Nonpoint Source Pollution, Groundwater, and the 1987 Water Quality Act: Section 208 Revisited?

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COMMENTS

NONPOINT SOURCE POLLUTION, GROUNDWATER, AND THE 1987 WATER QUALITY ACT: SECTION 208 REVISITED?

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I. INTRODUCTION

Legislative attempts to address water pollution historically have focused on point source discharges into surface waters. Animal feedlots, and factory and sewage plant outfalls were easy to identify, and technologies to control them readily available. Thus, the Federal Water Pollution Control Act[1] (Clean Water Act) outlined an extensive national system of effluent and ambient standards for point sources,[2] while leaving regulation of nonpoint sources to the states.

In recent years, members of Congress and others have recognized that the government cannot fully address water pollution without a concentrated effort to curb nonpoint sources (NPS).[3] Agriculture, silviculture, and other land uses contribute heavily to the country's water pollution, but the diffuse nature and wide variety of such sources have hampered control efforts. Incidents of contamination have made national and state officials acutely

1. Federal Water Pollution Control Act, 33 U.S.C. §§ 1251-1387 (1982 & Supp. V 1987).

2. 33 U.S.C. § 1311 (1982).

3. A 1984 report found that the majority of states ranked nonpoint sources as the major cause of all water pollution. The report covered the decade from 1972 to 1982 and was based on extensive data provided by the states. THE ASSOCIATION OF STATE AND INTERSTATE WATER POLLUTION CONTROL ADMINISTRATORS (in cooperation with the U.S. ENVIRONMENTAL PROTECTION AGENCY), AMERICA'S CLEAN WATER: THE STATES' EVALUATION OF PROGRESS 1972-1982 (1984).

aware of the vulnerability of groundwater to nonpoint source pollution, and a number of states have developed programs to protect threatened aquifers.[4]

When Congress amended the Clean Water Act in 1987, it included a new provision: a national nonpoint source control program.[5] Section 319[6] of the amendments, which Congress called the Water Quality Act (WQA), requires states to assess waters needing additional action to control nonpoint sources of pollution, and to identify nonpoint sources "significantly" contributing to the pollution in those waters.[7] It also asks states to develop programs for managing and correcting the NPS problems identified in the assessment reports. Such programs, however, are not required.[8] Furthermore, the 1987 Act requires only secondary attention to nonpoint source contributions to groundwater pollution, continuing the Clean Water Act tradition of focusing on surface waters.

In Oregon, where urban runoff and large-scale agricultural and silvicultural activities cause an estimated sixty to seventy percent of the state's water pollution,[9] the state's section 319 as-

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4. A recent survey found that 38 states and territories had developed, or were developing, a groundwater protection policy or strategy, and 22 states had developed standards for groundwater resources. OFFICE OF WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY, NATIONAL WATER QUALITY INVENTORY, 1986 REPORT TO CONGRESS 63 (1987) [hereinafter INVENTORY]. The majority of the groundwater programs included at least one of four different activities: groundwater mapping and resource assessment (91%); groundwater monitoring (82%); policy and strategy development (68%); and some form of source control program. *Id.* at 62.

5. Section 208 of the Federal Water Pollution Control Act of 1972 encouraged state and local governments to identify nonpoint pollution sources and to develop means to control those sources. But the program was largely voluntary, and federal funding was never adequate. *See* text accompanying notes 39-56.

6. Water Quality Act of 1987, § 319, 33 U.S.C. § 1329 (Supp. V 1987).

7. *Id.* § 1329(a) (Supp. V 1987).

8. The guidance document EPA issued to the states for implementing § 319 specified that funds available to the states under § 205(j)(5) for implementation of § 319 would not be available for that purpose unless the state's NPS Assessment Report and Management Program were approved. OFFICE OF WATER REGULATIONS AND STANDARDS, U.S. ENVIRONMENTAL PROTECTION AGENCY, NONPOINT SOURCE GUIDANCE 26 (1987) [hereinafter GUIDANCE]. Any part of the § 205(j)(5) funds—one percent of each state's publicly owned sewage treatment construction grant allotment or $100,000, whichever is greater—not used by a state for NPS programs, would be reallocated to other states. *Id.* at 28.

9. Interview with John E. Jackson, Non-Point Source Coordinator, Water Quality Division, Oregon Department of Environmental Quality (Sept. 23, 1988).

sessment report[10] evaluated the mainstems and most important tributaries of Oregon's 90,000 total miles of rivers and streams. The report found that approximately fifty-five percent of the stream miles evaluated had one or more NPS-caused water quality problems, resulting in either a moderate or severe impact on a beneficial use.[11] Section 319 does not require states to include nonpoint source pollution of groundwater in their assessment reports, and Oregon's draft assessment report devotes less than a full page to that important topic.[12]

In section 319, Congress promised to provide $400 million, including groundwater protection grants, over a four-year period, to states (or groups of states) to implement NPS management programs.[13] On November 9, 1989, President Bush signed H.R. 2916, an appropriations bill that gives EPA $40 million for state NPS grants under section 319.[14]

This Comment assesses the significance of section 319 by comparing it to section 208 of the Clean Water Act—the previous effort to address nonpoint source pollution—and analyzing the language of the 1987 amendments. It also evaluates section 319 as

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10. WATER QUALITY DIVISION, OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, 1988 OREGON STATEWIDE ASSESSMENT OF NONPOINT SOURCES OF WATER POLLUTION RESULTING IN BENEFICIAL USE IMPAIRMENT (draft 1988) [hereinafter DRAFT].

11. *Id.* at 2. "Beneficial" use is said to be interchangeable with "designated" use, and is defined as "[t]he reasonable use of water for a purpose consistent with the laws and best interest of the peoples of the state." *Id.* at 14.

12. *Id.* at 41-42. Other studies prepared by DEQ under the Clean Water Act assess groundwater quality in more detail. See, e.g., OREGON 1986 WATER QUALITY PROGRAM ASSESSMENT AND PROGRAM PLAN FOR FISCAL YEAR 1987, prepared pursuant to § 305(b) of the Clean Water Act, which devotes 32 pages to an assessment of state groundwater quality. Such reports are prepared biennially.

13. 33 U.S.C. § 1329(j) (Supp. V 1987).

14. H.R. REP. No. 297, 101st Cong., 1st Sess. 29 (1989). The Oregon Department of Environmental Quality made clear in its NPS management report its position that an effective NPS pollution control program depends on adequate funding. WATER QUALITY DIVISION, OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, NONPOINT SOURCE STATEWIDE MANAGEMENT PLAN FOR OREGON (draft Nov. 1988) [hereinafter PLAN]. In a section on funding, the report states,

> [i]f Oregon's NPS program is to be more than just a report gathering dust on the shelf, significant new funding commitments will be necessary. Lacking such commitments, those agencies that have cooperated in the development of this ambitious Management Plan cannot be expected to follow through with full implementation of a poorly funded NPS program workload.

Id. at 15. *See also infra* text accompanying notes 130-32.

applied by the state of Oregon, focusing on that state's attempt to organize its approach around land use categories and the possible use of Clean Water Act section 303 to reach nonpoint source reduction goals. In addition, the Comment analyzes the issue of nonpoint source pollution of groundwater—a problem given little attention in section 319—and examines Oregon's proposed groundwater protection program.

Part II examines the nature of nonpoint source pollution with respect to both surface and groundwater. Part III briefly discusses the history of the Clean Water Act, focusing on the failed effort to address NPS problems through section 208. Part IV analyzes section 319 of the Water Quality Act. Part V examines the NPS problem in Oregon, the state's response to section 319, and Oregon's legislative attempt to address the nonpoint source aspect of a growing groundwater contamination problem. Part VI concludes that section 319, like section 208 before it, relies too much on voluntary measures and does not adequately address the NPS impact on groundwater quality. This Comment also concludes that (1) Oregon's section 319 NPS management plan takes the right approach by structuring control efforts around distinct land uses, but lacks the important element of enforceability, and (2) Oregon's new NPS groundwater protection law relies too heavily on studies and voluntary implementation of best management practices.

II. NONPOINT SOURCE POLLUTION AND LAND USE

A. *Nonpoint Source Defined*

The Clean Water Act does not define "nonpoint source,"[15] but one author has defined it as "any source of water pollution or pollutants not associated with a discrete conveyance."[16] It in-

15. "Point sources" are defined in the Clean Water Act as "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." 33 U.S.C. § 1362(14) (1982). The point source/nonpoint source definition issue was addressed in Natural Resources Defense Council, Inc. v. Train, 396 F. Supp. 1393 (D.D.C. 1975), *aff'd*, 564 F.2d 573 (1st Cir. 1977), which held that EPA must carefully distinguish between point and nonpoint sources, and then apply the appropriate regulatory program.

