

**POTENTIAL ENFORCEMENT MECHANISMS
FOR NONPOINT SOURCE POLLUTION CONTROLS**

by

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from Dan Brown, Andrea Coffman, Dave Coffman,
Pam Delaney, Sharonne O'Shea, and Connie Speck**

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Table of Contents

	<u>Page</u>
I. INTRODUCTION	4
II. ENFORCEMENT OF STATE AND LOCAL LAWS AND PROGRAMS TO REDUCE NPS POLLUTION	5
A. Alaska	8
B. California (Humboldt County)	9
C. Chesapeake Bay	9
1. Pennsylvania	9
2. Maryland	11
D. Florida (Brevard County)	16
E. Maine	17
1. NPS Assessment Report and Management Plan	18
2. Maine's Mandatory Shoreline Zoning Act	19
3. Subdivision Controls	21
4. Local Ordinances	23
5. Comprehensive Plans	24

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	<u>Page</u>
6. Watershed Districts	26
7. Plumbing Code	27
8. Overboard Discharges	28
F. Michigan (Grand Traverse County)	29
G. New Jersey	30
H. New York (Long Island)	31
I. Oregon	31
1. Proposed Oregon Clean Streams Initiative	31
2. Lower Umatilla Basin Groundwater Program	32
3. Oregon's Implementation of Clean Water Act Section 303(d)(1)	32
4. Oregon Water Trust	33
5. Agricultural Water Quality Plans	34
6. Proposed Eugene Erosion Control Ordinance	35
7. DEQ Stormwater Permit Enforcement Actions	36
8. State Supervision of Tillamook Railroad Repairs	37
J. Rhode Island	37
K. South Dakota	38
L. Texas	41
1. Barton Springs and the Edwards Aquifer	41
2. "Planned Intervention" for Texas Agricultural NPS Sources	44
M. Vermont	46
III. FEDERAL AND STATE COURT DECISIONS INVOLVING STATE AND LOCAL NPS LIMITS ON LAND USE	46
A. Federal Clean Water Act Citizen Suits	46
1. In General	46
2. CWA Section 401	49
B. Other Federal Court Decisions	52

	<u>Page</u>
1. U.S. v. Southern Florida Water Management District	52
2. Villas of Lake Jackson v. Leon County	53
C. State Court Decisions	54
1. Hagar v. Tire Recyclers, Inc.	55
2. Jones v. Zoning Hearing Board of the Town of McCandless	56
3. Kelly v. Tahoe Regional Planning Agency	57
4. P&K Co. v. Oklahoma Department of Mines	60
5. Reimer v. Board of Supervisors of Upper Mount Bethel Township	60
6. State v. Dexter	61
IV. REFERENCES AND BIBLIOGRAPHY	62
V. SAMPLE STATE LEGISLATION AND LOCAL ORDINANCES APPENDICES	66
A. State Legislation Appendix	67
1. Colorado Agricultural Water Quality Control Statute	68
2. Iowa Groundwater Protection Act	73
3. Maryland Property Tax Credits for Agricultural Soil Conservation Plans Legislation	76
4. Oregon Agricultural Water Quality Management Act and Regulations	78
5. South Dakota Soil Erosion and Sediment Damage Control Act	99
6. State Erosion Control and Performance Bond Legislation	103
7. Texas Agricultural Water Quality Management Plans Regulations	104
B. Local Ordinances Appendix	109
1. Baltimore County	110
2. List of Model Ordinances from Terrene Institute (1995)	128
3. Key Components of Nonpoint Source Model Ordinances from Terrene Institute (1995)	130

I. INTRODUCTION

In December 1994 the federal Environmental Protection Agency's Region 10 published A Watershed Assessment Primer (EPA 910/B-94-005). Appendix C of that report by this author, Mara Brown, and Robert Shavelson was an in-depth Legal and Policy Analysis for Integrated Watershed Management, Cumulative Impacts, and Implementation of Non-Point Source Controls.

In developing this guidance report on potential enforcement mechanisms for non-point source pollution controls for EPA Region 10 the objectives are to go beyond the prior report and evaluate nonpoint source (NPS) enforcement mechanisms in federal, state, and local land use law and to link broad NPS management problems with those enforcement mechanisms. This guidance report clarifies what legal authorities exist to comply with NPS pollution controls and evaluates federal and state NPS programs, statutes and regulations, local ordinances, case law, and a wide variety of secondary sources. Critical sources of NPS pollution include sediment and soil erosion from agriculture, timber harvesting and construction activities; fertilizers, pesticides and animal wastes from farming activities; insecticides, herbicides and fungicides from golf courses, residential lawns and parks; improperly disposed household chemicals; and motor oil, solvents, fuels, nutrients and heavy metals from stormwater runoff. A similarly diverse array of NPS enforcement tools are reviewed in this report.

Reducing NPS pollution is a key component of regional (Bratli et al. 1995; Schumaker et al. 1996) and global (Cicin-Sain 1996; Kimball 1996) strategies to reduce land based sources of marine pollution.

II. ENFORCEMENT OF STATE AND LOCAL LAWS AND PROGRAMS TO REDUCE NPS POLLUTION

Federal Clean Water Act (CWA) section 319 required all states to prepare Nonpoint Source Assessment Reports and Management Programs to identify significant sources of and waters impacted by NPS Pollution to the maximum extent practicable and prepare plans and strategies for controlling NPS pollution. However, there are no directly enforceable federal limits on NPS pollution established under the CWA.

1990 amendments to the federal Coastal Zone Management Act (CZMA) discussed in the previous report required coastal states with federally approved coastal zone management programs (including the three EPA Region 10 coastal states of Alaska, Oregon, and Washington) to develop specific programs for controlling nonpoint pollution of coastal waters. The June 1996 CZMA reauthorization bill passed by Congress did not also reauthorize the coastal NPS program which still could be reauthorized when Congress considers the CWA whose reauthorization also is pending. The coastal NPS program documents prepared by Alaska, Oregon (Oregon Department of Environmental Quality n.d.), Washington, and other coastal states include excellent compendiums of existing state and local NPS controls and programs of the type whose enforcement is emphasized in the state-by-state survey portion of this report below.

NPS problems identified at the state level often are addressed at the local level because most land use planning and regulation is done by local governments. Local plans and ordinances governing individual development applications almost always require public hearings where interested citizens, business interests, and environmental groups may urge the imposition of specific limits on NPS pollution. Examples of such local requirements as well as local incentive programs to reduce NPS pollution are surveyed below with sample local ordinances included in a concluding appendix to this report.

Published by the Natural Resources Defense Council (NRDC) in 1989, the book Poison Runoff (Thompson 1989) surveyed state and local responses to Clean Water Act section 319, predominately in the form of plans, but with some examples of implementing state legislation and ordinances including:

(1) Olmsted County, Minnesota's Farmland Soil Erosion Ordinance which authorized both private individuals and public officials to register complaints against landowners who were not complying with the standards established by the ordinance which had been developed through computerized modeling (Thompson 1989, pages 61, 64);

(2) Pepin County, Wisconsin's federally funded property tax rebates for farmers who implemented erosion control measures (Thompson 1989, pages 64-66);

(3) Florida administrative regulations requiring that new farming operations in the state comply with stormwater permit requirements unless the farm is

operated under an approved conservation plan (Thompson 1989, page 78 citing Florida Administrative Code sections 17-25.035, -25.03(4)(e), and 40E-40 (1947));

(4) Arizona best management practices legislation for the application of nitrogen fertilizer (Thompson 1989, page 78 citing Arizona Revised Statutes section 49-247 (1987));

(5) Florida (Florida Administrative Code Chapter 17-25.025 (1988)) and Maryland (Maryland Natural Resources Code sections 8-11A-01-11A-08 (1986)) stormwater management legislation and implementing regulations and local ordinances (Thompson 1989, pages 158-163);

(6) Maryland's detailed erosion and sediment control regulations (Thompson 1989, pages 173-175 citing Maryland Administrative Code Title 8 sections 5.01-10 (1986));

(7) Wisconsin's Groundwater Management Act including the fees collected under it (Thompson 1989, pages 73-76, 284-286 citing Wisconsin's Statutes section 160.001 et seq.) and similar legislation in Iowa, the current version of which is included in the state legislation appendix to this report;

(8) The water quality and NPS enforcement aspects of California's Forest Practice Act (Thompson 1989, pages 206-213, citing California Public Resources Code section 411 et seq. (1974); California Administrative Code Title 14 (1974)).

Through the state-by-state survey below, this report focuses on the enactment of enforceable state NPS legislation and local NPS ordinances since the NRDC report and, wherever possible documents their actual enforcement, including a summary

of relevant federal and state court decisions involving such enforcement. Other than state groundwater protection statutes like Wisconsin's discussed in the NRDC report, Oregon's discussed below in connection with the Umatilla Basin, and Iowa's included in the state legislation appendix, and the Oregon Water Trust's water leasing program discussed below, state water rights law (including the public trust doctrine) and state watershed programs do not yet appear to be playing a significant NPS pollution reduction role, despite their potential in that regard (Benson 1996; Getches 1996; Johnson 1989).

The report concludes with two appendices containing sample state legislation and local ordinances regarding NPS pollution.

A. ALASKA

A local coastal protection plan in Juneau prohibits hazardous landfill materials within 100 feet of the floodplain to prevent leaching of pollutants into adjacent waters. In addition, new development proposals involving the storage of hazardous materials are not allowed within the 100-year floodplain unless there is no feasible alternative and safety measures are provided to prevent accidental discharges (Wood-Thomas 1994).

In Bristol Bay, buffer zones have been adopted along certain rivers to protect critical salmon populations. A local program establishes 100 foot buffers for non-water-dependent development along rivers and tributaries to protect salmon migration, spawning, and rearing (Wood-Thomas 1994).

B. CALIFORNIA (HUMBOLDT COUNTY)

Humboldt County's South Coast Plan establishes riparian corridors with a maximum 200-foot width on both sides of streams and limits development within those corridors to relatively minor facilities and activities. Any vegetation that is disturbed in the corridor must be replanted and all trees currently used as nesting sites for owls, raptors, herons, and egrets must be retained (Terrene 1995).

