

Urban Runoff, Its Consequences, and the Problems of Regulation

*Matthew J. Parlow**

Three years ago, the Chapman University School of Law and the Chapman Law Review held a symposium entitled “Wet Growth: Should Water Law Control Land Use?” The symposium explored the issue of whether water law could be an effective tool for managing growth and development. Building on this cutting-edge symposium, this year the Chapman Law Review hosted a symposium entitled “The Slippery Slope: Urban Runoff, Water Quality, and the Issue of Legal Authority.” This year’s symposium brought together an impressive set of nationally recognized scholars to discuss the issues surrounding urban runoff—its health, environmental, and social consequences, and the challenges with regulating this complex field. The symposium attracted a noteworthy group of attendees, including other scholars in the field, practitioners, government regulators, and interested students. The symposium panels were engaging and informative and challenged those in attendance and those who study this field to reconceptualize many of the foundational premises and paradigms through which we have viewed urban runoff. This intellectual contribution to the field is further embodied in the important articles stemming from the symposium that are being published in this edition of the *Chapman Law Review*. And perhaps there was no better location for such a symposium than here in Southern California where issues of sprawl, intensive and extensive coastal development, and significant environmental concerns confront the tens of millions of residents in the region on a daily basis.

Urban runoff is the surface water from yards, streets, driveways, construction sites, and other developed properties that flow from their source to storm drains and in to other bodies of water such as our rivers, lakes, and oceans.¹ Such water runoff carries

* Assistant Professor of Law and Acting Director for the Center for Land Resources, Chapman University School of Law. J.D., Yale Law School; B.A., Loyola Marymount University. I am grateful to Janine Young Kim for her helpful comments. I would also like to thank Daniele Sheridan, Erin Riley, and all of the members of the Chapman Law Review for their hard work on the symposium.

¹ See Francesca Ortiz, *The Tide is Nigh: Rethinking Urban Flood Management*, 9

with it various pollutants, such as oil, grease, metals, road salts, raw sewage, and other toxic chemicals that can affect coastal habitats and ecosystems, as well as threaten our water quality.² The issue of urban runoff has become one of the pivotal issues in environmental and land use scholarship because of the rise of urbanization in the last century. As flood plains and other undeveloped land have given way to urbanization, environmental and health concerns regarding urban runoff have captured the interest of lawmakers, environmentalists, and scholars. And this problematic relationship between nature and humankind may be further exacerbated with development, sprawl, and demographic trends. Indeed, as Professor Francesca Ortiz points out in her article, more than half of the United States population will live in a coastal area by 2010.³

Some of the articles in this volume detail the negative effects of urban runoff. Others detail the federal regulatory response to this dilemma, such as the Clean Water Act (CWA) and the Coastal Zone Management Act (CZMA).⁴ One author poses an interesting case study of an industry-specific example of how such regulations give rise to controversy: Professor Minan illustrates how storm water permit regulation for the construction industry can be incredibly complex—involving the federal, state, and local levels of government—and has even caused a circuit split in federal courts.⁵

While Professor Craig notes that there have been some successes with the CWA and the CZMA, especially as seen in the Santa Monica Bay here in Southern California,⁶ other panelists are more critical of the current federal regulatory regime. Professor Ortiz details the great expense of the National Flood Insurance Program, and she offers recommendations—such as improved risk assessment and flood control technology—that advance the goals of reducing the health and property risks

CHAP. L. REV. 435, 439 n.20 (2006); Robin Kundis Craig, *Urban Runoff and Ocean Water Quality in Southern California: What Tools Does the Clean Water Act Provide?*, 9 CHAP. L. REV. 313, 313 n.1 (2006); Donald J. Kochan, *Runoff and Reality: Externalities, Economics, and Traceability Issues in Urban Runoff Regulation*, 9 CHAP. L. REV. 409, 416 n.29, 417 n.31, 418 n.34 (2006); John H. Minan, *General Industrial Storm Water Permits and the Construction Industry: What Does the Clean Water Act Require?*, 9 CHAP. L. REV. 265, 276 nn.70–76 (2006).

² Ortiz, *supra* note 1; Craig, *supra* note 1, at 316 n.19, 323 n.53, 339 nn.161–62; Kochan, *supra* note 1, at 417 n.31, 418 nn.33–34; Minan, *supra* note 1.

³ See Ortiz, *supra* note 1, at 437 n.13.

⁴ See Craig, *supra* note 1; Minan, *supra* note 1; Ortiz, *supra* note 1.

⁵ See Minan, *supra* note 1, at 287–299.

⁶ See Craig, *supra* note 1, at 359–363.

caused by urban runoff.⁷ Through such recommendations, Professor Ortiz advocates for a paradigm shift that envisions stormwater as an ally rather than as an enemy.

Two panelists, Professors Malone and Wagner, question the efficacy of federal regulations aimed at urban runoff because of controversies involving the integrity of the science underlying such regulations. Professor Malone raises the specter of “junk science” and ponders whether meaningful regulatory reform can be accomplished in an era where junk science is used to justify laws, policies, and regulations that further a predetermined political agenda.⁸ Professor Wagner questions whether current urban runoff regulations are working because such programs do not account for inherent limitations in scientific and technological information associated with such regulations.⁹

Professor Wagner does offer up a potential solution to the current information problems that plague the urban runoff regulatory regime: the inter-connectedness such federal laws could have with state and local government regulations.¹⁰ And as Professor Wolf explains, the United States Supreme Court has provided guidance to local governments as to their powers and responsibilities in fulfilling their role in such a cooperative intergovernmental system in the area of environmental regulation.¹¹

However, perhaps a stronger regulatory regime may not be normatively desirable. As Professor Ortiz points out, controlling development can be a slippery slope to regulatory takings claims.¹² Moreover, Professor Kochan questions whether regulation is necessary when it is unclear whether such laws are effective and when there exist significant questions regarding traceability of harms in urban runoff.¹³ Professor Kochan raises provocative questions of whether economic realities suggest that a regulatory regime may not be the best avenue for tackling the urban runoff problem and that a market approach may prove

⁷ See Ortiz, *supra* note 1, at 443–460. [parts II and III of her paper]

⁸ See Linda A. Malone, *What do Snowmobiles, Mercury Emissions, Greenhouse Gases and Runoff Have in Common?: The Controversy of “Junk Science,”* 9 CHAP. L. REV. 365, 409–408 (2006).

⁹ See Wendy E. Wagner, *Stormy Regulation: The Problems that Result when Stormwater (and Other) Regulatory Programs Neglect to Account for Limitations in Scientific and Technical Information*, 9 CHAP. L. REV. 191 (2006).

¹⁰ See *id.* at 222–26.

¹¹ See Michael Allan Wolf, *Supreme Guidance for Wet Growth: Lessons from the High Court on the Powers and Responsibilities of Local Governments*, 9 CHAP. L. REV. 233 (2006).

¹² See Ortiz, *supra* note 1, at 447–449.

¹³ See Kochan, *supra* note 1, at 419–31.

more effective and fair given the concern of traceability.¹⁴

This symposium and the accompanying articles have forged new ground in analyzing and conceptualizing urban runoff regulation. While urban runoff and the appropriate regulatory responses to it will continue to spark great controversy and debate, this collective contribution will hopefully help shape and frame the discussion and, possibly, lead us to some workable solutions to this very complex problem.

¹⁴ See *id.*

Stormy Regulation: The Problems that Result when Stormwater (and Other) Regulatory Programs Neglect to Account for Limitations in Scientific and Technical Information

*Wendy E. Wagner**

On paper, the regulation of stormwater discharges in the United States appears to be a massive and growing enterprise. The Environmental Protection Agency (EPA) website educating the public and regulated parties about its extensive stormwater requirements provides dozens of reports, including detailed engineering assessments, best practices options, fact sheets, and EPA guidance documents, some of which are so enormous that they are almost too large to download.¹ Federal stormwater regulatory requirements involve two separate phases, multiple categories of regulated parties—each of which enjoys individualized treatment—and menus of best management practices (BMPs) to fit virtually any type of land use that creates polluted stormwater.² The EPA is currently in the midst of promulgating a revised “NPDES Stormwater Multi-Sector General Permit for Industrial Activities” (MSGP),³ one of almost a dozen separate stormwater permit programs.⁴ The stormwater regulatory program is so substantial that private companies have formed to help regulated parties navigate the requirements.⁵ State and local programs only magnify the growing complexity. The State of California,

* Joe A. Worsham Centennial Professor, University of Texas School of Law. Please direct comments to WWagner@law.utexas.edu. Many thanks to Xavier Swamikannu for helpful comments on an earlier draft and to participants at the Chapman symposium and the editors of the Chapman Law Review, particularly MacKenzie Batzer, for valuable feedback and editorial assistance.

¹ See EPA, National Pollution Discharge Elimination System (NPDES), http://cfpub.epa.gov/npdes/home.cfm?program_id=6 (last visited Feb. 6, 2006).

² See, e.g., EPA, EPA 833-R-96-008, OVERVIEW OF THE STORMWATER PROGRAM (June 1996), *available at* <http://www.epa.gov/npdes/pubs/owm0195.pdf> [hereinafter EPA, OVERVIEW OF THE STORMWATER PROGRAM].

³ EPA, NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES), PROPOSED 2006 MSGP, *available at* http://www.epa.gov/npdes/pubs/msgp2006_all-proposed.pdf (last visited Feb. 9, 2006). [hereinafter EPA, 2006 MSGP].

⁴ See *infra* n.86 Figure 2.

⁵ See, e.g., StormwaterAuthority, <http://www.stormwaterauthority.org> (last visited Feb. 6, 2006).

Riverside County, and other locales in California add still another layer of implementing requirements on top of the EPA's unwieldy regulatory base.⁶

The million dollar question, though, is whether all of these regulations and guidance documents succeed in actually controlling this important source of water pollution. The federal Clean Water Act stormwater permit program regulates only a subset of all sources of stormwater runoff—those that occur at identified facilities, municipalities, and large construction sites.⁷ But the contribution of pollutants from these larger stormwater sources appears to make up a significant portion of polluted runoff in urban watersheds.⁸ The effectiveness of the EPA's stormwater permit program is thus an important piece in the larger puzzle of assessing the adequacy of current legal responses to the problem of urban runoff.

This article argues that the potential for success of this large and growing stormwater discharge program—at least as it is implemented at the federal level—is doubtful. The basis for this skepticism is not specific to the stormwater program. Instead, the stormwater regulatory program is illustrative of a larger problem that has plagued most environmental regulatory programs over the last thirty-five years: these programs are designed in ways that neglect to account for dramatic limits in scientific and technical information. Limitations in information constrain the options available to regulators to police the release of pollution or the manufacture of dangerous products. If regulations are designed in blatant disregard of these information constraints—for example, the fact that regulated parties often enjoy privately held, technical information regarding the risks posed by their products or activities—the programs are headed for trouble.

Behind this critique of the stormwater regulatory program, then, is a more general argument about regulation—namely that limitations in scientific and technical information cannot simply

⁶ See, e.g., Storm Water Protection Program, The Cities and County of Riverside ONLY RAIN IN THE STORM DRAIN Pollution Prevention Program, <http://www.floodcontrol.co.riverside.ca.us/stormwater/> (last visited May 12, 2006). For a list of all Phase I municipal stormwater permits issued in the state of California, go to State Water Resources Control Board Water Quality, Storm Water Program, http://www.waterboards.ca.gov/stormwtr/phase_i_municipal.html (last visited May 12, 2006).

⁷ See 33 U.S.C. § 1342(p) (2000); National Pollution Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed. Reg. 47990 (1990) (codified at 40 C.F.R. pts. 122–24 (1990)).

⁸ See EPA, EPA NO. 821-R-99-012, PRELIMINARY DATA SUMMARY OF URBAN STORMWATER BEST MANAGEMENT PRACTICES 4-23 (Aug. 1999), *available at* http://www.epa.gov/ost/stormwater/usw_b.pdf [hereinafter EPA, PRELIMINARY DATA SUMMARY].

be accommodated after a regulatory program has been established. We cannot decide, for example, that we want all waters fishable and swimmable or the air safe for all persons and then figure out how science can get us there. Instead, competent regulatory design requires an assessment of what science and other sources of technical information can and cannot offer—at the front end of regulatory design. Limits in available information should inform both the ends and the means of how we choose to regulate. Such a front-end assessment of the available technical and scientific information is likely to lead to regulatory programs that look quite different from the programs currently in place, including the federal program regulating stormwater discharges.

The argument that the stormwater regulatory program ignores important limits in available information unfolds in three parts. Part I makes the larger argument that successful environmental regulation must consider the limits of available scientific information and design regulatory requirements around those constraints rather than trying to address these limitations at the back-end, after the program has been established. Examples from several regulatory programs make it clear that this oversight is neither new nor isolated to the stormwater runoff program. Part II then outlines the specific types of information constraints that plague stormwater regulation and identifies how the EPA's design of the stormwater discharge regulatory program neglects these constraints and, at some level, seems to flaunt them. While the failure of the stormwater program to adequately account for and design its regulatory program around these information constraints may not devastate the program, these failures will likely reduce its effectiveness considerably, particularly in areas where local or state governments are not enthusiastic about reinforcing the program with more stringent requirements. Part III closes the article on a more hopeful note by suggesting some opportunities to redesign the federal stormwater program to better take into account the information that is and is not available to regulators. While these proposals are not a panacea for this very challenging field of regulation, they are likely to be more successful than the current federal program.

I. INFORMATION CONSTRAINTS IN ENVIRONMENTAL REGULATION

It is well-established that science is pivotal to most environmental regulation. It is also well-established that the supply of this scientific and technical information is far less than is needed to produce effective or comprehensive regulations of man-made

harms.⁹ Despite these well-settled truths in environmental regulation, there seems to be little effort to apply them in the practice of regulatory design. Some of this neglect is forgivable—a fair number of our programs have their origins in the early 1970's when regulators were still learning by trial and error. But some of the worst offenses—a category that includes stormwater regulatory programs that began in earnest in the 1990's—are far more recent and should have been designed in ways that benefited from past mistakes.

A. Information Constraints in Environmental Regulation—The Theory

The idea that information can be limited and that policy analysis and decision-making models must account for these limitations is a relatively new innovation. Economists Joseph E. Stiglitz, George A. Akerlof, and A. Michael Spence were awarded the Nobel Prize in 2001 for their groundbreaking research on asymmetrical information in markets.¹⁰ As a result of their work, “much of what economists believed—what they thought to be true on the basis of research and analysis over almost a century—turned out not to be robust to considerations of even slight imperfections [otherwise known as asymmetries] of information.”¹¹ Economists are now forced to change their assumptions based on the discoveries that information asymmetries can affect institutional and individual behavior in important ways.

At a theoretical level, then, we now understand that limitations in information can impose significant and sometimes insurmountable roadblocks to particular ways of doing things. This does not mean that existing regulatory programs are doomed to fail. It does mean that successful regulatory design must first identify the limitations in scientific and technical information that exist and then develop the regulatory program around these constraints.

In environmental regulation, there are at least three different types of significant limitations in information that occur with regularity and must be accommodated in regulatory design. First, there is the familiar problem of “uncertain information” that involves scientific and technical questions that are unlikely

⁹ See, e.g., Oliver Houck, *Tales from a Troubled Marriage: Science and Law in Environmental Policy*, 302 SCI. 1926, 1926 (2003).

¹⁰ See Nobelprize.org, <http://nobelprize.org/economics/laureates/2001/index.html> (last visited Feb. 6, 2006).

¹¹ Joseph E. Stiglitz, *The Contributions of the Economics of Information to Twentieth Century Economics*, 115 Q. J. ECON. 1441, 1461 (2000) (emphasis omitted).

to have immediate or even short-term answers.¹² Some of this uncertainty is due to limitations of scientific knowledge. Scientists do not understand mechanisms of carcinogenicity, hormone interactions, or neurological effects sufficiently to explain or predict how chemicals will interact in humans or animals.¹³ Some of the uncertainty is also due to resource constraints. Even with the limited scientific knowledge we do possess, we often lack resources to conduct basic tests or conduct extensive monitoring to resolve uncertainties relevant to regulation. For example, comprehensive monitoring of the environment would tell us something and perhaps a great deal about environmental quality, but it is exceedingly expensive and we lack the resources to conduct most of it.¹⁴

A second type of information constraint results from asymmetric or “imperfect information.”¹⁵ Some information may be available, or nearly so, only it lies with certain parties who are disinclined to share it.¹⁶ The problems of asymmetrical information are substantial in regulating private actors, and as elaborated later, they are particularly significant in stormwater regulation. Many regulated actors sit atop “mountains of detailed facts” about the nature of their polluting activities and “amass specialized private expertise about the ways these activities” and land uses could introduce pollutants into the environment.¹⁷ Since their property is private, access to information about the pollutants that might be present in stormwater runoff is generally not available to neighbors or regulators unless these groups are granted permission to enter the site, and even then, pollutants may not be readily apparent in a visual inspection.¹⁸ Even to the extent that these regulated parties do not have direct in-

¹² See Wendy E. Wagner, *Commons Ignorance: The Failure of Environmental Law to Produce Needed Information on Health and the Environment*, 53 DUKE L.J. 1619, 1742 (2004).

¹³ See, e.g., COMM. ON HORMONALLY ACTIVE AGENTS IN THE ENV'T ET AL., HORMONALLY ACTIVE AGENTS IN THE ENVIRONMENT 1-7 (1999) (identifying great scientific unknowns for hormonally active agents, including mechanisms of action, and identifying several major areas for needed future research).

¹⁴ See, e.g., COMM. ON RESEARCH OPPORTUNITIES AND PRIORITIES FOR EPA ET AL., BUILDING A FOUNDATION FOR SOUND ENVIRONMENTAL DECISIONS 19, 21, 25, 31 (1997) (discussing in concrete terms the drastic need for basic monitoring and citing other EPA studies similarly concluding that there is a need for better environmental monitoring).

¹⁵ See Claus Huber & Franz Wirl, *The Polluter Pays Versus the Pollutee Pays Principle Under Asymmetric Information*, 35 J. ENVTL. ECON. & MGMT. 69, 69 (1998).

¹⁶ See, e.g., *id.* at 71 (assuming that a polluter has asymmetric information on the benefits of the polluting activity).

¹⁷ Wagner, *supra* note 12, at 1641-42.