16. 2 W. RODGERS, JR., ENVIRONMENTAL LAW: AIR AND WATER 146 (1986). The

cludes, but is not limited to, urban runoff, runoff from fields, forest lands, construction activities, mining activities, septic tank systems, and landfills.[17]

The primary pollutants from nonpoint sources include suspended solids, bacteria, nutrients, total dissolved solids, and toxics.[18] The most important nonpoint source pollutants are sediment (man-enhanced rather than natural), chemical fertilizers and pesticides, minerals and acids from active and abandoned mines, biodegradable pollutants, thermal pollutants, radioactive pollutants, microbial pollutants, spills of oil and other hazardous substances, and runoff of plant, animal, salt and other chemicals from farming, road maintenance, commercial and industrial sites.[19] Of those contaminants, the one contributing the most to nonpoint source pollution is sediment resulting from erosion.[20] Sediment can carry several other agricultural nonpoint source pollutants, including plant nutrients, pesticides, and plant and

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authors of another study suggest that,

> [b]y process of exclusion, EPA refers to nonpoint sources as: (1) generated by diffused land use activities, not identifiable activities; (2) conveyed to waterways through natural processes such as storm runoff or ground water seepage, rather than by deliberate, controlled discharge; and (3) not susceptible to "end of pipe" treatment, but controllable by changes in land management or process practices.

March, Kramer & Geyer, *Nonpoint Source Water Pollution and Section 208 Planning: Legal and Institutional Issues*, 1981-1982 AGRIC. L.J. 324, at 333. EPA's guidance document for the § 319 program notes that legal and regulatory decisions have sometimes resulted in certain sources being assigned to either the point or nonpoint source categories because of considerations other than their manner of discharge. For example, irrigation return flows are designated as "nonpoint sources" by § 402(1) of the Clean Water Act, even though the discharge is a discrete conveyance. GUIDANCE, *supra* note 8, at 3.

17. INVENTORY, *supra* note 4, at 15. When urban runoff, construction site runoff, and runoff associated with industrial activities, resource extraction, certain feedlots and waste disposal units is collected and discharged from a discrete conveyance such as a storm sewer, the discharge becomes a point source. 53 Fed. Reg. 49,416, 49, 431 (1988) (to be codified at 40 C.F.R. pt. 122-24, 504) (proposed Dec. 7, 1988). Section 405 of the 1987 Water Quality Act created a new provision, § 402(p), which requires the EPA Administrator to issue regulations to address stormwater discharges under the NPDES permit program. 33 U.S.C. § 1342(p) (Supp. V 1987).

18. INVENTORY, *supra* note 4, at 15.

19. *Id.*

20. OFFICE OF WATER AND HAZARDOUS MATERIALS, U.S. ENVIRONMENTAL PROTECTION AGENCY, COMPILATION OF FEDERAL, STATE AND LOCAL LAWS CONTROLLING NONPOINT POLLUTANTS 1 (1975).

animal pathogens.[21]

One study estimated that nonpoint sources account for up to ninety-nine percent of suspended solids and from fifty to ninety percent of other conventional pollutants.[22] Another study suggested that nonpoint sources cause up to fifty percent of the water pollution by toxics.[23] Responding to an EPA request, the states recently estimated that, of their total polluted surface waters, nonpoint sources were responsible for seventy-six percent of lake pollution, sixty-five percent of stream pollution, and forty-five percent of estuary pollution.[24]

B. NPS Pollution: An Underregulated Problem

1. Point v. Nonpoint Sources

Most point sources are easily identified, and the effluent reduction technology required by the Clean Water Act has reduced point source pollution.[25] The numeric effluent limitations of the Clean Water Act,[26] however, are not as well-suited to controlling nonpoint sources, which are often intermittent and generated by a variety of land use practices. Non-point sources "are less ame-

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21. Note, *Agricultural Non-Point Source Water Pollution Control Under Sections 208 and 303 of the Clean Water Act: Has Forty Years of Experience Taught Us Anything?*, 54 N.D.L. REV. 589, 593 (1978).

22. CONSERVATION FOUNDATION, STATE OF THE ENVIRONMENT: AN ASSESSMENT AT MID-DECADE 123 (1984), *quoted in* 2 W. RODGERS, JR., *supra* note 16, at 124-25.

23. *Clean Water Act Amendments: Nonpoint Source Management Program, Hearings Before the Senate Comm. on Environment & Public Works*, 98th Cong., 1st Sess. 44 (1983), *quoted in* 2 W. RODGERS, JR., *supra* note 16, at 125. In a 1986 article, EPA Administrator Lee Thomas noted that six out of ten EPA regions reported that nonpoint sources were the main cause of poor water quality. Thomas, *Why Worry About Nonpoint Pollution?*, EPA J., May 1986, at 2.

24. INVENTORY, *supra* note 4, at 3. In Oregon, a 1978 study by the state found that nonpoint source pollution "severely affected" several areas in the state. The major problems identified were fecal coliform bacteria, sediment, nutrients, elevated water temperatures, and low streamflows, resulting from agriculture, silviculture, urban runoff, animal wastes, and construction. DRAFT, *supra* note 10, at 42.

25. INVENTORY, *supra* note 4. The report states that "[p]rogress in reducing the impacts of point sources to the Nation's waters has been well documented." *Id.* at 6.

26. Section 301 requires that effluent limitations for point sources must incorporate the "best practicable control technology currently available," as specified by the Administrator under § 304(b). 33 U.S.C. § 1251(b) (1982).

nable to add-on technologies because they require behavior adjustments in land use activities—such as agriculture, mining, forestry, and construction—that cause run-off into streams."[27]

The federal government has not been willing to create the kind of statutory authority necessary to force those "behavior adjustments." As one author notes, Congress has been reluctant to regulate pollution resulting from land use because "land use is commonly considered a purely local concern."[28]

2. *Groundwater*

Approximately thirty percent of the country's stream flow is supplied by groundwater emerging as natural springs.[29] Under certain conditions, seepage from lakes, rivers, streams, reservoirs and canals may recharge aquifers.[30] Thus, surface water quality and groundwater quality are closely related. Once an aquifer has been contaminated, cleanup is complicated, time-consuming, and very expensive.[31] While cleanup is feasible in some cases, often the cheapest alternative is to abandon the aquifer and locate a new source of water.[32] Generally, the best strategy is prevention, not curative action.[33]

Awareness of surface water pollution is not new, but recognition of groundwater contamination is relatively recent.[34] Not

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27. F. ANDERSON, D. MANDELKER & A. TARLOCK, ENVIRONMENTAL PROTECTION: LAW AND POLICY 344 (1984).

28. Note, *State and Federal Land Use Regulation: An Application to Groundwater and Nonpoint Source Pollution*, 95 YALE L.J. 1433 (1986).

29. R. PATRICK, E. FORD, & J. QUARLES, GROUNDWATER CONTAMINATION IN THE UNITED STATES 2 (2d ed. 1987). "Groundwater is water that occurs in saturated non-consolidated geologic material (sand or gravel) and in fractured and porous rock." *Id.* at 21. The saturated strata are called aquifers, which are of two basic types: confined and unconfined. An unconfined aquifer is not overlain by impermeable material, and precipitation may percolate down to the water table. Confined aquifers are bounded on the top and bottom by layers of relatively impermeable geologic formations. Most confined aquifers have recharge areas where the geologic material of the aquifer meets the surface. *Id.* at 2-3.

30. *Id.*

31. *Id.* at 10.

32. *Id.* The authors note that costs range from several thousand to several billion dollars, and are determined by many factors specific to the site. *Id.* at 11.

33. *Id.* at 11.

34. CONSERVATION FOUNDATION, STATE OF THE ENVIRONMENT: A VIEW TOWARD THE NINETIES 96 (1987). The authors state, "[t]hat groundwater is sometimes seri-

much is known about the overall quality of groundwater in the United States because of groundwater's relative inaccessibility and the lack of any systematic or long-term monitoring. What is known is that over half of the American population depends on groundwater for its supply of drinking water,[35] and that the number of incidents of aquifer contamination and well closures has been increasing.[36]

Nonpoint sources from a variety of land use activities are major contributors to groundwater pollution.[37] Congress and state governments have been reluctant to regulate NPS pollution of both groundwater and surface waters because that pollution is caused primarily by local land use activities.[38] It is becoming in-

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ously contaminated from human activities is a fairly recent realization." *Id.* For years, it was assumed that groundwater was protected from contamination by "impervious layers of subsoil, rock, and clay, and also by the soil's own degradation processes." Barles & Kotas, *Pesticides and the Nation's Ground Water*, EPA J., May 1987, at 42. That assumption was challenged by the discovery of the pesticide dibromochloropropane in approximately 2500 wells in California and in the groundwater of four other states, by the discovery of the pesticide Aldicarb in wells on Long Island in 1979 and subsequently in Wisconsin and eleven other states. *Id.* "The discovery of EDB [ethylene dibromide]-contaminated wells in California, Georgia, and other states in 1982 and 1983 raised concerns to new levels." *Id.*

35. INVENTORY, *supra* note 4, at 59. The report states that groundwater serves as the principal source of drinking water in nearly 68% of the states and territories, and that five of those depend on it for 90% or more of their drinking water needs. *Id.* The authors comment, "[f]or these states and territories, and for many of the nation's rural areas, groundwater protection is essential since alternative sources of water may not be physically, legally, or economically available." *Id.*

36. CONSERVATION FOUNDATION, *supra* note 34. The authors note that water in 8000 private, public, and industry wells was reported in 1984 to be unusable or degraded due to some form of contamination. *Id.*

37. Note, *supra* note 28, at 1433. Agriculture is one of the biggest culprits. In 1986, 41 states reported that agricultural activities were a major source of their groundwater contamination. INVENTORY, *supra* note 4, at 60-61. Agricultural activities ranked behind only septic tanks and underground storage tanks in the list of contamination sources. Yet, one author notes that Congress "has explicitly exempted agricultural activities and the wastes they generate from a number of environmental regulations." Note, *Groundwater Pollution From Agricultural Activities*, 7 STAN. ENVTL. L.J. 117, 135 (1987-88) [hereinafter *Groundwater Pollution*].

