

Chicago-Kent Law Review

Volume 65
Issue 2 *Symposium on Prevention of
Groundwater Contamination in the Great Lakes
Region*

Article 9

June 1989

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Recommended Citation

Daniel R. Mandelker, *Controlling Nonpoint Source Water Pollution: Can It Be Done*, 65 Chi.-Kent L. Rev. 479 (1989).

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CONTROLLING NONPOINT SOURCE WATER POLLUTION: CAN IT BE DONE?

DANIEL R. MANDELKER*

The persistence of environmental pollution is the singular irony of the environmental age. Water pollution from nonpoint sources is one of the more critical pollution problems that has defied solution. A nonpoint source of pollution is one whose surface water runoff carries a variety of pollutants that impair water quality.¹ Runoff from construction sites in urban areas and runoff from farming in agricultural areas are two examples. Nonpoint sources can do major damage to surface waters, but they also damage groundwater when runoff from nonpoint sources reaches groundwater levels.

The Clean Water Act has always required nonpoint source controls in state and regional water quality planning programs, but these controls have not remedied the nonpoint pollution problem.² There are many reasons for this failure. Nonpoint pollution comes from a variety of sources that require different types of controls. Nonpoint sources resist controls because they are expensive, and the expense is not easily passed on to consumers. Nonpoint source controls are difficult to coordinate because they are usually administered by local rather than state governments. Local governments do not have an incentive to adopt nonpoint source controls because their nonpoint pollution usually is exported elsewhere.

This article examines a nonpoint source program adopted in the 1987 amendments to the Clean Water Act that is intended to improve state efforts at controlling nonpoint pollution. The article emphasizes the program's requirements for state and local land use regulation. Part I reviews the nonpoint pollution problem. Part II discusses the land use

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1. For a statutory definition of nonpoint source see WIS. STAT. ANN. § 144.25(2)(b) (West Supp. 1988): " 'Nonpoint' source means a land management activity which contributes to runoff, seepage or percolation which adversely affects or threatens the quality of waters of this state and which is not a point source as defined [by the statute]. . . ." See also MINN. STAT. ANN. § 115.093(6) (West Supp. 1988). For EPA's definition see *infra* note 4.

2. See, e.g., *Clean Water Act Amendments: Non-Point Source Management Program: Hearings before the Senate Comm. on Environment & Public Works*, 98th Cong., 1st Sess. 31 (1983) (Statement of Senator Dave Durenberger).

regulation problem created by nonpoint pollution. Part III reviews the nonpoint source program adopted in 1987 and the land use regulations states are likely to adopt to satisfy federal statutory requirements. Part IV evaluates the strengths and weaknesses of the program.

The article concludes that controlling nonpoint pollution presents problems in land use planning and regulation that are difficult to resolve. Although the nonpoint source program adopted in 1987 is a substantial improvement, the states still have the discretion to decide whether to adopt regulatory controls and this concession is likely to limit the program's effectiveness. The hope is that this program will encourage state and local government experimentation with land use controls that are necessary to resolve the nonpoint pollution problem.

I. THE NONPOINT POLLUTION PROBLEM

Understanding nonpoint pollution requires an understanding of the nonpoint sources that create water pollution and the water resources they affect. Water law has divided waters into surface waters, such as lakes and streams, and groundwater, but all water resources are affected by both point and nonpoint sources of water pollution. The Clean Water Act defines a point source as any source of water pollution that is carried by a "discernible, confined and discrete conveyance."³ This definition primarily covers discharges by industrial sources and publicly owned treatment plants. While the Act itself does not define a nonpoint source, a nonpoint source of pollution is usually defined as a source that creates pollution through surface water runoff normally associated with rainfall.⁴ The Clean Water Act's pollution control program concentrates primarily on point source discharges into surface waters, which Congress perceived as the principal water pollution problem when it comprehensively revised the Act in 1972.⁵ EPA initially attempted to protect groundwater under the Act, but this effort failed when a key decision held that the Act did not cover discharges into groundwater.⁶

The Clean Water Act has always required nonpoint source controls, but nonpoint sources received serious attention only when rivers and lakes remained polluted even after controls on point sources were imple-

3. 33 U.S.C.A. § 1362(11-14) (West Supp. 1988).

4. See EPA, NONPOINT SOURCE GUIDANCE 3 (1987): "NPS [nonpoint source] pollution is 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." See also *supra* note 1.

5. *E. I. Du Pont De Nemours & Co. v. Train*, 430 U.S. 112 (1977) (affirming the authority of EPA to adopt national effluent limitations for classes and categories of existing point sources).

6. *Exxon Corp. v. Train*, 554 F.2d 1310 (5th Cir. 1977).

mented.⁷ The contribution of nonpoint sources to water pollution is substantial.⁸ Nonpoint sources are responsible for 65% to 75% of the pollution in the 25% of the waters that remain degraded under state water quality standards.⁹ Nonpoint sources contribute 45% of the pollution to estuaries, 76% of the pollution to lakes, and 65% of the pollution to rivers.¹⁰

A number of difficulties make the regulation of nonpoint pollution a difficult and complex problem. One is that nonpoint sources differ in the extent to which they create water pollution problems. For example, agricultural nonpoint sources contribute 64% of river pollution and urban runoff contributes 12% of lake pollution.¹¹ One study indicated that sediment from erosion is the major source of nonpoint pollution, but that construction activities are the biggest contributor on an acre-by-acre basis.¹² The variety that exists in nonpoint sources and the extent to which they contribute to water pollution complicate control problems.

The problems presented by controls on nonpoint pollution contribute to regulatory difficulties. EPA can regulate pollution from point sources through quantitative effluent limitations because point sources discharge effluent into surface waters at a particular point and because the polluter controls the discharge. Quantitative effluent limitations are difficult to apply to nonpoint pollution because the discharge occurs over the surface of land and not at a particular point. The nonpoint polluter does not control the discharge, which is produced by rainfall.

A national program for nonpoint pollution is also complicated by the variable distribution of nonpoint sources throughout the United States. Nonpoint pollution from forestry (silvicultural) sources and ur-

7. For an early analysis of nonpoint source pollution in the Great Lakes Basin, see INTERNATIONAL JOINT COMMISSION, *AN EVALUATION OF ALTERNATIVES AND COSTS FOR NONPOINT SOURCE CONTROLS IN THE UNITED STATES GREAT LAKES BASIN* (1978). See also COUNCIL OF STATE GOVERNMENTS, *DIFFUSE SOURCE POLLUTION: POLICY CONSIDERATIONS FOR THE STATES* (1977).

8. ASSOCIATION OF STATE AND INTERSTATE WATER POLLUTION CONTROL ADMINISTRATORS, *AMERICA'S CLEAN WATER: THE STATE'S NONPOINT SOURCE ASSESSMENT* (1985), reprinted in *Impact of Nonpoint Source Pollution on Coastal Water Quality Hearing Before the Subcomm. on Oceanography of the House Comm. on Merchant Marine & Fisheries*, 100th Cong., 2d Sess. 84 (1988) [hereinafter *Coastal Water Quality*].

9. EPA, *ACTIVITIES AND PROGRAMS IMPLEMENTED UNDER SECTION 319 OF THE CLEAN WATER ACT AS AMENDED BY THE WATER QUALITY ACT OF 1987, FISCAL YEAR 1987, A REPORT TO CONGRESS 2* (Dec. 1987).

10. EPA, *NONPOINT SOURCES: AGENDA FOR THE FUTURE 2* (1989). For a discussion of nonpoint source pollution as it affects coastal waters, see *Coastal Water Quality*, *supra* note 8, at 32-35.

11. *Id.* See also EPA, *RESULTS OF THE NATIONWIDE URBAN RUNOFF PROGRAM* (1983).

12. Massey, *Land Use Regulatory Power of Conservation Districts in the Midwestern States for Controlling Nonpoint Source Pollutants*, 33 *DRAKE L. REV.* 35, 38-39 (1983-84).

ban runoff is a major problem in the upper Great Lakes states, while agricultural nonpoint pollution is the major problem in the cornbelt.¹³ A federal program for nonpoint source control must take these variations in nonpoint source distribution into account.