C. CHESAPEAKE BAY

The Chesapeake Bay Agreement was reached in 1983. Under this agreement, Maryland, Virginia, Pennsylvania, the District of Columbia, the EPA, and the Chesapeake Bay Commission agreed to take steps to save the Bay area and set the goal of a 40% reduction of nutrient content in the Bay by the year 2000 (Clarke & Cronk 1995). County governments surrounding the Chesapeake Bay have adopted regulations that limit development along coastal areas and tributaries of the bay. Regulations specify acceptable density levels, setback requirements, prohibitions against development in non-tidal wetlands, and may require above ground septic systems in areas with limited absorption capacity (Wood-Thomas 1994). Various state and local community efforts are discussed below.

1. PENNSYLVANIA

Pennsylvania enacted the Nutrient Management Act (NMA) in 1993 to fulfill the Chesapeake Bay Agreement. The NMA will reduce the amount of NPS pollution that flows into the bay from Pennsylvania's watersheds. Aside from nonpoint pollution caused by agricultural activities, the NMA authorizes the

Department of Environmental Resources (DER) to examine the pollution from nonpoint sources such as on-site sewers, improperly constructed water wells, fertilizers and chemicals used for non-agricultural purposes, storm water runoff, and the results of atmospheric deposits. The NMA must analyze the effectiveness of existing regulations addressing these nonpoint sources, make recommendations on improving those efforts, and determine whether existing legislation is sufficient to address these sources of pollution. Pennsylvania is the primary contributor of nutrients to the bay, and the Pennsylvania legislature intended to satisfy the state's responsibility in accomplishing the bay states' goal by enacting the NMA. In reality, the goal of a 40% reduction of nutrients by the year 2000 is unlikely to be met because the NMA will not be implemented soon enough to accomplish Pennsylvania's share of the goal. Pennsylvania is the only bay state to have a nutrient management law (Clark & Cronk 1995).

In Cumberland County, also located in the Chesapeake Bay Watershed, the Local Organizing Committee (LOC) is focusing on regional planning and natural resources and is meeting with the governments of other counties in the state to gather examples and identify potential projects. The LOC wants to promote projects that are flexible enough to allow both collaboration and local autonomy. A natural resources inventory, river conservation plans, and education for municipal officials are also contemplated (Notes 1995).

2. MARYLAND

Some legal tools used in Maryland to restore the Chesapeake Bay are sediment and erosion control regulations and stormwater management in construction guidelines. State and county agencies are forming ten "Tributary Management Teams," composed of representatives of state and local agencies, agriculture, real estate, environmental interests, and other citizens' groups. Tributary strategies target each watershed for a forty percent reduction of its nutrient load. Each of the strategies includes full implementation of sediment and erosion control programs. Enforcement efforts vary widely from county to county depending on the priority of sediment control within the local jurisdiction and resources devoted to enforcement. Each of the teams will be charged with "assisting with implementation" of the tributary strategies. Assisting includes developing implementation plans, tracking implementation, coordinating the efforts of citizens and state and local government agencies, identifying problems with implementation, and educating the public as to implementation activities. A number of obstacles may effect the implementation of the tributary strategies such as levels of available funding, coordination among jurisdictions within a tributary basin, and public support (Maryland 1994).

Full enforcement of current sediment and erosion control laws requires additional funding at the state and local levels. All nutrient reduction options have substantial costs associated with them. A panel consisting of agricultural, banking, business, and environmental interests was appointed to address financing

alternatives for Maryland's tributaries. Financial mechanisms that can be used to secure funding for the Bay's Tributary Strategy implementation are bonds, fees, loans, private initiatives and incentives, public and private partnerships, redirection of existing programs, and surcharges, or taxes. Small towns within a district might pool together to qualify for loans, thereby achieving greater economies of scale, or resources might be directed toward the area with the greatest problems instead of each of the local jurisdictions pursuing different alternatives that might not be cost effective in the long run (Maryland 1994).

Somerset is an 80-acre site being developed into 199 homes on 10,000 square foot lots in Prince George County, Maryland. The site is a pilot project experimenting with "Rain Gardens" which are an alternative stormwater management practice. The Gardens are a combination of grasses, shrubs, and trees that serve as ground cover, a middle story, and a canopy in simulation of a forest environment. The natural processes of plants, microbes, and chemical reactions occurring in the soil allow the gardens to absorb and purify stormwater runoff. The sediments settle in shallow pool areas. The Gardens also restore the functions of wooded wetlands removed by land development and replace the construction of conventional dry and wet ponds.

The homeowners must maintain the Rain Gardens, and each homeowner signs an agreement acknowledging that she is aware of the function of the bioretention facilities. The Home Owner's Association maintains the common area Rain Gardens and ensures that homeowners maintain their individual gardens.

The gardens do not require fertilization or pesticides, and maintenance consists of weeding, pruning, and replacing plants. By eliminating the public burden of maintaining stormwater management ponds and pipe systems, the pilot project hopes to obtain a 50% reduction in stormwater taxes. This reduction could translate into a cost savings of \$100 to \$200 per year for county residents who maintain Rain Gardens. The surface and groundwater quality at Somerset will be monitored by the county using EPA section 319 funds, and the United States Fish and Wildlife Service will help in monitoring stream channels.

Construction workers in Maryland are now able to attend the Green Card erosion and sediment control certification training seminar. The Maryland Department of the Environment (MDE) requires that at least one person on every construction site possess a Green Card to ensure that erosion and sediment control is implemented on construction projects. More than 7,000 people have been certified in erosion and sediment control since the inception of the program. The training emphasizes issues such as sediment flow to a storm drain inlet and how inlet protection is used as a control measure (Urban 1995a).

Maryland's Masonry Contractors also encourage as many workers as possible to become certified, especially those workers whose jobs involve grading, sediment control and management of the site. The company believes that the certification program helps employees to understand why they are implementing erosion control measures, what they want to accomplish, and how to do it properly. The Maryland Green Card program links state and local officials who enforce erosion

and sediment control requirements at active construction sites. The Green Card program has also been successfully applied in Delaware (Urban 1995a).

Baltimore County, Maryland has enacted regulations (Baltimore, Md., County Code art. IX, sec. 14 (1990) to protect the county's streams, wetlands, and floodplains, to protect water quality and aquatic ecosystems, and to provide environmentally sound use of the county's land resources. These regulations apply to all parcels of land, structures, and activities which cause or contribute to pollution of state waters within the county, to erosion and sedimentation of stream channels, and to degradation of aquatic and riparian habitat. The definition of pollution includes NPS pollution.

The county Department of Environmental Protection and Resource Management (the department) is responsible for enforcing the provisions of these regulations and the director is authorized to promulgate rules, policies, and regulations as necessary to implement these provisions, and may order the abatement and correction of any pollution, including NPS pollution. The director may also order the abatement and correction of any erosion and sedimentation of stream channels, including the abatement of runoff which contributes to this problem.

A detailed plan, the content of which is outlined by the regulations, approved by the department is required for all development, forest harvesting operations, surface mining operations, and agricultural operations. If a violation is found, the director issues a correction notice to the violator and if abatement and correction

does not occur within the time frame specified, a citation is issued to the violator. The citation notates the civil penalty proposed to be assessed, and the violator has thirty days to contest the citation or proposed assessment of penalty and can file a request for a hearing with the director. At the conclusion of the hearing, a final order is issued which can be appealed to the board of appeals of the county within thirty days. If the violator does not contest the citation within the thirty days, the citation and the assessment of penalty is deemed to be a final order of the director. The civil penalties stipulate that any person in violation of the regulations may be assessed a maximum fine of \$1,000 for each violation, and each day's continuance is considered to be a separate violation at the discretion of the director. The assessment of a fine constitutes a lien upon the property owned by the violator and is collectible in the same manner and to the same extent as taxes.

There are also criminal penalties provided for in the regulations. Any violation is a misdemeanor and punishable by a maximum fine of \$1,000 or by imprisonment for not more than 90 days or by both. A violator is deemed guilty of a separate offense for every day that the violation continues. Anyone convicted of knowingly making any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to these regulations can be punished by maximum fine of \$1,000 or by imprisonment for not more than 30 days or by both. This violation is also a misdemeanor. Violators may also be liable to the county in a civil action for damages in an amount equal to twice the cost of restoring the water quality, stream

system, or forest buffer as determined by the department. Variances are granted in circumstances where strict compliance with the requirements of the regulations would result in practical difficulty or unreasonable hardship, or if the activity is a public improvement project where no feasible alternative is available.

Relevant excerpts from the Baltimore County Code are included in the local ordinance appendix to this report.

D. FLORIDA (BREVARD COUNTY)

A Brevard County ordinance requires the maintenance of buffers along certain surface waterbodies. The buffers range in size from 200 feet for Class I (drinking) waters to 25 feet for Class III (fishable, swimmable) waters. Acceptable uses within the buffers are generally limited to passive recreation, hunting, fish and wildlife management, open space, nature trails, and similar uses. Development is generally limited to docks, boat ramps, pervious or elevated walkways, and minor structures. Shoreline alteration is prohibited within the buffer unless it is in the public interest or does not adversely impact water quality and natural habitat. In some cases a corridor from the uplands to the water is allowed. The county also has adopted a Land Clearing and Landscaping Requirements (No. 86-09) ordinance. It is based on a point system that may result in the creation of surface water buffer zones. For each site to be developed, a total of 480 points per developable acre must be achieved through site design. Points may be obtained through landscaping, tree protection, and leaving portions of the site undisturbed. Buffers may be created by obtaining

points for leaving areas along surface waters in their undisturbed state (Terrene 1995).