38. Note, *supra* note 28, at 1433. Several federal statutes contain provisions relating directly or indirectly to groundwater protection: the Clean Water Act, the Safe Drinking Water Act, the Federal Insecticide, Fungicide, and Rodenticide Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation, and Liability

creasingly clear, however, that if nonpoint source pollution of both surface and groundwater is to be reduced, federal or state governments (or both) must tighten land use controls and educate landowners to consider water quality when they make land use decisions.

III. The Clean Water Act and Section 208

A. *The Regulatory Scheme of the Clean Water Act*

Federal water pollution control efforts have never given nonpoint sources the attention they deserve, focusing instead on methods to control point sources. Indeed, until passage of the Federal Water Pollution Control Act Amendments of 1972 (the Clean Water Act) Congress did not address nonpoint sources at all.[39] The Clean Water Act created technology-based effluent controls, adopting the "no discharge" philosophy of the Rivers and Harbors Appropriations Act of 1899.[40] The Clean Water Act cre-

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Act. None, however, addresses nonpoint source pollution in a comprehensive fashion.

One author has commented that EPA plays an "important but notably limited" role in protecting the nation's groundwater under those statutes, and argues that the "fragmented, piecemeal nature of the current statutory structure, together with the [EPA's] obvious reluctance to assume primary responsibility for groundwater protection, poses [sic] serious obstacles to the implementation of effective groundwater policies." *Groundwater Pollution, supra* note 37, at 134-35. The federal law's protection of underground water quality, Professor Rodgers noted, "is tentative, incomplete, and obscure." 2 W. Rodgers, Jr., *supra* note 16, at 111.

39. Until 1948, the federal government played a limited role in water pollution control. F. Anderson, D. Mandelker & A. Tarlock, *supra* note 27, at 339. In that year, Congress passed the Federal Water Pollution Control Act, which "modestly expanded" the federal role, authorizing loans for the construction of treatment works. *Id.* Congress amended the Act in 1956, adding a federal grant program to assist the states in pollution control and the building of treatment plants, and again in 1965 to require states to establish water quality standards applicable to interstate waters. 2 W. Rodgers, Jr., *supra* note 16, at 10.

40. 2 W. Rodgers, Jr., *supra* note 16, at 9-14. Section 13 of the Rivers and Harbors Act prohibits the discharge of "any refuse matter of any kind or description whatever, [other] than that flowing from streets and sewers and passing therefrom in a liquid state," without a permit from the Secretary of the Army. 33 U.S.C. § 407 (1982). Section 301(a) of the 1972 Federal Water Pollution Control Act Amendments declares that "the discharge of any pollutant by any person shall be unlawful," except where permits are acquired under various provisions of the Act. *Id.* § 1311(a).

ated the National Pollution Discharge Elimination System (NPDES), which makes it illegal to discharge a pollutant from a point source without obtaining and complying with a permit.[41]

The 1972 amendments, in section 208, addressed nonpoint sources in a much less direct fashion.[42] Section 208 asked states to draft areawide waste treatment management plans,[43] which would include procedures for identifying nonpoint source pollution from agriculture and silviculture, mining, and construction.[44] It also asked the states to set forth procedures and methods, including land use requirements, to control such sources "to the extent feasible."[45] Federal funding for the implementation and development of section 208 plans ended in 1980.[46]

When Congress amended the Clean Water Act again in 1977, it added the Rural Clean Water Program, which offered financial incentives to rural landowners to implement "best management practices"(BMPs) in controlling nonpoint source pollution from their lands.[47] Congress never funded that program as planned,[48] but it implements best management practices on a cost-share basis with voluntary contracts between landowners and the Secretary of Agriculture.[49]

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41. 33 U.S.C. § 1342(a)(1) (1982).

42. Comment, *Enforcement of Section 208 of the Federal Water Pollution Control Act Amendments of 1972 to Control Nonpoint Sources of Pollution*, 14 LAND & WATER L. REV. 419, 425 (1979).

43. 33 U.S.C. § 1288(b)(1)(A) (1982).

44. *Id.* § 1288(b)(2)(F)-(H) (1982).

45. *Id.*

46. Jurgens, *Agricultural Nonpoint Source Pollution: A Proposed Strategy To Regulate Adverse Impacts*, 2 J. LAND USE & ENVTL. L. 195, 201 (1986).

47. 33 U.S.C. § 1288(j) (1982). These were to include technical assistance from the Secretary of Agriculture and up to 50% of the cost of carrying out conservation practices specified in the contract. *Id.* § 1288(j)(2). The EPA has defined "best management practices" as

> methods, measures, or practices selected by an agency to meet its nonpoint source control needs. BMPs include but are not limited to structural and nonstructural controls and operation and maintenance procedures. Landowners can apply BMPs before, during and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters.

40 C.F.R. § 130.2(l) (1988).

48. 2 W. RODGERS, JR., *supra* note 16, at 140-41.

49. Comment, *The Clean Water Act and Agricultural Water Pollution*, 31 S.D.L. REV. 462, 466 (1986). In 1979, EPA issued regulations which consolidated

B. The Failed Section 208 Program

Section 208 allows states almost unlimited discretion over the control of nonpoint sources of pollution.[50] While EPA strictly enforces effluent limitations and discharge permits for point sources under sections 301 and 402, Congress gave EPA virtually no power under section 208 to enforce the central element of the Clean Water Act's nonpoint source program: the Areawide Waste Treatment Management Plan.[51] If a state failed to submit such a plan, EPA had no authority to establish one on its own.[52] Furthermore, the statute gave EPA, the states, and planning agencies broad discretion to determine the degree and type of nonpoint source control to implement.[53] It gave EPA no authority to en-

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several Clean Water Act sections into a single process called the Water Quality Management (WQM) Process. Under WQM, plans must identify pollution control approaches for nonpoint sources, and also must describe the control approach selected, the implementation schedule, and the proposed management agencies for each control approach chosen. Landowner participation, however, is voluntary. *Id.* at 467.

50. This is consistent with the general philosophy of the Clean Water Act, as stated in § 101(b):

> [i]t is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution, to plan the development and use . . . of land and water resources, and to consult with the Administrator in the exercise of his authority under this Chapter.

33 U.S.C. § 1251(b) (1982).

51. *Id.* § 1288(a)-(b) (1982).

52. Pedersen, *Turning the Tide on Water Quality*, 15 ECOLOGY L.Q. 69, 80 n.54 (1988). Section 208(b)(4)(D) allows the EPA Administrator to withdraw approval of a § 208 plan in the event of a "substantial failure" by the state to administer the program as required. In addition, § 208(d) gives the Administrator authority to withhold § 201(g)(1) grants for construction of publicly owned treatment works from designated planning agencies unless those works are in conformity with the areawide plan. 33 U.S.C. § 1288(d) (1982).

53. Lazarus, *Nonpoint Source Pollution*, 2 HARV. ENVTL. L. REV. 176, 183 (1977). The Clean Air Act, by contrast, gives EPA considerably more control over State Implementation Plans (SIPs). Under Title I, § 109 of the CAA, EPA sets primary and secondary national ambient air quality standards (NAAQS), and each state is required to submit a SIP outlining how it will attain the NAAQS. Pedersen, *Why the Clean Air Act Works Badly*, 129 U. PA. L. REV. 1059, 1072 (1981). If the SIP is approved by EPA, it then becomes enforceable by EPA, the states, and private citizens under §§ 113 and 304. 2 ENVIRONMENTAL LAW INSTITUTE, LAW OF ENVIRONMENTAL PROTECTION § 11.02(2)(c) (1987). The SIP process "creates an administrative system for implementing the state-federal partnership that recognizes state sovereignty, but gives EPA theoretical control of every key

force the NPS control provisions required to be included in areawide waste treatment plans.[54]

Most commentators agree that section 208 has failed to make a dent in the NPS pollution problem. The authors of one study called it "a 'toothless' system of incentives and planning to acquire private and state cooperation in dealing with nonpoint source pollution."[55] Another study concluded that the federal government "would have had to have mandated new local land use control and agricultural practices standards" if it had wanted to move aggressively against nonpoint source pollution, and it was not willing to do that in 1972.[56]

IV. THE WATER QUALITY ACT'S NPS PROGRAM

A. The Legislative Backdrop

Growing recognition of the general success of point source regulation and the corresponding failure of nonpoint source regulation was one of the major factors leading to passage of the Water Quality Act (WQA) of 1987. A Senate report accompanying the Clean Water Act Amendments of 1985 stated,

> [d]uring the course of the Clean Water Act reauthorization process during the 98th Congress, it became clear that nonpoint source pollution could no longer be ignored . . . . As point sources are brought under control, nonpoint pollution looms as a larger and larger problem. The evidence of nonpoint pollution continues to grow.[57]

In debate on what would be passed as the Water Quality Act,

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decision. The result is a system of double regulation, intrusive federal oversight, and heavy federal pressure to conform." *Id.*

54. Pedersen, *supra* note 52. The enforcement section of the Clean Water Act, § 309, provides for both civil and—under the 1987 Amendments—criminal penalties. 33 U.S.C. § 1319(b)-(c) (1982 & Supp. V 1987). The penalties, however, apply only to §§ 301, 302, 306, 307, 308, 318, and 405; §§ 208 and 319 are excluded.