A final problem is the pervasiveness of nonpoint pollution. Rain falls everywhere, and every use of land is a source of nonpoint pollution. A major strategy controls nonpoint pollution at the source by reducing surface runoff through the use of best management practices (BMPs).¹⁴ Best management practices are fragmented and difficult to coordinate because of the great variety in nonpoint sources and because they are administered by local governments. Nonpoint pollution may require instead the adoption of a comprehensive and coordinated control strategy for entire watersheds that relies on land use planning and controls to a degree not contemplated in present programs.

II. THE LAND USE REGULATION PROBLEM

A. Control Choices for Nonpoint Pollution

As in all pollution control programs, the control of nonpoint pollution requires a choice between two alternative, though not necessarily exclusive, methods of pollution abatement. One method is technological and relies on controls that reduce the amount of pollution discharged by polluters into a medium such as the air or water. In water pollution control, this type of control is applied to point sources of pollution and is known as an *end-of-the-pipe* control. It is applied through effluent limitations that quantitatively limit the amount of pollution a polluter can discharge. Land use controls are an alternative to technological *end-of-the-pipe* controls for point source dischargers. One way in which land use controls can mitigate water pollution from point sources is to require industrial point source dischargers to locate away from bodies of water where pollution problems are severe.

The distinction between technological and land use controls is not as clear in nonpoint source programs. Regulatory techniques vary, but any control applied to nonpoint sources is a land use control because it reduces nonpoint pollution through measures that modify land use. Despite these similarities, there are differences in nonpoint source controls that divide them into two categories. One is the use of best management practices to control nonpoint pollution at the source. The other is the

13. *Id.* at 38-39.

14. See *infra* notes 16-35 and accompanying text.

full array of land use controls that regulate the use and development of land.¹⁵

B. Best Management Practices

The best management practice (BMP)¹⁶ is the most common technique for controlling nonpoint pollution. A BMP is a control measure for slowing, retaining or absorbing pollutants produced by the surface water runoff associated with nonpoint sources.¹⁷ For example, detention ponds and infiltration trenches are common BMPs for urban stormwater runoff.¹⁸ The technology for BMPs is relatively well-advanced, but their effectiveness, benefits and costs vary.¹⁹ Which BMP a nonpoint source should adopt and how a BMP should be designed depend on the physical suitability of the site as well as the stormwater and pollution control benefits it provides.²⁰ These constraints affect the willingness of local governments to adopt controls for nonpoint sources. A governmental unit is least likely to require a BMP if costs are high and benefits low, even though the BMP is necessary for the attainment of water quality standards. This suggests that governmental units with nonpoint pollution

15. "When used effectively, land use controls can prevent pollution problems by establishing land use patterns that are consistent with water quality protection, open space preservation and other environmental objectives, while at the same time providing for orderly and rational economic development." P. THOMPSON, POISON RUNOFF: A GUIDE TO STATE AND LOCAL CONTROL OF NONPOINT SOURCE WATER POLLUTION 127 (1989) [hereinafter RUNOFF].

16. See V. NOVOTNY & G. CHESTERS, HANDBOOK OF NONPOINT POLLUTION: SOURCES AND MANAGEMENT (1981).

17. For a definition of "best management practice" see MINN. STAT. ANN. § 115.093(3) (West Supp. 1988): "Best Management Practices" means practices, techniques, and measures, that prevent or reduce water pollution from nonpoint sources by using the most effective and practicable means of achieving water quality goals. See also WIS. STAT. ANN. § 144.25(2)(a) (West Supp. 1988).

Best management practice is not defined in the Clean Water Act's nonpoint source provision. As Senator Durenberger stated in floor debate, this term was left undefined because Congress did not want to limit the states' flexibility in developing programs or undercut existing programs. 133 CONG. REC. S749 (daily ed. Jan. 14, 1987).

18. See generally R. JEUNG, URBAN STORMWATER POLLUTION: AN INVESTIGATION OF THE PROBLEM AND ITS CONTROL (Department of City & Regional Planning, Cornell University 1978); T. SCHUELER, CONTROLLING URBAN RUNOFF: A PRACTICAL MANUAL FOR PLANNING AND DESIGNING URBAN BMPs (Washington Metropolitan Water Resources Plan. Bd., 1987); Tourbier & Westmacott, *Looking Good, The Use of Natural Methods to Control Urban Runoff*, 48 URB. LAND, no. 4, at 32 (1989).

19. See N. HANSEN, H. BABCOCK & E. CLARK, CONTROLLING NONPOINT-SOURCE POLLUTION (1988) [hereinafter CONTROLLING POLLUTION]. The authors note that the effectiveness of a BMP varies with the contaminant. Nitrates and salts are difficult to control but sediment is controlled more easily by slowing or filtering runoff. Effectiveness also varies with physical conditions such as soil characteristics, slope of the land and climatic conditions. Some BMPs, such as catchments, do not work well in heavy rains. The authors conclude that "[u]nfortunately, relatively little is known about how well many BMPs work, particularly in reducing pollutant discharges other than sediment." *Id.* at 58.

20. See T. SCHUELER, *supra* note 18, ch. 2.

problems may refuse to adopt nonpoint source controls and simply export their nonpoint pollution elsewhere.

The adoption of BMPs for nonpoint pollution requires either mandatory or permissive statutory authority. Soil and erosion control legislation requires local governments to adopt BMPs for nonpoint pollution caused by "land-disturbing activities." A number of states have adopted soil and erosion control legislation for agricultural²¹ and forestry²² uses. The agricultural erosion control legislation is based on a nationally-drafted model law.²³

A number of states have also adopted soil and erosion control legislation for construction sites, which are an important source of nonpoint pollution.²⁴ Although some of this legislation only authorizes local governments to adopt erosion control ordinances,²⁵ some states require local governments to adopt soil and erosion control ordinances that comply with state-adopted standards.²⁶ Some of this legislation goes further and requires comprehensive local controls for nonpoint pollution.²⁷ A Virginia law that requires local regulation of non-agricultural runoff is typi-

21. *E.g.*, MINN. STAT. ANN. § 40.19-40.20 (West Supp. 1988). *See* Woodbury County Soil Conservation District v. Ortner, 279 N.W.2d 276 (Iowa 1979) (soil conservation district order requiring farmer to adopt erosion control practices held not a taking), *noted in* Comment, *Regulatory Authority to Mandate Soil Conservation in Iowa After Ortner*, 65 IOWA L. REV. 1035 (1980).

For a discussion of agricultural nonpoint source pollution control see B. HOLMES, INSTITUTIONAL BASES FOR CONTROL OF NONPOINT SOURCE POLLUTION UNDER THE CLEAN WATER ACT — WITH EMPHASIS ON AGRICULTURAL NONPOINT SOURCES (Economics, Statistics & Cooperative Service, 1979); META SYSTEMS, INC., COSTS AND WATER QUALITY IMPACTS OF REDUCING NONPOINT SOURCE POLLUTION: AN ANALYSIS METHODOLOGY (1979).

Erosion control is only one of many strategies for reducing nonpoint pollution from agricultural sources. Other controls include reducing the use of pesticides, buffer strip planting to catch pollutants before they reach streams and lakes, and controls over livestock agriculture. *See* RUNOFF, *supra* note 15, ch. 3.

22. Many of the western states regulate silvicultural practices through forest practice acts. RUNOFF, *supra* note 15, ch. 5. *See, e.g.*, NEV. REV. STAT. § 528.055 (1987). The California law is the most stringent. CAL. PUB. RES. CODE § 4511-4517 (West 1984 & Supp. 1989). For discussion of the California law see RUNOFF, *supra* note 15, at 206-14.

23. *Model Act for Soil Erosion and Sediment Control*, 32 SUGGESTED STATE LEGISLATION 11 (1973). For discussion of this act see Garner, *Regulatory Programs for Nonpoint Pollution Control: The Role of Conservation Districts*, 32 J. SOIL & WATER CONSERVATION 199, 202 (1977).