E. MAINE

Maine has many programs addressing nonpoint source pollution because it has contaminated groundwater aquifers and threatens approximately 185,000 acres of lakes in Maine. Casco Bay, the Scarborough River Estuary, and portions of the Androscoggin, Kennebec and Presumpscot Rivers have been adversely affected by NPS pollution from urban runoff and construction. The EPA supports Maine's Nonpoint Source Management Program, the implementation of Best Management Practices (BMPs), and the State Coastal NPS Pollution Program (University of Maine 1992).

Many governmental entities work to reduce NPS pollution in Maine. The Soil and Water Conservation Districts are located throughout the state and are assisted by the Soil Conservation Service and the University of Maine Cooperative Extension. These districts are responsible for reviewing soil erosion and sedimentation plans when required by state and local government laws, reviewing the implementation of BMPs, and promoting nonregulatory programs for cooperative implementation of BMPs. The Maine Department of Human Services administers the implementation of the State Plumbing Code through local plumbing inspectors. The Bureau of Water Quality Control in the Maine DEP is responsible for developing and implementing the Maine Nonpoint Source Pollution Management Plan and BMPs. The Bureau has a NPS Coordinator to

oversee and coordinate agency activities. The Bureau of Land Quality Control in the Maine Department of Environmental Protection (DEP) is responsible for implementing stormwater runoff and erosion control requirements under Maine's Shoreland Zoning, Site Location, and Natural Resource Protection Acts. The Maine Coastal Program of the State Planning Office has a Coastal Nonpoint Source Coordinator to prepare amendments to the Nonpoint Source Management Plan addressing NPS pollution in the coastal zone (University of Maine 1992).

1. NPS ASSESSMENT REPORT AND MANAGEMENT PLAN

Maine's NPS Assessment Report and Management Plan was approved by the EPA in 1989. The DEP is assisted by a NPS Advisory Committee in preparing and revising the Assessment Report and Management Plan, developing BMPs, and implementing a comprehensive program for controlling NPS pollution. Four interim priority marine water bodies, (Casco Bay, Boothbay Harbor, Cobscook Bay, Piscataqua River Estuary), are identified by the Maine NPS Management Plan. The Plan also lists 16 priority streams and 26 lakes. Land use inventories will be conducted in these areas and plans will be prepared to specify BMPs needed to meet or exceed standards established by the DEP.

When installed or performed, BMPs are methods, measures or practices that will prevent, reduce, or correct water pollution. BMPs are not necessarily laws or regulations unless specifically enacted or adopted through rulemaking procedures. The DEP is developing BMPs for each major NPS category: agriculture, silviculture,

development, resource extraction, transportation facilities and support, chemical use and storage, solid waste disposal, and marine industries.

The DEP is involved in ongoing plans with respect to NPS pollution. Those plans include publishing a state manual for BMPs in each NPS category, establishing water quality performance standards, implementing a planning process for the major NPS categories to specify how BMPs will be applied, and monitoring the effectiveness of and modifying BMPs as needed. The public may take an active role to ensure that BMPs are implemented at the local level and can participate in the development, implementation and monitoring of BMPs by the DEP.

A Coastal NPS Pollution Control Program has been prepared for inclusion in the Maine Coastal Management Program which updates and expands the NPS Management Plan developed under the CWA (University of Maine 1992).

2. MAINE'S MANDATORY SHORELINE ZONING ACT

The threat of NPS pollution from land development is being reduced by a number of laws in Maine that require various land use mechanisms to reduce or eliminate NPS pollution from development activities. Under Maine's Mandatory Shoreline Zoning Act, all municipalities must execute and enforce zoning restrictions in shoreline areas that are consistent with state laws enacted for all new developments within "shoreland areas." Shoreland areas are areas within 250 feet of all coastal waters, coastal wetlands, rivers, great ponds, and freshwater wetlands exceeding 10 acres, and 75 feet from streams as those terms are defined in the Act. Within these areas, municipalities must address NPS pollution by adopting zoning

laws including Resource Protection Districts, development setbacks, lot size, shore frontage and lot coverage standards, and stormwater runoff.

The purpose of creating a Resource Protection District is to severely curtail development and clearing of vegetation within the District. The Districts must be designated within 250 feet of the following: Wetlands rated moderate or high value by the Department of Inland Fisheries and Wildlife; 100 year floodplains; areas with 20% slopes; areas of two or more contiguous acres supporting wetland vegetation and hydric soils not surficially connected to a water body; and important wildlife areas, natural sites or other significant areas designated by local planning boards or town councils. Development and clearing of vegetation for development is severely limited within the Resource Protection Districts.

Development setbacks dictate that principal and accessory structures must be setback at least 100 feet from the high water line of great ponds and rivers flowing to great ponds. Setbacks of 75 feet are required for all other water bodies, streams or wetlands except in districts designated for general development and commercial fisheries. All development must maintain minimum lot sizes of 30,000 to 40,000 square feet, minimum shoreline frontages of 150 to 200 feet and maximum lot coverages of 20% (except in districts designated for general development and commercial fisheries). New development must minimize stormwater runoff in excess of natural predevelopment conditions. If possible, the developers must retain natural runoff features, revegetate disturbed soil, submit soil erosion and sedimentation control plans to local governments, install and maintain temporary

runoff and stabilization measures within one week of excavation, implement permanent erosion measures within nine months of excavation, and design drainageways to accommodate a 25-year storm.

The Shoreland Zoning Coordinator within the DEP's Bureau of Land Quality Control oversees the implementation of the Act and ensures that municipal ordinances meet minimum state standards. If the municipalities fail to adopt local zoning ordinances that meet these standards, the DEP may draft and adopt ordinances on behalf of the municipalities. Citizens may participate in the adoption and modification of local shoreland zoning ordinance (University of Maine 1992).

3. SUBDIVISION CONTROLS

Two other laws in Maine that address NPS pollution impacts of subdivisions and other land development activities are the Site Location of Development Law and the State Subdivision Law.

The Maine DEP, under the Site Location of Development Law (Site Law), regulates developments that may substantially affect the environment. Legislatively designated developments include large-scale subdivisions of 20 or more acres, with 5 or more lots offered for sale within a 5-year period. Also covered are structures exceeding 60,000 square feet in ground area, 100,000 square feet in floor area, or three acres in total buildings, parking lots, roads, paved areas, wharves or areas to be stripped or graded and not to be revegetated. Mining activities, hazardous activities, and multi-unit housing within the shoreland zone are also listed in the Site Law. In order to get a permit from the DEP for these type structures

and subdivisions, local governments must have municipal plans with standards at least as stringent as Site Law standards and the staff and procedures necessary to implement the plans.

The Site Law requires that large-scale subdivisions and development projects incorporate four measures to mitigate impacts from NPS pollution. First, comprehensive erosion and sedimentation plans must be prepared by developers to adequately protect adjacent water bodies from sedimentation and surface runoff. Second, exposed areas must be limited during construction as much as possible, sediment must be removed from runoff before leaving the site, and permanent soil erosion control measures must be completed within 15 days of final grading. Third, no unreasonable increase in flooding risks or alteration of natural drainage ways are permitted. Finally, properly engineered and maintained stormwater management systems that are capable of retaining water falling on site during a 25-year storm over 24 hours must be implemented by the applicant.

The State Subdivision Law requires that developments which involve the division of a parcel of land into three or more lots within any 5-year period must be reviewed by the municipality. Municipalities are required to notify abutting property owners of applications for subdivisions and most municipal planning boards hold public hearings on subdivision proposals although they are not required. The State Subdivision Law mandates that municipalities make findings that subdivisions will not cause such problems as unreasonable water pollution, soil erosion, or adverse effects on the water quality of adjacent water bodies or wetlands.

Subdivision proposals must accurately map freshwater wetlands, rivers, streams, and brooks, provide for adequate stormwater management, and be consistent with local land use ordinances and comprehensive plans. As with the Site Law, citizens may participate in local subdivision reviews and monitor erosion control devices and stormwater systems required by local governments to alleviate the impacts of NPS pollution (University of Maine 1992).

In Maine municipal governments ultimately are responsible for reviewing subdivisions and local development projects that may be major sources of NPS pollution and can implement NPS pollution control measures through zoning, permit reviews, and local ordinances which are enforced by local code enforcement officers (CEOs). Municipalities also establish NPS pollution control policies in local comprehensive plans. These ordinances include supplemental plumbing codes, sedimentation/erosion controls, and nutrient controls (University of Maine 1992).

4. LOCAL ORDINANCES

One local ordinance that addresses the impacts of NPS pollution is the Coastal Protection Zone Ordinance adopted by the Town of Brunswick. The Town commissioned a study of the causes of a severe shellfish kill in 1988. The study indicated that the bay was susceptible to a number of sources of nonpoint pollution such as residential septic systems, agricultural and lawn fertilizers, and stormwater runoff. The NPS pollution might have contributed to nutrient loadings, oxygen deprivation, and algal blooms that resulted in the shellfish kills. The town responded by adopting an ordinance to “protect coastal embayments from the

potential impacts of nutrient loading and other nonpoint source pollution.” The ordinance established a coastal watershed protection zone and implemented controls to mitigate the impacts of NPS pollution. One control imposed by the ordinance is that all development proposals must prepare stormwater management plans and ensure that stormwater runoff is not greater than predevelopment conditions. This goal can be accomplished through the use of detention basins, vegetated buffer strips, grassed swales, and recharge/infiltration devices. Untreated stormwater from impervious surfaces may not be piped directly into water bodies. A further control involves setbacks of 150 to 300 feet from adjacent waterbodies for structures that store manure and/or commercial fertilizers. Also, the type and method of application of fertilizers and pesticides are restricted for lawns, golf courses, playing fields, and parks. Another stipulation is that septic systems must be setback 150 feet from all waterbodies and wetlands. Town inspections of septic systems are performed once every three years to ensure proper maintenance. Finally, five acre minimum lot sizes are established and lot coverages for impervious surfaces are limited to five percent (University of Maine 1992).