Section 208 does offer incentives to states, in the form of discretionary grants and technical assistance for areawide waste treatment planning. *Id.* § 1288(f)-(h) (Supp. V 1987).

55. March, Kramer and Geyer, *supra* note 16, at 349. The same authors argue that the problem requires "stronger measures," perhaps including the use of permits and standards under a program patterned after the point source regulatory scheme.

56. F. ANDERSON, D. MANDELKER & A. TARLOCK, *supra* note 27, at 356.

57. S. REP. No. 50, 99th Cong., 1st Sess. 7-8 (1985).

Senator Baucus said,

> the real value of this legislation is the new provision representing a renewed commitment to the cleanup of nonpoint sources of pollution and establishing a national policy that programs for the control of nonpoint sources of pollution be implemented . . . . The problem of nonpoint source pollution is a national problem requiring a national solution.[58]

Whether Congress in fact delivered a real "national solution" to the nonpoint source pollution problem in passing the Water Quality Act of 1987 is debatable. It is perhaps too early to assess results as many states are just now finalizing programs required under the Act, and Congress has only recently appropriated funding. An examination of the statute and the guidance document EPA provided the states to implement the NPS provisions suggests, however, that it is an incremental step rather than a bold stride forward, and that Congress still has not made the difficult decisions[59] necessary to truly control and reduce nonpoint source pollution.

B. The Statutory Framework

1. Making NPS Pollution Control a Statutory Goal

The 1987 Amendments added a new nonpoint source goal to the policy section of the Act, section 101(a). Section 101(a)(7) states that "it is the national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner so as to enable the goals of this Act to be met through the control of both point and nonpoint sources of pollution."[60] Nonpoint source pollution control thus takes its place alongside the elimination of pollutant discharges into navigable waters, achievement of "fishable, swimmable waters," prohibition of toxic pollutant discharges, federal assistance to the

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58. 133 CONG. REC. S744 (daily ed. Jan 14, 1987) (statement of Sen. Baucus). No House or Senate report was submitted with the WQA, the presidential veto of which was overwhelmingly overridden by Congress.

59. One critic of the Water Quality Act's nonpoint source provisions argues that effective regulation of NPS, "may call for regulation of where and how people may farm, cut trees, or construct roads and buildings." Pedersen, *supra* note 52, at 71.

60. 33 U.S.C. § 1251(a)(7) (1982 & Supp. V 1987).

construction of waste treatment works, implementation of area-wide waste treatment planning processes, and development of pollution eliminating technology,[61] as an overriding purpose of the country's predominant water pollution control statute.

2. *State Assessments and Management Plans*

Section 319 requires the states to produce two major work products within eighteen months of enactment.[62] The first is an assessment report to identify (a) navigable waters not expected to attain or maintain water quality standards without additional NPS control, and (b) categories of, or particular, nonpoint sources that impair achievement of water quality standards. The report must also include a method for identifying best management practices (BMPs) and measures to reduce the level of pollution from nonpoint sources. Further, identification of state and local programs for controlling NPS pollution and improving the quality of each portion of the navigable waters must be addressed.[63] The second work product is a proposed management program which the states would implement within four fiscal years to control pollution flowing into the state's navigable waters.[64] The statute requires the program plan to contain three major elements: (1) proposed BMPs and measures to reduce pollution from nonpoint sources, taking into account the impact on groundwater quality; (2) programs to achieve implementation of those BMPs; and (3) a schedule of annual milestones for program implementation and BMPs.

C. *Section 319 Compared to Section 208: So What's New?*

The obvious question is whether section 319 of the amended Clean Water Act offers any tools for controlling NPS pollution that section 208 of the Clean Water Act did not already provide.[65]

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61. *Id.* § 1251(a)(1)-(6) (1982).

62. *Id.* § 1329(a)-(b) (Supp. V. 1987). EPA later extended the deadline for both to Aug. 4, 1989. Internal Memorandum from Martha G. Prothro, Director, Office of Water Regulations and Standards, to EPA Regional Water Management Division Directors (June 20, 1989).

63. *Id.* § 1329(a)(1).

64. *Id.* § 1329(b)(1).

65. Pedersen gives an unequivocal "no" to that question. "Although the 1987 amendments to the Clean Water Act add a new section on nonpoint source con-

Before attempting an answer, it might be useful to ponder one author's critique of section 208:

> The primary reason that Section 208 is not taken seriously by most states is because they don't *have* to. Section 208 ostensibly requires states to tell some very powerful constituencies—farmers, miners, and construction contractors—how to run their operations. Without some substantial encouragement by federal carrots or sticks, state governments are naturally going to shy away from such tasks.[66]

The issue then revolves around what carrots and sticks, if any, the federal government can use to enforce section 319 and ensure that states carry out the new national policy of implementing programs for NPS pollution control.

1. *Identification and Program Requirements*

Section 319 calls for identification of both nonpoint sources and of navigable waters, or portions thereof, whose water quality standards are threatened by those sources.[67] By contrast, section 208 required identification of nonpoint sources,[68] but did not require that those identified nonpoint sources be related to particular bodies of water.[69] To that extent, the Water Quality Act has gone a step beyond the Clean Water Act.

The 1987 Water Quality Act offers several new nonpoint source management approaches. Section 208 of the Clean Water Act required areawide plans to include procedures and methods—including land use requirements—to control nonpoint pollution sources resulting from the following types of activities: agriculture, silviculture, mining, and construction.[70] Section 208(b)(2)(D) required the plans to identify the measures (includ-

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trol, the management programs under this section do not differ significantly from § 208 plans." Pedersen, *supra* note 52, at 80 n.54.

66. 2 J. BATTLE, ENVIRONMENTAL LAW, WATER POLLUTION AND HAZARDOUS WASTE 215 (1986) (emphasis in original).

67. 33 U.S.C. § 1329(a)(1)(A)-(B) (Supp. V 1987).

68. *Id.* § 1288(b)(2)(F)-(H) (1982).

69. Section 302 requires that effluent limitations for point sources be established whenever the Administrator determines that pollution discharges would interfere with the attainment or maintenance of water quality in a specific portion of navigable waters. The section does not apply to nonpoint sources. *Id.* § 1312(a) (Supp. V 1987).

70. 33 U.S.C. § 1288(b)(2)(E)-(H) (1982).

ing financing) necessary to carry out the plan, and the time required for implementation.[71]

Section 319 also requires participating states to identify "best management practices" to reduce pollution from categories of nonpoint sources, and ways to implement them.[72] Under the 1987 Amendments, the state must take into account the impact of BMPs on groundwater quality,[73] another facet missing from the earlier nonpoint source legislation.[74] Also, unlike section 208 plans, section 319 program plans must contain scheduled annual milestones for BMPs and program implementation.[75]

Section 319 also introduces grants for protecting groundwater quality, with up to $150,000 available to a state per fiscal year.[76] The activities covered by this provision include research, planning, groundwater assessments, demonstration programs, enforce-

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71. *Id.* § 1288(b)(2)(D). *See supra* note 47 and accompanying text.

72. 33 U.S.C. § 1329(b)(2)(A) (Supp. V 1987). The BMP concept, however, is a vague one. That ambiguity makes it difficult for the regulator to set specific, enforceable standards of performance. As Professor Rodgers points out, "[s]ubscribers to the banner of 'best management practices' believe it means everything from control within the physical limits of possibility to control if convenient for the affected industry." 2 W. RODGERS, JR., *supra* note 16, at 329. That problem is compounded by the fact that EPA has tended to define BMPs in ways that suggest that the best practice is "that which is defined by appropriate procedures for a given occasion." *Id.* at 325-26.