¹⁸ See Stephen Polasky & Holly Doremus, *When the Truth Hurts: Endangered Species Policy on Private Land with Imperfect Information*, 35 J. ENVTL. ECON. & MGMT. 22, 26-29 (1998) (discussing the asymmetrical advantages that private owners enjoy with respect to the presence of endangered species on their land).

formation about the nature of the stormwater pollution problems at their site, they are generally in a far better position to obtain information about the effects of their activities than others.¹⁹ Regulated parties know approximately where or what to sample and what present or past practices might deserve closer inspection, even though they may not have yet done the research. Actors thus also have superior access to information because they have an “inside track” on where to obtain it and what to look for.²⁰

The third type of science constraint arises while scientific research or information is still emerging (called “emergent information”) and has not been fully vetted or accepted by the scientific community.²¹ In the peculiar setting of regulatory controls, some of this emergent information about toxicity or environmental quality will not be welcome by a large and influential sector of the affected interests—namely regulated parties.²² Instead, it will be hotly contested.²³ Given the evolving nature of scientific discoveries and the loose system of scientific governance that presides over these discoveries, there is no quick and dirty way for regulators to judge the point at which this developing science is reliable enough to form the basis for regulatory controls.²⁴ The fact that the information is likely to be hotly contested extends the time during which scientific research can, in practice, actually inform regulatory programs and constitutes another information constraint.²⁵ As a result, even when useful scientific information is produced, the adversarial nature of the legal system may lead to extensive contests over the reliability of that information for years before it is accepted as reliable for purposes of regulation.

In designing a regulatory program, in theory, one would first identify the types of information needed to establish and meet regulatory goals. Next, one would assess the extent to which this needed information is handicapped by one or more of these types of constraints. If the information is effectively unavailable because it is uncertain, asymmetric, or contested, then it is critical

¹⁹ *Id.*

²⁰ See, e.g., Wagner, *supra* note 12, at 1641–49.

²¹ See Timothy Caulfield, *The Mass Media's Influence on Health Law and Policy: Symposium: Popular Media, Biotechnology, and the "Cycle of Hype,"* 5 HOUS. J. HEALTH L. & POL'Y 213, 220 (2005).

²² See, e.g., David Michaels & Celeste Monforton, *Scientific Evidence in the Regulatory System: Manufacturing Uncertainty and the Demise of the Formal Regulatory System*, 13 J.L. & POL'Y 17, 17–18 (2005).

²³ *Id.*

²⁴ See THOMAS MCGARITY & WENDY WAGNER, *BENDING SCIENCE* ch. 3 (Jan. 9, 2006) (book in progress, on file with author).

²⁵ See, e.g., Wagner, *supra* note 12, at 1649–59.

to devise a regulatory strategy that finds a way around these constraints. For example, a common problem in many pollution control programs is their failure to anticipate and work around substantial asymmetries in information between the regulated and the regulators.²⁶ Regulatory parties often enjoy far more information and access to information about their potential health or environmental harms than regulators.²⁷ Yet many regulatory programs ignore these prevalent information asymmetries and place the burden on regulators to discover health and environmental risks. Our current regulatory programs governing the filling of wetlands,²⁸ fugitive sources of toxic air pollution,²⁹ the discovery of contaminated land,³⁰ and the manufacture and sale of chemicals³¹ all fall prey to this particular blind spot. By failing to take the asymmetrical information of the regulated party into account, they establish regulatory regimes that are barely enforceable and can lead to substantial noncompliance. Similarly, a regulatory program that expects existing scientific research and data to magically reveal the point at which a pesticide presents “unreasonable adverse effects,”³² when air pollutants are controlled sufficiently to “allow[] an adequate margin of safety [to]

²⁶ *Id.* at 1641–42.

²⁷ *Id.*

²⁸ Under current law, wetland developers are not required to conduct research on the wetlands they hope to fill to show that they are not environmentally valuable. *See* 33 U.S.C.A. § 1344 (West 2001). On the contrary, opponents to the development must bear the burden of conducting this research, even though the land is often privately held and its owners can deny the access needed for research.

²⁹ Federal Clean Air Act regulations provide facilities with fugitive sources of air toxins wide latitude in self-monitoring their compliance with required pollution control equipment. Under the regulations, a facility is required to self-inspect to ensure compliance with technology-based requirements for fugitive emissions sources only at specified intervals, sometimes as infrequently as once per year. *See* Storage Vessel Provisions—Procedures to Determine Compliance, 40 C.F.R. § 63.120(a) (2004) (requiring visual inspections only once annually for storage vessels). When a facility catches its own violation, there is a period of time during which the facility can repair the problem without penalty. Under some fugitive pollution rules, this excused repair time can be as long as forty-five days. *See* 40 C.F.R. § 63.120(a)(4) (2004).

³⁰ Actors owning land that leaches toxic substances onto neighboring land, into public recreational resources, or into other water supplies (including drinking water supplies), are effectively immunized from reporting their pollution if the amount “appears” smaller than the reportable quantities defined by regulations. *See, e.g.,* Clean Water Act, 33 U.S.C. § 1321(b)(5) (2000) (requiring reports of spills of oil and hazardous substances only above a threshold amount and, even then, only from vessels or facilities, thus excluding runoff); Comprehensive Environmental Response Compensation and Liability Act of 1980, 42 U.S.C. § 9603(a) (2000) (requiring reports of releases of hazardous substances only if they exceed a “reportable quantity”). The contamination may only be discovered if a governmental entity or other third party identifies the problem.

³¹ *See* Mary L. Lyndon, *Information Economics and Chemical Toxicity: Designing Laws to Produce and Use Data*, 87 MICH. L. REV. 1795, 1813 (1989) (noting that there is currently little incentive for chemical manufacturers to undergo expensive testing merely to point out the flaws in their own products).

³² 7 U.S.C. § 136a(c)(5)(D) (2000).

protect the public health,”³³ or when surface waters are sufficiently free from pollutants to ensure protection of “the public health or welfare,”³⁴ is setting itself up for failure.³⁵ Regulated parties will not only contest the science that exists to answer these questions, but regulators will find tremendous uncertainties that lack clear answers. For example, Dr. Ken Reckhow, the Department Chair at Duke University’s Nicholas School for the Environment, has found that water quality modeling—in the absence of extensive supporting water quality data—is often so error-laden that it might not produce information that is useful at all.³⁶ Many regulatory programs, including the Total Maximum Daily Load (TMDL) program of the Clean Water Act do not appreciate these severe information constraints.³⁷ Instead, by insisting that regulatory requirements be based on scientific models that are often badly data-deprived and laden with theoretical uncertainties, these programs encounter decades of contested science and resultant regulatory paralysis.³⁸

B. Information Constraints in Environmental Regulation—The Practice

Although the bad examples—where regulatory programs fail to account for prevailing information constraints—far outnumber the good examples, the Clean Water Act National Pollutant Discharge Elimination System (NPDES) program governing industrial effluent conveniently provides a particularly good example of a regulatory program that accounts for several critical information constraints in its regulatory design.³⁹ In devising the NPDES program of the Clean Water Act, Congress reacted to the substantial uncertainties and imperfections in scientific information that plagued its past efforts to regulate water pollution, and developed a program that circumvents these constraints.⁴⁰

³³ 42 U.S.C. § 7409(b)(1) (2000).

³⁴ 33 U.S.C. § 1313(c)(2)(A) (2000).

³⁵ See generally Wendy E. Wagner, *Congress, Science, and Environmental Policy*, 1999 U. ILL. L. REV. 181 (1999).

³⁶ K. H. Reckhow & S.-C. Chapra, *Modeling Excessive Nutrient Loading in the Environment*, 100 ENVTL. POLLUTION 197, 206 (1999) (discussing problems in water quality modeling, much of which stem from inadequate data, and concluding that “it should not be surprising that theoretically based improvements in a model often cannot be supported with the limited available observational data”).

³⁷ See, e.g., Oliver A. Houck, *TMDLs IV: The Final Frontier*, 29 ENVTL. L. REP. 10469, 10474-79 (1999) (detailing the series of scientific obstacles that arise in the TMDL program).

³⁸ *Id.*

³⁹ See, e.g., 33 U.S.C. § 1314(b)(1)(B) (2000).

⁴⁰ See H.R. REP. NO. 92-911, at 396 (1972) (statement of Rep. Charles Rangel) (observing that “the history of our water pollution control program suggests that State and Federal governments will continue to founder on the staggering complexity of this control system, which requires working mathematically back from the permitted pollution levels

As a scientific matter, when the Clean Water Act was passed in 1972 and to a large extent today, scientists are able to tell us very little about how much pollution a water body could assimilate before encountering significant ecological damage or presenting serious health risks.⁴¹ Even when policymakers set a numeric concentration for a particular pollutant—a level of acceptable dioxin in rivers and lakes in Virginia, for example—scientists cannot assure us that the level of discharges that can be tolerated from various point sources, much less the nonpoint sources, in order to keep the water quality at roughly that acceptable level.⁴²

Yet despite these and many other unknowns, Congress refused to become paralyzed by the scientific and technical constraints that plague water pollution regulation.⁴³ One thing that is clear scientifically—both in 1972 and today—is that water pollution is significant, presenting both health threats and ecological damage.⁴⁴ Scientists have discovered 362 toxins in Great Lakes water, sediment, and biota; this discovery tells us that man-made impacts are impairing lake ecosystems.⁴⁵ Alterations in the diversity and types of species inhabiting some streams indicate water quality impairments.⁴⁶ Swimmers recreating near sewer outfalls experience higher levels of respiratory and other maladies than swimmers recreating further downstream.⁴⁷ At an aggregate level, then, there is little question that serious impairments to some waters result from pollutant loading and that reducing those loadings will make a positive difference to human and ecological health.

In order to implement this general scientific knowledge without hanging up the regulatory program on the scores of more specific water quality unknowns, Congress devised an ingenious system that simply required—in very specific and enforceable ways—that at least those actors discharging wastes into water

in a waterway to the effluent limitations at the point source needed to achieve them”).

⁴¹ See, e.g., Robert W. Adler, *Integrated Approaches to Water Pollution: Lessons from the Clean Air Act*, 23 HARV. ENVTL. L. REV. 203, 211–12 (1999) (discussing some of the scientific uncertainties in setting water quality criteria); Oliver A. Houck, *The Regulation of Toxic Pollutants Under the Clean Water Act*, 21 ENVTL. L. REP. 10528, 10529–31 (1991) (detailing a series of major scientific uncertainties encountered in the effort to set ambient water quality standards that must be squarely addressed in order to arrive at a final standard).

⁴² See, e.g., Houck, *supra* note 37, at 10472.

⁴³ See 33 U.S.C. § 1314(b)(1) (2000).

⁴⁴ See, e.g., EPA, The Effects of Great Lakes Contaminants on Human Health, available at <http://www.epa.gov/glnpo/health/atsdr-ref.htm> (last visited Feb. 7, 2006).

⁴⁵ See, e.g., *id.*

⁴⁶ See, e.g., EPA, PRELIMINARY DATA SUMMARY, *supra* note 8, at 4-35 to 4-36, 4-39 to 4-43.

⁴⁷ See, e.g., *id.* at 4-44 to 4-47.

through a pipe “do their best” to reduce pollution.⁴⁸ This requirement circumvented one of the major information constraints that plagues many other regulatory systems—the problem of scientific uncertainties. In its regulatory design, Congress resisted the need to get specific answers for the point at which waters were degraded or the types of regulatory controls that would be needed to clean them up.⁴⁹ Instead, this “do our best” or technology-based pollution control approach simply requires the main dischargers to limit their loadings to what regulators determine is technologically feasible.⁵⁰

Congress also directly confronted the problems of asymmetric information enjoyed by regulated parties in designing the NPDES program.⁵¹ Industrial dischargers have superior knowledge of what “doing their best” encompasses and whether they are actually accomplishing that “best” on a daily basis. Rather than task poor regulators with the job of checking on the representations of regulated parties that they are minimizing their pollution loads, Congress also instructed the EPA to find out—on an industry-by-industry basis—what doing one’s best actually was and to put that result into a single numerical effluent standard that applied to all similar industries.⁵² In this way, the regulator would have the burden of devising categorical industry effluent limits, but once put in place, there would no longer be the need for regulators to become familiar with the capabilities of individual dischargers in order to finalize permit requirements.⁵³

An even more brilliant element of the NPDES program is the self-monitoring requirement. Because dischargers have considerable asymmetrical information regarding whether they are in compliance with generic effluent limits, Congress, with the help of the EPA, devised a scheme whereby all regulated parties

⁴⁸ See Thomas O. McGarity, *Media-Quality, Technology, and Cost-Benefit Balancing Strategies for Health and Environmental Regulation*, 46 LAW & CONTEMP. PROBS. 159, 199 n.194 (1983) (quoting Senator Bayh as explaining that the technology-based standards adopted in the 1972 Clean Water Act were intended to “force industry to do the best job it can do to clean up the nation’s water and to keep making progress without incurring such massive costs that economic chaos would result.”) (citing Senate Comm. on Pub. Works, 93D CONG., 1ST SESS., LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, at 1133 (1973)); see generally 33 U.S.C. § 1311 (b)(2)(A) (2000), 33 U.S.C. § 1314(b) (2000), 33 U.S.C. § 1342(a)(1)-(3) (2000).

⁴⁹ Michael R. Bosse, *George J. Mitchell: Maine’s Environmental Senator*, 47 ME. L. REV. 179, 184 (1995) (“Congress’s intent is to reevaluate environmental statutes such as the Clean Water Act periodically to ensure that the law reflects the current state of ongoing scientific knowledge and changing circumstances.”).

⁵⁰ See, e.g., 33 U.S.C. § 1314(b)(1)(A) (2000).

⁵¹ See, e.g., 33 U.S.C. §§ 1342(a)(1)-(3) (2000).

⁵² See, e.g., *Du Pont v. Train*, 430 U.S. 112, 129 (1977).

⁵³ John H. Minan, *Municipal Separate Storm Sewer System (MS4) Regulation Under the Federal Clean Water Act: The Role of Water Quality Standards?*, 42 SAN DIEGO L. REV. 1215, 1232 n.95 (2005).

would monitor their own effluent at regular intervals.⁵⁴ While some asymmetries in information remain and their existence undercuts compliance,⁵⁵ the private informational advantages of the discharger are generally overcome by this regulatory scheme: dischargers have few choices but to monitor their effluent honestly and to disclose those effluent numbers to regulators and the public at large.⁵⁶

In short, the NPDES program circumvents the largest problems of uncertain and imperfect information. Once the effluent standards were promulgated, this left the EPA with a regulatory program that could be implemented relatively smoothly—at least in comparison to science-dependent regulatory programs. Moreover, the likelihood of regulated parties holding up the program by contesting emerging scientific information is also circumvented since scientific information is generally not relevant to this technology-based standard-setting and permitting process.⁵⁷

But the NPDES program governing industrial effluent is hardly perfect. It was so skillful in circumventing the need for scientific information that it neglected to develop mechanisms for collecting water quality data that might enable more science-intensive regulation in the future.⁵⁸ The “do your best” standard, in fact, will not achieve even the most primitive water quality objectives (sight and smell) in some settings where a water body cannot assimilate numerous industrial discharges that enter the water at once.⁵⁹ Thus, the need for some second-tier, science-based form of regulation was inevitable, but was not established in a coherent way. However, with this one important exception, the NPDES program exemplifies smart regulatory design, at

⁵⁴ See 33 U.S.C. § 1318(a)(A) (2000).

⁵⁵ See generally U.S. GEN. ACCOUNTING OFFICE, GAO/RCED-93-21, ENVIRONMENTAL ENFORCEMENT: EPA CANNOT ENSURE THE ACCURACY OF SELF-REPORTED COMPLIANCE MONITORING DATA (Mar. 1993), available at <http://archive.gao.gov/t2pbat6/149103.pdf> [hereinafter GAO, ENVIRONMENTAL ENFORCEMENT] (finding that sampling methods employed by regulated parties were not reviewed by EPA inspectors in roughly two-thirds of the states surveyed, enabling regulated parties' accidental errors or deliberately falsified results to remain undetected).

⁵⁶ See, e.g., Wendy E. Wagner, *The Triumph of Technology-Based Standards*, 2000 U. ILL. L. REV. 83, 101–03 (2000).

⁵⁷ *Id.* at 1651–53 (noting that when science-based standards are used, the strategy employed by many regulated parties is to discredit the science behind the standard: “In some cases, because of the inherent complexity of the studies, even if high-quality technical research can be at least temporarily discredited by making groundless challenges about the methods used, the reliability of the data collected, the qualifications of the researcher conducting the study, or by suggesting that the review processes are flawed.”).

⁵⁸ See William F. Pedersen, Jr., *Turning the Tide on Water Quality*, 15 ECOLOGY L.Q. 69, 84–85 (1988).

⁵⁹ It is obviously difficult to set water quality control standards when there are multiple sources of pollution entering a single body of water at once. See, e.g., Esther Bartfeld, *Point-Nonpoint Source Trading: Looking Beyond Potential Cost Savings*, 23 ENVTL. L. 43, 74 (1993).

least with regard to its maneuverability around significant information constraints. In fact, critics of the program have been far too quick to overlook the severity of information constraints and the program's effectiveness in overcoming them.⁶⁰

II. FEDERAL STORMWATER DISCHARGE REGULATIONS: THE NEGLECT OF THE INFORMATION CONSTRAINTS

Stormwater discharge regulation is set within this larger NPDES program that governs industrial effluent discharges and ranks among the best at identifying and working around potentially fatal significant science constraints.⁶¹ But the extension of the NPDES program to the regulation of stormwater discharges neglects the underlying information constraints that explain why the NPDES program developed in the way it did. As a result, stormwater regulation ironically runs headlong into precisely the same types of information constraints that the NPDES program was designed to avoid.

A. Background: The Science and Law of Stormwater Discharge Regulation

The regulation of stormwater runoff confronts the same scientific constraints that plague controlling pollutants in industrial effluent, but encounters added uncertainties in quantifying the variable pollutant loads that occur in runoff. At the same time, much like the traditional NPDES program, those in charge of the land or outfalls that carry the runoff into the waters enjoy considerable private information or access to information about the types of problems that might be occurring at their sites.⁶²

1. Additional Uncertainties in Characterizing Stormwater Runoff

As is the case for industrial discharges, there are large scientific uncertainties involved in attempting to trace specific sources of stormwater runoff to individual environmental or health harms. While broad scientific connections can be made (i.e., fecal coliform loadings do not make for good swimming conditions), it has been difficult to move beyond these very general correlations between pollution and public health and environmental harms.⁶³

⁶⁰ See, e.g., BRUCE A. ACKERMAN ET AL., THE UNCERTAIN SEARCH FOR ENVIRONMENTAL QUALITY 328–30 (1974); Bruce A. Ackerman & Richard B. Stewart, Comment, *Reforming Environmental Law*, 37 STAN. L. REV. 1333, 1335–37 (1985).