24. EPA, NONPOINT SOURCES: AGENDA FOR THE FUTURE 20 (1989). For an earlier review of this type of legislation see, "State Soil Erosion and Sediment Control Laws," in *Clean Water Act Amendments: Non-Point Source Management Program, Hearings before the Senate Comm. on Environment & Public Works*, 98th Cong., 1st Sess. 646 (National Conference of State Legislatures 1983).

25. *E.g.*, CAL. GOV'T CODE § 66411 (West 1988); HAWAII REV. STAT. 180C (1985); MD. NAT. RES. CODE ANN. § 8-1103 (1983); MINN. STAT. ANN. § 40.25 (West Supp. 1988); WIS. STAT. ANN. § 59.974 (West 1988).

26. For a criticism of this model as applied to legislation for the regulation of nonpoint sources see Note, *State and Federal Land Use Regulation: An Application to Groundwater and Nonpoint Source Pollution Control*, 95 YALE L.J. 1433 (1986).

27. State-mandated local land use regulation is also common in state floodplain and wetlands legislation. D. MANDELKER, LAND USE LAW § 12.02, 12.07 (2d ed. 1988).

cal of this mandatory legislation.²⁸ The Virginia law requires the State Board of Soil and Water Conservation to adopt regulations "for the effective control of soil erosion, sediment deposition and nonagricultural runoff."²⁹ Each local government in the state must then adopt a soil erosion and sediment control program that is consistent with the state program.³⁰ No person may engage in any "land-disturbing activity"³¹ until the local government has approved an erosion and sediment control plan for the activity which is consistent with the state regulations.³²

BMPs, like those authorized by this type of legislation, are an effective measure for controlling nonpoint pollution. However, if they are not implemented properly, they may aggravate other water quality problems, such as groundwater pollution. The problem is that surface water and groundwater are continuous, not separate, water systems. BMPs intended to remedy surface water runoff problems may impair groundwater because the BMPs do not take this continuity into account. An example is a BMP, such as a detention pond, that may disturb surface flow and groundwater recharge. This type of problem indicates that BMPs adopted for nonpoint pollution must be coordinated with groundwater protection programs.

Coordination will not be easy, partly because groundwater protection programs are still in their infancy. EPA has issued a national groundwater strategy that contemplates a cooperative federal-state effort, but the EPA strategy leaves the adoption of groundwater protection programs to state and local governments.³³ Some local governments have adopted innovative land use regulations for areas over groundwater acqui-

28. For discussion of programs adopted under the Virginia law see C. KUO, G. LOGANATHAN, W. COX, S. SHRESTHA & K. YING, *EFFECTIVENESS OF BMPs FOR STORMWATER MANAGEMENT IN URBANIZED WATERSHEDS* (Virginia Water Resources Research Center, Virginia Polytechnic Institute & State University, 1987). For similar legislation see GA. CODE ANN. § § 12-7-1 to 12-7-18 (1988). For a discussion of the nonpoint source management program adopted by Virginia to comply with the federal program, which includes discussion of this legislation, see RUNOFF, *supra* note 15, Pt. Four.

29. VA. CODE ANN. § 10.1-561 (Supp. 1988).

30. VA. CODE ANN. § 10.1-562 (Supp. 1988).

31. Except for certain exceptions specified by the statute, a "land-disturbing activity," is "any land change which may result in soil erosion from water or wind and the movement of sediments into state waters . . . including, but not limited to, clearing, grading, excavating, transporting and filling of land . . ." VA. CODE ANN. § 10.1-560 (Supp. 1988).

32. VA. CODE ANN. § 10.1-563 (A) (Supp. 1988).

33. EPA, *A GROUNDWATER PROTECTION STRATEGY FOR THE ENVIRONMENTAL PROTECTION AGENCY* (1984). See *Nation's Groundwater Protection, Oversight: Hearing Before the Subcomm. on General Oversight & Investigations of the House Comm. on Interior & Insular Affairs*, 100th Cong., 2d Sess. (1988). Some states have adopted comprehensive state groundwater management programs. See, e.g., WIS. STAT. ANN. 160 (West 1989). See Getches, *Groundwater Quality Protection: Setting a National Goal for State and Federal Programs*, 65 CHI-KENT L. REV. 387 (1989).

fers that protect groundwater quality by limiting the density and type of development.³⁴ This type of land use and density control is useful in the control of nonpoint pollution, but the land use controls necessary to protect groundwater quality may not be consistent with the controls needed to control pollution from nonpoint sources.³⁵

C. Land Use Controls

Use and density controls are an example of the land use controls that can reduce nonpoint pollution as an alternative to best management practices. As one study noted, land use controls can reduce nonpoint pollution in two ways.³⁶ The zoning ordinance and comprehensive plan can control the rate and type of growth and the location of new development. Subdivision controls, special overlay districts and site plan review can include measures that reduce nonpoint pollution generated by individual sources of pollution.

Land use controls in nonpoint pollution programs have an established history. For years a provision in the model legislation for state soil conservation districts has authorized the adoption of agricultural land use controls.³⁷ A number of states have included this provision in their soil conservation district laws, but the model law does not require the adoption of land use controls, and most soil conservation districts have not adopted them.³⁸ The model legislation also poses formidable barriers to implementation, such as extra-majority voting requirements for the

34. See generally M. JAFFE & F. DiNOVO, *LOCAL GROUNDWATER PROTECTION* (1987); Regens & Reams, *State Strategies for Regulating Groundwater Quality*, 69 SOC. SCI. Q. 191 (1988). For a critique of groundwater control strategies see George, *Is Groundwater Regulation Blindman's Bluff?*, 3 J. PLAN. LIT. 231 (1988).

35. See generally Sivas, *Groundwater Pollution from Agricultural Activities: Policies for Protection*, 7 STAN. ENVTL. L.J. 117 (1987-88).

36. RUNOFF, *supra* note 15, at 128. Per capita and per acre pollution loadings, soil permeability, the minimization of impervious surfaces in land development and limitations on growth and development in certain areas are important factors to consider in land use controls for nonpoint sources. See NORTHERN VIRGINIA PLANNING COMM'N, *GUIDEBOOK FOR SCREENING URBAN NONPOINT POLLUTION MANAGEMENT STRATEGIES* (1979), discussed in RUNOFF, *supra* note 15, at 128-29.

For additional discussion of land use regulation in nonpoint source pollution control programs see Blatt, *From the Groundwater Up: Local Land Use Planning and Aquifer Protection*, 2 J. LAND USE & ENVTL. L. 107 (1986); Humenik, Smolen & Dressing, *Pollution From Nonpoint Sources: Where Are We and Where Should We Go*, 21 ENVTL. SCI. & TECH. 737 (1987); Jurgens, *Agricultural Nonpoint Source Pollution: A Proposed Strategy to Regulate Adverse Impacts*, 2 J. LAND USE & ENVTL. L. 194 (1986); Uchtmann & Seitz, *Options for Controlling Non-point Source Water Pollution: A Legal Perspective*, 19 NAT. RESOURCES J. 587 (1979); Note, *supra* note 26.

37. See 1 J. JUERGENSMEYER & J. WADLEY, *AGRICULTURAL LAW* § 7.10.3 (1982), for a discussion of the operations of the U.S. Soil Conservation Service, which sponsors these districts.

38. See Massey, *supra* note 12; Note, *Agricultural Nonpoint 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 (1978).

adoption of land use ordinances and optional enforcement provisions.³⁹ More recent enabling legislation in some states covers more than agricultural uses and authorizes the adoption of land use controls for all nonpoint sources.⁴⁰

A study in coastal Queen Anne's County, Maryland, indicates how comprehensive land use controls can control nonpoint pollution.⁴¹ The study found, for example, that locating farming away from vulnerable shorelines reduces nonpoint pollution from agriculture. The study also found that familiar zoning techniques, such as clustering residential development, reduce nonpoint pollution by increasing the amount of open space in developments. Density bonuses,⁴² another well-known zoning technique, can encourage improvements necessary to prevent shoreline erosion by providing density increases that offset the cost of erosion controls. But the study questioned the conventional wisdom that lower densities necessarily mean less water pollution. The study found that the water pollution loading rate per unit actually decreased with increased density.