Congress gave some indication of what it meant by best management practices in the report accompanying a Water Quality Act forerunner, the Clean Water Act Amendments of 1985. The report stated,

> [t]he term [BMPs] encompasses a broad array of management practices that can be undertaken, alone or in combination, to reduce nonpoint sources of pollution. For example, in soil conservation programs over 40 BMP's have been identified, including conservation tillage, grassed waterways, cover crops, undisturbed field perimeters near waterways, and terracing. . . . Simple and cost-free changes in agricultural practices, such as careful scheduling and application of fertilizer and pesticides, may reduce runoff of these pollutants, thereby resulting in cost savings to the farmer.

S. REP. No. 50, 99th Cong., 1st Sess. 35 (1985).

73. 33 U.S.C. § 1329(b)(2)(A) (Supp. V 1987).

74. Sections 302 and 303 of the Clean Water Act, which outline water quality effluent limitations and standards, apply only to navigable waters. *Id.* §§ 1312(a), 1313(b)(2)(A) (1982 & Supp. V 1987).

75. *Id.* § 1329(b)(2)(C). One author noted that "[a] major weakness of the CWA is the lack of a timetable for the implementation of plans with regard to non-point sources. A state must only identify, assess, and merely plan regulation of non-point water pollution sources." Note, *supra* note 21, at 596-97.

76. 33 U.S.C. § 1329(i) (Supp. V 1987).

ment, technical assistance, and education and training.[77]

Section 319 introduces new reporting and monitoring requirements for nonpoint source pollution management. States whose management programs are approved and funded must report annually to the Administrator on progress in meeting milestones.[78] In addition, section 319 requires the Administrator to report to Congress annually on activities and programs implemented under that section, and "the progress made in reducing pollution in the navigable waters resulting from nonpoint sources and improving the quality of such waters."[79] The Administrator also must submit to Congress in January of 1990 a detailed "final report" that describes progress made under section 319 since enactment.[80]

Section 208 required states to certify areawide plans as being "consistent" with applicable basin plans, and then to submit those plans to the Administrator for approval on an annual basis.[81] There was, however, no requirement that reports be submitted to Congress. Under section 319, ultimate oversight authority is given to Congress, rather than the states and EPA, thus allowing Congress to track progress closely.

As for section 319 funding, Congress authorized a total of $400 million in discretionary implementation grants over four years.[82] To be eligible, a state must have an approved management plan. The federal share of each management program cannot exceed sixty percent of the costs the state incurs in

77. *Id.* See Part V *infra* for a further discussion of this issue.

78. *Id.* § 1329(h)(11).

79. *Id.* § 1329(m)(1).

80. *Id.* § 1329(m)(2). The report must describe "at a minimum": management programs implemented by the states by types and amounts of affected navigable waters, categories of nonpoint sources, and types of BMPs being implemented; the experiences of the states in adhering to schedules and implementing BMPs; the amount and purpose of grants awarded for both management programs and groundwater protection; progress made in reducing pollutant loads and improving water quality in navigable waters; what further actions are needed to attain and maintain water quality standards in those navigable waters; recommendations of the Administrator concerning future programs (including enforcement programs) for controlling NPS pollution; and activities and programs of federal agencies and departments inconsistent with the management programs submitted by states. *Id.*

81. 33 U.S.C. § 1288(b)(3) (1982).

82. *Id.* § 1329(j) (Supp. V 1987).

implementation.[83]

2. Enforcement Provisions

Congress clearly showed its concern about nonpoint source pollution by amending the Clean Water Act to state that implementation of nonpoint source pollution control programs was a "national policy."[84] Unfortunately, Congress did not provide EPA with sufficient enforcement authority—enough "sticks"—to achieve that policy under section 319. That section repeats one of section 208's flaws: the failure to require states to submit and implement NPS plans. Thus, while the statute says that EPA "shall" prepare an *assessment* report for any state failing to submit one of its own,[85] there is no similar provision regarding a state's failure to submit a *management* program—which is the tool necessary to go beyond "more study" and achieve results.

The EPA Administrator can disapprove a submitted report and require that a new one be submitted,[86] but he or she has no authority to draft one if a state fails to do so. An alternative, following the pattern of section 208,[87] allows a local public agency or organization with expertise in NPS pollution control to request that the Administrator provide it with technical assistance to develop a management program.[88]

Furthermore, the statute gives EPA no authority either to mandate state NPS control measures or initiate enforcement actions against those found to be causing nonpoint source pollution

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83. *Id.* § 1329(h)(3).

84. 33 U.S.C. § 1251(a)(7) (1982 & Supp. V 1987). *See supra* note 60 and accompanying text.

85. *Id.* § 1329(d)(3) (Supp. V 1987).

86. *Id.* § 1329(d)(1)-(2). If the Administrator takes no action on a submitted report within 180 days it is deemed approved. *Id.* § 1329(d)(1). If the management report is disapproved, the Administrator must notify the state of any revisions or modifications necessary to obtain approval. The state is then given an additional three months to submit a revised report, which must be approved or disapproved within three months of receipt. *Id.* § 1329(d)(2).

87. 33 U.S.C. § 1314(a)(4) (1982). Under this provision, if the state fails to designate an organization to draft an areawide plan, the "chief elected officials of local governments within an area" can designate a local organization to draft the plan.

88. *Id.* § 1329(e) (Supp. V 1987).

of another state's waters.[89] Nor does it encourage the states to develop their own enforcement machinery. Congress may not want to intrude upon the states' land use prerogatives,[90] but the result is that, unless the participating state decides to independently enforce its NPS management program, the program will be voluntary.[91]

Section 319 does provide "carrots" for those states which submit acceptable management programs. Two related provisions

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89. The Clean Water Act's enforcement section, § 309, does not apply to § 319. 33 U.S.C. § 1319(a)(1) (1982).

90. One author, commenting on the § 208 program, noted that the Clean Water Act "reflects mixed concepts of federalism. Although the Act's 1972 amendments were in part a reaction to the states' failure to control water pollution, the Act continues to rely primarily on the states for its implementation." Comment, *Regulation of Nonpoint Sources of Water Pollution in Oregon Under Section 208 of the Federal Water Pollution Act*, 60 OR. L. REV. 184, 187 (1981).

91. It is possible that § 319's reporting requirements may prod Congress to create some enforcement authority. The Administrator must report annually to Congress on programs implemented and progress made during the preceding fiscal year in reducing NPS pollution. In 1990, the statute requires the Administrator to give Congress a final report which includes recommendations on future programs, including enforcement programs, for controlling pollution from nonpoint sources. 33 U.S.C. § 1329(m)(1)-(2) (Supp. V 1987). If little voluntary compliance and progress are made under the current structure, Congress may take a second look at the statute.

Interestingly, a 1987 Oregon consent decree may pave the way for states to use another provision of the Clean Water Act to force compliance with nonpoint source reduction programs. For a discussion of the 1987 Oregon consent decree involving the Tualatin River, see *infra* note 107 and accompanying text. Section 303(d)(1)(A) of the Clean Water Act requires states to identify those waters for which effluent limitations set under § 301 are not stringent enough to implement the applicable water quality standards for those waters. 33 U.S.C. § 1313(d)(1)(A) (1982 & Supp. V 1987). The state then must set a priority ranking for the waters based on the severity of the pollution and the uses to be made of the waters. Section 303(d)(1)(C) requires the states to establish the total maximum daily load (TMDL) for pollutants identified under § 304(a)(2). *Id.* § 1313(d)(1)(C). The TMDL must be established at a level "necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality." *Id.* The state must then submit that list to the EPA Administrator, and if the Administrator approves it, it becomes part of its "continuing planning process." *Id.* § 1313(d)(1)(D)(2). The U.S. General Accounting Office has criticized EPA for not implementing TMDL requirements, noting that EPA has generally met those requirements only when faced with legal challenges. U.S. GENERAL ACCOUNTING OFFICE, WATER POLLUTION: MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS 24 (1989).

of that section provide that: (1) the state must report annually to the Administrator on progress in reaching milestones and achieving nonpoint source pollution reduction,[92] and (2) the Administrator may make no renewal grants under section 319 unless he or she determines that the state has made "satisfactory progress" in meeting its section 319(b)(C) schedule.[93] Section 319 thus offers participating states the incentive of continued funding where progress is shown. Section 208, by contrast, did not require the states to report on their NPS programs, nor did it tie grant renewals to progress achieved with prior grants.

In any event, Congress still may be missing (or avoiding) the point. Evidence suggests that the only effective way to regulate nonpoint sources is through strong national or state land use planning legislation.[94] As Professor Battle wrote, Congress is trying to tell some "very powerful constituencies" how to run their operations.[95] It cannot do that without giving the state or local officials who ultimately must carry out the regulations some authority to back them up.

V. OREGON, SECTION 319, AND NPS POLLUTION OF GROUNDWATER

A. The Assessment Report

Oregon's section 319 assessment report[96] evaluated 27,738 miles of Oregon's approximately 90,000 miles of rivers, streams

92. 33 U.S.C. § 1329(h)(11) (Supp. V 1987).

93. *Id.* § 1329(h)(8), 1329(h)(11). In addition, states are eligible for up to $100,000 under § 205(j)(5) for NPS programs only if they submit acceptable assessment reports and management plans to EPA. *See supra* note 8.