5. COMPREHENSIVE PLANS

Through comprehensive plans under the Maine Growth Management and Land Use Planning Law, local governments implement growth management measures, including strategies to address NPS pollution and other water quality issues. Comprehensive plans must be consistent with state water quality related growth management goals and coastal policies. These goals and policies include

encouraging orderly growth, protecting the state's rural character, preventing development sprawl, protecting the state's water and other critical natural resources, restoring and maintaining coastal water quality, protecting and managing critical habitats and natural areas, and discouraging development in areas subject to storms, flooding, sea-level rise, and other hazards. The local comprehensive planning process may result in ordinances enforcing BMPs, improving septic system controls, promoting open space, creating buffer zones around wetlands, constructing and improving sewage treatment facilities, improving stormwater management, and controlling nutrient loading. The Maine Department of Economic and Community Development (DECD) and the Regional Planning Councils provide technical assistance to local communities (University of Maine 1992).

To enforce the local ordinances, citizens can contact the local town CEO or local plumbing inspector if a violation is detected. Local officials are usually state certified under the Maine Rules of Civil Procedure to represent the municipalities and/or the state in civil actions in District Court for violations of land use ordinances and state regulations. Local officials may enter any property at reasonable hours with the consent of the owner or occupant to conduct inspections for compliance with local or state laws and ordinances. The maximum civil penalty for construction without a permit or a specific violation is \$2,500 or twice the economic benefit resulting from the violation. Penalties may be levied up to \$25,000 if there has been a previous conviction of the same party within the past two years. Violators may also be

ordered to correct or abate the violation and the municipality may be awarded reasonable attorney fees, expert witness fees and costs (University of Maine 1992).

6. WATERSHED DISTRICTS

If there is a demonstrated need for a coordinated approach to watershed management within the district, lake and coastal watershed districts may be established. These districts are regional, quasi-municipal entities that are formed to protect, improve, conserve and manage water quality, land and water resources. Applications to form watershed districts must be filed with and approved by the Board of Environmental Protection (BEP) after a public hearing. BEP approval must be ratified by a vote within the municipalities forming the District. The Cobbossee Watershed District is the only watershed district established in Maine, and it includes the towns of Mount Vernon, Readfield, Winthrop, Wayne, Monmouth, Manchester, Litchfield, West Gardiner, Gardiner, Richmond, and all the lakes, ponds, and other major water bodies within these municipalities (University of Maine 1992).

Watershed districts are run by a board of trustees appointed by member towns and are funded by the member towns. The districts may acquire and hold property, conduct research on water quality issues, adopt restoration and management plans, lobby state and local governments, and adopt programs to manage water uses. Districts often hire professional staff to assist in securing grants, aiding municipalities in preparing comprehensive plans, helping to draft and review stormwater management plans. District employees also monitor water quality and

erosion control devices, review development proposals, subdivision plans and shoreland permits, assist local water quality enforcement efforts, provide technical assistance to property owners and farming operations, and encourage the use of BMPs (University of Maine 1992).

7. PLUMBING CODE

Many of the septic systems in Maine were installed prior to the adoption of the State Plumbing Code. There are approximately 230,000 septic systems in Maine and many are thought to be substandard and malfunctioning and thereby posing a threat to public health and water quality. The Maine Department of Human Services (DHS) is responsible for adopting and revising the State Plumbing Code which regulates the operation and installation septic systems. Municipalities and local plumbing inspectors, certified by the DHS, are responsible for enforcing the Plumbing Code and issuing licenses for the installation of septic systems. Municipalities can adopt more stringent plumbing regulations than the Plumbing Code.

According to the Plumbing Code, test pits must be bored to ensure that suitable soils and site conditions exist. New septic systems may not be installed on 10-year floodplains, on slopes exceeding 20%, on lots with less than 20,000 square feet, or on lots with less than 100 foot frontage on any lake, pond, stream, river or tidal area. If residential septage is disposed on private property, the waste must be at least 300 feet from property boundaries and fresh or tidal waters. If it can be shown by an applicant that water quality will not be lowered and public health will not be

endangered by the new septic system, then variances may be granted by the local plumbing inspector and the DHS for new systems.

If cesspools, sewers, or drainage beds malfunction, they are considered to be a nuisance under state law. A complaint about a malfunctioning septic system is made to the municipality, and the municipality must issue an order to the owner of the nuisance to remedy the problem. If the nuisance is not abated within 10 days, the plumbing inspector may enter the premises and have the malfunction remedied. The municipality can seek to recover any expenses, including attorney fees, upon filing a civil action against the owner. If local governments fail to take appropriate action, the DHS has discretion to instruct the municipality to comply with and enforce minimum state standards (University of Maine 1992).

8. OVERBOARD DISCHARGES

Overboard discharges (OBDs) are direct discharges of domestic pollutants to the surface waters of the state that have not been treated in municipal or quasi-municipal sewage treatment facilities. Typically, these discharges are partially treated in a system which consists of a septic tank, sand filter, chlorinator and discharge pipe which releases the "treated" effluent into surface waters. Problems arise when the soils in the area do not meet the requirements of the state plumbing code. Maine has over 3,000 OBD licenses and an unknown number of unlicensed OBDs. OBDs are directly responsible for many shellfish closures because the United States Food and Drug Administration National Shellfish Sanitation program prohibits harvesting shellfish adjacent to sewage outfalls and other waste discharges.

Maine prohibits the licensing of new OBDs, and existing OBDs are conditionally licensed only six months after the DEP makes funds available for their removal. Licensed OBDs must be inspected at least twice a year by the DEP or a private contractor. The DEP will provide up to 90% of the costs to remove residential OBDs that operate all year, 50% to remove commercial OBDs, and 25% to remove seasonal residential OBDs. Towns are encouraged to participate in the removal of OBDs through the OBD Assistance Fund or through Small Community Systems Grants which may provide small grants to fund the construction of community septic systems (University of Maine 1992).

F. MICHIGAN (GRAND TRAVERSE COUNTY)

Due to the problems associated with toxic stormwater runoff from impervious surfaces such as parking lots of malls and shopping strips, the large malls and commercial strips in Grand Traverse County are now required by county ordinance to provide retention basins to catch the runoff long enough for the heavy metals and toxic sediments to settle out of the stormwater. Impervious surfaces collect oil, grease, poisonous lead, fish-tainting mercury, zinc, copper, and the fallout from grinding engine parts, rusting exhaust systems, abraded brake linings which are all washed out by storms to Grand Traverse Bay. The owner of the retention basin must scoop up accumulated sediments periodically and truck them to a landfill willing to accept the material (Mitchell 1996).

All large development sites in the Mitchell Creek Watershed in Grand Traverse County are required by law to build ponds to catch stormwater runoff.

Some ponds are two tiered. One pond has an impervious lining and traps settling pollutants, and a second allows the rainwater to slowly seep into the aquifer. The county also imposes a 25-foot setback from wetlands and has persuaded many landowners to donate wetland acreage for protection. A 50-foot setback is mandated for structures near lakes and creeks, and the county asks that landowners plant waterside shrubs to trap sediments, slow flow, and provide shade and wildlife habitat. There are many other rules for builders to follow in certain projects such as controlling soil erosion with filter fences, steering rainwater away from exposed dirt, building sediment basins, and planting protective buffers (Mitchell 1996).

G. NEW JERSEY

The New Jersey Coastal Program has served as a catalyst to regulate stormwater from new developments. Engineering solutions and other methods are used to compensate for the added runoff and pollution caused by development.

Downstream flooding is often caused by covering land with parking lots, buildings, and other impervious surfaces because rain water can no longer be absorbed into the ground. Stormwater ordinances can be innovative and include such measures as retention basins to control peak flows, recharge trenches, vegetative buffers, porous paving and piping, and contour terraces and swales. An important standard of the New Jersey stormwater program is that peak runoff following development must not exceed preconstruction conditions. Many programs and engineers are now designing retention basins to serve the dual purposes of detaining stormwater at periods of peak flow and capturing the first deluge of stormwater that contains the

bulk of pollutants (sediment and hydrocarbons). These basins can capture 40 to 90% of pollutants while adding little cost to the construction of a traditional retention basin already required for flood control purposes (Wood-Thomas 1994).

The New Jersey Pinelands Commission's Comprehensive Management Plan for the New Jersey pinelands ecosystem requires a 300-foot buffer zone between new development and adjacent wetlands. The buffer's width was calculated from nutrient dilution models that predicted the travel distance necessary for nutrient-laden groundwater from septic tank leachate to be diluted to background levels (Terrene 1995).

H. NEW YORK (LONG ISLAND)

Local communities along Long Island Sound require that the peak rates of stormwater runoff do not exceed predevelopment levels. This policy of zero additional runoff is quickly becoming a standard model for local site development regulations (Wood-Thomas 1994).

I. OREGON

1. PROPOSED OREGON CLEAN STREAMS INITIATIVE

The Oregon Natural Desert Association is sponsoring the "Oregon Clean Streams Initiative." The initiative seeks to restore stream water quality by limiting livestock access to streams. It provides tax incentives to livestock operators who protect streams. It also creates incentives for agencies to develop water quality management programs. While the initiative does not completely prohibit livestock access to streams, it sets up a system whereby their watering can only occur with an

approved plan (Oregon *Insider* Nov. 15, 1995; Oregon Natural 1995). As of this writing, the initiative had not yet qualified for the November 1996 ballot.

A similar initiative directed at mining may be qualified for the November 1996 ballot in Montana.

2. LOWER UMATILLA BASIN GROUNDWATER PROGRAM

The Lower Umatilla Basin (LUB) Groundwater Program is operated through the Umatilla Soil and Water Conservation District (SWCD). The LUB program has resulted in Memorandums of Understanding between interested entities and the SWCD for program and project cooperation. The program allows incentive payments to enrolled land users for trying new management practices, such as cropping sequence, soil sampling, filter strips, straw mulching, various types of irrigation, watermark sensors and integrated crop management (H₂O News 1995).