The Queen Anne's County study proposed a zoning technique known as performance zoning to regulate pollution from nonpoint sources. Performance zoning regulates land development under performance criteria that evaluate its environmental and other impacts, including its impact on housing supply. As a recent review of performance zoning noted, it is not based on predetermined land use regulations but on the physical characteristics and functions of a development measured against predetermined criteria and standards.⁴³ A number of communities have adopted performance zoning in order to preserve environmental resources.⁴⁴ Criteria in the Queen Anne's County study that regulate the location of agricultural activities and that require the clustering of housing to minimize loss of natural cover illustrate the use of performance zoning to limit nonpoint pollution.

Carrying capacity analysis is another type of environmentally-based land use planning that can provide a basis for land use controls for nonpoint pollution. Carrying capacity analysis determines the ability of land to "carry" new development by analyzing its physical capacities,

39. See Note, *supra* note 38, at 605-06.

40. E.g., WIS. STAT. ANN. § 92.11 (West Supp. 1988).

41. For discussion of the study see Kendig & Perkel, *Performance Zoning for Sensitive Land in Queen Anne's County, Maryland*, 47 Urb. Land, no. 8, at 17 (1988).

42. See D. MANDELKER, *LAND USE LAW* § 5.58 (2d ed. 1988).

43. D. PORTER, P. PHILLIPS & T. LASSAR, *FLEXIBLE ZONING: HOW IT WORKS* 11 (1988).

44. *Id.* at 81-82.

such as the ability of the land to absorb runoff from nonpoint sources.⁴⁵ Land use controls implement carrying capacity analysis by limiting uses and densities to levels the carrying capacity of the land can handle.

Carrying capacity analysis has a strong following as a technique for developing environmentally protective land use controls, but critics complain that it is static and does not consider the dynamic ecological relationships that exist between water flow, water quality and land use. Understanding these relationships is essential to the development of land use controls for nonpoint pollution.⁴⁶ Austin, Texas adopted carrying capacity controls to protect the Edwards Aquifer, but a study of the program found that carrying capacity analysis made the wrong choices for land use controls intended to control stormwater runoff.⁴⁷ The study developed new techniques for analyzing nonpoint pollution that consider the inherent dynamics in the water quality and land use relationship. To develop land use controls for stormwater runoff, the study considered travel distance and flow rate to generate locations where absorption of stormwater from new development is optimal. These criteria are incorporated in the zoning ordinance as the basis for regulating land uses and densities in the stormwater watershed area.

This discussion suggests that two types of land use controls are useful in controlling nonpoint pollution. One type of control is limited to a particular environmental resource area and includes controls on nonpoint sources. The aquifer protection zones some municipalities have adopted to protect groundwater supplies are an example of this type of control.⁴⁸ A similar technique is the area of critical state concern, a state land use control intended for use in areas, such as environmental resource areas, in which the state has an interest. A state planning agency designates critical areas and prepares comprehensive land use regulations that displace local regulations that would otherwise apply. The state agency could designate an area with nonpoint source problems as a critical area and adopt regulations to control nonpoint pollution.⁴⁹

45. The leading study of carrying capacity analysis is I. MCHARG, *DESIGN WITH NATURE* (1969). For a brief criticism of carrying capacity analysis see D. MANDELKER, *NEPA LAW & LITIGATION* § 10.06 (1984).

46. See generally T. SCHUELER, *supra* note 18, ch. 1 (Washington Metropolitan Water Resources Plan. Bd., 1987).

47. The study is reported in Marsh & Hill-Rowley, *Water Quality, Stormwater Management, and Development Planning on the Urban Fringe*, 35 *WASH. U.J. URB. & CONTEMP. L.* 3 (1989) (carrying capacity analysis had located development at places where pollution from nonpoint sources would be aggravated).

48. See Blatt, *supra* note 36, at 107.

49. This regulatory technique was first proposed by the American Law Institute in its *MODEL LAND DEV. CODE*. Model Land Development Code, Art. 7, Pt. 2 (1976). A number of states have adopted critical area control legislation, but Florida has used it most extensively. The state has

A second type of control is the adoption of comprehensive land use controls that make water quality and nonpoint source problems an element of the program. The land use controls suggested by the Queen Anne's County study are an example. A few states authorize or mandate planning and land use control programs that require attention to water quality improvement and remedies for nonpoint pollution. These programs require comprehensive planning and regulation at the state and regional or county level.⁵⁰

D. Land Use Controls for Nonpoint Sources as an Inter-Governmental Problem

This discussion indicates that more than one level of government may adopt land use controls for nonpoint sources. This distribution of regulatory responsibility among different governmental levels creates tensions that limit the effectiveness of these controls. With few exceptions, land use controls are a local responsibility,⁵¹ yet most local governments are unlikely to adopt stringent controls over nonpoint sources. The reason is that nonpoint pollution is a classic environmental externality that a local government can export outside its jurisdiction.⁵² The local government in which a nonpoint source is located does not have an incentive to regulate it because the water pollution created by the nonpoint source usually affects water quality elsewhere. Indifference to nonpoint pollu-

classified a number of environmentally threatened areas as critical areas and has adopted protective legislation. For discussion of the Florida experience see DeGrove, *Critical Area Programs in Florida: Creative Balancing of Growth and the Environment*, 34 WASH. U.J. URB. & CONTEMP. L. 51 (1988).

50. Florida mandates a hierarchy of state, regional and local plans that require attention to water quality problems. See Pelham, Hyde & Banks, *Managing Florida's Growth: Toward an Integrated State, Regional, and Local Comprehensive Planning Process*, 13 FLA. ST. U.L. REV. 515, 517 (1985). Florida has also adopted Surface Water Improvement and Management Act, FLA. STAT. ANN. § § 373.451-373.4595 (West 1988 & Supp. 1989). The Act requires water management districts to develop surface water management plans for "water bodies of regional or statewide significance." Among the elements the plan is to include is a timetable for bringing all sources of water pollution, including nonpoint sources, into compliance with state water quality standards. *Id.* at § 373.453(d).

Minnesota has adopted a voluntary Comprehensive Local Water Management Act. MINN. STAT. ANN. 110B (West 1987 & Supp. 1989). Counties that decide to participate in the program authorized by the Act are to prepare a comprehensive water plan. Plans and land use controls of local governments in the county must be consistent with the county water plan. The Act does not specifically include nonpoint pollution, but nonpoint pollution is clearly to be covered by the water plans authorized by the Act. Fifty counties are participating in this planning program. For discussion of the Florida and Minnesota legislation see RUNOFF, *supra* note 15, at 356-66.

51. An exception can be found in the state land use controls adopted as part of the "Quiet Revolution" in land use control. For an analysis of these state programs see J. DEGROVE, *LAND USE & POLITICS* (1984). State critical area controls are an example of state land use controls adopted as part of the Quiet Revolution. See text accompanying note 49, *supra*.

52. See text accompanying notes 19-35, *supra*.

tion is reinforced if the nonpoint source, such as agriculture, is economically important to the local economy.

Another obstacle to controlling nonpoint pollution is that the nonpoint source may be unable to internalize the cost of the control or pass it on to consumers.⁵³ This problem particularly arises with controls on agricultural nonpoint sources. These controls can be expensive in an industry marked by thin margins and low profitability. Nor are farmers, as an unorganized production group, able to pass the costs of these controls on to consumers.⁵⁴ In contrast, nonpoint source land use controls applied to urban development may not present this problem. Urban developers may be able to pass the cost of these controls on to their consumers,⁵⁵ and local governments can use density bonuses to offset the cost of controls necessary to reduce nonpoint pollution.