94. *See* Note, *supra* note 28, at 1443. The author argues that a federal program for groundwater and nonpoint source pollution control "should focus on promoting state authority to review and influence local regulations instead of requiring direct state regulation of land users. Such an approach is both an effective method of controlling water pollution and a means of according due attention to local and state interests." *Id. See generally* Delogu, *Local Land Use Controls: An Idea Whose Time Has Passed,* 36 ME. L. REV. 261 (1984).

95. 2 J. BATTLE, *supra* note 66, at 215.

96. DRAFT, *supra* note 10. DEQ conducted the state's first NPS assessment in 1978 under the § 208 program. The study identified sediment, nutrients, elevated water temperatures, and low streamflows as the most serious NPS problems. OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, OREGON'S STATEWIDE ASSESSMENT OF NONPOINT SOURCE PROBLEMS 1, 3-6 (1978).

and creeks.[97] Of those, approximately 15,192 miles were reported to have one or more NPS-caused water quality problems resulting in either a severe or moderate impact on a beneficial use.[98] The study rated about twenty-five percent of the stream miles as severe, and thirty percent as moderate. The remaining forty-five percent were either not rated or rated as having no NPS-related water quality problems.[99]

The assessment report suggests that the following land use activities caused moderate or severe impacts on one or more beneficial uses of water in the stream miles it assessed: agriculture, grazing and range management, forestry, recreation activities, mining, transportation, construction, sewage and storm water, and chemical storage and hazardous and solid waste disposal.[100] The report acknowledges that its data base is only a part of the "waters of the state" as defined by Oregon statute, and that "[t]he task of thoroughly assessing all these waterbodies for NPS-related problems will take years of continuing data collection and analysis."[101] As directed by section 319(a), Oregon's NPS assessment focused primarily on surface waters. Groundwater was given only brief attention.

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97. DRAFT, *supra* note 10, at 2.

98. *Id.* "A 'moderate' problem was defined as 'interfering with' the designated uses of the water, while a 'severe' problem was defined as resulting in 'substantial or nearly complete interference or elimination of' a designated beneficial use." *Id.* at 11.

99. *Id.* at 2. The DEQ derived the figures from a combination of hard data and "observation," which the report defines as, "the act of visually observing a stream or water quality problem but without specific data being collected to prove the effect on beneficial uses of the water." *Id.* app. B at 2. Observation was used where data was lacking or inadequate.

DEQ officials noted that much of the data reported in the assessment is unconfirmed, and stressed that the department is not prepared to rely heavily upon that data until it has been confirmed by additional monitoring. *Id.* at 5-6.

100. PLAN, *supra* note 14, at 48-128. Of the 27,700 waterbody miles assessed, 8800 were assessed for agriculture, *Id.* at 48; 9300 for grazing and range management, which could arguably be included in agriculture, *Id.* at 59; 8000 for forestry, *Id.* at 70; 6000 for recreation activities, *Id.* at 79; 2300 for mining, *Id.* at 89; 2100 for transportation, *Id.* at 100; and 1400 for construction, *Id.* at 110. The assessment did not solicit information for sewage and storm water, *Id.* at 119; or chemical storage and hazardous and solid waste disposal. *Id.* at 128.

101. DRAFT, *supra* note 10, at 5. The assessment report notes that Oregon statutes define "waters of the state" to include lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the territorial ocean, and all other bodies of surface and underground water. *Id.*

B. *Oregon's Management Program*

Oregon's Management Plan is based on a set of interagency agreements involving some twenty government entities, not including local governments and public service districts.[102] It states that, aside from adequate funding, "the most important determinant" in the success of the Plan will be DEQ's ability to coordinate the efforts of federal, state, and local agencies concerning natural resources management responsibilities.[103] The Plan contains deadlines for development of the agreements, referred to as "memoranda of understanding" (MOUs). Action Plans detailing the objectives, tasks, priorities, schedules, work products, and funding and staffing resources "necessary to accomplish the NPS program" must accompany these agreements.[104]

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102. PLAN, *supra* note 14, at 9. These include the DEQ, the U.S. EPA, the U.S. Soil and Conservation Service, the Agricultural Stablization and Conservation Service, the U.S. Forest Service, the U.S. Bureau of Land Management, the U.S. Department of Transportation, the Army Corps of Engineers, the Oregon Department of Agriculture, the Oregon State Department of Forestry, Oregon State University's Extension Service, Oregon's Department of Land Conservation and Development, the Oregon Water Resources Department, the Division of State Lands, the Oregon Department of Geology and Mineral Industries, the Oregon Department of Transportation, the Oregon State Health Division, the Oregon Department of Fish and Wildlife, and the State Parks Division. *Id.* at 9-12.

103. *Id.* at 36. The Plan builds on continuing state programs for controlling NPS pollution, for which DEQ is the lead agency. *Id.* at 9. Some other agencies already involved in NPS programs include the U.S. Soil Conservation Service (develops BMPs for pollution control in agriculture, range and livestock grazing, small woodlots, construction, mining and transportation), the Agricultural Stabilization and Conservation Service (works with the SCS to provide federal funding for cost-share assistance to landowners for BMP implementation), the U.S. Forest Service (implements BMPs through contract agreements with private harvesters or leases; USFS has a MOU with DEQ that covers silviculture and grazing activities on federal forest lands), and the U.S. Bureau of Land Management (implements BMPs through lease agreements with private ranchers and contracts with timber harvesters; BLM has a MOU with DEQ that covers grazing and silviculture activities). *Id.* at 10.

104. *Id.* at 36. Section 319(b)(2)(C) requires that the management plans contain a schedule for implementing both NPS programs and BMPs. For "high priority" water bodies under the Agriculture land use section, for example, DEQ is to develop and implement, with the Oregon Department of Agriculture, the Soil Conservation Service, and the Agricultural Stabilization and Conservation Service, "strategies for control of NPS pollution problems resulting from agriculture;" the strategies are to be developed before July 1, 1990, when an action plan is due. *Id.* at 50.

1. TMDLs as an NPS Pollution Reduction Vehicle

The Plan states that the highest priorities for NPS attention will be those waterbodies identified as "water quality limited" and for which total maximum daily loads (TMDLs) of pollutants have been or are being set under Section 303(d)(1) of the Clean Water Act.[105] The next highest priorities will be those waters identified in the assessment as suffering severe impacts or for which there was conflicting information on water quality.[106]

A consent decree signed by the EPA and the Northwest Environmental Defense Center in 1987[107] named eleven Oregon streams as "water quality limited" and ordered EPA and the state of Oregon to enforce section 303 plans and set TMDLs for those eleven by the summer of 1988.[108] DEQ has set final TMDLs for the Tualatin River[109] and has issued interim TMDLs for ten other streams named in the decree.

DEQ officials see the TMDL process under section 303 as a possible vehicle for enforcing NPS control efforts. The Tualatin River case primarily involved point sources. DEQ officials concede that it could be more difficult to develop ways to force the agricultural community to comply with nonpoint source controls.[110] One way might be to condition DEQ approval of new projects, such as highways, on compliance with the TMDLs outlined in the section 303 plan.[111] Another might be to tie renewal of farm price supports to TMDL compliance.

As for nonpoint source controls on U.S. forest lands, the state

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105. *Id.* at 17.

106. *Id.*

107. Consent Decree, NEDC v. Thomas, June 3, 1987. The consent decree was the result of a lawsuit filed by the Northwest Environmental Defense Center (NEDC) against the Environmental Protection Agency over EPA's failure to set TMDLs for the Tualatin River. *See supra* note 91.

108. The rivers are the Tualatin, Yamhill, Bear Creek, South Umpqua, Coquille, Pudding, Garrison Lake, Klamath River, Umatilla, Calapooia, and Grande River. Consent Decree, NEDC v. Thomas, June 3, 1987.

109. The TMDLs were for ammonia and phosphorous. U.S. GENERAL ACCOUNTING OFFICE, MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, 41 (1989).

110. Interview with Neil J. Mullane, Manager, Water Quality Division, Oregon Department of Environmental Quality (Feb. 9, 1989).

