure some form of NPS control by the states is tantamount to a compromise between traditional regulation and the current, largely ineffective nonregulatory program.

148. *See generally* John P. Dwyer, *The Pathology of Symbolic Legislation*, 17 ECOLOGY L. Q. 233 (1990).

149. William K Reilly, *Environmental Protection at a Profit*, DIRECTORS & BOARDS, Summer 1992, at 16.

150. *See generally Id.* "The likelihood of tough effective enforcement, in fact, is a prerequisite for our promising environmental initiatives." *Id.*