⁶¹ See, e.g., Wagner, *supra* note 56, at 96–97.

⁶² See generally GAO, ENVIRONMENTAL ENFORCEMENT, *supra* note 55 (explaining the EPA's use of self-reporting for monitoring compliance and also under the wastewater discharge and hazardous waste programs).

⁶³ See, e.g., EPA, PRELIMINARY DATA SUMMARY, *supra* note 8, at 4-44 to 4-47.

Scientists have, however, attributed significant adverse water quality consequences to cumulative stormwater runoff.⁶⁴ Given the role of precipitation in mobilizing many of the pollutants, stormwater loadings are obviously far more variable than traditional industrial sources; this runoff includes some very toxic substances and large amounts of sediment that impair water quality.⁶⁵ Scientists have also identified major sources of pollutants in stormwater runoff that include motor vehicle exhaust, construction activities, industrial operations, and suburban lawn products like fertilizers and pesticides.⁶⁶

But there are some added uncertainties that affect the regulation of stormwater runoff. First, measuring the effectiveness of site controls designed to minimize pollutants in stormwater runoff is considerably less certain than isolating the effluent pollution control gains made at an industrial operation as a result of installing the best pollution control technology.⁶⁷ In the industrial effluent NPDES program, the EPA was able to identify an industry “average” within a category—like an average iron manufacturer that makes iron using a blast furnace—and then quantify the pollutants in the effluent of that average factory if it installs the best available pollution control technology.⁶⁸ Although there are inevitable error bars surrounding these average effluent limitations, the error bars remain sufficiently small and most facilities are still able to comply with the promulgated effluent limits. By contrast, the error bars and uncertainties surrounding the pollution control capabilities of various BMPs for any given industrial site, construction site or municipal storm sewer are far larger and could vary substantially from one property to another.⁶⁹ Natural causes of variation in the pollutant loads in stormwater runoff include the topography of a site, the soil conditions, and of course, the nature of storm flows in intensity, frequency, and volume.⁷⁰ In addition, the manner in which the facility stores and uses materials, the amount of impervious

⁶⁴ See, e.g., *id.* at 4-48; EPA, NATIONAL WATER QUALITY INVENTORY: 1994 REPORT TO CONGRESS, EXECUTIVE SUMMARY 24 (1994), *available at* http://www.epa.gov/owow/305b/94report/nat_sum.pdf (noting the significant contributions of pollution that stormwater runoff makes and attributing 46 percent of the identified cases of water quality impairment in estuaries to storm sewer runoff).

⁶⁵ See, e.g., EPA, PRELIMINARY DATA SUMMARY, *supra* note 8, at 4-6.

⁶⁶ See, e.g., *id.* at 4-9.

⁶⁷ See, e.g., EPA, OFFICE OF RESEARCH AND DEVELOPMENT, EPA/600/R-04/184, THE USE OF BEST MANAGEMENT PRACTICES (BMPs) IN URBAN WATERSHEDS 4-2 (Sept. 2004), *available at* <http://www.epa.gov/ordntrnt/ORD/NRMRL/pubs/600r04184/600r04184.htm> [hereinafter EPA, THE USE OF BEST MANAGEMENT PRACTICES].

⁶⁸ See, e.g., 40 C.F.R. § 420.33(a) (2004).

⁶⁹ See, e.g., EPA, THE USE OF BEST MANAGEMENT PRACTICES, *supra* note 67, at 5-15 to 5-17.

⁷⁰ *Id.* at 5-12 to 5-15.

cover, and sometimes even what materials the facility uses can vary and affect pollutant loads in runoff from one site to another.⁷¹ Together these sources of variability—particularly the natural features—make it much more difficult to identify or predict a meaningful “average” pollutant load of stormwater runoff from a facility that adopts BMPs for the site.⁷²

Second, the impediments to measuring the actual amounts of pollutants present in runoff contribute still more uncertainty to stormwater runoff controls. Because stormwater runoff is so variable over time and space, it is difficult to gauge a site’s pollutant contributions through a single grab sample.⁷³ Indeed, monitors would need to take almost continuous samples of the runoff whenever it rained because of fluctuations in pollutant loadings over the course of a storm event.⁷⁴ Yet the costs of this type of monitoring could be substantial, and since the pollution is from runoff, rather than industrial effluent, the regulated owners and facilities may be less prepared to absorb these additional costs or pass them on to customers in the form of their products or services.⁷⁵ Monitoring runoff is thus less practicable than monitoring effluent from an industrial facility and adds further uncertainties to the evaluation of how well BMPs and other site controls are working.

The asymmetries in information regarding the types of pollutants in stormwater runoff appear roughly the same as the asymmetries in information regarding industrial effluent. The owner or operator of a parcel of land has the best and perhaps the only access to information on the extent to which the land has been disturbed, the types of sealant used on the asphalt, the materials that have been disposed of on the land, and other activities that could affect the pollutants in runoff. The owners, in other words, enjoy asymmetrical information or at least superior

⁷¹ See generally *id.* at 4-2 (recognizing the impact of related variables on accurate BMP monitoring).

⁷² See generally EPA, THE USE OF BEST MANAGEMENT PRACTICES, *supra* note 67, at 4-2 (providing that “a wide variety of underlying conditions may exist, making a one-size-fits-all approach to BMP monitoring infeasible”).

⁷³ See, e.g., EPA, THE USE OF BEST MANAGEMENT PRACTICES, *supra* note 67, at 4-2; EPA, OFFICE OF RESEARCH AND DEVELOPMENT, EPA/625/R-93/004, HANDBOOK: URBAN RUNOFF POLLUTION PREVENTION AND CONTROL PLANNING, ch. 5 (Sept. 1993), available at <http://www.epa.gov/ORD/NRMRL/pubs/625r93004/625r93004.pdf> [hereinafter EPA, HANDBOOK].

⁷⁴ See generally EPA, THE USE OF BEST MANAGEMENT PRACTICES, *supra* note 67, at 4-2 (suggesting that the “temporal and spacial variation concerning stormwater pollutant loads” complicates collection to the degree that multiple grabs may be necessary in order to ensure accuracy of BMPs).

⁷⁵ Cf. Chris A. Mattison, *New Storm Water Regulations Affect Municipalities and Smaller Construction Operations*, 29 COLO. LAW. 71, 75 (Feb. 2000) (referencing the costs of compliance with federal stormwater regulations and suggesting that they might be too high for some regulated parties).

access to this information that helps characterize the nature of the pollutant loading occurring through storm runoff. The owner also best knows what it will take to minimize these releases, or at least can generally discover this information most cheaply.

Thus, in stormwater discharge control, existing asymmetries in information regarding the types of pollutants that might be released into runoff are compounded by scientific uncertainties, making it nearly impossible for the EPA to a reliable, external measure of the types of pollutants that are actually being released from the site through stormwater runoff. The inability to easily measure pollution in runoff makes it difficult to know precisely what a landowner should do differently or whether newly-installed pollution controls are working. These added uncertainties make it much more difficult to oversee private owners' contributions to runoff pollution.

2. The Federal Stormwater NPDES Program

Despite the scientific differences between regulating industrial effluent discharged from a factory and the stormwater discharge that collects from a street, an industrial lot, or a construction site, the Clean Water Act (and the EPA) generally treats them the same.⁷⁶ This similar treatment of industrial and stormwater discharges is in part a historical/legal artifact: both types of discharges often occur through "discrete conveyances" and thus fall legally into the same regulatory category of "point sources."⁷⁷ This similar treatment is also the likely result of convenience. The NPDES system is well-established and has been relatively successful; therefore, sweeping one more type of pipe within this system leads to the least amount of political backlash and bureaucratic upheaval.

⁷⁶ See generally 33 U.S.C. § 1342(p) (2000).

⁷⁷ See, e.g., *Natural Res. Def. Council, Inc. v. Costle*, 568 F.2d 1369, 1372 (D.C. Cir. 1977).

Figure 1: A Step-by-Step Comparison of the NPDES Industrial Effluent Program with the NPDES Stormwater Program

	Traditional NPDES Program Governing Industrial Effluent	Stormwater NPDES Program
Step 1: Identify Regulated Sources	Legally covered sources self-identify and insert themselves in the system.	Legally covered sources self-identify and insert themselves in the system.
Step 2: Identify Compliance Requirements	Numeric effluent limits are promulgated in the C.F.R.	Sources identify best management practices for their sites and develop plans that describe how they will establish and maintain the practices.
Step 3: Self-Monitor to Ensure Compliance	Sources must self-monitor their effluent regularly, if not continuously, and submit results to the agency in the form of monthly discharge monitoring reports.	Sources self-monitor their compliance by conducting periodic onsite inspections and keeping records of those inspections. In some cases, self-monitoring includes sampling runoff annually or quarterly, but the discharger enjoys considerable discretion in sampling.

In practice, however, merging the two programs has caused the EPA to force-fit stormwater regulation into the industrial effluent model. Rather than identifying the obvious differences in the scientific uncertainties between these two pollution programs and coming up with new approaches that circumvent the added uncertainties that afflict stormwater, the EPA applies the old NPDES model to stormwater runoff in cookie-cutter fashion.⁷⁸ When extending the NPDES model to stormwater runoff requires adjustments, the EPA reaches for the most obvious analog, without any apparent awareness of the added information constraints that arise in its modified program.

As Figure 1 shows, the stormwater NPDES program tracks the traditional industrial effluent NPDES program step-by-step, despite the significant differences between the information constraints that afflict the programs.⁷⁹ First, like its industrial effluent prototype, the stormwater NPDES program lists a number of “covered” sources that are officially included in the program and expects these sources to self-identify themselves and apply

⁷⁸ See *supra* Figure 1.

⁷⁹ See *supra* Figure 1.

for a permit.⁸⁰ The EPA's federal stormwater discharge program is divided into two phases that encompass increasingly smaller sources of stormwater discharges.⁸¹ The first phase—finalized in 1990—regulates stormwater discharges from ten types of industrial operations (this includes the entire manufacturing sector), construction occurring on more than five acres, and medium or large storm sewers in areas that serve more than 100,000 people.⁸² The second phase—finalized in 1995—includes smaller municipal storm sewer systems and smaller construction sites (down to one acre).⁸³ If these covered sources fail to apply for a permit, they are in violation of the Clean Water Act.⁸⁴ Because the sources are smaller and more diverse, however, the stormwater permit process is far more convoluted and sprawling than the NPDES program governing industrial effluent—a feature that might prevent some stormwater sources from understanding their legal obligation to apply for a permit.⁸⁵ See Figure 2.⁸⁶

⁸⁰ U.S. GOVERNMENT ACCOUNTABILITY OFFICE, GAO-05-240, STORM WATER POLLUTION: INFORMATION NEEDED ON THE IMPLICATIONS OF PERMITTING OIL AND GAS CONSTRUCTION ACTIVITIES 6–7 (Feb. 2005), *available at* <http://www.gao.gov/new.items/d05240.pdf> [hereinafter GAO, STORM WATER POLLUTION].

⁸¹ National Pollution Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed. Reg. 47,990 (Nov. 16, 1990) (codified at 40 C.F.R. pts. 122–24 (1990)) (promulgating phase I regulations); Amendment to Requirements for National Pollutant Discharge Eliminating System (NPDES) Permits for Storm Water Discharges Under Section 402(p)(6) of the Clean Water Act, 60 Fed. Reg. 40,230 (Aug. 7, 1995) (codified at 40 C.F.R. pts. 122, 124 (1995)) (promulgating phase II regulations).

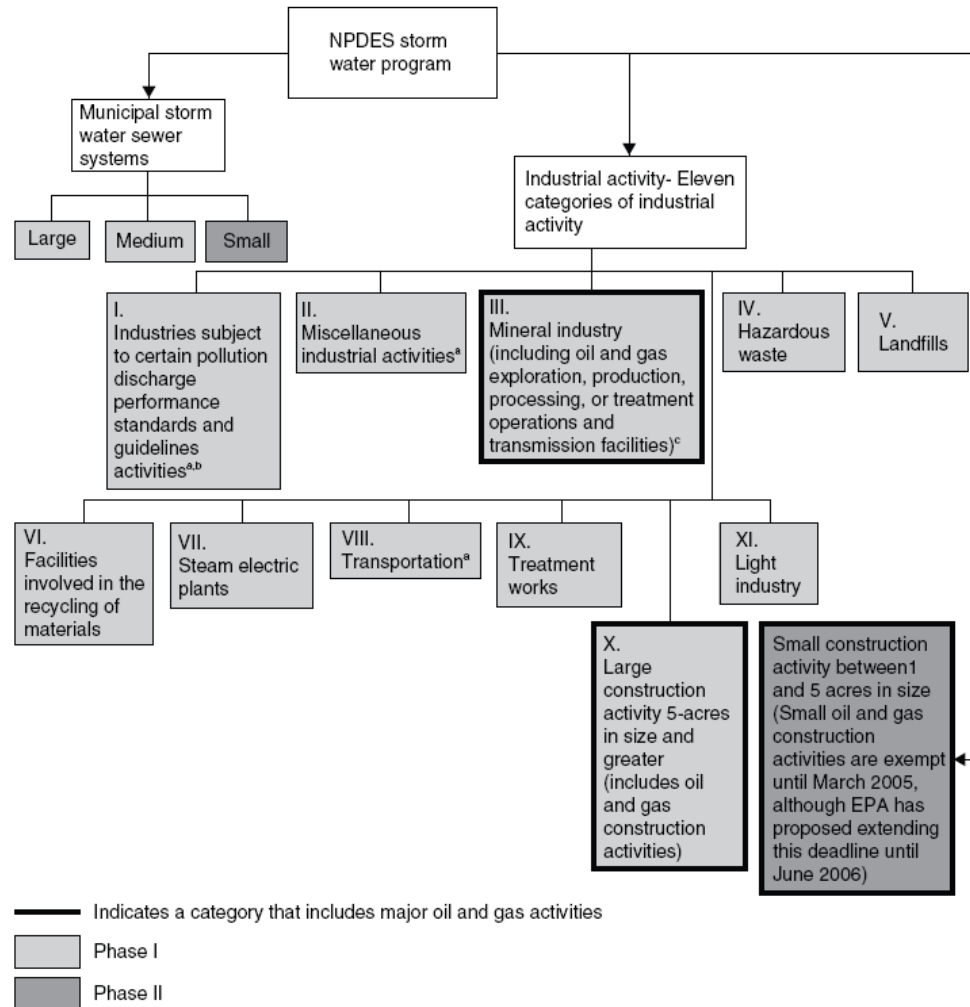
⁸² *See, e.g.*, 40 C.F.R. § 122.26(a)(3) (1990); 40 C.F.R. § 122.26 (b)(14) (1990).

⁸³ *See generally* Amendment to Requirements for National Pollutant Discharge Eliminating System (NPDES) Permits for Storm Water Discharges Under Section 402(p)(6) of the Clean Water Act, 60 Fed. Reg. 40,230 (Aug. 7, 1995) (codified at 40 C.F.R. pts. 122, 124 (1995)).

⁸⁴ GAO, ENVIRONMENTAL ENFORCEMENT, *supra* note 55, at 12.

⁸⁵ 33 U.S.C. § 1342 (a)(1) (2000).

⁸⁶ GAO, STORM WATER POLLUTION, *supra* note 80, at 11.

Figure 2: Activities Covered under Phase I and II of the NPDES Storm Water Program

Source: GAO analysis of EPA documentation.

^aIndustry categories I, II, and VIII also include some minor oil and gas activities: I includes petroleum refining, II includes petroleum products, and VIII includes bulk stations and terminals.

^bFacilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 C.F.R. subchapter N.

^cOil and gas site operators must obtain storm water permit coverage if their storm water discharges come into contact with raw material or product of any kind.

U.S. Government Accountability Office, GAO-05-240, Storm Water Pollution: Information Needed on the Implications of Permitting Oil and Gas Construction Activities 11 (Feb. 2005), available at <http://www.gao.gov/new.items/d05240.pdf>.

Second, in an attempt to develop a close analog to the numerical effluent requirements in the industrial effluent NPDES program, stormwater NPDES permits also identify compliance requirements, although these almost always take the form of site controls and other narrative, rather than numerical requirements.⁸⁷ In the stormwater program, each of the three different types of sources of stormwater discharges—construction, municipal, and industry—are required to adopt a series of BMPs or the equivalent to minimize the runoff of pollutants on site in order to be in compliance with the permit system.⁸⁸ Because of sampling difficulties, numerical effluent limits for the runoff are the exception rather than the rule in stormwater permits.⁸⁹ Even for degraded waters subject to TMDLs, any added monitoring that might be required for stormwater runoff may provide only limited information because sampling is restricted to the pollutants that cause the segment to degrade.⁹⁰ Although multiple types of permits are available, in most situations, stormwater sources avail themselves of a more flexible, “general” permit option.⁹¹ Along with their general permit application, the discharger submits its Storm Water Pollution Prevention Plan (SWPPP) that identifies sources of pollution on site and identifies the BMPs that it will install and maintain.⁹² In selecting BMPs, the discharger selects from a menu of options devised by the EPA or, in some cases, the states or locales for their particular facility.⁹³ For example, the regulated party will generally identify structural BMPs, such as fences and impoundments that minimize runoff, and describe how they will be installed.⁹⁴ The Plan must also include nonstructural BMPs, like good housekeeping practices, that require the source to manage the site in a way to minimize the opportunity for pollutants to be exposed to stormwater runoff.⁹⁵ This Plan and the accompanying BMPs constitute the compliance requirements for the stormwater discharger and is essentially the analog to the numeric effluent limits listed

⁸⁷ 33 U.S.C. § 1342(a)(1) (2000).

⁸⁸ See generally EPA, OVERVIEW OF THE STORMWATER PROGRAM, *supra* note 2, at 1–4.

⁸⁹ See *id.* at 1.

⁹⁰ See 40 C.F.R. §§ 420.32–420.36 (2004).