3. OREGON'S IMPLEMENTATION OF CLEAN WATER ACT SECTION 303(d)(1)

Clean Water Act section 303(d)(1) requires states to inventory stream stretches where water quality standards are not met. The list of water bodies that do not meet water quality standards is known as the 303(d) list. The Oregon Department of Environmental Quality's (DEQ May 1996) proposed list for initial submission to EPA includes 904 stream segments, 758 of which are listed in part due to the temperature standards DEQ issued in January 1996 (Oregon *Insider* May 15, 1996). For those with temperature problems, DEQ could be expected to object to new water withdrawal rights applications submitted to the Oregon Water Resources Department on the

basis that any reduction in flow would increase the temperature problem (Oregon *Insider* June 1, 1996).

In addition to those temperature standards, the DEQ recently revised Oregon's other water quality standards (Oregon *Insider* Dec. 1, 1995). The revisions include:

Temperature:

- Setting temperature standards for salmon rearing areas.
- Setting lower temperature standards where salmon spawn and for bull trout
- Detailing that management plans be developed where temperature standards are not met.
- Individual landowners will not be legally responsible for meeting standards at their property

Dissolved Oxygen, Bacteria, Nitrate, pH:

- Changing the dissolved oxygen standard to a concentration standard which ranges depending on native fish populations and measuring time
- Setting E. Coli as the bacteria indicator species for the state
- Setting instream and effluent standards for organisms
- Added bacteria standards for reclaimed water use
- Setting 10.0 mg/l nitrate as the maximum measurable level
- Raising the pH in certain streams to better reflect natural conditions (Oregon *Insider* Feb. 1, 1996).

4. OREGON WATER TRUST

The Oregon Water Trust (OWT), a non-profit organization, uses a market-based model to help restore or maintain water flows in Oregon's rivers and streams. Among their several benefits, such flows dilute NPS pollution. The OWT is completely funded through grants and donations and is governed by a nine-member board. Viewpoints of farmers, ranchers, Native Americans, and environmentalists are all represented.

Oregon legislation allows water rights holders to donate, lease, or sell their water rights, or a part of them to other parties including the OWT for conversion to instream use. For example, in 1994, an Oregon rancher signed an agreement with the OWT to increase instream flows in an important stream in central Oregon. The agreement provided that OWT lease the rancher's two water rights on a creek for one year in exchange for 78 tons of hay to feed the ranchers cattle. The creek, which is a tributary of the Deschutes River, provides critical habitat for steelhead and other aquatic species. OWT has entered several other leases for instream flows, all subject to approval by the Oregon Water Resources Department (Big River News, Fall 1994, Fall 1995; Crammond 1996).

5. AGRICULTURAL WATER QUALITY PLANS

In 1993, the Oregon Legislature passed a measure (see ORS 568.900 et seq. and OAR 603-90-000 et seq.) giving the Oregon Department of Agriculture (ODA) authority to deal with agricultural operations in water quality limited basins as designated by the Environmental Quality Commission. ODA adopted rules which establish the policies, guidelines and specific requirements for development of agricultural water quality management area plans, the process for landowner appeals of specific required actions, and enforcement procedures. Agricultural water quality plans set forth measures that will be taken to prevent and control water pollution from agricultural activities and soil erosion on lands located in a management area.

With the assistance of a local advisory committee, the ODA adopted rules which outline requirements of landowners for prevention and control of water pollution from agricultural activities and soil erosion in the Tualatin River subbasin (OAR 603-95-000 et seq.). Similar regulations for Bear Creek in the Rogue River basin are being developed. The voluntary water quality plans outline the procedures to be taken by the ODA in determining whether prohibited conditions exist and detail actions to be taken by ODA based on those determinations. The approach taken by the ODA is to set water quality goals on the Tualatin, offer technical assistance to agricultural operators, and allow operators to develop solutions that will work most effectively for them. Where an operator refuses to deal with ODA's identified problems, regulatory authority in the form of a "Notice of Noncompliance," hearings, and civil penalties, is used (OAR 603-90-080).

The legislation and implementing regulations are included in the state statutory appendix to this report.

6. PROPOSED EUGENE EROSION CONTROL ORDINANCE

Under the 1996 proposed ordinance all sites greater than five acres in size or within a sensitive area would be required to obtain a stormwater permit from the City of Eugene prior to or concurrent with the issuance of a permit for site clearing, grubbing or grading. A site is considered sensitive if it meets at least one of the following criteria: the slope of the parcel is greater than 10%; or the site contains highly erodible soils as defined by the federal Natural Resource Conservation Service; or the site has the potential to "directly drain" into an open water body or

its designated buffer area. Directly drain means a parcel containing or adjacent to an open water body. Open water bodies include creeks, drainage channels, rivers, and wetlands.

The stormwater permit requires the preparation of a Construction Site Management Plan by a licensed engineer, architect, or landscape architect. The permit requires the developer to prevent and control erosion, sedimentation, and other construction site management impacts according to the provisions of the Construction Site Management Plan. As discussed further below, sites five acres in size or more are currently administered by the Oregon Department of Environmental Quality's (DEQ) 1200-C permit for erosion control. The city anticipates assuming administration of this program with adoption of the ordinance (Eugene 1996).

7. DEQ STORMWATER PERMIT ENFORCEMENT ACTIONS

Recent DEQ construction site inspections and enforcement actions for stormwater permit violations have resulted in fines against both residential and industrial developers. At the Sunset View Estates site in Seaside, Oregon the DEQ inspector determined that a significant amount of sediment had eroded from the site into an unnamed creek that discharged into wetlands and then into Stanley Creek and a \$3,600 fine resulted (Oregon *Insider* May 15, 1996). A similar type of violation at the Hyundai computer chip factory construction site in Eugene resulted in a \$14,000 fine. A contractor building an Oregon Department of Transportation maintenance facility near Otis, Oregon was fined \$3,275 for allowing sediment-laden

water to be discharged into a ditch leading to Widow's Creek in violation of its erosion control plan.

In April 1996 DEQ formed a technical advisory committee to address erosion problems on construction sites smaller than 5 acres. The DEQ contact for further information is Bobbi Lindberg at (541) 687-7838 ext. 242 or (800) 844-8467 ext. 242.

8. **STATE SUPERVISION OF TILLAMOOK RAILROAD REPAIRS**

During the winter and spring of 1996, erosion problems occurred during flood damage repairs to the Port of Tillamook's railroad that runs through Oregon's coast range adjacent to the Salmonberry River which has one of the state's few remaining healthy steelhead runs. In a strongly worded letter dated April 15, 1996, Oregon Governor John Kitzhaber complained that the port had failed to follow through on necessary streamside erosion controls after major flood damage in February 1996, leaving the banks vulnerable to normal rainfall. The Oregon Tillamook Railroad Authority which includes port and state agency representatives is expected to closely supervise all future repairs.

J. **RHODE ISLAND**

Development applicants are required to submit professionally designed sedimentation and erosion control plans and stormwater management plans in Rhode Island. In all new developments, runoff must be kept at predevelopment levels and discharge of runoff directly into estuaries is prohibited. The runoff from parking lots and roads adjacent to the coastline must be treated to remove oil and sediments, and driveways and parking areas within 200 feet of water must be

constructed with porous materials (Wood-Thomas 1994). Two Rhode Island local governments have programs encouraging proper maintenance and operation of household septic systems adjacent to ecologically sensitive waters. These programs involve mailing information to homeowners on the effects of overloaded septic systems and offering a local tax rebate as an incentive for annual pump-outs (Wood-Thomas 1994).

K. SOUTH DAKOTA

South Dakota has state legislation (S.D. Codified Laws Ann. 38-8A (1995) specifically addressing soil erosion and sediment damage control. Conservation standards are defined as soil loss tolerance limits developed pursuant to this law. Guidelines are defined as recommendations of the State Conservation Commission (commission) not possessing the force or effect of rules, regulations or standards. For example, the commission must develop comprehensive state erosion and sediment control guidelines with full opportunity for citizen participation. The guidelines developed by the commission must consist of recommended soil loss limits and suggested conservation practices. The basis of the information and standards that are used in the guidelines for carrying out the program are premised upon relevant information concerning the watersheds and drainage basins of the state, existing surveys of lands and waters, and conservation standards for various types of soils and land uses.

Conservation districts (districts) are established to administer these soil conservation and sediment damage control programs. The supervisors of each

district in the state must work in cooperation with counties, municipalities, and other affected units of local government to develop proposed district conservation standards. These standards may designate "fragile land" areas that are so erosive as to cause a public hazard when converted to cropland use. Each district, in cooperation with other local units of government, within three months after the guidelines have been reviewed by the commission, adopts conservation standards to control erosion and sediment resulting from land-disturbing activities. Revision of conservation standards may be proposed by a petition signed by ten percent of the qualified voters in a district. This petition is filed with the conservation district supervisors and the filing requires an election of the qualified voters of the district on the named conservation standards. If the supervisors approve the proposed revision before the election, the election does not proceed.

If any proposed land-disturbing activities are to be performed on state lands or by or on behalf of a state or local unit of government, plans for erosion and sediment control must be in accordance with the adopted standards for erosion and sediment control. After the formal adoption of district conservation standards, permit-issuing authority does not lie with the commission or the districts. The permit-issuing authority is defined as a municipality or other political subdivision responsible for granting or issuing or zoning or building permits.

Any person engaging in agricultural land-disturbing activities or minor land-disturbing activities, such as individual resident landscaping and home gardening, does not have to report these activities to the district unless these activities violate

the adopted standards. If the activities do violate standards, the land disturber shall be required to prepare an erosion and sediment control plan within six months, and have the plan approved by the local conservation district. If the plan is approved, the applicant is allowed six months to implement the plan unless a variance is granted for additional time. The district may require a conservation plan preceding the conversion to cropland of any land which has been designated "fragile land." Any person adversely affected by land-disturbing activities may file a petition with the district or with the permit issuing authority alleging a violation. The agency petitioned investigates and determines the validity of the petition, takes appropriate action, and advises the petitioner of the disposition of his petition. The permit-issuing authority or the district has the discretion to commence an action in circuit court for an injunction or other appropriate relief to enforce the South Dakota law's provisions.