These concerns suggest that creating a federal regulatory program for nonpoint pollution raises serious political problems. Experience with the section 208 regional water quality planning program authorized by the Clean Water Act provides little encouragement that these problems can be resolved by mandated land use controls.⁵⁶ EPA ultimately gave up on any attempt to require land use controls in section 208 programs because of local resistance, including resistance to regional controls that would displace local autonomy.⁵⁷ There is a similar tendency in all federally-sponsored land use control programs. Federal agencies emphasize the process under which state and local programs are developed rather than the substance they contain.⁵⁸ President Reagan's Executive Order

53. Point sources are in a different situation, since many point sources are industrial plants in industries where passing costs on to consumers may be possible. Industrial sources may also be able to internalize controls on water pollution through changes in industrial technology.

54. See RUNOFF, *supra* note 15, at 45-53; Montgomery, *Control of Agricultural Water Pollution: A Continuing Regulatory Dilemma*, 1976 U. ILL. L.F. 533, 550-56. The problem is helped to some extent by federal agricultural subsidies and changes in the federal tax law that removed incentives for wetlands destruction and farming practices that increased soil erosion. See Malone, *A Historical Essay on the Conservation Provisions of the 1985 Farm Bill: Sodbusting, Swampbusting and the Conservation Reserve*, 34 U. KAN. L. REV. 577 (1986).

55. For a discussion of passing-on possibilities in the context of exactions levied against new development, see Ellickson, *Suburban Growth Controls: An Economic and Legal Analysis*, 86 YALE L.J. 385, 399 n.34 (1977).

56. Clean Water Act § 208, 33 U.S.C.A. § 1288 (West Supp. 1988). The § 319 nonpoint source program was one of the reasons given by President Reagan for vetoing the Clean Water Act amendments in 1986. He stated that "[o]ver \$500 million was spent on a similar program between 1973 and 1981, with little or no positive result. Restarting expensive planning programs that have failed in the past is not justifiable." President's Memorandum Withholding Approval of S. 1128, 22 WEEKLY COMP. PRES. DOC. 1541 (Nov. 6, 1986).

57. For a brief discussion of the § 208 program see F. ANDERSON, D. MANDELKER & A. TARLOCK, *ENVIRONMENTAL PROTECTION: LAW AND POLICY* 362-64 (1984).

58. For a discussion of the land use program established under the national Coastal Zone Management Act see *infra* text accompanying notes 66-72.

on Federalism encourages this approach. It urges federal agencies to refrain as much as possible from establishing uniform national standards for state programs.⁵⁹

The expected opposition of many local governments to nonpoint pollution programs indicates that federal leadership is necessary. States may have to adopt mandatory planning and land use control programs that can override local objections, but states are unlikely to adopt programs of this type unless there is federal pressure.⁶⁰

E. Related Federal Programs That Affect Nonpoint Source Controls

Developing an effective federal program for nonpoint sources is complicated by other federal land use planning and land use control programs that apply to nonpoint pollution. Some of these programs are in the Clean Water Act. The 1987 amendments to the Act, for example, require a discharge permit for stormwater discharges by municipal storm sewers. The Act requires as a condition to a permit that local governments adopt best management practices from nonpoint sources to reduce stormwater flow into storm systems.⁶¹ This best management practice requirement overlaps with the section 319 nonpoint source program, which also requires the use of BMPs.

The Clean Water Act contains a program that requires a permit from the U.S. Army Corps of Engineers, with EPA concurrence, for dredge and fill activities in waters covered by the Act.⁶² This permit requirement applies to development in wetlands.⁶³ Wetlands are essential to the control of nonpoint pollution because they slow the rate of surface water runoff and remove sediment and other pollutants before they reach lakes and streams.⁶⁴

The Corps and EPA administer the dredge and fill permit program with wetland preservation as the primary goal. Controlling nonpoint pollution is secondary, and policies adopted for wetland preservation may not be consistent with a nonpoint source regulatory program. One

59. Exec. Order No. 12,612, 52 Fed. Reg. 41685 § 3(d)(2) (1987).

60. For discussion of these issues see Note, *supra* note 26.

61. Clean Water Act § 402(p)(3)(B)(iii), 33 U.S.C.A. § 1342(p)(3)(B)(iii) (West Supp. 1988). For EPA's proposed rule that implements this provision see 53 Fed. Reg. 49,416, 49,472-73 (1988), to be codified as 40 C.F.R. § 122.26(d)(2)(iv). For discussion of the proposed regulation in EPA's regulatory preamble see 53 Fed. Reg. 49,456-59 (1988).

62. Clean Water Act § 404, 33 U.S.C.A. § 1344 (West Supp. 1988).

63. See *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121 (1985) (upholding Corps regulation bringing wetlands saturated but not inundated by adjacent bodies of water under the program). See generally *Symposium Issue: Wetland Law and Policy*, 7 VA. J. NAT. RESOURCES L. 217 (1988).

64. See OUR NATION'S WETLANDS: AN INTER-AGENCY TASK FORCE REP. (1978).

example is the EPA's policy for development that is not water-dependent. This policy establishes a presumption that an alternative location outside a wetlands is preferable to a wetlands location for a use that is not water-dependent.⁶⁵ This presumption reinforces a nonpoint pollution program if it prohibits land development in a wetlands that would destroy the ability of the wetlands to absorb pollutants. The presumption does not reinforce a nonpoint pollution program if it relocates development at an alternative location where it will aggravate nonpoint pollution problems.

The Coastal Zone Management Act ("CZMA")⁶⁶ authorizes another federally-assisted state land use program that has a close relationship to nonpoint pollution control. The CZMA authorizes a program of federal assistance to the coastal and Great Lakes states for the preparation of management programs for their coastal areas. Management programs can include controls over wetlands and nonpoint sources.⁶⁷ Most of the coastal states participate in this program, and their coastal management programs have been approved by the federal agency and in operation for some time.

Like EPA in its administration of the section 208 regional planning program, the federal agency that administers the coastal management program is weak on substance and strong on process. This tendency was encouraged by the failure of the CZMA to include clear substantive policies when it was first enacted, the Reagan Administration's efforts to terminate the program and its neglect of the program when Congress rebuffed termination efforts.⁶⁸ Congress added a set of substantive policies in 1980 in response to complaints that the program did not have a clear substantive direction.⁶⁹ One of these policies, like EPA's policy for the dredge and fill permit program, requires states to give priority to

65. For a case upholding EPA's reliance on its water-dependent use policy to veto a dredge and fill permit for a shopping mall see *Mall Properties v. Marsh*, 672 F. Supp. 561 (D. Mass. 1987), *appeal dismissed*, 841 F.2d 440 (1st Cir.), *cert. denied*, 109 S. Ct. 128 (1988). See Houck, *Hard Choices: The Analysis of Alternatives Under Section 404 of the Clean Water Act and Similar Environmental Laws*, 60 U. COLO. L. REV. 773 (1989).

66. 16 U.S.C.A. § § 1451-1464 (West 1985).

67. See 16 U.S.C.A. § 1452(2)(A) (West 1985) (congressional declaration of policy calls for protection of wetlands); *id.* at § 1451(i) (congressional findings encourage states to develop "land and water use programs for the coastal zone").

68. For a review of these developments see Archer & Knecht, *The U.S. National Coastal Zone Management Program—Problems and Opportunities in the Next Phase*, 15 COASTAL MGMT. 103 (1987) (Mr. Knecht was the first CZMA Administrator).

69. See 16 U.S.C.A. § 1452 (West 1985). The Reagan Administration used the policy directives primarily to attempt to get coastal states to adopt more lenient policies toward the siting of coastal energy facilities. See 17 *Env'tl. Rep. (BNA)* 267 (1986) (Presidential directive called for "reduced regulatory barriers to operation and development of natural energy resources" and for a review of state coastal programs to advance the "national interest in energy security"). For discus-

coastal-dependent uses.⁷⁰

The Coastal Zone Management Act states that all "requirements" established by federal, state and local governments under the Clean Water Act are to be incorporated in state coastal management programs.⁷¹ Whether the nonpoint pollution program authorized by section 319 of the Clean Water Act is a "requirement" covered by this provision is not clear. What is clear is that nonpoint pollution is a serious problem in coastal areas. Congress should and is likely to give more attention to coordinating state coastal management programs with nonpoint pollution controls authorized by the Clean Water Act.