⁹¹ Bonni Kaufman, Lawrence R. Liebesman & Rafe Petersen, *Regulation of Stormwater Pollution: An Area of Increasing Importance to the Construction Industry*, MONDAQ BUSINESS BRIEFING, Oct. 14, 2005, available at <http://www.mondaq.com/article.asp?articleid=35276&lastestnews=1>; EPA, OVERVIEW OF THE STORMWATER PROGRAM, *supra* note 2, at IV-1.

⁹² See, e.g., EPA, OVERVIEW OF THE STORMWATER PROGRAM, *supra* note 2, at IV-3; EPA, 2006 MSGP, *supra* note 3, at 11.

⁹³ EPA, 2006 MSGP, *supra* note 3, at 15.

⁹⁴ See, e.g., EPA, THE USE OF BEST MANAGEMENT PRACTICES, *supra* note 67, at 5-4 to 5-5.

⁹⁵ See, e.g., Kaufman et al., *supra* note 91.

for industrial effluents in the Code of Federal Regulations.⁹⁶

Third and even more different from the industrial effluent permits is the EPA's struggle to develop an analog for the vital self-monitoring requirement. In contrast to the end-of-the-pipe monitor installed for sampling industrial effluent, there is simply no easy or straightforward way to develop a self-monitoring system for sampling stormwater runoff.⁹⁷ Rather than depart from the traditional NPDES model and develop some different method for externally measuring runoff or permittee compliance, the EPA requires facilities to continue to "self-monitor" through periodic onsite inspections that are documented in the companies' onsite records.⁹⁸ Typically, general stormwater discharge permits do not require any quantitative monitoring of runoff to test the effectiveness of site controls.⁹⁹ Instead, only a subset of dischargers are actually required to take samples and an even smaller subset of those sources must actually take quantitative samples (as opposed to visual samples); moreover, as described in detail below, the permittee enjoys discretion in when and how to sample.¹⁰⁰

B. Implementation of the Stormwater Discharge Program: Running Face-first into the Information Constraints

On its face, the extension of the industrial effluent NPDES permit system to stormwater sources is a logical one: Like an operating industry, the stormwater source must "do their best" to minimize the runoff of pollutants into drains and self-monitor their own compliance with these "do your best [management practices]" commitments.¹⁰¹ But under the surface, there are dramatic differences between these two parallel permit systems, especially with regard to the information available to regulators who oversee compliance. Under the traditional NPDES permit system, the regulator overcomes the regulated party's superior access to information by specifying the regulatory requirements with precision and requiring the source to install monitors that take samples at regular intervals.¹⁰² Although some cheating still takes place, this system overcomes asymmetrical information problems with respect to compliance by instituting a moni-

⁹⁶ 40 C.F.R. §§ 420–471.106 (2004).

⁹⁷ See generally EPA, THE USE OF BEST MANAGEMENT PRACTICES, *supra* note 67, at 5-20 to 5-21.

⁹⁸ See, e.g., EPA, 2006 MSGP, *supra* note 3, at 21–22; EPA, OVERVIEW OF THE STORMWATER PROGRAM, *supra* note 2, at IV-4.

⁹⁹ See, e.g., EPA, OVERVIEW OF THE STORMWATER PROGRAM, *supra* note 2, at 3.

¹⁰⁰ See EPA, NPDES, *supra* note 3, at §§ 3.2.6.1, 3.2.6.2.

¹⁰¹ See *id.* at 15.

¹⁰² 33 U.S.C.A. § 1314 (2000).

toring or oversight system that provides almost no operator discretion.¹⁰³

Stormwater permits attempt to adopt similar requirements in keeping with the NPDES prototype, but the added scientific uncertainties of stormwater runoff do not allow for easy analogs. As a result, there are three vital differences in implementation of the stormwater NPDES program that leave much superior information, and hence compliance discretion with the discharger. First, unlike industrial pipes that carry wastes from their factories out to receiving waters, the physical presence of covered stormwater discharge sources is less visible or obvious. Thus, particularly for some industrial and construction sources, if a stormwater source does not self-report and apply for a permit, the probability of detecting it is much lower than the traditional NPDES permit system. The second major difference is the permittee's role in selecting the "do your best" compliance requirements.¹⁰⁴ The selection of BMPs and their embodiment in a larger pollution prevention plan can introduce ambiguity into the requirements if the permittee is clever about drafting the requirements in general terms. Third and most importantly, there are only loose self-monitoring requirements and these leave the source with considerable discretion.¹⁰⁵ This exacerbates the problems of asymmetrical information involved in the already ambiguous compliance requirements, leaving the regulator even more handicapped in ensuring compliance and the regulated source less concerned about the possibility of meaningful enforcement. Each of these challenges is elaborated in detail below.

1. Identifying Stormwater Sources in Need of Permitting

Both the NPDES industrial and stormwater programs depend on the regulated party to self-report their existence and apply for a permit.¹⁰⁶ The failure of sources to self-identify has been a problem that has plagued industrial effluent regulation; however, the problem may be far worse for some stormwater sources, particularly from industrial and construction sites that can be more obscure. As long as there is a low probability of regulators identifying and catching stormwater sources compared to sources of industrial effluent, then compliance with the stormwater NPDES program can be expected to be lower than compliance with the industrial NPDES program. For a number of stormwater sources—construction being the most notorious—one can ex-

¹⁰³ *Id.*

¹⁰⁴ See EPA, 2006 MSGP, *supra* note 3, at 15.

¹⁰⁵ See *id.*

¹⁰⁶ 33 U.S.C. § 1318 (2000).

pect a great deal of slippage to occur between those sources who should be covered by a permit and those who actually make the effort to apply.

Evidence suggests that many industrial and construction stormwater sources are failing to self-report and hence remain unpermitted and unregulated.¹⁰⁷ In Maine, less than twenty percent of the stormwater sources that fall within the regulatory jurisdiction of the federal stormwater program actually applied for permits before 2005—more than a decade after the federal regulations were promulgated.¹⁰⁸ Yet there is no record of enforcement action taken by Maine against the unpermitted sources during that interim period.¹⁰⁹ Indeed, in the one enforcement action brought by citizens in Maine for an unpermitted discharge, the source claimed ignorance of the stormwater program.¹¹⁰ In Washington, the state Department of Ecology speculates that between ten and twenty-five percent of all businesses covered by the federal stormwater permit program are actually permitted.¹¹¹

In response to this problem, the EPA appears to be targeting enforcement against stormwater sources that do not have permits. In several cases, the EPA pursued regulated industries that failed to apply for stormwater permits.¹¹² The EPA has also brought enforcement actions against at least three construction companies for failing to apply for a stormwater permit for their construction runoff.¹¹³ Such enforcement actions help to make the stormwater program more visible and give the appearance of a higher probability of enforcement associated with non-compliance. Nevertheless, the non-intuitive features of needing a permit to discharge stormwater, coupled with a rational perception of a low probability of being caught, likely encourage some

¹⁰⁷ There is also evidence of creative compliance to avoid triggering the permit requirements. In a study by the GAO of the implications of the stormwater NPDES permit program for oil and gas construction activities, one facility conceded that it actually broke their operations into smaller sites to avoid triggering the five acre minimum for Phase I construction stormwater permit requirements. See, e.g., GAO, STORM WATER POLLUTION, *supra* note 80, at 13-14.

¹⁰⁸ See John Richardson, *Maine Makes it Clear: Watch your Stormwater; Businesses are Being Warned About Meeting the Rules on Polluted Runoff*, PORTLAND PRESS HERALD, Nov. 28, 2005, at A1 (in Maine, 330 businesses applied for stormwater permits in the state; approximately 1500 facilities in the state are likely to be covered by that program).

¹⁰⁹ *Id.*

¹¹⁰ *Id.*

¹¹¹ Robert McClure, *Stormwater Bill Raises Concern*, SEATTLE POST-INTELLIGENCER, Feb. 25, 2004, at B1.

¹¹² See, e.g., Press Release, EPA, EPA Orders Oakland Facility to Comply with its Stormwater Permit, (June 22, 2005) (on file with Chapman Law Review); Kaufman, et al., *supra* note 91.

¹¹³ See Press Release, EPA, Three NH Companies Agree to Pay Fine to Settle EPA Complaint; Case is Part of EPA Push to Improve Compliance with Stormwater Regulations (Aug. 10, 2004) (on file with Chapman Law Review).

sources to fail to enter the system at all.

2. Prescribing Compliance requirements

In contrast to the numerical limits listed in the Code of Federal Regulations for industrial effluent, stormwater sources design their own pollution plan for minimizing pollutants in their stormwater runoff.¹¹⁴ This involves two steps, both of which can involve significant amounts of discretion that favor the regulated party.

First, the source must evaluate the site for problematic pollutants; but where the regulated party does not have specific knowledge or data, they need only offer “estimates” and “predictions” of the types of pollutants that might be present at the site.¹¹⁵ See Figure 3. These requirements are unlikely to lead regulated parties to rise to the occasion of conducting a rigorous site assessment. Instead, these types of nebulous informational demands leave regulated parties with incentives to avoid expensive sampling that will only have the potential to increase their compliance obligations. With the exception of visible features, the deferential site investigation requirements, paired with the parties’ asymmetrical access to information, allow them to describe site conditions in ways that largely escape accountability. Given this discretion, ignorance regarding the site conditions will generally be bliss.

¹¹⁴ See generally EPA, 2006 MSGP, *supra* note 3, at 15.

¹¹⁵ See EPA, OVERVIEW OF THE STORMWATER PROGRAM, *supra* note 2, at IV-3, V-3; *supra* Figure 3.

Figure 3: EPA's Required Description of the Site

The description of potential pollutant sources must include:

- A map of the facility indicating the areas which drain to each storm water discharge point
- An indication of the industrial activities which occur in each drainage area
- A prediction of the pollutants which are likely to be present in the storm water
- A description of the likely sources of pollutants from the site
- An inventory of materials that may be exposed to storm water
- The history of spills and leaks of toxic or hazardous materials for the last three years.

The measures and controls to prevent or minimize pollution of storm water must include:

- Good housekeeping or upkeep of industrial areas exposed to storm water
- Preventative maintenance of storm water controls and other facility equipment
- Spill prevention and response procedures to minimize the potential for and the impact of spills
- Test all outfalls to ensure that there are no illicit discharges
- Training of employees on pollution prevention measures and controls, and record keeping.

The permit also requires that facilities:

- Identify areas with a high potential for erosion and the stabilization measures or structural controls to be used to limit erosion in these areas
- Implement traditional storm water management measures (oil/water separators, vegetative swales, detention ponds, etc.) where they are appropriate for the site.

Quoted in EPA, EPA 833-R-96-008, OVERVIEW OF THE STORMWATER PROGRAM, IV-3 to IV-4 (June 1996) (summarizing applicable regulatory requirements), *available at* <http://www.epa.gov/npdes/pubs/owm0195.pdf>.

Second, sources must then develop a pollution prevention plan that best accomplishes reductions in pollutant loads at that particular site, a role that again allows them to capitalize on their asymmetric information.¹¹⁶ See Figure 4. In this setting, a rational actor can be expected to choose BMPs and develop a pollution prevention plan that is as inexpensive as possible with the lowest amount of maintenance and oversight, rather than a plan that is especially effective at reducing polluted runoff. Despite the EPA's instructions to consider a laundry list of considerations that will help the facility settle on the most effective pollution plan,¹¹⁷ regulated parties are likely to look harder at the cost side

¹¹⁶ See, e.g., EPA, OVERVIEW OF THE STORMWATER PROGRAM, *supra* note 2, at IV-3; *infra* Figure 4.

¹¹⁷ See, e.g., EPA, 2006 MSGP, *supra* note 3, at 20.

of the ledger in determining how to design their compliance obligations. Indeed, there are no obvious benefits or extra credit for particularly vigorous or effective plans. Unless the source can figure out a way to eliminate all pollutant threats and be eligible for a “no exposure” waiver,¹¹⁸ their extra effort will be unrewarded and unnoticed. In such a setting, doing the bare minimum is the most rational response.

Figure 4: EPA’s BMP Identification Requirements

Plans are required to contain a description of the controls and measures to prevent or minimize pollution of storm water and a specific schedule with interim milestones as to when measures and controls will be implemented. The measures and controls to prevent and minimize pollution of storm water must include:

- Good housekeeping in industrial areas exposed to storm water
- Preventative maintenance of storm water controls and other facility equipment
- Spill prevention and response procedures to minimize the potential for and the impact of
- Training of employees on pollution prevention measures and record keeping
- Identification of areas with a high potential for erosion and the stabilization measures or structural controls to be used to limit erosion
- Implementation of traditional storm water management measures (oil/water separators, vegetative swales, detention ponds, etc.) where they are appropriate for the site.

Quoted in EPA, EPA 833-R-96-008, OVERVIEW OF THE STORMWATER PROGRAM, VI-4 (June 1996) (summarizing applicable regulatory requirements), *available at* <http://www.epa.gov/npdes/pubs/owm0195.pdf>.

¹¹⁸ See 40 C.F.R. § 122.26(g) (2004).

In developing the terms of their pollution prevention plan, rational facilities are more likely to develop ambiguous compliance requirements that leave them with discretion in determining compliance.¹¹⁹ Rather than require sampling and measurements of pollutants on-site, “routine” or “regularly scheduled” visual inspections will be preferred.¹²⁰ These types of wishy-washy standards allow regulated parties to argue that they are in compliance in the unlikely event that the one regulator in the state assigned to stormwater runoff actually conducts a site investigation.¹²¹

The EPA does not anticipate or make much effort to curb this rational choice behavior by sources to maximize their compliance discretion. Instead, the EPA describes many of the permit requirements in general terms that afford even greater discretion to regulated parties. For example, the EPA commands the regulated party to “implement any additional BMPs that are economically reasonable and appropriate in light of current industry practice, and are necessary to eliminate or reduce pollutants in . . . stormwater discharges.”¹²² In instructing dischargers on the trigger events that require them to update their pollution plans, the EPA similarly provides “loophole” terms that allow many sources to escape this responsibility simply by interpreting the ambiguous terms broadly:

You must review, and amend your SWPPP as *appropriate* whenever there is: construction or a change in design, operation or maintenance at your facility such that these situations have a *significant impact* on the discharge, or potential for discharge, of pollutants from your facility; [or] whenever *your routine inspection or compliance evaluation* determines deficiencies in your BMPs ¹²³

Perhaps to make its requirement nevertheless appear rigid, the EPA then demands that these modifications to SWPPPs “must be made within 14 calendar days after discovery, observation or event requiring a SWPPP modification.”¹²⁴ So the facility has relatively free reign—aside from obvious disasters—to decide

¹¹⁹ Facility operators, in preparing a SWPPP, “must include [BMPs], economically reasonable and appropriate in light of current industry practices, that are selected, designed, installed, implemented and maintained in accordance with good engineering practices to eliminate or reduce all pollutants in [their] discharge” Such language gives facility operators flexibility wide latitude in determining compliance. See, e.g., EPA, NPDES, *supra* note 3, at 15.

¹²⁰ *Id.* at 20, 132.

¹²¹ See *infra* note 147 and accompanying text.

¹²² See, e.g., EPA, 2006 MSGP, *supra* note 3, at 23.

¹²³ *Id.* at 24 (emphasis added).

¹²⁴ *Id.*

when to update the plan, but once it makes this decision to update, it must do so in fourteen days.

The extent of regulator oversight in reviewing these pollution plans is also likely to vary tremendously, providing still more room for permittee discretion in locales where regulatory review is limited.¹²⁵ In states or locales where the interest or administrative resources are low, the regulator is likely to only review the facial adequacy of the plan and not conduct a corresponding site investigation.¹²⁶ Therefore, if problems are not addressed by the facility in their plan, pollution problems may never be redressed or caught at all by the EPA, state, or local agencies. Due to the source's asymmetrical information in preparing the plan, a regulator is substantially handicapped in ensuring that the plan captures the "best" that the source can do in terms of management practices.

Allowing regulated parties who enjoy private advantages in accessing information to both identify the problems and implement what they believe is the best solution, without clear external measures of accountability, erects a regulatory system that creates perverse incentives for ignorance and keeps regulated parties largely unaccountable to regulators and the public. Only regulated parties will know if the potential sources of pollution on their facility have been adequately identified.¹²⁷ Only they will know whether the plan provides the best way to address these problems, and they will have far more access to information to determine their own compliance with the plan. Finally, to the extent that there is much discretion in determining compliance, they will enjoy the role of arbiter.

Conversely, if the regulated party invests resources measuring pollutant loads on their property, they are creating a paper trail that puts them at risk of greater regulation. Under the EPA's regulations, a regulated party "must provide a summary of existing stormwater discharge sampling data previously taken at [its] facility," but if there are no data or sampling efforts, then

¹²⁵ Currently, the public is generally not involved in the review of a facility's SWPPP and there is no formal opportunity for public participation. See, e.g., Caltrans, *Water Quality NewsFlash* (Sept. 26, 2005), available at http://www.dot.ca.gov/hq/env/stormwater/publicat/newsflash/9_26_05.pdf (discussing the potential effect of recent U.S. appellate decisions on current stormwater permit practice, which is not to provide the public with an opportunity to review SWPPPs).

¹²⁶ But see Kaufman et al., *supra* note 91 (suggesting the EPA is encouraging the states to conduct their own investigations).

¹²⁷ The regulated party is expected to identify these problems, but there is no check on the amount of effort they use to inventory possible problems or whether they err on the side of over- or under-inclusiveness in this estimation. See, e.g., EPA, 2006 MSGP, *supra* note 3, at 18.

the facility is off the hook.¹²⁸ Quantitative measures can be incriminating, particularly in a regulatory setting where the regulator is willing to settle for estimates. Real data documenting problems provides regulators with evidence that there may be problematic sources of pollutants in stormwater runoff, leading them to insist on more controls than for a comparable, unsampled site.¹²⁹

3. Ensuring Compliance

The regulated party is also responsible for self-monitoring its compliance.¹³⁰ But unlike the NPDES program where there are quantitative measures of compliance, the self-inspections and self-monitoring requirements are general and leave much greater discretion that favor the regulated party.¹³¹

As part of their pollution plan, all stormwater sources are required to self-inspect their facilities,¹³² but like the discretion afforded to them in most other aspects of devising these plans, the inspection requirements are also ambiguous and quite deferential.¹³³ See Figure 5. Sources are required to keep records of the inspections, but this appears to be the outer limit of their accountability for these inspections.¹³⁴ Short of having a compliance officer visit the site, there is effectively no way to ensure that the regulated party is complying with their BMPs and other regulatory requirements in a rigorous way.¹³⁵ As a result, in the current design of the stormwater program, a regulated source can do a poor job implementing BMPs without much, if any, accountability. For example, if a source is supposed to build a silt fence as required by their pollution prevention plan, there is little to keep them from building one that meets only the minimum requirements. During the ensuing years as the fence deteriorates, the fact that it is still standing might be counted by the source as adequate for purposes of complying with its stormwater pollution prevention plan.¹³⁶

¹²⁸ See, e.g., *id.* at 20; see also EPA, OVERVIEW OF THE STORMWATER PROGRAM, *supra* note 2, at V-2 (showing same requirement for construction permit).