Also the owner or operator of real property in South Dakota must use practices which will prevent or minimize blowing dust and erosion of the soil. If dust blowing is apparent, a stubble residue should be left on top of the soil to the extent practicable. If the board of supervisors of a district receives written notification that soil is blowing from any land, or if any land in the county including roads or public property is being damaged as the result of blowing soil, the board must inspect the land. If soil is blowing from the land in excess of local district standards to the point that it is injurious to the land, the board determines what can be done to prevent or lessen the problem. If the blowing can be prevented

or lessened by treatment of the soil, the board issues an order stating the treatment required, and the date the treatment is to be started and completed. In emergency situations, the board may perform the treatment ordered if no treatment is started within three days from emergency notification. The board may also perform the treatment if it is not performed in the manner and to the extent specified or the person named in the order advises the board that he cannot or does not intent to accomplish the work. If the board has to commence treatment, the owner can be charged a maximum of fifteen dollars per acre for the benefit.

Finally, the board of supervisors of any district where land is being eroded may enter into an agreement with the federal government, the state of South Dakota, any other conservation district, or other county for cooperation in preventing or attempting to prevent soil erosion by wind.

Excerpts from this legislation are included in the state statutory appendix to this report.

L. **TEXAS**

1. **BARTON SPRINGS AND THE EDWARDS AQUIFER**

A substantial majority of citizens of Austin, Texas voted to enact the Save Our Springs (SOS) ordinance in 1992, mandating urban development regulations for NPS pollution control to protect Barton Springs and Edwards Aquifer. The implementation of the ordinance has faced many challenges. The Texas Water Commission, the state agency responsible for reviewing municipal water pollution

abatement programs, scrutinized the effectiveness and validity of the SOS ordinance and the ruled that the ordinance was technically valid (Ross 1995).

Another challenge concerned the legal validity of the ordinance. In a landmark trial affecting the SOS ordinance, a rural jury, from Hays County outside Austin, ruled that the SOS ordinance was invalid on 18 points of law. The plaintiffs in the Hays County trial were small landowners with a vested financial interest in the proposed development project affected by the SOS ordinance. These landowners opposed SOS due to its "no variances allowed" provision. The plaintiff's legal fees were paid by one of Austin's largest developers, Freeport-McMoran, whose proposed development in 1991 prompted the Austin community to protect Barton Springs. Freeport-McMoran also sued the city of Austin directly for violation of the corporation's civil rights through implementation of the development regulations. Although Freeport-McMoran won the suit, the court awarded the corporation only \$113,000 which was distinctly less than the millions it sought. These decisions are under appeal and may be reversed (Ross 1995).

A last challenge to the SOS ordinance is in the form of four bills passed in the spring 1995 Texas state legislative session that critically curtail Austin's ability to protect its drinking water supply. One of the effects of the 1995 bills is that activities currently holding permits can continue indefinitely under regulations in place at the time the original permit application was submitted. This legislation appears to prevent public entities from applying updated regulations to address land development and public health issues. Another aspect of the bills is that

development of properties greater than 1,000 acres (or 500 acres with approval of the Texas Natural Resource Conservation Commission [TNRCC]) are exempted from all municipal water quality or land use regulation and subject only to regulation by the TNRCC. Currently, the TNRCC has no applicable water quality regulations for development.

Although state bills applying to local areas are prohibited by the Texas Constitution, this bill was created by defining conditions that could potentially apply to other areas, but are specific only to Austin at this time. Also, a special district was created for one large development, known as Circle C, located above the Edwards Aquifer recharge zone. The district was given unprecedented powers, including subdivision and zoning authority, and limited responsibilities for water quality protection. The district has no responsibility, financial or otherwise, to meet the terms of contracts between Circle C and the city of Austin that have been in place for over 10 years such as the provision that Circle C must comply with water quality regulation enacted by the city.

Finally, a state "takings" bill was passed which has the effect of prohibiting the city of Austin from considering the geological differences that impact the aquifer outside the city limits. These geological differences affect water quality within Austin's jurisdiction. This bill also authorizes private land owners to sue governmental entities to invalidate regulations or require compensation for actions that decrease property values. It seems the SOS ordinance will probably be rendered ineffective by judiciary and legislative processes (Ross 1995).

Despite these attacks, the Austin community continues to be committed to protecting the quality of its watersheds and Barton Springs. Advocates of the SOS ordinance oppose large capital improvement projects that extend urban infrastructure and roads because these projects encourage urban sprawl into watersheds that contribute to the decline of water quality. To improve consumer awareness, environmentally sensitive areas of the community have been mapped and an ordinance has been passed to extend some of the development regulations for the Barton Springs Zone to all of Austin's suburban watersheds. These regulations include a requirement to capture and treat additional rainfall runoff from high impervious cover areas. The citizens of Austin continue to advocate the protection of Barton Springs despite the apparent defeat of the SOS ordinance (Ross 1995).

2. "PLANNED INTERVENTION" FOR TEXAS AGRICULTURAL NPS SOURCES

A "planned intervention" institutional framework for agricultural nonpoint source pollution is embodied in Texas Senate Bill 503 and unanimously passed by the 73rd Texas Legislature in 1993. Planned intervention describes a pollution prevention and abatement strategy under which local conservation districts and the state conservation agency serve as the primary force for organizing and executing voluntary land treatment measures by agricultural producers in targeted watersheds. However, the linchpin in the planned intervention strategy is that recalcitrant polluters refusing to cooperate with the voluntary program are referred to the state water quality regulatory agency for enforcement action.

Texas Agricultural Code section 201.026 lays the groundwork for the planned intervention program by linking the voluntary implementation of BMPs coordinated by the Texas State Soil and Water Conservation Board and local conservation districts with the Texas Natural Resource Conservation Commission's enforcement program. The legislation requires TSSWCB to establish a "water quality management plan certification program" in areas identified as "having or having the potential to develop agricultural or silvicultural nonpoint source water quality problems," i.e., targeted watersheds. In addition, TSSWCB is charged with investigating complaints of agricultural nonpoint source pollution throughout the state, and, where a problem is verified, to "develop and implement a corrective action plan to address the complaint." Thus, under section 201.026, TSSWCB must assume both a proactive and reactive role in the overall agricultural nonpoint source pollution control process. Significantly, section 201.026 provides state cost share funding to facilitate BMP implementation in targeted watersheds and to remedy confirmed cases of polluted agricultural runoff throughout the state (Frarey et al. 1994/95).

Implementing regulations (excerpted in the State Legislation appendix below) promote informal dispute resolution by providing for hearings before local conservation districts involved in investigating complaints. Section 201.026 provides a direct link between such voluntary efforts led by TSSWCB and water quality enforcement measures directed by TNRCC: "If the person about whom the complaint has been made fails or refuses to take corrective action, the state board

shall refer the complaint to the Texas Natural Resource Conservation Commission.”

Excerpts from the Texas statute and regulations are included in the state statutory appendix to this report.

M. VERMONT

Vermont has a program specifically targeted at nonpoint sources of pollution--its Agricultural Nonpoint Sources Pollution Reduction Program (Saperstein 1995). In 1991, the Vermont legislature (Vt. Stat. Ann. tit. 6, sections 4810-14) delegated to the Commissioner of Agriculture the duties of implementation and enforcement of pollution-reducing agricultural land use practices. The Commissioner has authority to require implementation of best management practices (BMPs) on a case-by-case basis in certain circumstances. In other cases, compliance with accepted agricultural practices gives rise to a conclusive presumption of compliance with water pollution control laws.

III. FEDERAL AND STATE COURT DECISIONS INVOLVING NPS LIMITS ON LAND USE

A. FEDERAL CLEAN WATER ACT CITIZEN SUITS

1. IN GENERAL

Citizen suits under the federal Clean Water Act (CWA) are becoming increasingly significant to NPS enforcement. Recent citizen suits have tested whether currently unregulated discharges from agricultural operations, mining, and residential development are subject to the rigorous CWA point source discharge permit process administered by 40 of the U.S. states and territories under EPA's

supervision. In *Friends of the Sakonnet v. Dutra*, 738 F. Supp. 623 (D.R.I. 1990), raw sewage discharges from a housing development into the Sakonnet River were determined to be an illegal unpermitted point source discharge. *Hudson River Fishermen's Ass'n v. Arcuri*, 862 F. Supp. 73 (S.D.N.Y. 1994), held that runoff from a construction site abandoned by a townhouse developer who ran into financial difficulties was a point source.

In *Beartooth Alliance v. Crown Butte Mines*, 904 F. Supp. 1168 (D. Mont. 1995), acid mine drainage flowing into creeks from mining pits was held to be an illegal unpermitted point source discharge rather than a nonpoint source. The court limited the NPS category to uncollected runoff water which is difficult to ascribe to a single polluter, citing *Trustees for Alaska v. EPA*, 749 F.2d 549 (9th Cir. 1984).

Similar decisions were reached in *Committee to Save Mokelumne River v. East Bay Municipal Utility District*, 13 F.3d 305 (9th Cir. 1993), and *Washington Wilderness Coalition v. Hecla Mining Co.*, 870 F. Supp. 983 (E.D. Wash. 1994). The latter case also held that pollutants which first-migrate through groundwater and then pollute surface waters are subject to Clean Water Act permit requirements.

In *Concerned Area Residents for the Environment v. Southview Farm*, 34 F.3d 114 (2d Cir. 1994, *cert. denied*, 115 S. Ct. 1793 (1995), *noted*, 31 Land and Water Law Review 113 (1996)) a dairy farm's liquid manure-spreading operations were held to be an unpermitted point source discharge. The farmer had argued that the CWA's agricultural stormwater discharge exemption (33 U.S.C. 1362(14)) placed the operation in the non-point source category because rainfall caused the manure to

wash off the field thereby polluting adjacent waters. However, the court held that the agricultural stormwater discharge exemption did not apply to the manure-spreading operations as a point source discharge controlled by the farmer. The operation involved was one of New York's largest dairies with 1100 acres and 2200 animals including 1290 mature cows. With that many animals, the farm qualified as a concentrated animal feeding operation (CAFO) point source (Garrett 1995). Similar decisions were reached in *Higbee v. Starr*, 598 F. Supp. 323 (E.D. Ark. 1984), *affirmed without opinion*, 782 F.2d 1048 (8th Cir. 1985), and *Carr v. Alta Verde Indus., Inc.*, 931 F.2d 1055 (5th Cir. 1991).