The coastal management program remains alive and well in the coastal states, and some state programs include protective environmental controls that are potentially important in a nonpoint pollution program. The California Coastal Act, for example, which legislates the most comprehensive coastal management program in the country, contains coastal development policies that require the protection of wetlands and agricultural areas.⁷² The Act implements these and other coastal policies through a permit program for all major development in the coastal zone. A permit cannot issue unless it is consistent with the coastal management policies contained in the Coastal Act.

III. CONTROLLING NONPOINT POLLUTION UNDER THE CLEAN WATER ACT

A. *The Program Before the 1987 Amendments*

The Clean Water Act legislated a regulatory program for controlling water pollution that is difficult to apply to nonpoint pollution. Effluent limitations are the principal regulatory measure authorized for controlling water pollution, but they are difficult to apply to nonpoint

sion of the legislative history of the original CZMA see Mandelker & Sherry, *The National Coastal Zone Management Act of 1972*, 7 URB. L. ANN. 119 (1974).

70. 16 U.S.C.A. § 1452(2)(C) (West 1985). For discussion of the possible impact of a policy of this kind on nonpoint pollution see text accompanying note 65, *supra*.

71. 16 U.S.C.A. § 1456(f) (West 1985). The importance of nonpoint pollution in coastal zones has been noted. See Testimony of Natural Resources Defense Council, Inc. in *Coastal Water Quality*, *supra* note 8, at 111. NRDC notes that nonpoint source pollution is the most significant source of coastal pollution. It then states that control of nonpoint source pollution in coastal areas is difficult because it requires a high degree of intergovernmental coordination, ongoing aggressive oversight and local planning which so far has been lacking. NRDC calls for nonpoint source pollution control programs to address the cumulative effects of development and to apply to areas outside as well as inside coastal zones. *Id.*

72. See CAL. PUB. RES. CODE § 30241 (West 1986) (protection of agricultural areas); *id.* at § 30250 (new urban development to be located close to existing developed areas, and in areas where it will not have significant effects on "coastal resources" when existing areas cannot accommodate it).

sources. Though the courts have held that nonpoint sources such as stormwater sewers and animal feedlots are point sources, they have not required EPA to adopt quantitative effluent limitations for these sources.⁷³

Because effluent limitations do not control pollution from nonpoint sources, they are subject to control under the Clean Water Act only if they affect the attainment of state water quality standards. The Clean Water Act requires state adoption of water quality standards as well as their approval by EPA,⁷⁴ but water quality standards play only a secondary role in the regulatory program legislated by the Act. Unlike the National Ambient Air Quality Standards required by the Clean Air Act, water quality standards are not directly enforceable through a permit system. The Clean Water Act authorizes only a limited number of indirect controls to enforce water quality standards.⁷⁵ One of these controls is the adoption by the states of more stringent effluent limitations for point sources if more stringent effluent limitations are necessary to attain state water quality standards.⁷⁶

Another measure the Clean Water Act authorizes for the attainment of state water quality standards is state adoption of Total Maximum Daily Loads ("TMDL"s). A TMDL assists in the attainment of a water quality standard by limiting the total daily load of pollutants that polluters may discharge. The Clean Water Act requires states to adopt TMDLs for waters where effluent limitations on point sources will not achieve state water quality standards.⁷⁷ EPA regulations extend the statute to require TMDLs for nonpoint as well as point sources of pollution⁷⁸ and require TMDLs when nonpoint source controls, such as best management practices, are not sufficient.⁷⁹ This means a TMDL is required whenever BMPs for nonpoint sources as well as effluent limita-

73. National Resources Defense Council, Inc. v. Costle, 568 F.2d 1369 (D.C. Cir. 1977). EPA is just beginning to implement controls for stormwater discharges. See *supra* text accompanying note 61. Some nonpoint sources could probably be reclassified as point sources and subjected to point source controls. Irrigation return flow systems, which presently are exempted from the Act, are an example.

74. Clean Water Act § 303, 33 U.S.C.A. § 1313 (West Supp. 1988).

75. *But see* Oregon Natural Resources Council v. United States Forest Serv., 834 F.2d 842 (9th Cir. 1987) (allowing citizen suit to determine whether nonpoint pollution from silvicultural sources violates state water quality standard).

76. For example, a state may adopt effluent limitations for any waters on which nationally adopted standards are not sufficient to implement a state water quality standard. Clean Water Act § 303(d)(1)(A), 33 U.S.C.A. § 1313(d)(1)(A) (West Supp. 1988). See also Clean Water Act § 302, 33 U.S.C.A. § 1312 (Supp. 1988) (EPA has similar authority).

77. Clean Water Act § 303(d)(1)(C), 33 U.S.C.A. § 1313(d)(1)(C) (West Supp. 1988).

78. 40 C.F.R. § 130.7(a) (1988).

79. 40 C.F.R. § 130.7(b)(1)(iii) (1988).

tions cannot achieve state water quality standards. The states have been extremely slow to adopt TMDLs because the allocation of pollution loads among competing pollution sources creates difficult regulatory problems.

Statutory authority for these water quality attainment measures is in Title III of the Clean Water Act, which authorizes a state water quality planning process.⁸⁰ Title II contains additional authority in section 208 for a regional water quality planning program.⁸¹ This title requires the preparation of a regional water quality plan which is to include controls over the location of publicly owned sewage treatment plants and pollution sources.

The regional water quality planning program authorized by section 208 applies to nonpoint pollution. Section 208 requires a process to "identify" and "control" nonpoint pollution from a variety of nonpoint sources, including agricultural runoff and construction activity.⁸² The statute specifically authorizes "land use requirements" as one of the controls required for nonpoint sources covered by section 208. Until Congress adopted the section 319 nonpoint pollution program in 1987, the water quality planning programs embedded in the Clean Water Act provided the only statutory basis for controls over nonpoint sources.⁸³

EPA began to emphasize controls over nonpoint pollution in the section 208 program during the Carter Administration when it became clear that nonpoint pollution was a serious and intractable problem. In 1983 the Senate Environment Committee held hearings on Clean Water Act amendments that would have authorized a stronger nonpoint source program.⁸⁴ A survey report presented at committee hearings indicated that the states had adopted a variety of nonpoint source control programs, but that the programs were erratic and success marginal.⁸⁵ Congress did not adopt the nonpoint source control program considered in the 1983 hearings, but the legislation introduced at that time provided the basis for the section 319 nonpoint pollution program Congress adopted in 1987.

80. Clean Water Act § 303, 33 U.S.C.A. § 1313 (West Supp. 1988).

81. Clean Water Act § 208, 33 U.S.C.A. § 1288 (West Supp. 1988).

82. Clean Water Act § 208(b)(2)(F-K), 33 U.S.C.A. § 1288(b)(2)(F-K) (West Supp. 1988). For discussion of the 1977 amendments see Lazarus, *Nonpoint Source Pollution*, 2 HARV. ENVTL. L. REV. 176 (1978).

83. See Montgomery, *supra* note 54 (noting that nonpoint source pollution must be regulated through water quality standards, but that development of these standards has always been problematic).

84. *Clean Water Act Amendments: Non-Point Source Management Program Hearings before the Senate Comm. on Environment & Public Works*, 98th Cong., 1st Sess. (1983).

85. *Id.* at 193-200.

IV. THE SECTION 319 NONPOINT POLLUTION PROGRAM AND ITS IMPLEMENTATION BY EPA

A. *The Statutory Program*

Congress added the section 319 nonpoint source program⁸⁶ to the Clean Water Act because it was dissatisfied with earlier attempts at controlling nonpoint pollution. The section 319 program stands alone. It is linked with neither the water quality planning programs nor with the control measures authorized by the Act for attaining water quality standards.