¹²⁹ See generally Kaufman et al., *supra* note 91 (indicating that the EPA is now cracking down on companies that have not obtained permits).

¹³⁰ EPA, 2006 MSGP, *supra* note 3, at 24.

¹³¹ Compare 33 U.S.C. § 1342(a)(2)-(b)(2) (2000) (outlining requirements for compliance under NPDES) with EPA, 2006 MSGP, *supra* note 3, at 26 (outlining requirements for self-compliance under EPA regulations).

¹³² See, e.g., EPA, 2006 MSGP, *supra* note 3, at 21.

¹³³ EPA, OVERVIEW OF THE STORMWATER PROGRAM, *supra* note 2, at IV-4; see *supra* Figure 5.

¹³⁴ See, e.g., EPA, 2006 MSGP, *supra* note 3, at 22.

¹³⁵ See generally *id.* at 21-22 (illustrating the lax requirements of self-inspection and employee training of inspection teams).

¹³⁶ Cf. Kaufman et al., *supra* note 91 ("For example, a silt fence that sags for several

Figure 5: EPA's Inspection/Site Compliance Evaluation Requirements

Facility personnel must inspect the plant equipment and industrial areas on a regular basis. At least once a year or more a thorough site compliance evaluation must be performed by facility personnel. Personnel conducting the evaluation shall:

- Look for evidence of, or the potential for, pollutants entering the drainage system
- Evaluate the performance of pollution prevention measures
- Revise the pollution prevention plan based on the results of the evaluation in order to reduce
- the discharge of pollutants
- Document both the routine inspections and the annual site compliance evaluation in a report.

Quoted in EPA, EPA 833-R-96-008, OVERVIEW OF THE STORMWATER PROGRAM, IV-4 (June 1996) (summarizing applicable regulatory requirements), available at <http://www.epa.gov/npdes/pubs/owm0195.pdf>.

Federal regulations do supplement these self-inspections with sampling requirements for a subset of sources, yet even these more data-driven requirements still leave regulated parties with some discretion.¹³⁷ Most industrial facilities, for example, are required to conduct a visual inspection of a grab sample of their stormwater runoff on a quarterly basis and describe the visual appearance of the sample in a document that is kept on file at the site.¹³⁸ Certainly, a visual sample is better than nothing, but the requirement not only allows the source some discretion in determining how and when to take the sample (explained below), but also discretion in how to describe the sample.¹³⁹ A smaller list of facilities must actually quantitatively sample listed pollutants in their stormwater runoff on a quarterly basis.¹⁴⁰ Yet while the EPA's sampling guidelines specify that these

days in-between inspections may be considered by [the] EPA to be a violation for each day that it is not fixed, despite the fact that under the SWPPP the fence is not required to be inspected during that several day period. Labeling such an event a permit violation (subject to up to \$27,500 of fines per day) would appear inconsistent with the notion that inspections, followed by maintenance and repair of problems identified in the inspection are fundamental to BMPs.”).

¹³⁷ See, e.g., EPA, 2006 MSGP, *supra* note 3, at 27.

¹³⁸ See, e.g., *id.* at 28; EPA, OVERVIEW OF THE STORMWATER PROGRAM, *supra* note 2, at VI-5.

¹³⁹ See, e.g., EPA, 2006 MSGP, *supra* note 3, at 29 (allowing a regulated party to visually monitor just one outfall if others are believed to “discharge substantially identical effluents . . .”).

¹⁴⁰ See, e.g., *id.* at 93-94.

samples should be taken within thirty minutes after the storm begins, and only if it is the first storm in three days, that is the limit of the restrictions governing sampling.¹⁴¹ The owner's personnel determines which storm they will use for their monitoring requirement and at which point during that first half-hour to take the grab sample.¹⁴² This is not to suggest that owners will cheat. However, the guidelines—in some cases by necessity—provide sources with relatively wide bounds for conducting this sampling.¹⁴³ If the owners have an interest in measuring only low pollutant levels in their samples, these guidelines provide them the discretion to cherry-pick storms and, to some extent, times during which to collect the sample during a storm.¹⁴⁴ Although municipalities are required to do more extensive sampling of runoff and enjoy less sampling discretion,¹⁴⁵ even municipalities are allowed to select what they believe are their most representative outfalls for purposes of monitoring pollutant loads.

Even in cases where the party reports high pollution loads in these quarterly samples, the source is generally required only to use its discretion to amend its plan to do better.¹⁴⁶ Given the enormous variability in storms and stormwater runoff concentrations, even within the first thirty minutes of any storm event, it is no wonder the EPA shies away from attaching serious consequences to the results of an annual or even a quarterly grab sample of stormwater. At the same time, however, the lack of real consequences that flow from high pollutant loads transforms the already weak program into little more than a paper tiger. At the end of the day, sources only need to document the steps and requirements they have taken to comply with the guidelines, rather than employ rigorous or innovative improvements to the site that actually succeed in minimizing pollutant runoff in storm flows.¹⁴⁷

Making matters worse, there appears to be very limited regulatory resources; for example, in Oregon, there is only one inspector to oversee compliance with the stormwater program.¹⁴⁸

¹⁴¹ See *id.* at 33.

¹⁴² See *id.*

¹⁴³ See, e.g., *id.* (explaining that sources are obliged to provide *general* information on the storm event *itself* when submitting their sample).

¹⁴⁴ See, e.g., *id.* at 33-34.

¹⁴⁵ See, e.g., EPA, OVERVIEW OF THE STORMWATER PROGRAM, *supra* note 2, at VIII-1.

¹⁴⁶ See, e.g., EPA, 2006 MSGP, *supra* note 3 at 10, 30, 34.

¹⁴⁷ See *id.* at 44.

¹⁴⁸ Libby Tucker, *Oregon and Washington to Release Tougher Standards for Stormwater Permits*, DAILY J. COMMERCE (Portland, Or.), Dec. 12, 2005, at 2 (reporting that Oregon's Department of Environmental Quality only has "one full-time employee inspecting the 1,500 [stormwater] sites under permit . . ."); McClure, *supra* note 111, at B1 (re-

And yet even with considerable regulatory resources dedicated to stormwater source inspections, it is not clear how well inspectors could independently assess compliance with the permit requirements. For example, some of the plan's requirements will specify "good housekeeping" practices that should take place routinely at the facility from day-to-day.¹⁴⁹ Whether or how well these practices are followed cannot be assessed in a single inspection. While a particularly non-compliant facility might be apparent from a brief, one-shot visual inspection, a facility that is mildly sloppy, or at least has periods during which it is not careful, can escape detection on one of these pre-announced audits. Facilities also know best the pollutants they generate and how or whether those pollutants might make contact with stormwater. Inspectors might be able to notice some of these problems, but because they do not have the same level of information about the operations of the facility, they can be expected to miss some problems.

A final compliance concern—which goes both to the facility's incentives to be in compliance as well as to the realities of enforcement in terms of the probability of being caught in violation—is the seeming impossibility of using citizen suits to enforce stormwater permit requirements. To the extent that states and locales do not oversee stormwater permit programs with vigor, citizens may be the only realistic hope of providing some meaningful enforcement to the program. Citizens have, in fact, sued facilities for unpermitted stormwater discharges;¹⁵⁰ this is a straightforward process because citizens need only verify that the facility is covered and lacks a permit.¹⁵¹ Overseeing facility compliance with stormwater permit requirements is a different story, however, and citizens are stymied at this stage of ensuring facility compliance. Citizens can access a facility's pollution prevention plan, but only if they request the plan from the facility in writing.¹⁵² Moreover, the facility is given the authority to make a determination—apparently without regulator oversight—of whether the plan contains confidential business information and thus cannot be disclosed to citizens.¹⁵³ But, even if the facility

porting that state employees available to inspect stormwater discharges in Washington are "thin". *But see* California EPA, California Water Boards, ENFORCEMENT REPORT, Feb. 23, 2005, at 11, 13-14, *available at* http://www.waterboards.ca.gov/legislative/docs/2004/enforcementrpt2004_13385o.pdf (outlining considerable enforcement activity under the stormwater discharge program).

¹⁴⁹ *See supra* Part II.A.2.

¹⁵⁰ *See, e.g.,* Richardson, *supra* note 108, at A1.

¹⁵¹ *See* 33 U.S.C. § 1365 (2000).

¹⁵² *See, e.g.,* EPA, 2006 MSGP, *supra* note 3, at 25; *see also supra* note 125 (noting how citizens do not have a formal opportunity to review the adequacy of facilities' SWPPPs).

¹⁵³ *Id.* at 26.

sends the plan to the citizens, it will be nearly impossible for them to independently assess whether the facility is in compliance unless the citizens station telescopes, conduct air surveillance of the site, or are allowed to access the facility's records of its own self-inspections.¹⁵⁴ Moreover, to the extent that the stormwater outfalls are on the facility's property, citizens might not be able to conduct their own sampling without trespassing. In any event, and as mentioned above, the permit requirements are so flexible that an arguably large range of activities with tremendously variable impacts on water quality are allowed under existing permit requirements. Thus, renting telescopes would not be worth the trouble because the facility could likely argue that its small eroding impoundment basin is nevertheless a functioning basin as that term is specified in the general menu of BMPs. In most cases, then, the disputes will ultimately devolve to arguments about whether the facility has complied with the minimum recordkeeping requirements in these settings, the facility will not only have private information to assist them in defending their compliance, but may be able to deprive the citizens of standing if they can amend their records after the fact.¹⁵⁵

III. REFORM

The federal stormwater NPDES program is a disappointment. Despite its extravagant wrappings, underneath the links, guidance documents, and studies is a program that is designed in a way that does not seem cognizant of existing information problems and that could exacerbate the tendency of owners to keep information to themselves.

Reforming this program requires acknowledging the unique information constraints that afflict it. Such a reform does not require scrapping the existing program, but would involve designing and implementing controls in ways that confront and overcome some of the existing asymmetries in information.

In this section, three possibilities for reform—some more promising than others—are considered.

A. The Role of State and Local Governments

Because it requires controls on land use, the EPA's stormwater discharge program strikes at a target that is traditionally

¹⁵⁴ *Cf. Dow Chemical Co. v. United States*, 476 U.S. 227 (1986) (holding that aerial surveillance by the government does not violate the Fourth Amendment).

¹⁵⁵ *Cf. Steel Co. v. Citizens for Better Env't*, 523 U.S. 83, 102–03 (1998) (finding that the relief sought would not redress losses caused by steel manufacturer's violations and therefore, the plaintiff "failed to satisfy redressability requirement for standing").

within the province of state and even more likely local government regulation.¹⁵⁶ Indeed, it is possible that part of the reason for the EPA's loosely structured permit program is its concern about intruding on the province of state and local governments, particularly given their superior expertise in regulating land use practices.

In theory, it is perfectly plausible that some state and local governments will step into the void and overcome some of the information problems built into the design of the federal stormwater discharge program. If local or state governments required mandatory monitoring or more rigorous and less ambiguous BMPs, they would make considerable progress in developing a more successful stormwater control program. In fact, some states and locales have instituted programs that take these steps and began to confront and overcome the problems of asymmetrical and uncertain information more directly. For example, California appears to lead all other states in aggressive stormwater discharge programs, including implementing greatly expanded monitoring requirements.¹⁵⁷ Municipalities are also blazing new trails.¹⁵⁸ Notably, Stafford, New Jersey uses innovative municipal stormwater systems that filter the runoff before discharging it back into aquifers.¹⁵⁹ Another town in Michigan is developing cutting-edge techniques for tracking illicit connections into the municipal stormwater system.¹⁶⁰

Despite these bursts of enthusiasm, most state, local governments and business communities have not been receptive to regulating stormwater discharges; therefore, it is unlikely that they will take action to repair the EPA's failing federal pro-

¹⁵⁶ See A. Dan Tarlock, *Contested Landscapes and Local Voice*, 3 WASH. U. J.L. & POL'Y 513, 526 (2000) (discussing the proposition that "water law is an exclusive state function").

¹⁵⁷ See, e.g., CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, FACT SHEET FOR WATER QUALITY ORDER 99-08-DWQ, NPDES GENERAL PERMIT FOR STORMWATER STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (GENERAL PERMIT): SAMPLING AND ANALYSIS 34, available at http://www.swrcb.ca.gov/stormwtr/docs/9908_factsheet.doc (last visited Feb. 13, 2006). The States of Washington and Maryland also have aggressive programs. See, e.g., Washington Department of Ecology, Water Quality Program, Stormwater, <http://www.ecy.wa.gov/programs/wq/stormwater/> (last visited May 12, 2006); Maryland Department of the Environment, Maryland's Stormwater Management Program, <http://www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/index.asp> (last visited May 12, 2006).

¹⁵⁸ See, e.g., Prince George's County, Maryland, PRD Stormwater Management Details Frequently Asked Questions, http://www.co.pg.md.us/Government/AgencyIndex/DER/PRD/stormwater_management.asp (last visited May 12, 2006).

¹⁵⁹ See Erik Larsen, *Stafford Floods Lot to Show off System*, ASBURY PARK PRESS (Asbury Park, N.J.), Mar. 6, 2004, at B1.

¹⁶⁰ See Dean C. Tuomari & Susan Thompson, *Sherlocks of Stormwater*, WATER ENV'T & TECH., May 1, 2005, at 49, available at 2005 WLNR 8150301.

gram.¹⁶¹ Because they involve some expense, stormwater discharge requirements can increase resident taxes,¹⁶² anger businesses,¹⁶³ and strain already busy regulatory staff.¹⁶⁴ The dearth of scientific evidence connecting stormwater controls with water quality improvements makes implementation of these programs seem even less compelling. The president of a builders' league in New Jersey quipped that: "[t]here's no scientific background for these regulations . . . They seem to be into junk science."¹⁶⁵ In any event, a fair number of states have already passed "no more stringent" laws which legislatively preclude them from taking added actions to improve on the federal stormwater program, even if they had the will to do so.¹⁶⁶ Local and state government disinterest in stormwater discharge regulation thus helps to explain why there are many stormwater sources out of compliance with the stormwater discharge permit program, at least in the few states that have gone on record.¹⁶⁷

Interestingly, for at least some of the states and localities that have taken leadership roles in repairing the federal stormwater program, there appears to be particularly compelling water quality benefits that accrue to them that might not be available to other states or locales. Innovations in recharging municipal stormwater takes place in a New Jersey town that is adjacent to a recreational bay that was suffering from poor water quality.¹⁶⁸ "Sewer sleuths" traced illicit connections in a town that was attempting to transform its adjacent, degraded river into a water body fit for fishing and swimming.¹⁶⁹ California and cities like

¹⁶¹ See, e.g., Tucker, *supra* note 148, at 2 (quoting Oregon agency staff member as saying: "Compared to other states, we're doing pretty well as far as the requirements. No other states outside of Washington and California have monitoring in their construction permits at all . . ."); *Stormwater Woes Solutions Sought*, OCEAN COUNTY OBSERVER (Asbury Park, N.J.), Apr. 13, 2005, at A16 (describing lack of enthusiasm for the stormwater program in New Jersey); *SD Stormwater Runoff Rules Survive Building Industry Test*, CALIFORNIA PLANNING & DEVELOPMENT REPORT, Jan. 1, 2005, at 12 (describing unsuccessful lawsuit brought by regulated parties against the San Diego Regional Water Quality Control Board for their vigorous stormwater program that exceeds the federal floor) [hereinafter CALIFORNIA PLANNING & DEVELOPMENT REPORT].

¹⁶² See, e.g., Jacinthia Jones, *City To Assess Runoff Fee In July*, COMMERCIAL APPEAL (Memphis, Tn.), Dec. 11, 2005, at B1.

¹⁶³ See, e.g., CALIFORNIA PLANNING & DEVELOPMENT REPORT, *supra* note 161, at 12.

¹⁶⁴ See *supra* note 148 and accompanying text.

¹⁶⁵ See, e.g., Thomas Barlas, *New Stormwater Rules to Protect State Streams, McGreevey Promises*, PRESS (Atlantic City, N.J.), Jan. 6, 2004, at A8.

¹⁶⁶ See generally Andrew Hecht, *Obstacles to the Devolution of Environmental Protection: States' Self-Imposed Limitations on Rulemaking*, 15 DUKE ENVTL. L. & POL'Y F. 105 (2004) (discussing these "no more stringent" laws).

¹⁶⁷ See Richardson, *supra* note 108, at A10; McClure, *supra* note 111, at B4.

¹⁶⁸ See Jacques Cousteau National Estuarine Research Reserve, Coastal Resources Toolkit: Stormwater Management, 2. Case Study: Stafford Township, NJ, http://www.jcnerr.org/coastal_training/toolkit/storm/case-study.html (last visited Feb. 13, 2006).

¹⁶⁹ See Tuomari & Thompson, *supra* note 160, at 49–50.

San Diego, Newport Beach, and Santa Monica enjoy a great deal of tourism from their ocean frontage, making their extra efforts to control water quality largely selfish. The energies dedicated to the stormwater program by state and local governments in the aggregate, in fact, might actually be loosely correlated with localized rewards from cleaner water quality. When a state or locality does not derive direct or immediate benefits from investing resources in stormwater discharge reduction, they might be less inclined to implement an innovative stormwater program.