Citizen suit plaintiffs also have been successful in obtaining federal district court review of the operational effectiveness of best management practices and other NPS control techniques adopted under state and local law by a variety of NPS sources. Examples include:

(a) *Molokai Chamber of Commerce v. Kukui (Molokai), Inc.*, 891 F. Supp. 1389(D. Hawaii 1995), involving the adequacy of rainwater erosion controls at a pipeline construction site;

(b) *Hughey v. JMS Development Corp.*, No. 1 92-CV-2051-RHH (N.D. Ga. Feb. 24, 1994), *reversed on other grounds* 78 F.3d 1523 (11th Cir. 1996), finding erosion control measures at a 19.2 acre residential subdivision construction site legally inadequate;

(c) *City of New York v. Anglebrook Ltd. Partnership*, 58 F.3d 35 (2nd Cir. 1995), *affirming*, 891 F. Supp. 908 (S.D.N.Y. 1995), finding the defendant golf course

developer's state-required stormwater pollution prevention plan to be legally adequate; and

(d) *Pure Waters v. Michigan Department of Natural Resources*, 883 F. Supp. 199 (E.D. Mich. 1995), approving the defendant city's construction of a large retention basin to handle wet weather combined sewer overflows despite the plaintiff's allegations of possible groundwater contamination problems and harmful chlorine discharges.

As these recent decisions illustrate, federal district court review of the effectiveness of site-specific NPS control measures can be a significant NPS enforcement mechanism. Discussed next is the role that state certifications of compliance with state water quality standards issued to federal agencies pursuant to Clean Water Act section 401 can play in NPS enforcement.

2. CWA SECTION 401

CWA section 401 (33 U.S.C. 1341) requires applicants for federal licenses and permits to obtain state certification that any water discharges will comply with relevant water quality requirements including those applicable to the receiving water body. The state may impose conditions to achieve compliance that are binding on the federal agency and the applicant. If the state denies certification, then the permit or license must be denied by the federal agency. In *Arnold Irrigation District v. Department of Environmental Quality*, 717 P.2d 1274 (Or. Ct. App.), *review denied*, 726 P.2d 377 (Or. Sup. Ct. 1986), the Oregon Court of Appeals approved the use of section 401 to impose state water quality related land use

conditions on the applicant. Such conditions could include the types of state and local land use related controls on NPS pollution discussed in this report.

More recently the United States Supreme Court increased the significance of section 401 to NPS enforcement. In *PUD No. 1 of Jefferson County v. Washington Department of Ecology*, 114 S. Ct. 1900 (1994), the Court upheld a state 401 certification that imposed minimum stream flow requirements on a proposed federally licensed hydroelectric project. The Oregon Supreme Court upheld a similar use of section 401 to protect instream flows pursuant to Oregon Revised Statutes 468B.040 and .045 in *Klamath Falls v. Environmental Quality Commission*, 318 Or. 53, 870 P.2d 825 (1994). While the minimum flows imposed in those cases were intended to directly benefit migratory and resident fish, minimum stream flows can also be used to reduce the concentration of NPS pollution (which can be harmful to fish). Thus, to the extent that water uses protected by state water quality standards would be adversely affected by NPS pollution from a federal applicant's project, the state water quality agency probably can impose direct limits on NPS pollution to protect those uses under the authority of section 401 (Crane 1994; Hill 1995). While such a use of the 401 certification process has yet to be approved in a published court opinion, the reasoning of the Oregon Court of Appeal in the *Arnold Irrigation District* case cited above is suggestive of the probable outcome. For example, the plaintiffs in *Oregon Natural Desert Ass'n v. Thomas*, D.C. Ore. No. 94-522ST, have filed a motion for summary judgment claiming that grazing permits for federal lands require state certification under section 401. Overgrazing in and

adjacent to streams is a major cause of NPS pollution (Frank 1995). Thus such litigation could be very significant to NPS enforcement efforts in the four Region 10 states and throughout the west where there are significant federal land holdings for which grazing permits have been issued.

The role in NPS enforcement of Clean Water Act citizen suits discussed in the previous section also has been enhanced by the Supreme Court's *PUD No. 1* decision. For example, in *Northwest Environmental Advocates v. City of Portland*, 56 F.3d 979 (9th Cir. 1995), *reversing*, 11 F.3d 900 (9th Cir. 1993), the U.S. Ninth Circuit Court of Appeals, which includes the four EPA Region 10 states, reversed its earlier decision and held that citizen suit plaintiffs may challenge water quality standard violations caused by combined sewer overflow discharges. This interpretation could be relatively easily extended to state water quality standard violations caused by NPS sources. Such an approach would be further strengthened by state proposal and EPA approval of revised water quality standards oriented toward NPS enforcement such as the Oregon CWA section 303(d)(1) process described below.

CWA citizen suits provide a mechanism for interested parties to obtain judicial review of state and EPA implementation of 303(d) including the calculation of total maximum daily loads (TMDLs) of polluting discharges from point and nonpoint sources necessary to achieve water quality standards, and the waste load allocations (WLAs) which then are translated into individual water quality based permit limitations pursuant to 40 Code of Federal Regulations 130.2-.6. Responding

to such citizen suits in Idaho, Arizona, Georgia, New York, and Pennsylvania, federal district courts have ordered EPA and the states involved to take various steps relevant to the 401 certification process and NPS enforcement including the development of adequate state water quality standards and TMDLs for water quality limited stream segments (WQLSs) in the state. Examples of this litigation include *Defenders of Wildlife v. Browner*, 909 F. Supp. 1342 (D. Ariz. 1995) and *Natural Resources Defense Council, Inc. v. Fox*, 909 F. Supp. 153 (S.D.N.Y. 1995).

Furthermore, the substantive accuracy and validity of state 401 certification provided to federal agencies can be reviewed by state courts as *In re West Pearl River Navigation Project*, 657 So. 2d 640 (La. Ct. App. 1995), where the court found there was insufficient evidence for the state to conclude that sediment from an Army Corps of Engineers dredging project would not threaten water quality.

B. OTHER FEDERAL COURT DECISIONS

1. **U.S. V. SOUTHERN FLORIDA WATER MANAGEMENT DISTRICT**, 28 F.3d 1563 (11th Cir. 1994), *cert. denied*, 115 S. Ct. 1956 (1995)

The United States sued the water district and the Florida Department of Environmental Regulation for polluting the Loxahatchee National Wildlife Refuge and the Everglades National Park with phosphorous laden farm-water runoff by failing to enforce applicable state water quality laws against upstream agricultural operations in the Everglades Agricultural Area. The court approved the use of federally initiated lawsuits to control this NPS type pollution of federal public lands due to violations of state laws, including state laws implementing the federal Clean Water Act. The court approved a settlement agreement in which the defendants

agreed to establish stormwater treatment areas and an agricultural discharge permit program requiring compliance with designated phosphorous load allocations and best management practices aimed at reducing phosphorous levels in agricultural discharges upstream of the refuge and park.

This case involved direct federal enforcement action against NPS sources polluting federal public lands in violation of state law. Similar NPS enforcement scenarios could occur throughout EPA Region 10 and other parts of the west where there are extensive federal public lands. However, in many western watersheds, federal lands are the highest in the watershed, and activities on them such as timber harvesting, mining, and grazing can cause NPS pollution (Hockberger 1986), as briefly discussed above in connection with Clean Water Act section 401.

2. VILLAS OF LAKE JACKSON V. LEON COUNTY, 884 F. Supp. 1544 (N.D. Fla. 1995)

A land developer sued Leon County after the county passed ordinances rezoning property in the area that he had been developing for many years. The rezoning was instigated by concerns about stormwater runoff further deteriorating a nearby lake's water quality. The court found that zoning ordinances regulating development according to contour elevation lines and limiting intensity of development in areas closer to a lake was conceivably related in a rational way to the state's interest in protecting the water quality of the lake.

It is obvious that stormwater runs downhill and the lake is a closed basin. Storm water containing solids and dissolved pollutants from higher elevations surrounding the lake has the potential of flowing into the lake. These solids are

capable of deteriorating the quality of water in the lake. The farther that the water must flow then the greater the likelihood that some of it, along with its burden of pollutants, will seep into the ground short of the lake. Therefore, the ordinances defining development zones based on elevation and progressively limiting development as the development comes closer to the lower elevations are rationally related to the county's legitimate interest of preserving the water quality of the lake. Because the ordinances were rationally related to legitimate government purposes of protecting the lake's water quality and reducing storm water runoff, the county did not act arbitrarily and capriciously in violation of due process rights when it refused to grant exceptions to the land developer under the ordinances governing the rezoned property. The rezoning disallowed multi-family development on the land at issue, and even though other multi-family developments were exempted that were partially on rezoned land, these other developments were not sufficiently similar to the development at issue to give rise to any reasonable inference that the county's decision to rezone was motivated by intentional discrimination against the plaintiff. The rezoning revolved around protection of the lake's water quality and the ordinances did not single out the developer's property.

C. STATE COURT DECISIONS

Texas litigation adverse to NPS enforcement is described in connection with the Barton Springs matter above. The additional state court opinions described

below are supportive of NPS enforcement in state and local regulatory processes as well as common law actions initiated by parties adversely affected by NPS pollution.