111. Interview with John E. Jackson, Nonpoint Source Coordinator, Oregon Department of Environmental Quality (Jan. 31, 1989).

of Oregon could set tougher water quality standards under section 303 and enforce them against nonpoint sources on those waters under the authority of *Northwest Indian Cemetery Protective Association v. Peterson.*[112] In *Northwest Indian*, the Ninth Circuit Court of Appeals affirmed a lower court ruling that California water quality standards could be enforced against nonpoint sources—such as logging activities—on federal lands. Section 303(e)(3)(B) requires state water quality management plans to incorporate all elements of areawide waste management plans included under section 208.[113] The states and EPA share responsibility for implementing the plans under section 303(e)(3)(F) and the accompanying regulations.[114]

2. *The Land Use Model*

The Oregon NPS Management Plan identifies nine land uses.[115] The Plan sets out proposed and existing MOUs, program objectives,[116] and BMPs for each land use. Under the Agriculture Land Use Section, for example, the Plan contains five program

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112. 565 F. Supp. 586 (N.D. Cal. 1983), *aff'd*, 764 F.2d 581 (9th Cir. 1985), *aff'd on reh'g*, 795 F.2d 688 (9th Cir. 1986), *rev'd on other grounds sub nom.* Lyng v. Northwest Indian Cemetery Protective Ass'n, 108 S. Ct. 1319 (1988). An association of Northwest Indians, the State of California, and environmental groups sued in 1982 to enjoin Forest Service plans to complete construction of the "G-O Road" and harvest timber in the Blue Creek Unit of the Six Rivers National Forest in northern California. 764 F.2d 581. The plaintiffs alleged, *inter alia*, that the proposed road construction and logging would violate statutory requirements designed to protect the water quality and fish habitat of the area, including the CWA. The district court enjoined all timber harvesting and road construction until studies were completed demonstrating that the proposed logging activities would not violate the CWA or reduce the supply of anadromous fish to the Hoopla Indian Reservation located downstream on the Klamath River. 565 F. Supp. at 606-07. For a detailed discussion of *Northwest Indian*, see Anderson, *Water Quality Planning for the National Forests*, 17 ENVTL. L. 591, 597-607 (1987).

113. 33 U.S.C. § 1313(e)(3)(B) (1982).

114. Anderson, *supra* note 112, at 594.

115. PLAN, *supra* note 14, at 44-136. The land uses are: agriculture, grazing and range management, forestry, recreation, mining, transportation, construction, sewage and storm water, and chemical storage and hazardous and solid waste disposal.

116. Each of the program objectives is given one of three priorities: "essential," "necessary," or "important," with "essential" being the highest priority. *Id.* at 45. The report also describes the type of NPS pollution generally caused by each type of land use, and lists the agencies which already have some role in state NPS programs for those uses. *Id.* at 44.

objectives: 1) continued coordination among five state and federal agencies in implementing BMPs in agricultural operations;[117] 2) continuation by DEQ of development and implementation of a program for protection of groundwater aquifers from NPS pollution;[118] 3) development and implementation by five agencies of an NPS pollution control program for container nurseries;[119] 4) development and implementation of an NPS pollution control program for non-commercial farms;[120] and 5) development of a program for prevention and control of NPS pollution from agricultural activity in urban areas.[121]

Under the Forestry Land Use Section, the Plan calls for the updating of existing MOUs between DEQ and state and federal agencies to incorporate the recommendations of a citizens advisory committee.[122] It also calls for the development of "action plans" by DEQ and the other agencies, and the establishment of a new MOU and action plan with the state Department of Fish and Wildlife. These "actions plans" would incorporate advisory committee recommendations, and "address[] the water quality needs of fish and wildlife in [balance with the primary uses of the various landowners of] forest lands."[123]

However, the thrust of the forestry NPS program appears to be a continuation of existing BMP implementation in forestry operations "in pursuit of the overall goal of protecting beneficial uses of water in conjunction with the growing and harvesting of forest products."[124] While the Plan calls for the development of new BMPs where existing ones are found to be inadequate,[125] it also uses as a standard of reference the procedures outlined in the

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117. *Id.* at 48. The agencies are: Oregon Department of Agriculture (ODA), Soil Conservation Service (SCS), Agricultural Stabilization and Conservation Service (ASCS), Division of State Lands (DSL), and Oregon State University Extension (OSUE).

118. *Id.* at 49.

119. *Id.* The agencies are: ODA, DEQ, SCS, OSUE, and ASCS.

120. *Id.* The designated agencies are ODA, DEQ, SCS, ASCS, Oregon State Health Division (OSHD), Oregon Water Resources Department (WRD), and OSUE.

121. *Id.* DEQ coordinates this with local governments.

122. *Id.* at 22. The committee was established as part of Oregon's § 319 effort to give recommendations on an NPS program structure.

123. *Id.* at 71.

124. *Id.* at 70.

125. *Id.* at 75.

Oregon Forest Practices Act.[126] There are serious questions as to the adequacy of those procedures.[127]

Perhaps the greatest weakness of Oregon's section 319 NPS Management Plan is the voluntary nature of the interagency agreements at the center of the Plan. The Plan states that Oregon prefers to emphasize a "voluntary, non-regulatory, locally controlled, and incentive-based approach" which relies "heavily" on cooperative relationships between DEQ, the resource management agencies, and the public.[128] Thus, while nonpoint sources are to be identified, there is no mention of requiring permits, or of any other means to enforce regulation. There is, however, a veiled threat that tougher measures might be utilized: should the volunteer program fail to achieve "adequate" results, the Environmental Quality Commission (EQC) and DEQ "have the responsibility and authority to enforce water quality protection through civil court action or criminal prosecution."[129] The Plan says nothing more specific about enforcement, and so it is not clear under what conditions DEQ and the EQC might abandon

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126. OR. REV. STAT. §§ 527.610-.735 (1987).

127. Comment, *Oregon Forest Practices Act: Unenforceable or Unenforced?*, 17 ENVTL. L. 717, 723 (1987). The rules allow considerable discretion in enforcement with no clear standards, and many of the rules are advisory rather than mandatory, and thus operators are not compelled to comply.

128. PLAN, *supra* note 14, at 9. While land use issues may traditionally be the province of local governments, since 1973 Oregon has had one of the country's few statewide land use planning programs. Under the program, cities and counties are required to adopt comprehensive zoning plans based on the 19 statewide goals developed by the Land Conservation and Development Commission (LCDC); those goals are administered by the Department of Land Conservation and Development. M. ROHSE, LAND-USE PLANNING IN OREGON: A NO-NONSENSE HANDBOOK IN PLAIN ENGLISH 3-4 (1987).

The localities have several incentives to submit plans: state maintenance grants are conditioned upon submission of an acceptable plan; LCDC can issue enforcement orders where there is foot-dragging; the state can withhold tax revenues; and the state retains considerable control over the locality's zoning process in the absence of an approved plan. *Id.* at 4-5.

The Oregon program has been criticized as "a directionless piece of legislation" with a "total lack of standards for implementation" of the enabling Land Conservation and Development Act. Huffman & Plantico, *Toward a Theory of Land Use Planning: Lessons From Oregon*, 14 LAND & WATER L. REV. 1, 41 (1979). Referring to the program's 19 goals, the authors point to "repeated provisions which allow particular goals not to be met if other objectives are more important." *Id.* at 44.

129. PLAN, *supra* note 14, at 9.

the voluntary approach.

3. *Funding*

The Oregon Management Plan contains separate five-year budgets for each of the NPS land use categories, broken down into program implementation, prioritization of water bodies, monitoring/evaluation, education, and research for each agency.[130] Each budget lists both existing and needed resources. DEQ specifies in the Plan that state agencies and the federal government will have to commit resources to the program in order to make it work. The Plan states that a "very important step" in securing adequate funding is the "inclusion in every designated NPS agency's annual or biennial budget proposal of requests for the funds necessary" to carry out the program.[131] It adds that, "DEQ presumes that the recognition by Congress of the severity of NPS water pollution problems will result in adequate funding" for implementation of section 319.[132]

C. *NPS and Groundwater in Oregon*

1. *The Nature and Extent of the Problem*

In Oregon, approximately 1.6 million people, or sixty percent of the state's population, depend on groundwater for all or part of their daily water needs.[133] Most of the wells in the state have been drilled in shallow (less than 200 feet deep), unconfined aqui-

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130. *Id.* at ch. VI (unnumbered pages). According to DEQ officials, the funding is needed for two principal areas: staffing in the agencies designated to carry out the NPS plan, particularly in the currently little-regulated urban and agricultural areas; and actual steps in the field to reduce NPS pollution. The latter includes both BMPs, such as planting grass on stream banks and changing agricultural planting practices, and preventive measures, such as building detention basins to hold urban runoff during peak storms for later release into natural waterways. Interview with John E. Jackson, Nonpoint Source Coordinator, Water Quality Division, Oregon Department of Environmental Quality (Jan. 31, 1989).

131. PLAN, *supra* note 14, at 38.

132. *Id.*

133. OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, OREGON 1986 WATER QUALITY PROGRAM ASSESSMENT AND PROGRAM PLAN FOR FISCAL YEAR 1987, at 19 (1986). In 1980, an average of 1.1 billion gallons per day of groundwater were withdrawn in Oregon. Of that, 75% was for irrigation use, 12% for rural domestic and livestock use, 7% for industrial use, and 6% for public water use. *Id.*

fers, where the upper limit is the water table.[134] Many existing urban centers and new developments are located above these aquifers, which supply groundwater for domestic, industrial, and agricultural uses.[135]

That contamination from industrial, solid waste, sewage disposal, and agricultural activities has been discovered in the state's groundwater is not surprising.[136] As of 1988, the state had documented seventy-five cases of contamination resulting from industrial activities,[137] and twenty-three cases of contamination from solid waste disposal—i.e., landfills.[138] In addition, the state has found groundwater contamination resulting from on-site sewage disposal, or septic tanks, in Clatsop Plains, La Pine, East Multnomah County, Florence, Santa Clara River Road, and North Albany.[139]

Several agricultural practices can degrade groundwater quality: irrigation, the application of pesticides, fertilizer and manure, the use of animal feedlots, and changes in vegetative cover.[140]

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134. *Id.*

135. *Id.*

136. *Id.* at 20-23.