Despite the substantial role they could play in correcting the federal program's insensitivity to the science constraints, many states and locales do not appear to be eager to implement the stormwater discharge programs, much less make it more stringent and enforceable. This lack of enthusiasm also makes sense in rational choice terms. Stormwater discharge regulation is costly and politically unpopular.¹⁷⁰ If the benefits of stormwater controls are not going to materialize in waters close to or of value to the urban area, then the costs of the program from locality's standpoint are likely to outweigh its benefits. In fact, in some cases an upstream town's efforts might be perceived as benefiting only downstream neighbors who might attract away its taxpayers with lower stormwater regulation and/or a higher water quality.¹⁷¹

What is not clear is the extent to which the current federal program actually serves as a roadblock to innovative approaches at the state or local level. The elaborate paper requirements for stormwater discharge permits create an infrastructure that may ultimately displace—both in terms of effort and framing the problem—other approaches to stormwater discharge control. Indeed, the tendency of an elaborate but failed federal program to effectively preempt state innovation is a familiar problem with the Clean Water Act: it has also been raised as a problem with the EPA's obsessively methodological TMDL program.¹⁷²

Moreover, by developing such a poor federal template for stormwater discharge regulation, the EPA may also be setting up those governments that do attempt to innovate for untoward political pressure. San Diego has already been singled out by its business community who argued that the county's more rigorous

¹⁷⁰ See, e.g., June F. Harrigan-Lum & Arnold L. Lum, *Hawaii's TMDL Program: Legal Requirements and Environmental Realities*, 15 NAT. RESOURCE & ENV'T 12, 61 (2000).

¹⁷¹ But see SUZANNE DALLMAN & THOMAS PIECHOTA, LOS ANGELES & SAN GABRIEL RIVERS WATERSHED COUNCIL, *STORM WATER: ASSET NOT LIABILITY* (1999), available at <http://www.lasgrwc.org/publications/Stormwater.pdf> (making the case that there can be immediate benefits to some communities in removing pollutants from stormwater).

¹⁷² See *id.* at 61–62.

implementation of the stormwater discharge permit program violated federal law because it exceeded federal standards.¹⁷³ Although they lost their lawsuit against the County of San Diego,¹⁷⁴ undoubtedly these businesses' discontent continues in the form of political pressure on elected officials and others responsible for implementing the stormwater program. Finally, it is possible that the extensive paper requirements give the federal program the illusion of providing a comprehensive solution to stormwater runoff problems. This regulatory mirage carries the potential to mislead the public and reduce the urgency of introducing more effective approaches to stormwater discharge controls.

B. Mandatory, Systematic Monitoring

Given the strong asymmetries in information that the regulated facilities enjoy under the stormwater regulatory program, a rigorous water quality monitoring system that assesses the facilities' real progress in reducing stormwater discharges would be enormously beneficial, if not vital, to make the program work.¹⁷⁵ As described in Part II, the current federal stormwater program not only fails to require meaningful monitoring, but may actually provide disincentives for sources to conduct rigorous monitoring on their own.

Holding stormwater sources accountable for the objective results of their stormwater control efforts evidenced in monitoring results, rather than their largely unenforceable plans, should begin to overcome at least some of the problems of asymmetric information. Indeed, monitoring may provide the only way to overcome these information asymmetries. The monitoring approach also mimics the successful approach taken in the traditional NPDES program governing industrial effluent. Finally, monitoring could also be used to establish "default goals" that help define the types of stormwater discharge improvements that must take place in the future, while leaving it to individual sources to develop the best ways to meet these challenges.¹⁷⁶ Conversely, if monitoring reveals that pollutants in stormwater runoff from a source or cluster of sources are insignificant, then these sources might be expected to implement only a basic, visible type of

¹⁷³ See, e.g., CALIFORNIA PLANNING & DEVELOPMENT REPORT, *supra* note 161, at 12.

¹⁷⁴ *Id.* at 12.

¹⁷⁵ See EPA, HANDBOOK, *supra* note 73, at 53 (stating that "documentation and quantification of pollutant characteristics and effects are critical in developing an urban runoff pollution prevention and control plan.").

¹⁷⁶ Cf. Ian Ayres & Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 YALE L.J. 87, 91 (1989) ("[P]enalty defaults are purposefully set at what the parties would not want—in order to encourage the parties to reveal information to each other or to third parties . . .").

structural BMP with no requirements for paperwork or self-inspections.

However, given the added scientific uncertainties that accompany the sampling of runoff, creating a meaningful monitoring system for stormwater discharges will not be easy. The variability of loadings in stormwater produce ample room for missing “upsets” of pollutants as well as unrepresentative hits of large concentrations of pollutants that give false positives.¹⁷⁷ Unlike the NPDES industrial effluent program, which can involve the installation of end-of-the-pipe monitors that take samples at regular intervals, stormwater discharges occur predominantly during storm events and these monitors will not be able to sample runoff continuously or even at regular intervals.¹⁷⁸ Nevertheless, with careful design, monitoring can provide valuable insight about water quality loadings from nonpoint sources—and particularly stormwater discharges—and will help isolate the worst problems in a water body.¹⁷⁹

Fortunately, the mistakes made by the current stormwater discharge systems are instructive in establishing this more comprehensive monitoring system. In contrast to the current federal stormwater discharge program that defers any monitoring activity to the regulated parties, all monitoring should be done by a governmental agency, whether it be local, state, or federal. Creating this centralized and unbiased monitoring system provides a number of benefits. First, it allows a group of experts to develop a systematic monitoring plan that gets the most information for its investment. Sampling locations, for example, could shift: as one contributor is identified and its discharges reduced, the monitoring could shift to other troubled locales. Second, replacing regulated parties’ unsupervised “visual” samples and sporadic grab samples of stormwater discharge with a sampling plan developed and implemented by the technical staff of an agency is bound to improve the reliability of sampling. At least one study indicates that composite sampling (taking multiple samples over time) is far superior to grab samples in characterizing stormwater discharges; yet this more expensive and sophisticated monitoring technique is best implemented by a trained team of scientists.¹⁸⁰ Major sources of bias and incompetence, which are

¹⁷⁷ See *supra* note 73; see generally EPA, THE USE OF BEST MANAGEMENT PRACTICES, *supra* note 67, at 4–7 (explaining that pollutant measurements can be highly variable).

¹⁷⁸ See *id.* at 4-24 to 4-25.

¹⁷⁹ See, e.g., EPA, HANDBOOK, *supra* note 73, at 53. See also Haejin Lee & Michael K. Stenstrom, *Utility of Stormwater Monitoring*, 77 WATER ENV'T. RESEARCH, May/June 2005, at 219.

¹⁸⁰ See Lee & Stenstrom, *supra* note 179, at 225 (advocating a trained team to con-

especially expected in the difficult job of monitoring runoff, can also be minimized when technical agency staff conducts the sampling. Finally, economies of scale will reduce the cost of this sampling since the lab and the person doing the sampling can do it more efficiently when they do it in “bulk.”

In developing a monitoring program, samples should be taken of the stormwater discharge as well as the receiving waters.¹⁸¹ Together these different sampling efforts provide a relatively robust view of discharge contributions and a basis for imposing greater controls on some facilities and lesser controls on others. Due to the residual uncertainties in analyzing the samples—for example, determining the largest sources of pollutant loadings and what added measures might be necessary—government regulators and scientists would also need to be employed to conduct a rigorous analysis of the sampling results. This analysis should then lead to added, government-specified controls, including requiring the stormwater to be treated if the loading from one or more stormwater sources continues to be high. The costs of this government-sponsored sampling and analysis could be passed off in the price of a stormwater discharge permit.

Comprehensive monitoring would not be a complete replacement for the current NPDES system, but would provide a vital supplement to ensuring the enforceability of existing BMP requirements. Because of the variability in runoff, monitoring will have large sources of error and periodic samples will not be able to provide a definitive measure of stormwater pollutant loads.¹⁸² Thus, even with a reliable monitoring program, stormwater discharge permittees will still need to go on record that they are educated about stormwater controls and identify the controls they have put in place on site to minimize pollution runoff through stormwater. But in contrast to the current system, the permittees will do so knowing that there is now an external check on their compliance with BMPs and an incentive to make them truly effective.

Implementing a full-scale monitoring program in response to the difficulties involved in overseeing stormwater discharges would also begin to redress a larger problem that has generally

duct composite sampling of stormwater discharges).

¹⁸¹ See generally STORMWATER MONITORING COALITION, MODEL MONITORING TECHNICAL COMMITTEE, MODEL MONITORING PROGRAM FOR MUNICIPAL SEPARATE STORM SEWER SYSTEMS IN SOUTHERN CALIFORNIA, TECHNICAL REPORT #419 (Aug. 2004), available at ftp://ftp.sccwrp.org/pub/download/PDFs/419_smc_mm.pdf; EPA, THE USE OF BEST MANAGEMENT PRACTICES, *supra* note 67.

¹⁸² See *id.* at 4-2.

plagued the Clean Water Act. In part, because of the NPDES's success in circumventing the need for science in setting effluent standards, there has been less attention paid to water quality monitoring.¹⁸³ Water quality monitoring is not even technically required by the Clean Water Act.¹⁸⁴ Indeed, if anything, the burdensome features of the federal TMDL program—which apply when water quality monitoring reveals that the waters are degraded—may provide perverse incentives for states and localities to remain blissfully ignorant about the state of their waters.¹⁸⁵ Learning that a water body is polluted only increases conflicts between the environmentally-minded public and regulated parties—conflicts that elected officials are likely to dodge. Inept and nonexistent monitoring provides the recipe for keeping these bothersome water quality problems off the political radar.

Given the continued apathy in water quality monitoring, the demand for such a comprehensive monitoring program would need to be a federal requirement. One clear lesson that emerges from the thirty-plus years of implementation of the Clean Water Act is that states and locales will not conduct rigorous water quality monitoring without prodding.¹⁸⁶ Moreover, the uneven quality of the monitoring that is done suggests that some standard federal prescriptions for monitoring are needed.¹⁸⁷ The federal program could also identify the costs of such a monitoring program and suggest how the costs could be rolled over into permit fees. Indeed, to the extent that permit fees of existing stormwater sources provide some of the financial support for a monitoring system, it would make the states and locales more inclined to identify unpermitted sources and bring them into the system.

¹⁸³ See, e.g., EPA, EPA 100-R-98-006, REPORT OF THE FEDERAL ADVISORY COMMITTEE ON THE TOTAL MAXIMUM DAILY LOAD (TMDL) PROGRAM 3 (July 1998), available at <http://www.epa.gov/OWOW/tmdl/faca/facaall.pdf>.

¹⁸⁴ See 33 U.S.C. § 1342(p) (2000).

¹⁸⁵ See 33 U.S.C. § 1313(d)(1)(C) (2000); see also Michael P. Healy, *Still Dirty After Twenty-Five Years: Water Quality Standard Enforcement and the Availability of Citizen Suits*, 24 ECOLOGY L.Q. 393, 395-96, 423-25 (1997) (detailing the ways in which the TMDL program has failed due to the EPA's historic disinterest in the program and the states' inactivity in implementing its requirements).

¹⁸⁶ See, e.g., PUBLIC EMPLOYEES FOR ENVIRONMENTAL RESPONSIBILITY, PEER WHITE PAPER: MURKY WATERS: OFFICIAL WATER QUALITY REPORTS ARE ALL WET 2 (May 1999) (concluding in its executive summary that "an unfortunate mix of politics, bureaucratic inertia and bad science means that conflicting, erroneous and manipulated sets of water quality data containing little accurate information on the actual condition of the nation's rivers and streams are routinely reported by States and dutifully compiled by EPA for presentation to Congress and the public.").

¹⁸⁷ *Id.* at 2-3.

C. Revitalizing Multi-media Regulation

When considering stormwater discharge program reform, it is easy to be swept away by the narrow, bureaucratic framing of the problem that targets regulation only of those with immediate control over the problematic pollutants, namely the owners or users of the land or storm drains. This framing is justified and appropriate for regulatory purposes, but it is not the only framing possible and should not be the sole approach to stormwater controls or water quality improvements.

Stepping back, it is evident that several of the major “problem” sources of pollutants in stormwater runoff are widespread products and activities, some of which can be regulated further upstream at the point of manufacture. Regulating products at their point of manufacture also has the enormous advantage of circumventing asymmetrical information problems, as well as the uncertainties in measuring stormwater sources’ contributions to runoff pollution. If problematic sources of pollution are eliminated entirely, e.g., by banning them, then at least those sources of pollution are no longer in need of monitoring or BMPs. Indeed, such an approach capitalizes on the information that science is able to provide—namely the types of products and activities that result in the highest loadings of pollutants nationwide.

One of the most significant products that introduces pollutants through stormwater runoff is the motor vehicle.¹⁸⁸ Vehicle emissions include particulates and gases that ultimately deposit on the land in the form of highly toxic metals and complex hydrocarbons, like polyaromatic hydrocarbons (PAHs).¹⁸⁹ Vehicle exhaust accounts for a significant portion of these pollutants that enter receiving waters in the form of runoff.¹⁹⁰

Stormwater pollution alone might not provide an adequate impetus to ban or substantially regulate the emissions from motor vehicles, but at the very least, it should be another reason to encourage the development of Low and Zero Emissions Vehicles (LEVs and ZEVs). Since auto emissions have their greatest negative impact on the ability of localities to meet Clean Air Act requirements, there has already been considerable effort dedicated to encourage the development of these LEVs and ZEVs, particularly in California.¹⁹¹ Yet it appears that water quality concerns are not currently included in the motivation to develop

¹⁸⁸ See, e.g., EPA, PRELIMINARY DATA SUMMARY, *supra* note 8, at 4-15 to 4-16.

¹⁸⁹ *Id.* at 4-15 to 4-16.

¹⁹⁰ *Id.*

¹⁹¹ See, e.g., State of California Air Resources Board, Fact Sheet: 2003 Zero Emission Vehicle Program Changes, *available at* <http://www.arb.ca.gov/msprog/zevprog/factsheets/2003zevchanges.pdf> (last visited Feb. 15, 2006).

this LEV and ZEV technology.¹⁹² If water quality concerns were better publicized, they might provide even more momentum to encourage the development of these vehicles.¹⁹³ Beyond subsidizing the development and mass marketing of these vehicles, the federal government could encourage urban areas to develop incentives for ZEV use in order to reduce stormwater pollutants. It is too early to sketch out what these incentive programs might look like. For example, an incentive program may provide greater federal subsidization of municipal sewage treatment plants with greater ZEV use in the urban corridor or reduced water quality monitoring requirements for municipalities with greater ZEV fleets. But the link between changing over to LEVs and ZEVs and reduced pollutant loadings is sufficiently powerful¹⁹⁴ that it could be included in a rigorous stormwater discharge program.

Other products that are repeat contributors to stormwater discharges could also be controlled at the manufacturing stage, most likely through the Toxic Substances Control Act (TSCA).¹⁹⁵ Asphalt sealants, for example, can account for some of the toxins in stormwater runoff: the discovery of the demise of an endangered species in Barton Springs in Austin, Texas was ultimately linked to a toxin released from the sealant applied to an asphalt parking lot uphill from the Springs.¹⁹⁶ Currently there is effectively no meaningful regulatory oversight of these types of products that leach dangerous toxins into bodies of water. Under the TSCA, the EPA generally treats all products the same and does little multi-media analysis to target products that pose particularly significant national risks for air or water.¹⁹⁷ There is nothing precluding the EPA from developing this type of rigor in its implementation of TSCA. The EPA's authority to prioritize and target products that increase pollutants in runoff—both for added testing and regulation—is clear from the broad language

¹⁹² There is some forward momentum in the State of California to examine these air-water connections, however. See, e.g., California Environmental Protection Agency, State Water Resources Control Board, Workshop—Atmospheric Deposition and Water Quality (Feb. 9, 2006), available at <http://www.waterboards.ca.gov/workshops/atmospheric.html>.

¹⁹³ See generally California ZEV Alliance, Californians Support Zero-Emission Vehicle Program 2 to 1 ZEV Alliance Urges CARB to Hold Firm on ZEV Program, <http://www.electrifyingtimes.com/ZEV.html> (noticing the disparate benefits of Zero-Emission Vehicle Programs in California) (last visited Feb. 15, 2006).

¹⁹⁴ See California ZEV Alliance, *supra* note 193.

¹⁹⁵ See 15 U.S.C. § 2601 (2000); 15 U.S.C. § 2603(a) (2000); 15 U.S.C. § 2605(a) (2000).

¹⁹⁶ See Kevin Carmody, *City Didn't Provide All Data Needed to Assess Pool Risks*, AUSTIN AM. STATESMAN, Feb. 4, 2003, at A1, A7.

¹⁹⁷ See John S. Applegate, *The Perils of Unreasonable Risk: Information, Regulatory Policy, and Toxic Substances Control*, 91 COLUM. L. REV. 261, 268–69 (1991).

of the statute.¹⁹⁸

As a result, a second multi-media initiative would be for the EPA to identify the types of products—like asphalt sealants—that produce widespread sources of dangerous toxins that leach into waters either as nonpoint pollution or through stormwater discharges—and investigate and potentially regulate them at the site of manufacture. The EPA could require the manufacturers to test these products in terms of their leaching potential and require warnings on the products that alert buyers or even local or state officials as to their elevated toxicity, particularly relative to other types of asphalt sealants that prove less toxic. States or locales, in turn, might decide to ban or tax the more toxic products.

IV. CONCLUSION

Proper design of an environmental regulatory system requires attention to the entrenched limitations in scientific and technical information that are needed to define and redress the problem. Information asymmetries can also be especially problematic in developing enforceable regulatory requirements.

Unfortunately, the federal stormwater permit program fails to take these information constraints into account. Instead, it reflexively maps the regulation of stormwater discharges onto the NPDES program, which was designed to regulate pollutants in industrial effluent. Because of the program's failure to accommodate the new, added uncertainties related to stormwater, the effort to force-fit stormwater regulation into the existing permit model runs the risk of transforming a very successful model program for industrial effluent into an entirely unsuccessful program for stormwater runoff.

We can do better. External, comprehensive monitoring of waters is long overdue, as are more rigorous controls of pervasive sources of water pollution, like automobile exhaust and asphalt sealants. If we are to make real, meaningful progress on reducing pollutants from stormwater discharge, these and other innovative programs that identify and work around information constraints are essential.

¹⁹⁸ See, e.g., 15 U.S.C. § 2604(e)(1)(A) (2000) (providing the EPA with authority to mandate added testing if the chemical "may present" a risk or hazard).

Supreme Guidance for Wet Growth: Lessons from the High Court on the Powers and Responsibilities of Local Governments

*Michael Allan Wolf*¹

I. INTRODUCTION: MOVING WET GROWTH FROM IDEA TO IMPLEMENTATION

When Chapman University School of Law last assembled a set of nationally recognized experts to discuss the idea of managing growth through water law, the convener, Professor Tony Arnold, did a masterful job of summing up the “Wet Growth” movement.² He noted,

There is a need for a concept of “wet growth”: integration of concerns about water quality and the availability of water supply into the density, form, pattern, and location of land development. This “wet growth idea”—that growth and land use should be sustainable with respect to aquatic ecosystems and water resources—may simply be an aspect of a broad smart growth agenda (or an even broader sustainability agenda) or may carve out its own identity as a planning and regulatory concept.³

While several commentators (academics and practitioners alike) have endorsed this merger of water law and planning, and although there has been some experimentation on (and below) the ground, we have not yet seen widespread adoption of integrative controls on the local and state level. In other words, there has not yet been an extensive shift from the idea stage to the implementation stage.