Section 319 mandates a two-step process for the control of nonpoint pollution that resembles the coastal management program authorized by the national Coastal Zone Management Act. Each state first prepares an assessment report that identifies its nonpoint pollution problems and measures for their control.⁸⁷ The state then submits a management program that details the controls it intends to adopt for nonpoint sources.⁸⁸ EPA must approve both the assessment report and the management program.⁸⁹ EPA may prepare an assessment report for a state. If it disapproves the state's report,⁹⁰ EPA may not prepare a management report for a state as opposed to an assessment report.⁹¹ A local "public agency or organization" may submit a management report if EPA disapproves a state report, but only if both EPA and the state agree to this submission.⁹²

The assessment report must identify navigable waters⁹³ where the control of nonpoint pollution is necessary to meet water quality standards and the statutory goals.⁹⁴ It must also identify nonpoint sources

86. Clean Water Act § 319, 33 U.S.C.A. § 1329 (West Supp. 1988). For a helpful citizen handbook discussing the federal program and its implementation see *CONTROLLING POLLUTION*, *supra* note 19.

87. Clean Water Act § 319(a), 33 U.S.C.A. § 1329(a) (West Supp. 1988).

88. Clean Water Act § 319(b), 33 U.S.C.A. § 1329(b) (West Supp. 1988). For discussion of the Virginia nonpoint pollution program prepared to comply with § 319 see *RUNOFF*, *supra* note 15, Pt. Four.

89. Clean Water Act § 319(d), 33 U.S.C.A. § 1329(d) (West Supp. 1988).

90. Clean Water Act § 319(d)(3), 33 U.S.C.A. § 1329(d)(3) (West Supp. 1988).

91. Clean Water Act § 319(d)(2), 33 U.S.C.A. § 1329(d)(2) (West Supp. 1988).

92. Clean Water Act § 319(e), 33 U.S.C.A. § 1329(e) (West Supp. 1988).

93. The Conference Report notes that the assessment report is to identify all bodies of water where nonpoint source pollution is a problem but that the state also is to set priorities when dealing with nonpoint source problems. H.R. CONF. REP. NO. 1004, 99th Cong., 2d Sess. 143-144 (1986). See EPA, *SETTING PRIORITIES: THE KEY TO NONPOINT SOURCE CONTROL* (1987).

94. The reference is to the interim and final legislative water quality goals. Clean Water Act § 101(a), 33 U.S.C.A. § 1251(a) (West Supp. 1988). The final goal calls for the zero discharge of water pollutants. As Senator Durenberger explained in floor debate: "The reference both to water quality standards and to the goals and requirements of the Clean Water Act arises from the fact that

that add "significant" pollution to these waters.⁹⁵ This done, the state is to describe the process for identifying "best management practices and measures to control" nonpoint sources.⁹⁶

The assessment report reinforces the link between nonpoint pollution control and the attainment of water quality standards. It also reinforces the need to develop nonpoint pollution control measures for the watersheds to which water quality standards apply. A comprehensive approach to nonpoint pollution based on the watershed as the geographic unit can provide the coordination necessary for nonpoint source controls by local governments within the watershed.

The management program required by section 319 is to identify "best management practices and measures" to reduce pollution from nonpoint sources⁹⁷ as well as programs to implement these best management practices.⁹⁸ These programs may include regulatory requirements for nonpoint sources, but regulatory requirements are not mandatory. A state may also include educational programs and programs of financial assistance.⁹⁹ Like most federal legislation that requires the adoption of state programs, section 319 does not indicate what type of program is preferred or should have priority.

Additional key requirements for state programs are contained in the provision governing EPA approval of state management plans.¹⁰⁰ EPA may disapprove an application for the approval of a management plan if the application does not comply with statutory submission requirements, if adequate authority for the program does not exist, and if the schedule for implementing the program "is not sufficiently expeditious."¹⁰¹ The final and most important provision authorizes disapproval if "the prac-

not all water quality standards yet reflect the act's goals and requirements." 132 CONG. REC. S16,440 (daily ed. Oct. 16, 1986).

The 1987 amendments added a new provision to the statutory goals that reinforces the new nonpoint source pollution control program. The provision 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 chapter to be met through the control of both point and nonpoint sources of pollution. Clean Water Act § 101(a)(7), 33 U.S.C.A. § 1251(a)(7) (West Supp. 1988).

95. Clean Water Act § 319(a)(1)(B), 33 U.S.C.A. § 1329(a)(1)(B) (West Supp. 1988). As Senator Durenberger stated in floor debate, "the term 'significant' is inserted to exclude trivial sources of pollutants or sources of pollutants which are not related to the water quality programs identified by the State [nonpoint source] program." 133 Cong. Rec. S749 (daily ed. Jan. 14, 1987).

96. Clean Water Act § 319(a)(1)(C), 33 U.S.C.A. § 1329(a)(1)(C) (West Supp. 1988).

97. Clean Water Act § 319(b)(2)(A), 33 U.S.C.A. § 1329(b)(2)(A) (West Supp. 1988).

98. Clean Water Act § 319(b)(2)(B), 33 U.S.C.A. § 1329(b)(2)(B) (West Supp. 1988).

99. *Id.*

100. Clean Water Act § 319(d), 33 U.S.C.A. § 1329(d) (West Supp. 1988). The statute authorizes partial approval.

101. Clean Water Act § 329(d)(2)(E), 33 U.S.C.A. § 1329(d)(2)(C) (West Supp. 1988).

tices and measures proposed . . . are not adequate to reduce the level of pollution in navigable waters in the State resulting from nonpoint sources and to improve the quality of navigable waters in the State."¹⁰² Note that this provision requires only the adequacy of "measures proposed." The decision on what kinds of measures to include apparently lies with the states.

The critical question is whether section 319 requires states to adopt a regulatory program for controlling nonpoint pollution or whether it requires only a process for the consideration of nonpoint pollution problems at the state level.¹⁰³ Congressional debate on section 319 indicates that Congress did not intend a federal program that would require states to adopt regulatory controls. The division of the nonpoint source program into separate assessment report and management report stages, together with the delegation of authority to EPA to revise only the assessment report, confirms this interpretation. Senator Mitchell emphasized the different role of EPA at each stage when he explained that section 319 "does not provide for Federal intervention in State and local planning decisions."¹⁰⁴ He added that the legislation does not "direct" states to adopt regulatory programs for the control of nonpoint pollution.¹⁰⁵ "If a State decides that it does not want a program to control nonpoint pollution, that is it."¹⁰⁶

Although a regulatory program for the control of nonpoint pollution is not required, Congress authorized funding for regulatory programs that states decide to adopt.¹⁰⁷ Section 319 authorizes grants to assist states in providing financial assistance for their nonpoint source programs.¹⁰⁸ The statute prohibits grants to individuals except for dem-

102. Clean Water Act § 319(d)(2)(D), 33 U.S.C.A. § 1329(d)(2)(D) (West Supp. 1988).

103. The Conference Report on § 319 is not helpful on this point. H.R. CONF. REP. No. 1004, 99th Cong., 2d Sess. 143-45 (1986). The National Environmental Policy Act (NEPA) is the best example of federal environmental legislation that requires a process for the consideration of environmental impacts. See generally D. MANDELKER, NEPA LAW & LITIGATION (1984).

104. 133 CONG. REC. S1698 (daily ed. Feb. 4, 1987).

105. *Id.*

106. *Id.* Other statements in floor debate support this interpretation. For example, Senator Chaffee reviewed the previous experience with federal environmental land use planning and stated: The bill "just is not Federal land planning. . . . Farmers are not required to seek permission from the Federal Government to carry out their farming practices." Administration arguments that the section was a federal land use bill were dismissed as "red herrings." *Id.* at S1695.