1. **HAGAR V. TIRE RECYCLERS, INC.**, 136 Or. App. 439, 901 P.2d 948 (1995)

The plaintiffs owned a 19.5-acre parcel of property through which two tributaries of the Sandy River run. The streams run at approximately 150 gallons per minute during the wet season and during the dry season they practically dry up. The plaintiffs had ponds on their land and at least one was stocked with rainbow trout. The property directly upstream from the plaintiffs contained a pile of waste tires which accumulated over the years. Complaints were filed with the Oregon Department of Environmental Quality (DEQ) about the tires and the DEQ contracted with the defendant Tire Recyclers to remove the tires which were deemed a nuisance. Tire Recyclers contracted with defendant Groat Brothers Inc. (Groat) to perform the removal. Groat removed the tires during the rainy season when the stream gushed down to plaintiff's property. In the process of removing the tires, Groat significantly disturbed the streambed and banks and caused at least 263 tons of silt to flow downstream onto plaintiff's property and their ponds. Complaints were made to Groat and the DEQ, but Groat continued operations until DEQ ordered them to stop removing the tires until the dry season.

Plaintiff's brought this action based on intentional trespass and negligence. The court found that although the plaintiffs were aware of the general condition and location of the waste pile, and that they complained to the DEQ, these facts were not sufficient enough to constitute consent. Groat could have removed the material

during the dry season without significant impact on the plaintiff's land. The court found that the plaintiffs met the burden of proving an intentional trespassory invasion of a their interest in the exclusive possession of the land. Since there was proof that the defendant knew the removal of tires would cause silt to move downstream, punitive damages as well as compensatory damages may be awarded.

2. **JONES V. ZONING HEARING BOARD OF THE TOWN OF MCCANDLESS,**
578 A.2d 1369, 134 Pa. Commu. 435 (1990).

The plaintiff is a property owner who challenged a zoning ordinance that was amended to rezone a section of McCandless into a newly created D-Development district (D-District). The ordinance applied a zoning technique called "performance zoning" in the D-District which was designed to permit a wide range of uses to give the developer flexibility in developing the land. The zoning technique protected adjacent properties by requiring buffers of varying sizes depending on the uses involved. The ordinance also established standards to preserve sensitive natural resources such as woodlands, streams, and steep slopes. The plaintiff contended that the ordinance violated the 5th Amendment takings clause of the United States Constitution.

A zoning ordinance is presumed to be valid and the party challenging the validity of the ordinance has the burden of proving that it is invalid. A land use regulation can only qualify as a taking if it does not substantially advance legitimate state interests or denies an owner economically viable use of his land. If the ordinance promotes the public health, safety, morals, or general welfare of the community and is substantially related to the purpose which it purports to service,

it substantially advances a legitimate state interest. However, the ordinance may not be unreasonable, arbitrary or confiscatory. The town was found to have authority to regulate steep slopes and forests, but the plaintiff claimed that the ordinance's definition of "steep slopes" and "forests" was arbitrary and unreasonable. The town contracted with architects who recommended the amendments to the ordinance to permit development in the D-District while preserving the sensitive natural resources such as the steep slope, forests, flood plains and streams. The ordinance amendments weighed the maintenance of the ecological balance in the D-District with the property owner's right to develop his property. The challenged portions of the ordinance were not found to be arbitrary or unreasonable, but substantially related to the purpose which they purported to serve.

The landowner also asserted that the ordinance deprived him of an economically viable use of his property. The court focused on the parcel as a whole and held that since the landowner was able to develop 89 residential units or 150,000 square feet of commercial space rather than 100 town house units or 168,000 square feet of commercial space, he had not been deprived of viable use of his property by the zoning ordinance.

3. **KELLY V. TAHOE REGIONAL PLANNING AGENCY**, 109 Nev. 638, 855 P.2d 1027 (1993), *cert. denied*, 114 S. Ct. 684 (1994).

Lake Tahoe has been suffering problems due to NPS pollution. Impervious cover and surface disturbances of the soil in the Lake Tahoe Basin impede the soil's natural function as a medium for growth of vegetation and storage of nutrients.

Vegetation is responsible for removing nutrients and plays an important role in the Lake Tahoe Basin. Recently, the Lake has suffered an increase in algal productivity and a decline in clarity due to an elevated load of sediments and nutrients leading to a decrease in water quality.

A Lake Tahoe property owner brought an action claiming that the regional planning agency's land use regulations effected a temporary taking without just compensation. The plaintiff wished to develop his seven hilltop lots which overlook the lake and 32 additional lots. The permit was initially awarded to develop the hilltop lots but the Tahoe Regional Planning Agency (TRPA) attempted to annul the permit and then amended their approval process. After the amendments, the plaintiff was unable to gain TRPA approval for the development of the hilltop lots. The amendments, spurred by the declining water quality of the Lake, included a process of sending a team of experts to evaluate each vacant single family parcel, primarily for erosion hazard and runoff potential (the Individual Parcel Evaluation System, IPES). All but four of the plaintiff's hilltop lots were eligible under this system.

The plaintiff filed suit against the TRPA, the state of Nevada and the state of California. One of the plaintiff's claims was that the TRPA land-use regulations deprived him of all economically viable use of his property and therefore effected a taking. In this case, there was no absolute prohibition on development of the plaintiff's property. The TRPA regulations temporarily limited development in environmentally sensitive areas and some of the plaintiff's lots did qualify for

development. The plaintiff's lots remain valuable interests because they maintained substantial value during the period of time in question. Furthermore, the parcels owned by the plaintiff were viewed as a whole and not as 39 individual lots when determining if the plaintiff had been deprived of all economic use. The plaintiff's reasonable investment-backed expectations were satisfied because at the time he purchased the property, he had adequate notice that his development plans might be frustrated. He also made a substantial profit off of the bulk of the parcels.

To address the claim that the TRPA regulations effected a "temporary taking" of the hilltop lots, the court also had to evaluate whether the TRPA regulations substantially advanced a legitimate government interest and whether that government interest outweighed the plaintiff's private interest in developing the hilltop lots. Lake Tahoe is a national treasure and the TRPA regulations were found to substantially advance a legitimate government interest in protecting the Lake. The character of the governmental actions had to be considered and the actions of the TRPA were not only for the public benefit but for the plaintiff's benefit as well. Every one of the plaintiff's lots would have diminished in value if the Lake became despoiled. Therefore, the TRPA can postpone building in critical areas for a "reasonable period of time" as long as the benefit received by the property from the ordinances is direct and substantial and the burden imposed is proportional.

The court held that the plaintiff was not exempt from compliance with the amended IPES regulations even though under the prior regulations the plaintiff received a "deemed approved" status to build on the hilltop lots. The

environmental concerns of the TRPA cannot be ignored and if the plaintiff was not required to follow the IPES regulatory scheme, that decision could cause irreparable harm to the Lake Tahoe Basin because all other landowners whose permits were approved prior to the implementation of the IPES system, would be allowed to develop their land immediately.

4. **P&K CO. V. OKLAHOMA DEPARTMENT OF MINES**, 910 P.2d 1042 (Okla. Sup. Ct. 1996)

This opinion held that a coal strip mining company that discharged surface drainage that violated federal and state pH effluent limitation guidelines could be prohibited by the Oklahoma Department of Mines from further mining and reclamation activities at the site. The court ruled that the mining company was required to correct pollution factors which were caused by preexisting, abandoned, underground mines on its permit site, even though construction of the necessary water treatment facility would allegedly cause the company undue economic hardship. While the violated effluent limitations were imposed as part of a point source permit process, it was runoff water from the mining site which violated those limitations. Thus the opinion is an important precedent for NPS sources that are subjected to permit processes such as construction site stormwater permits.

5. **REIMER V. BOARD OF SUPERVISORS OF UPPER MOUNT BETHEL TOWNSHIP**, 615 A.2d 938, 150 Pa. Commw. 323 (1992)

An action was brought challenging a zoning ordinance by a plaintiff who wanted to create a subdivision within his land. The land was classified as agricultural-rural. The minimum lot size in the agricultural-rural designation was

three acres and some of the subdivision lots that the plaintiff planned were under three acres. Subsequently, his subdivision plan was rejected.

Zoning for density is a legitimate exercise of a township's police power and it is impossible to say that any minimum lot requirement is unconstitutional per se.

The constitutionality of lot requirements is determined on a case by case basis.

Minimum lot sizes in excess of one acre can be upheld only in the face of

"extraordinary justification related to the public interest." In this case, the intent of the minimum lot size was to make lots large enough to sustain the dwelling along with the necessary sewage and water system, and to protect adjoining lot owners and groundwater in general from pollution and contamination due to sewage and/or water problems. This purpose is an extraordinary justification necessary to support the carefully tailored increased minimum lot sizes. The larger lots are necessary to diminish the potential adverse effects of development in areas with steep slopes, soil types, and water conditions. The ordinance is reasonably related to a legitimate public interest and is tailored so that it burdens only those lots exhibiting the specific conditions mentioned.

6. **STATE V. DEXTER**, 202 P.2d 906 (1949)

Although it is much older than the other decisions discussed above, this decision is of continuing significance because it upheld against various constitutional challenges (including an uncompensated taking challenge under the Fifth Amendment of the United States Constitution) a Washington state statute conditioning the issuance of harvest permits to private timberland owners upon

their participation in reforestation programs. While the Washington forest practices legislation at issue was focused on the reseeded of harvested properties, the Washington legislation and similar legislation in other states has since evolved to include riparian buffer zone and related requirements to reduce NPS pollution. Thus this decision is an important precedent supporting the imposition of such requirements without compensation in most instances.

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V. **SAMPLE STATE LEGISLATION AND LOCAL ORDINANCES APPENDICES**

Excerpted below are full text excerpts from some of the state statutes and local ordinances discussed in this report. Excerpts from other state statutes, regulations, and local ordinances (Schueler 1994; Terrene 1995) controlling aspects of NPS pollution are also reproduced below as models for statute and ordinance drafting and enactment in other jurisdictions.

A. STATE LEGISLATION APPENDIX

1. Colorado Agricultural Water Quality Control Statute
2. Iowa Groundwater Protection Act
3. Maryland Property Tax Credits for Agricultural Soil Conservation Plans Legislation
4. Oregon Agricultural Water Quality Management Act and Regulations
5. South Dakota Soil Erosion and Sediment Damage Control Act
6. State Erosion Control and Performance Bond Legislation
7. Texas Agricultural Water Quality Management Plans Regulations