Before such a shift can occur, local and state regulators need

¹ Richard E. Nelson Chair in Local Government Law, Levin College of Law, University of Florida. The author thanks two outstanding University of Florida law students—Leslie Utiger and Steven Wernick—for their first-rate research assistance. This article was prepared for, and presented as part of, the well-organized and provocative *Chapman Law Review* Symposium on “The Slippery Slope: Urban Runoff, Water Quality, and the Issue of Legal Authority,” January 27, 2006, Chapman University School of Law.

² Craig Anthony (Tony) Arnold, *Is Wet Growth Smarter Than Smart Growth?: The Fragmentation and Integration of Land Use and Water*, 35 ENVTL. L. REP. 10152 (2005); see also WET GROWTH: SHOULD WATER LAW CONTROL LAND USE (Craig Anthony (Tony) Arnold ed. 2005) (including chapters written by participants at a conference at Chapman University School of Law in February, 2003) [hereinafter WET GROWTH].

³ Arnold, *supra* note 2, at 10154.

strong guidance from experts in the field, not only in extra-legal fields such as planning, hydrology, geology, engineering, biology, and transportation, but also in mainstream legal areas including legislation (local, state, and federal), administrative law, and enforcement. The purpose of this article is to identify a somewhat unorthodox source of guidance—the United States Supreme Court, specifically the Rehnquist Court from October, 1984, through June, 2005, a period of remarkable stability for the nation's highest tribunal. From the October 1994 Term, when Associate Justice Stephen Breyer joined the Court, through the October 2004 Term, after which Chief Justice William Rehnquist died, the membership of the Court did not change, making it the longest-serving group of nine Justices in the history of the Court.⁴

Part II of this article presents a hypothetical local jurisdiction—appropriately named Hydro City—which is experimenting with various wet growth controls. The purpose of the controls is to regulate land development to minimize harm to precious water resources in and around the community. Part III shifts the locus of the article from the mythical community to the very real Supreme Court building in the nation's capital, in which nine Justices sit, deliberate, and formulate opinions on a wide range of important topics. This section of the article asks the reader to conceive of the modern Supreme Court not as a “court of the last resort,” but as a body of legal commentators.

The powers and responsibilities of local governments comprised one of the significant areas addressed by the legal commentators comprising the Rehnquist Court from the eleven terms during which there was no change in Court membership, as demonstrated in Part IV. This article refers to several Supreme Court cases involving local governments, decided during those selected Terms, which contain lessons from the commentators pertinent to the application of wet growth controls. The facts, outcomes, and rationales of fourteen, highly relevant cases are reviewed, along with the specific lessons they provide.

Part V returns the reader to Hydro City and includes four examples that illustrate how the Court's lessons can afford guidance to wet growth regulators, to landowners and developers,

⁴ See *The Supreme Court, 2003 Term—Nine Justices, Ten Years: A Statistical Retrospective*, 118 HARV. L. REV. 510, 510, 510 n.1 (2004) (noting that “[t]he 2003 Term marked an unprecedented milestone for the Supreme Court: for the first time in history, nine Justices celebrated a full decade presiding together over the nation's highest court,” and that “[a] seven-Justice Court sat together for more than a decade only once, from Justice Joseph Story's appointment in 1812 to Justice Brockholst Livingston's death in 1823).

and to the public and private sector attorneys who represent their interests. The article concludes with observations concerning the potential usefulness of the Rehnquist Court's lessons in furthering the goals of advocates of wet growth controls.

II. WET GROWTH CONTROLS IN HYDRO CITY

The imaginary municipality of Hydro City is the county seat of Orange County, located on the coast of Califlorida. Hydro City's population stands at one million, and the city is experiencing extreme pressures to grow even more rapidly. The city is located in one of most attractive regions in one of the nation's most populous states, a state that features a long coastal border, many freshwater lakes, and a temperate climate. The Tributaria River flows through the center of Hydro City and empties into the ocean only twenty miles away.

Concerned about the negative externalities attending unbridled real estate development—including, but certainly not limited to, nonpoint source pollution of sensitive surface water bodies and groundwater, the destruction of functional wetlands, and the destruction of critical habitat for endangered and threatened species—the Hydro City Council, after two years of study and consultation with scientific, engineering, legal and planning experts, followed by extensive public hearings, announced a package of proposed new regulations and enforcement strategies.

- Hydro City's proposed "wet growth package" consists of the following ten tools:
- Development moratoria;⁵
- Riparian buffer zones;⁶
- Prohibition of certain uses in lands bordering water bodies;⁷
- Density limitations in watersheds;⁸
- Aquifer recharge overlay zones prohibiting some uses

⁵ See Arnold, *supra* note 2, at 10156 (noting that "growth moratoria imposed because of water concerns have fared much better" than "[t]he use of moratoria on new water supplies in order to control or stop growth"); see also *Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency*, 535 U.S. 302 (2002) (upholding set of development moratoria in face of regulatory takings challenge).

⁶ See Arnold, *supra* note 2, at 10173 ("it is also becoming common for local or state governments to adopt riparian or shoreline buffer zones that restrict development within a certain distance of river banks, stream banks, and lake shores."); see also Alan W. Flenner, *Municipal Riparian Buffer Regulations in Pennsylvania—Confronting the Regulatory Takings Doctrine*, 7 DICK. J. ENVTL. L. & POL'Y 207 (1998) (discussing riparian buffer regulations in Kennett Township, Chester County, Pennsylvania).

⁷ See Arnold, *supra* note 2, at 10156–57.

⁸ See *id.*

and requiring special use permits or the use of best management practices (BMPs) for other uses;⁹

- Aggressive enforcement of existing regulations against certain developers;¹⁰
- Variable water pricing, increasing cost as usage rises;¹¹
- Performance zoning standards;¹²
- Incentive and bonus zoning;¹³ and
- Conditional grants of building permits.¹⁴

In many ways, city officials have cherry-picked some of the wet growth controls that show the greatest potential for success in restricting development that poses the greatest harms to sensitive water bodies and in encouraging positive steps by those who choose to make more intensive use of land.

Not surprisingly, given the litigious climate that has long typified the American ethos, landowners and developers in the region who are skeptical about most, if not all of these proposed regulations, have already lined up some skillful legal talent to investigate the possibility of a frontal attack on any new tools that the local government chooses to employ. Indeed, several legal activists who champion private property rights have offered their services in the national struggle against regulations these true believers deem to be confiscatory, arbitrary, and retributive.¹⁵

Rather than wait for the inevitable facial or as-applied challenge to their wet growth tools, counsel for the city should—*before* the local legislature votes on any ordinances and before local regulators implement new enforcement policies, incentives, or conditional permitting—conduct research into the legality, feasibility, and advisability of the proposed package.

⁹ See *id.* at 10157 (describing the Edwards Aquifer Recharge Zone in San Antonio, Texas).

¹⁰ See *id.* at 10157–58 (citing actions taken by the Santa Ana Regional Water Quality Control Board against a well-known developer in Orange County, California).

¹¹ See *id.* at 10159 (quoting Barton H. Thompson, Jr., *Water Management and Land Use Planning: Is It Time for Closer Coordination?*, in WET GROWTH, *supra* note 2, at 103).

¹² See Arnold, *supra* note 2, at 10173.

¹³ See *id.* at 10174.

¹⁴ See *id.*

¹⁵ See, e.g., Charles M. Haar & Michael Allan Wolf, *Euclid Lives: The Survival of Progressive Jurisprudence*, 115 HARV. L. REV. 2158, 2163 n.14 (2002) (“The ‘property rights movement’ has been active in promoting takings legislation and in supporting court challenges to allegedly confiscatory land-use and environmental regulations . . .”); see also Douglas T. Kendall & Charles P. Lord, *The Takings Project: A Critical Analysis and Assessment of the Progress So Far*, 25 B.C. ENVTL. AFF. L. REV. 509, 511 (1998).

Most of research sources consulted by the local government attorneys will be routine: ordinances from other California communities, state and federal decisional law, and the commentary written by experts from law, environmental science, and related fields. As the next part of this article explains, today there is one additional source of guidance available to Hydro City's counsel and to the living and breathing local government attorneys who are actually advising real municipalities—the legal commentary of the Rehnquist Court.

III. CONCEIVING OF THE HIGH COURT AS A BODY OF LEGAL COMMENTATORS

Very earlier in the tribunal's history, when the Justices still “rode circuit,” members of the United States Supreme Court were fairly accurately viewed as a court of last resort.¹⁶ In fact, a variation on that phrase was employed by the Justices in their respectful, but resistant, response to President George Washington's request (forwarded by Secretary of State Thomas Jefferson on July 18, 1793) for the judges' advice regarding important issues facing the new nation struggling to maintain its neutrality as war consumed Europe:

The war which has taken place among the powers of Europe produces frequent transactions within our ports and limits, on which questions arise of considerable difficulty, and of greater importance to the peace of the United States. These questions depend for their solution on the construction of our treaties, on the laws of nature and nations, and on the laws of the land, and are often presented under circumstances *which do not give a cognisance of them to the tribunals of the country*.¹⁷

Chief Justice John Jay and his colleagues responded:

We have considered the previous question stated in a letter written by your direction to us by the Secretary of State on the 18th of last month [regarding] the lines of separation drawn by our Constitution between the three departments of the government. These being in certain respects checks upon each other, and *our being judges of a court in the last resort*, are considerations which afford strong arguments against the propriety of our extra-judicially deciding the questions alluded to,

¹⁶ See, e.g., 1 CHARLES WARREN, *THE SUPREME COURT IN UNITED STATES HISTORY* 58 (rev. ed. 1926) (“By the provisions of [the Judiciary Act], the country had been divided into three Circuits (the Eastern, Middle, and Southern), to each of which two Supreme Court Judges were permanently assigned and directed to hold Court twice a year in each District, in company with the District Judges.”).

¹⁷ LETTER FROM THOMAS JEFFERSON TO JOHN JAY, JULY 18, 1793, *reprinted in* 4 *THE FOUNDERS' CONSTITUTION*, at 257 (Philip B. Kurkland & Ralph Lerner eds., The University of Chicago Press 1987); see also *Muskra v. United States*, 219 U.S. 346, 354 (1911) (quoting 3 *THE CORRESPONDENCE AND-PUBLIC PAPERS OF JOHN JAY* 486 (Henry P. Johnston ed., 1970)).

especially as the power [given] by the Constitution to the President, of calling on the heads of departments for opinions, seems to have been *purposely* as well as expressly united to the *executive* departments.¹⁸

By the third decade of the twentieth century, however, with the development of *certiorari* review and a restructuring of the federal judiciary,¹⁹ the High Court's role had begun to shift significantly.

Today, district courts and courts of appeal resolve the overwhelming majority of disputes in the federal system.²⁰ As the number of cases decided by lower federal courts skyrocketed in the closing years of the last century, the Supreme Court significantly reduced its caseload.²¹ For example, in 1965, the Warren Court Justices granted *certiorari* review in twelve percent of the cases not filed in *forma pauperis* (124 cases were granted review out of 1,164 cases on the docket).²² Ten years later, the number of such cases on the docket of the Burger Court climbed to 2,352, while the number of cases reviewed nearly doubled to 244 (ten

¹⁸ LETTER FROM JOHN JAY TO GEORGE WASHINGTON ON AUGUST 8, 1793, *reprinted in* 4 THE FOUNDERS' CONSTITUTION, at 258 (Philip B. Kurkland & Ralph Lerner eds., The University of Chicago Press 1987) (emphasis added); *see also Muskrat*, 219 U.S. at 354 (quoting 3 THE CORRESPONDENCE AND PUBLIC PAPERS OF JOHN JAY 486 (Henry P. Johnston ed., 1970)).

¹⁹ *See* Robert Post, *The Supreme Court Opinion as Institutional Practice: Dissent, Legal Scholarship, and Decisionmaking in the Taft Court*, 85 MINN. L. REV. 1267 (2001). Professor Post observed:

The [Judiciary Act of February 13, 1925] represented a fundamental transformation of the role of the Supreme Court. Before the Act, the Court was primarily a tribunal of ultimate resort; it was the highest and the last source of appellate review, whose chief function was correctly to discern and to protect the federal rights of litigants. But the Act's sharp constriction of the Court's mandatory appellate jurisdiction "completely overrode" this "obstinate conception that the Court was to be the vindicator of all federal rights." And the Act's extraordinary enlargement of the Court's discretionary appellate jurisdiction expressed a profound recharacterization of the Court's function.

Id. at 1272–73 (footnotes omitted) (quoting FELIX FRANKFURTER & JAMES M. LANDIS, *THE BUSINESS OF THE SUPREME COURT* 260–61 (1928)); *see also* Edward A. Hartnett, *Questioning Certiorari: Some Reflections Seventy-Five Years After the Judges' Bill*, 100 COLUM. L. REV. 1643 (2000).

²⁰ For statistical analysis, *see* CAROL KRAFKA ET. AL., FED. JUDICIAL CTR., *STALKING THE INCREASE IN THE RATE OF FEDERAL CIVIL APPEALS* (1995), *available at* [http://www.fjc.gov/public/pdf.nsf/lookup/rate_of_appeal.pdf/\\$File/rate_of_appeal.pdf](http://www.fjc.gov/public/pdf.nsf/lookup/rate_of_appeal.pdf/$File/rate_of_appeal.pdf); *see also* Leonidas Ralph Mecham, Admin. Office of the U.S. Courts, *Judicial Facts and Figures* (Mar. 2005), *available at* <http://www.uscourts.gov/judicialfactsfigures/alljfftables.pdf>.

²¹ *See* Arthur D. Hellman, *The Shrunken Docket of the Rehnquist Court*, 1996 SUP. CT. REV. 403, 403–04. Professor Hellman observed:

In the 1970s, when the Supreme Court was giving plenary consideration to 150 cases a Term, the courts of appeals were deciding about 10,000 cases on the merits annually. Today the number of merits decisions by the courts of appeals exceeds 25,000 each year.

Id. at 404.

²² LEE EPSTEIN ET. AL., *THE SUPREME COURT COMPENDIUM: DATA, DECISIONS, AND DEVELOPMENTS* 69 (3d ed. 2003).

percent).²³ Only twenty years later, the Rehnquist Court granted review in ninety-two of such cases, only four percent of the 2,456 filed.²⁴ The numbers of reviews granted in in forma pauperis cases showed a similar pattern: Although 1,610 of such cases were filed in 1965, 2,395 in 1975, and 5,098 in 1995, the percentage of cases granted certiorari review fell from three percent in 1965 (forty-three cases), to one percent in 1975 (twenty-eight cases), and three-tenths of a percent in 1995 (thirteen cases).²⁵

During the first Term that William H. Rehnquist served as Chief Justice, the Court issued opinions in 159 cases,²⁶ a number

²³ *Id.* at 70.

²⁴ *Id.* at 71.

²⁵ *Id.* at 69–71.

²⁶ *The Supreme Court, 1985 Term—Leading Cases*, 100 HARV. L. REV. 1, 304 (1986). The figures in this paragraph derive from the *Harvard Law Review's* annual statistical review of the work of the Supreme Court over the previous Term (“The Statistics.”). Here is a summary of the annual number of cases in which the Supreme Court issued opinions for the last twenty-six, full Terms:

1979 Term (Berger, C.J.)—149

1980 Term—138

1981 Term—167

1982 Term—162

1983 Term—163

1984 Term—151

1985 Term (Rehnquist, C.J.)—159

1986 Term—152

1987 Term—142

1988 Term—143

1989 Term—139

1990 Term—120

1991 Term—116

1992 Term—114

1993 Term—87

1994 Term—86

1995 Term—79

1996 Term—86

1997 Term—93

1998 Term—81

1999 Term—77

2000 Term—86

2001 Term—81

2002 Term—78

2003 Term—83

2004 Term—79.

The above figures derive from the corresponding *Harvard Law Review Leading Cases-Statistics* summary printed annually:

The Supreme Court, 1979 Term- The Statistics, 94 HARV. L. REV. 289, 289 (1980); The

in line with that of several of the preceding terms. By the 1990 Term, the total number of opinions issued decreased to 120 (down nineteen from the previous year), and then dropped to 116 (1991 Term) and 114 (1992 Term).²⁷ For the twelve remaining Rehnquist Court Terms, the totals ranged from a high of ninety-three cases (1997 Term) to a low of seventy-seven cases (1999 Term).²⁸ Given these reduced numbers, it might be hard for some to realize that, during the 1970s and 1980s, there was active debate over various proposals to reduce the Supreme Court's heavy workload, such as the "creation of a National Court of Appeals which would screen all petitions for review now filed in the Supreme Court, and hear and decide on the merits many cases of conflicts between the circuits."²⁹

The reduced number of cases resulting in fewer Court opin-

Supreme Court, 1980 Term- The Statistics, 95 HARV. L. REV. 339, 339 (1981); The Supreme Court, 1981 Term- The Statistics, 96 HARV. L. REV. 304, 304 (1982); The Supreme Court, 1982 Term- The Statistics, 97 HARV. L. REV. 295, 295 (1983); The Supreme Court, 1983 Term- The Statistics, 98 HARV. L. REV. 307, 307 (1984); The Supreme Court, 1984 Term- The Statistics, 99 HARV. L. REV. 322, 322 (1985); The Supreme Court, 1985 Term- The Statistics, 100 HARV. L. REV. 304, 304 (1986); The Supreme Court, 1986 Term- The Statistics, 101 HARV. L. REV. 362, 362 (1987); The Supreme Court, 1987 Term- The Statistics, 102 HARV. L. REV. 350, 350 (1988); The Supreme Court, 1988 Term- The Statistics, 103 HARV. L. REV. 394, 394 (1989); The Supreme Court, 1989 Term- The Statistics, 104 HARV. L. REV. 359, 359 (1990); The Supreme Court, 1990 Term- The Statistics, 105 HARV. L. REV. 419, 419 (1991); The Supreme Court, 1991 Term- The Statistics, 106 HARV. L. REV. 378, 378 (1992); The Supreme Court, 1992 Term- The Statistics, 107 HARV. L. REV. 372, 372 (1993); The Supreme Court, 1993 Term- The Statistics, 108 HARV. L. REV. 372, 372 (1994); The Supreme Court, 1994 Term- The Statistics, 109 HARV. L. REV. 340, 340 (1995); The Supreme Court, 1995 Term- The Statistics, 110 HARV. L. REV. 367, 367 (1996); The Supreme Court, 1996 Term- The Statistics, 111 HARV. L. REV. 431, 431 (1997); The Supreme Court, 1997 Term- The Statistics, 112 HARV. L. REV. 366, 366 (1998); The Supreme Court, 1998 Term- The Statistics, 113 HARV. L. REV. 400, 400 (1999); The Supreme Court, 1999 Term- The Statistics, 114 HARV. L. REV. 390, 390 (2000); The Supreme Court, 2000 Term- The Statistics, 115 HARV. L. REV. 539, 539 (2001); The Supreme Court, 2001 Term- The Statistics, 116 HARV. L. REV. 453, 453 (2002); The Supreme Court, 2002 Term- The Statistics, 117 HARV. L. REV. 480, 480 (2003); The Supreme Court, 2003 Term- The Statistics, 118 HARV. L. REV. 497, 497 (2004); The Supreme Court, 2004 Term- The Statistics, 119 HARV. L. REV. 420, 420 (2005).