107. Clean Water Act § 319(h), 33 U.S.C.A. § 1329(h) (Supp. 1988). There has as yet been no appropriation. Funding for nonpoint source programs under § 319 is also available under the statutory provision authorizing the program for construction grants for publicly owned treatment works. The EPA Administrator is required to set aside one percent of the funds available in this program, or \$100,000, whichever is greater, each year for carrying out the nonpoint source program authorized by § 319. See Clean Water Act § 205(j)(5), 33 U.S.C.A. § 1285(j)(5) (West Supp. 1988).

108. Clean Water Act § 319(h), 33 U.S.C.A. § 1329(h) (West Supp. 1988). Governors of states may also obligate up to twenty percent of their grant funds for treatment works for innovative and

onstration programs.¹⁰⁹ This limitation prohibits the use of grant money to subsidize BMPs by farmers and others who do not have the financial resources to undertake such measures and who are not helped by density bonuses or other compensatory land use measures.¹¹⁰

The nonpoint source program authorized by section 319 is weakened by a failure to legislate linkages with the other federal programs that control nonpoint pollution. These programs include the dredge and fill permit program that is part of the Clean Water Act¹¹¹ and the national coastal zone management program.¹¹² The Act is also silent on links between the nonpoint source program and regional water quality planning under section 208.¹¹³ Floor debate indicates that the use of section 208 plans and agencies is not required in nonpoint source programs adopted under section 319.¹¹⁴ Nor does the Act provide a clear link with EPA's groundwater strategy. One subsection of section 319 authorizes federal grants to protect groundwater quality,¹¹⁵ but these grants are not integrated with the nonpoint source program that section 319 creates.

Congress did include a federal consistency provision in section 319 that may provide an important incentive to state participation in the nonpoint source program. The federal consistency provision in section 319 is a form of "reverse federal preemption" similar to the federal consistency provision contained in the national Coastal Zone Management Act.¹¹⁶ The federal consistency provision in section 319 requires states to identify federal financial assistance programs and development projects to determine whether they are consistent with their nonpoint source programs.¹¹⁷ Like the federal consistency requirement in the

alternative nonpoint source control programs. Clean Water Act § 201(g)(1), § 33 U.S.C.A. § 1281(g)(1) (West Supp. 1988).

109. Clean Water Act § 319(h)(7), 33 U.S.C.A. § 1329(h)(7) (West Supp. 1988).

110. Federal funds are not to be used as a general subsidy or for general cost sharing to support implementation of best management practices. H.R. CONF. REP. No. 1004, 99th Cong., 2d Sess. 145 (1986).

111. See *supra* text accompanying notes 62-65.

112. See Testimony of Natural Resources Defense Council, Inc., *supra* note 8.

113. See *supra* text accompanying notes 75-85.

114. 132 CONG. REC. S16441 (daily ed. Oct. 16, 1986) (remarks of Senator Durenberger, but indicating that states are encouraged to "build upon" § 208 program).

115. Clean Water Act § 319(i), 33 U.S.C.A. § 1329(i) (West Supp. 1988). Senator Durenberger noted in floor debate that measures taken to reduce nonpoint source pollution could aggravate groundwater contamination and noted that states were to consider the impact of BMPs for nonpoint sources on groundwater quality. 133 CONG. REC. S749 (daily ed. Jan. 14, 1987).

116. See 16 U.S.C.A. § 1456 (West Supp. 1988).

117. [E]ach Federal department and agency shall modify existing regulations to allow States to review individual development projects and assistance applications . . . [a]nd shall accommodate, according to the requirements and definitions of Executive Order 12372, . . . the concerns of the State regarding the consistency of such applications or projects with the State nonpoint source pollution management program.

Coastal Zone Management Act, the consistency requirement in section 319 can become an important measure for implementing state nonpoint pollution programs. States can invoke the federal consistency provision to block federal and federally-funded projects that interfere with state nonpoint pollution controls.¹¹⁸

B. EPA Program Guidance

EPA decided to implement the section 319 nonpoint source program by issuing an informal "guidance" it did not publish for comment in the Federal Register as a rule.¹¹⁹ Several recommendations and requirements in the guidance attempt to correct deficiencies in section 319. For example, EPA encourages states to include their nonpoint source programs in an integrated State Clean Water Strategy that includes related programs such as wetlands and groundwater protection.¹²⁰ States are required to include information in their assessment reports on wetlands impacted by nonpoint sources and groundwater problems that nonpoint sources create.¹²¹ EPA approval requirements, however, relate primarily to the adequacy of the process in which the assessment report is prepared and the adequacy with which problems designated by the statute are identified.¹²²

Guidance requirements for management plans encourage the setting of priorities for nonpoint pollution control.¹²³ They also require states "to consider the impact of best management practices on ground water."¹²⁴ Approval requirements focus once more on the "identification" of designated management plan elements¹²⁵ and do not contain substantive requirements except possibly for the requirement that the state identify "appropriate" BMPs.¹²⁶

Clean Water Act § 319(k), 33 U.S.C.A. § 1329(k) (West Supp. 1988).

118. Senator Durenburger in floor debate explained the meaning of the requirement that federal agencies must "accommodate" projects to state nonpoint source programs: "[T]he term 'accommodate' . . . is a term of art Accommodate means modify to take into account concerns expressed by a State or local government in the review process so as to satisfy and remove those concerns." 133 CONG. REC. S751 (daily ed. Jan. 14, 1987).

119. EPA, NONPOINT SOURCE GUIDANCE (1987).

120. *Id.* at 2, 3. EPA suggests that states use their state water quality reports as a basis for meeting the requirements of nonpoint state assessment reports. *Id.* at 4. See Clean Water Act § 305(b), 33 U.S.C.A. § 1315(b) (West Supp. 1988).

121. See EPA, *supra* note 119, at 6.

122. *Id.* at 8-10.

123. *Id.* at 11, 12.

124. *Id.* at 14.

125. *Id.* at 16-18.

126. *Id.* at 16.

V. EVALUATING THE FEDERAL NONPOINT POLLUTION PROGRAM

Nonpoint pollution is a significant source of water pollution. It affects lakes and streams and groundwater supplies as well as vulnerable environments such as our coastal areas. The Clean Water Act has legislated a number of programs for nonpoint pollution, but they have not succeeded. The problem is that the adoption and implementation of programs for nonpoint pollution must overcome difficult management and political obstacles.

Nonpoint pollution is pervasive and is caused by the downpour of rainfall on all of the land use and land-disturbing activities of modern man. Since man and his use of land is everywhere, a comprehensive nonpoint pollution program will have to include controls over all the land uses and land disturbances that create the nonpoint pollution problem. The need for a comprehensive regulatory program aggravates political opposition. Local governments that export their nonpoint pollution problems will resist vigorously. Resistance will also come from nonpoint source polluters, such as farmers, who may not be able to internalize the cost of compliance. These are powerful political groups.

Problems also arise because of conflicts with other federal land use programs, such as the state coastal management programs authorized by the federal Coastal Zone Management Act. Nonpoint pollution is a serious problem in coastal zones. The limited nonpoint pollution program mandated by section 319 may be overcome by a more effective program mandated in the CZMA, which is administered by another federal agency.

The nonpoint pollution program legislated by section 319 compromises these difficulties. Section 319 encourages, but does not mandate, state participation through program grants and through the incentive to states provided by the federal consistency requirement. EPA may intervene only if a state does not compile an adequate assessment program, and only then if it decides to do its own assessment. States are free to adopt or reject a regulatory program.

More cannot be expected in the present political climate. The nation has other more important environmental priorities, such as acid rain and global warming. The political grit and federal funding needed to move state and local governments into an effective nonpoint source program is lacking.¹²⁷ Meanwhile, implementation of section 319 will hope-

127. Some would argue it is not fair to shift to individual polluters, such as farmers, the cost of remedying pollution problems, such as nonpoint pollution, abatement of which confers benefits on all of society. This is the familiar taking of property problem. A similar taking problem is created

fully strengthen state and local efforts and pave the way for yet another and more effective program for nonpoint source control.

by wetlands regulation. Most courts uphold wetlands regulation against taking objections, but a few recent decisions have held the other way. *See* D. MANDELKER, *LAND USE LAW* § 12.05 (2d ed. 1988).