137. Among the contaminants were organic chemicals, dissolved metals, nitrates, cyanide, and total dissolved solids. The types of industries involved were chemical manufacturing, metals plating, wood treatment, oil or gas storage and refueling areas, electronics, food processing, aluminum plants, and pulp and paper mills. OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, GROUNDWATER MANAGEMENT AND PROTECTION STRATEGY: THE OREGON PROGRAM 1 (1988).

138. The contamination has occurred at 23 of 25 landfill sites monitored by the state. The contamination results from precipitation seeping through the refuse and then into the groundwater. As the water seeps, it picks up a variety of contaminants and becomes leachate, which contains high levels of ammonia, nitrates, chlorides, sulfates, dissolved ionic substance, iron, manganese, and organic decomposition by-products. *Id.*

139. Such contamination consists primarily of nitrates, organic solvents, and bacterial contamination. Nitrate-nitrogen is the most frequent "and usually the most critical" contaminant because it passes freely through the soil. In addition, trichloroethylene and related organic solvents have been found in groundwater from East Multnomah County and North Albany. *Id.* at 4.

140. R. PATRICK, E. FORD & J. QUARLES, *supra* note 29, at 83. Nitrate is the most common contaminant found in groundwater; it gets there primarily by the leaching of applied synthethic nitrogen fertilizers. *Groundwater Pollution, supra* note 37, at 122. Approximately 800 million pounds of pesticides are applied to croplands annually. Those pesticides "pose a serious threat to underground drinking water supplies in agricultural areas." *Id.* at 124. High density animal feeding operations generate large quantities of animal waste, including nitrates, "which

During 1986 and 1987, the DEQ sampled over 400 wells as part of a statewide assessment of agricultural chemicals in groundwater.[141] The sampling identified nitrate contamination believed to result from agricultural practices in the Willamette Valley, Boardman, Klamath Falls, and the Ontario area.[142] Groundwater contamination from pesticides has been discovered in the Ontario, Curry County, Salem, and Hillsboro areas.[143]

2. *Section 319 and Oregon's Groundwater Program*

Under section 319, state NPS management plans must take into account the effect of proposed BMPs on groundwater quality.[144] Neither that provision, nor the one establishing grants for groundwater protection[145] require affirmative action to reduce NPS impacts on groundwater. Indeed, by asking only that states "take into account" the impact of proposed BMPs on groundwater, the law relegates that resource to a secondary status and makes it easier for states to ignore the problem.

In Oregon, the state legislature passed a groundwater protection bill during the 1989 session.[146] A detailed analysis of the legislation is beyond the scope of this Comment; however, the bill primarily addresses nonpoint source pollution, and is designed to complement the state's NPS program under section 319.

The groundwater protection law, which is contained in a larger bill known as the Omnibus Waste Act, mandates the establishment of maximum measurable levels for contaminants in groundwater based on federal standards.[147] It also requires the DEQ and other state organizations to conduct ongoing statewide

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may ultimately percolate down" to groundwater and drinking water supplies. *Id.* at 126. Finally, irrigation causes the deposit of salt and other contaminants in the soil, and can lead to the leaching of other naturally occurring toxic elements. *Id.* at 127.

141. OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, GROUNDWATER MANAGEMENT AND PROTECTION STRATEGY: THE OREGON PROGRAM 4 (1988).

142. *Id.*

143. *Id.* Sampling of domestic wells in those areas detected the pesticides Ethylene Dibromide, Dacthal, Aldicarb, Bromacil, and Telone.

144. 33 U.S.C. § 1329(b)(2)(A) (Supp. V 1987).

145. *See supra* note 76 and accompanying text.

146. 1989 Or. Laws Adv. Sh. No. 833. The bill was passed by the legislature in early July 1989, and was signed by the Governor on July 24th.

147. *Id.* §§ 25-26.

monitoring and assessment of groundwater quality.[148]

Where monitoring detects the presence in groundwater of contaminants thought to result at least partly from nonpoint source activities, the DEQ must designate the area one of "ground water concern."[149] Where such an area is declared, the Strategic Water Management Group must appoint a management committee within ninety days.[150] That committee must draft an "action plan" for the affected groundwater.[151] The action plan must include, at a minimum: (1) identification of local residential, industrial, and agricultural practices "that may be contributing to a deterioration of groundwater quality or quantity in an area"; (2) an evaluation of the threat to groundwater from the potential nonpoint sources identified; (3) evaluation and recommendations of alternative practices; (4) recommendations for demonstration projects in the area; (5) recommendations for public education and site-specific research; and (6) methods of implementing best management practices to improve groundwater quality or quantity in the area.[152]

If the contaminants found in the groundwater are nitrates at levels greater than seventy percent of the maximum contaminant levels (MCLs) established under sections 25 and 26, or any other contaminants at levels greater than fifty percent of the MCLs, the DEQ must declare a "ground water management area."[153] Whereas an earlier draft of this legislation authorized strong measures to combat such contamination,[154] the Act relies on the same "action plan" developed in the case of "ground water concern"

148. *Id.* § 29.

149. *Id.* § 31. In addition, § 32 requires the State Health Division to declare a "ground water concern" area where its activities detect contamination.

150. *Id.* § 34. The Strategic Water Management Group implements water protection strategies. *Id.* § 20.

151. *Id.* § 35.

152. *Id.*

153. *Id.* § 36.

154. S. 423, B-Engrossed, 65th Or. Leg. Assembly, Reg. Sess. (1989). Under that bill, abandoned in favor of the Omnibus Waste Act, the action plan could include: restrictions and prohibitions on water use; restrictions on any activities that might increase the level of naturally occurring contaminants; required land use changes; and limitations on the use of agricultural chemicals. In addition, the bill gave DEQ, or the state Water Resources Commission, the power to initiate a contested case proceeding to limit the use of groundwater in the area. Those provisions were eliminated from the Omnibus Waste Act.

areas to achieve contamination reduction.

The Act's monitoring and assessment provisions, if carried out, could systematically uncover many groundwater contamination problems in Oregon. The Act, however, authorizes only voluntary, "recommended" measures and research, leaving officials without the power to take quick and effective action to reduce or eliminate the source of pollution. While theoretically there is nothing to keep officials from including tougher measures in the Act's action plans, the same political realities underlying the removal of tougher enforcement language from the legislation suggest that this will not happen in practice.

VI. Conclusion

Nonpoint source pollution is a complex problem that does not lend itself to a quick technological fix. It covers a broad range of activities, involving several different economic and political constituencies which traditionally have been regulated by local governments and, to a much lesser extent, the states. Previous federal efforts to control nonpoint source pollution failed partly because they did not sufficiently disturb that state and local regulatory pattern.

The 1987 amendments to the Clean Water Act purported to establish a national nonpoint source program. While section 319 contains new reporting and monitoring requirements and offers states financial incentives, it gives no additional enforcement authority to the EPA or the states. Thus, compliance continues to be voluntary. In addition, Congress has not appropriated funding for the program. If little or no progress is made by the states under section 319 in controlling the NPS problem, and Congress is serious about addressing the nonpoint source pollution problem, it will use the information provided by the states under section 319's reporting requirements to justify stronger measures.

While the Water Quality Act offers some new proposals for addressing the NPS problem, it says little about groundwater, continuing the Federal Water Pollution Control Act's traditional focus on surface waters. Yet nonpoint sources are a significant contributor to aquifer contamination, and the NPS impact on groundwater is not adequately addressed by other statutes. Groundwater and surface water are closely connected, and current statutes do not adequately reflect that reality.

Oregon's Section 319 Management Plan provides a blueprint for regulating NPS pollution according to land use, and in that respect it is a step in the right direction. The Plan recognizes that numerous state agencies must be involved in any comprehensive NPS pollution control effort, and it proposes new agreements among agencies for sharing NPS control. However, the Plan in its current form is voluntary, and, with nonpoint sources the cause of an estimated sixty to seventy percent of the state's water pollution, one would expect more urgency and more teeth in the proposed NPS program. Section 303 of the Clean Water Act could be used to fill in the enforcement gap left by section 319 and provide Oregon the authority to control nonpoint source pollution, but only if a way can be found to force compliance by those in the agricultural and forestry communities.

Similarly, Oregon's groundwater protection law relies heavily on study and on voluntary implementation of BMPs. The law is also essentially reactive in character, focusing on *responses* to existing groundwater contamination rather than on *prevention* of contamination generally. The state should use the data generated by the law's monitoring provisions to discard the role of firefighter and assume a stronger stance as guardian of the public's precious and irreplaceable groundwater resource.