²⁷ See table *supra* note 26.

²⁸ See table *supra* note 26.

²⁹ Note, *Of High Designs: A Compendium of Proposals to Reduce the Workload of the Supreme Court*, 97 HARV. L. REV. 307, 310 (1982) (quoting FED. JUDICIAL CTR., REPORT OF THE STUDY GROUP ON THE CASELOAD OF THE SUPREME COURT 6 (1972), reprinted in 57 F.R.D. 573, 581 (1972)) [hereinafter *High Designs*]. There were other proposals designed to tackle the time needed to review adequately the growing number of certiorari petitions. Justice John Paul Stevens promoted two such fixes. Justice Stevens first "called for [the] establishment of a new court having the sole task of screening certiorari petitions and selecting the docket of the Supreme Court." *High Designs*, *supra* note 29, at 311 (citing John Paul Stevens, *Some Thoughts on Judicial Restraint*, 66 JUDICATURE 177, 182 (1982)). Justice Stevens also proposed to "redefine the review of certiorari petitions to require majority approval for the grant of a writ," replacing the "rule of four" with "a rule of five." *Id.* at 318 (citing J. Stevens, *The Life Span of a Judge-Made Rule* (Oct. 27, 1982) (James Madison Lecture delivered at the New York University School of Law) (available on request from the Public Information Office, U.S. Supreme Court)).

ions, and the stable membership of the Court, though noteworthy developments on their own,³⁰ in combination have afforded a unique opportunity to view the *institution* of the Supreme Court in a new way. These same nine jurists have begun to focus their attention on a relatively small number of issues, for example, by choosing not to accept every question upon which the circuits have split. While the Court is subject to criticism for allowing too many important questions to remain unresolved on a national scale,³¹ the Justices, perhaps, though not necessarily, by design,³²

³⁰ See, e.g., Thomas W. Merrill, *The Making of the Second Rehnquist Court: A Preliminary Analysis*, 47 ST. LOUIS U. L.J. 569, 570 (2003) ("The second Rehnquist Court started in October 1994 and is still with us. This Court has had no change in its membership, has decided just half the number of cases the Court did in 1986, and is increasingly dominated by a single bloc of five Justices."). Professor Merrill also noted that "the first Rehnquist Court experienced extensive and frequent changes in membership, while the second Rehnquist Court has experienced no change in membership—it has functioned with the same cast of characters now for over eight uninterrupted years." *Id.* at 638. See also Hellman, *supra* note 21, at 403.

³¹ See, e.g., Mary Garvey Algero, *A Step In the Right Direction: Reducing Intercircuit Conflicts by Strengthening the Value of Federal Appellate Court Decisions*, 70 TENN. L. REV. 605, 610 (2003):

The time has come for Congress and the courts to take action to reduce conflicts among the federal appellate courts regarding federal law. The current system is bursting at the seams as the federal appellate courts and the Supreme Court receive appeals and petitions for writs of certiorari in record numbers.

See also Split Circuits: A Blog Dedicated to Tracking Developments Concerning Splits Among the Federal Circuit Courts, <http://splitcircuits.blogspot.com/> (last visited Apr. 8, 2006).

³² Professor Merrill has offered this informed speculation:

There is no evidence . . . that William Rehnquist assumed the office of Chief Justice with any intention to cut back on the number of cases heard by the Court. As an Associate Justice, Rehnquist was a frequent filer of dissents from denial of certiorari, implicitly advocating that more, rather than fewer, cases be heard. On the eve of his appointment, he published an article bemoaning the inability of the Court to decide more cases and urging the creation of the National Court of Appeals to take up the slack. Moreover, at his confirmation hearings in 1986, he told the Senate—"I think the 150 cases [per year] that we have turned out quite regularly over a period of 10 or 15 years is just about where we should be at."

In contrast, we know from published reports that Justice Scalia, from his early years on the Court, strongly favored reducing the number of cases heard by the Court in order to allow more time for each case and improve the quality of the Court's deliberations.

. . .

I am not inclined to attribute any deep strategic significance to what I have surmised to be Justice Scalia's advocacy of a smaller case load. The decline has little to do with the politically-significant cases, which are too few in number to explain the shrinkage of the docket we have witnessed. What has happened is that the number of more routine cases involving statutory interpretation and civil and criminal procedural rights issues has been cut roughly in half. If pressed to explain Justice Scalia's motivation for wanting to get rid of half of the lower-profile cases, I would suggest that it may have something to do with the fact that he is heavily involved in drafting and revising the opinions that issue under his name. The prospect of doing this against a base of 150

have offered important commentary on a number of significant legal issues. These issues include, but are certainly not limited to: the position and legal status of states in a federal system;³³ the importance of original intent;³⁴ the tension between textualism and a more organic view of the words of the Constitution;³⁵ the balance between, and separation of, governmental powers;³⁶ the most effective methods of statutory interpretation;³⁷ the appropriateness of relying on legislative history;³⁸ the relevance of foreign sources of law;³⁹ the role and status of administrative agencies;⁴⁰ and the powers and responsibilities of local govern-

decisions a year is far more exhausting than doing so against a base of 80 decisions a year. Other Justices who joined the Court during the first Rehnquist years, including Justices Souter and Breyer, are also heavily involved in the opinion-production process. So they too might welcome relief from having to produce their share of an extra seventy opinions, most of which involve rather routine and unexciting issues.

Merrill, *supra* note 30, at 643–44 (footnotes omitted).

³³ See, e.g., *Alden v. Maine*, 527 U.S. 706, 714 (1999) (“The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.”).

³⁴ See, e.g., *Eldred v. Ashcroft*, 537 U.S. 186, 219 (2003) (“The Copyright Clause and First Amendment were adopted close in time. This proximity indicates that, in the Framers’ view, copyright’s limited monopolies are compatible with free speech principles. Indeed, copyright’s purpose is to promote the creation and publication of free expression.”).

³⁵ See, e.g., *Johnson v. United States*, 529 U.S. 694, 705 n.7 (2000) (“That is virtuoso lexicography, but it shows only that English is rich enough to give even textualists room for creative readings.”).

³⁶ See, e.g., *Hamdi v. Rumsfeld*, 542 U.S. 507, 535–36 (2004) (“[T]he position that the courts must forgo any examination of the individual case and focus exclusively on the legality of the broader detention scheme cannot be mandated by any reasonable view of separation of powers, as this approach serves only to *condense* power into a single branch of government.”).

³⁷ See, e.g., *Koons Buick Pontiac GMC, Inc. v. Nigh*, 543 U.S. 50, 65–66 (2004) (Stevens, J., concurring) (“Common sense is often more reliable than rote repetition of canons of statutory construction.”).

³⁸ See, e.g., *Bank One Chi., N.A. v. Midwest Bank & Trust Co.*, 516 U.S. 264, 280–81 (1996) (Scalia, J., concurring in part and concurring in the judgment) (citations omitted):

Our opinions using legislative history are often curiously casual, sometimes even careless, in their analysis of what “intent” the legislative history shows. Perhaps that is because legislative history is in any event a make-weight; the Court really makes up its mind on the basis of other factors. Or perhaps it is simply hard to maintain a rigorously analytical attitude, when the point of departure for the inquiry is the fairyland in which legislative history reflects what was in “the Congress’s mind.”

³⁹ See, e.g., *Roper v. Simmons*, 543 U.S. 551, 604 (2005) (O’Connor, J., dissenting) (citation omitted) (“I disagree with Justice Scalia’s contention that foreign and international law have no place in our Eighth Amendment jurisprudence. Over the course of nearly half a century, the Court has consistently referred to foreign and international law as relevant to its assessment of evolving standards of decency.”).

⁴⁰ See, e.g., *United States v. Mead Corp.*, 533 U.S. 218, 228 (2001) (footnotes omitted) (“The fair measure of deference to an agency administering its own statute has been understood to vary with circumstances, and courts have looked to the degree of the agency’s care, its consistency, formality, and relative expertise, and to the persuasiveness of the agency’s position.”).

ments.⁴¹

From the October 1994 Term through the October 2004 Term, the Justices wrote opinions in nearly seventy cases that directly addressed the powers and responsibilities of local governments.⁴² While the great majority of those cases have relatively minimal relevance to the various wet-growth tools reviewed in Part II of this article, there are several cases that deserve closer attention for the instructive lessons they contain.

IV. GLEANING LESSONS FROM THE COMMENTATORS

During the eleven Terms in which the membership of the United States Supreme Court remained stable, this body of legal commentators issued opinions in fourteen cases that provide important guidance for local governments seeking to implement or enforce wet-growth tools. While only half of these cases actually concerned land-use planning,⁴³ and only a couple addressed wet-growth controls,⁴⁴ the lessons they convey apply to situations far beyond, though analogous to, the facts of each dispute.

Lesson #1: The Court Looks at Actual Intent and Does Not Accept Sham Purposes

In *McCreary County v. ACLU of Kentucky*,⁴⁵ two Kentucky counties made multiple attempts to post the same version of the Ten Commandments in their courthouses—first as a free-standing display; then, after the American Civil Liberties Union brought suit claiming a violation of the Establishment Clause, surrounded by other religion-related historical texts; and finally, after switching legal counsel, “by eliminating some documents, expanding the text set out in another, and adding some new ones.”⁴⁶ The five-member majority in *McCreary County* found that the counties had violated the first prong of the familiar, but

⁴¹ See *infra* notes 32–154 and accompanying text; see *Cook County v. United States*, 538 U.S. 119, 133–34 (2003) (wherein the Court declares that local governments may be held liable for filing false claims in order to obtain federal funds).

⁴² For a list of these cases, see <http://lic.law.ufl.edu/~wolfm/localgovt.htm> (last visited Apr. 17, 2006).

⁴³ *Kelo v. City of New London*, 125 S. Ct. 2655 (2005); *San Remo Hotel, L.P. v. City & County of San Francisco*, 125 S. Ct. 2491 (2005); *City of Cuyahoga Falls v. Buckeye Cmty. Hope Found.*, 538 U.S. 188 (2003); *Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency*, 535 U.S. 302 (2002); *Palazzolo v. Rhode Island*, 533 U.S. 606 (2001); *Village of Willowbrook v. Olech*, 528 U.S. 562 (2000); *City of Monterey v. Del Monte Dunes at Monterey, Ltd.*, 526 U.S. 687 (1999).

⁴⁴ *Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency*, 535 U.S. 302 (2002); *Palazzolo v. Rhode Island*, 533 U.S. 606 (2001).

⁴⁵ 125 S. Ct. 2722, 2727–28 (2005).

⁴⁶ *Id.*

not universally popular, test derived from *Lemon v. Kurtzman*:⁴⁷ “First, the statute must have a secular legislative purpose; its principal or primary effect must be one that neither advances nor inhibits religion; finally, the statute must not foster ‘an excessive government entanglement with religion.’”⁴⁸ The *McCreary County* Court found “as seismic as they are unconvincing,” the counties’ assertions that “true ‘purpose’ is unknowable, and its search merely an excuse for courts to act selectively and unpredictably in picking out evidence of subjective intent.”⁴⁹

Given the shifting tactics employed by county officials to secularize their religious intent, it is no surprise that their counsel sought to discredit the notion that courts can discern purpose. In essence, the majority suspected that the local governments were being much less than genuine, noting that:

the Court often does accept governmental statements of purpose, in keeping with the respect owed in the first instance to such official claims. But in those unusual cases where the claim was an apparent sham, or the secular purpose secondary, the unsurprising results have been findings of no adequate secular object, as against a predominantly religious one.⁵⁰

In other words, there is a limit of judicial toleration for government officials who employ pretense in their attempts to avoid constitutional restraints.

Lesson #2: The Court Is Skeptical About Claims to Property That Are Unsubstantiated by State Law

In *Town of Castle Rock v. Gonzales*,⁵¹ a seven-member majority rejected a lawsuit brought under 42 U.S.C. § 1983,⁵² alleging that “an individual who has obtained a state-law restraining order has a constitutionally protected property interest in having the police enforce the restraining order when they have probable cause to believe it has been violated.”⁵³ The plaintiff, a mother of three children murdered by her husband, claimed that the town violated her Due Process rights “because its police department had ‘an official policy or custom of failing to respond properly to complaints of restraining order violations’ and ‘tolerated the non-enforcement of restraining orders by its police officers.’”⁵⁴

⁴⁷ *Id.* at 2735, 2745; *Lemon v. Kurtzman*, 403 U.S. 602 (1971).

⁴⁸ *Lemon*, 403 U.S. at 612–13 (citation omitted) (quoting *Walz v. Tax Comm’n of New York*, 397 U.S. 664, 674 (1970)).

⁴⁹ *McCreary County*, 125 S. Ct. at 2734.

⁵⁰ *Id.* at 2736 (emphasis added).

⁵¹ 125 S. Ct. 2796 (2005).

⁵² *Id.* at 2800, 2802.

⁵³ *Id.* at 2800.

⁵⁴ *Id.* at 2802 (quoting App. to Pet. for Cert. 129a).

Reversing an en banc Tenth Circuit opinion recognizing a procedural due process claim by the plaintiff,⁵⁵ the Court instructed:

The procedural component of the Due Process Clause does not protect everything that might be described as a “benefit”: “To have a property interest in a benefit, a person clearly must have more than an abstract need or desire” and “more than a unilateral expectation of it. He must, instead, have a legitimate claim of entitlement to it.” *Board of Regents of State Colleges v. Roth*, 408 U.S. 564, 577 (1972). Such entitlements are “of course, . . . not created by the Constitution. Rather, they are created and their dimensions are defined by existing rules or understandings that stem from an independent source such as state law.”⁵⁶

Furthermore, the majority explained that “a benefit is not a protected entitlement if government officials may grant or deny it in their discretion.”⁵⁷ By narrowing the conception of entitlements the Court in turn reduces the chances that a successful procedural due process claim can be brought against government officials.

Lesson #3: Comprehensive Planning Earns Deference and Trumps Private Rights-Based Arguments

In one of the Rehnquist Court’s most controversial cases,⁵⁸ *Kelo v. City of New London*,⁵⁹ five Justices upheld the use of eminent domain by the New London Development Corporation in furtherance of an ambitious economic revitalization plan for ninety acres in the Fort Trumbull area of the economically distressed Connecticut city.⁶⁰ The majority, affirming the holding of the Supreme Court of Connecticut and following two key precedents—*Berman v. Parker*,⁶¹ and *Hawaii Housing Authority v. Midkiff*⁶²—concluded that the real property of the plaintiffs was taken “for public use.”⁶³ Noting that the “Court long ago rejected any literal requirement that condemned property be put into use

⁵⁵ *Id.* at 2802, 2811.

⁵⁶ *Id.* at 2803 (quoting *Board of Regents of State Colleges v. Roth*, 408 U.S. 564, 577 (1972), and *Paul v. Davis*, 424 U.S. 693, 709 (1976) (quoting in turn *Roth*, 408 U.S. at 577)).

⁵⁷ *Id.* at 2803.

⁵⁸ See generally John M. Broder, *States Curbing Right to Seize Private Homes*, N.Y. TIMES, Feb. 21, 2006, at A1 (discussing the reaction to the decision rendered in *Kelo v. City of New London*).

⁵⁹ 125 S. Ct. 2655 (2005).

⁶⁰ *Id.* at 2658–59.

⁶¹ 348 U.S. 26 (1954) (allowing the use of eminent domain as part of a redevelopment project for a blighted neighborhood).

⁶² 467 U.S. 229 (1984) (allowing the use of condemnation to transfer fee interests from landlords to tenants in order to combat the evils of “land oligopoly”).

⁶³ *Kelo*, 125 S. Ct. at 2658, 2660–61, 2669.

for the general public,”⁶⁴ Justice John Paul Stevens, writing for the majority, explained that the case “turns on the question whether the City’s *development plan* serves a ‘public purpose.’ Without exception, our cases have defined that concept broadly, reflecting our longstanding policy of deference to legislative judgments in this field.”⁶⁵

In fact, the city’s development plan was the focus of the majority’s discussion in several key parts of the opinion,⁶⁶ particularly the following passage:

Those who govern the City were not confronted with the need to remove blight in the Fort Trumbull area, but their determination that the area was sufficiently distressed to justify a program of economic rejuvenation is entitled to our deference. The City has carefully formulated an economic development plan that it believes will provide appreciable benefits to the community, including—but by no means limited to—new jobs and increased tax revenue. As with other exercises in urban planning and development, the City is endeavoring to coordinate a variety of commercial, residential, and recreational uses of land, with the hope that they will form a whole greater than the sum of its parts. To effectuate this plan, the City has invoked a state statute that specifically authorizes the use of eminent domain to promote economic development. Given the comprehensive character of the plan, the thorough deliberation that preceded its adoption, and the limited scope of our review, it is appropriate for us, as it was in *Berman*, to resolve the challenges of the individual owners, not on a piecemeal basis, but rather in light of the entire plan. Because that plan unquestionably serves a public purpose, the takings challenged here satisfy the public use requirement of the Fifth Amendment.⁶⁷

The result was deference to state and local officials who engage in comprehensive planning efforts, despite serious claims of private property rights violations.⁶⁸

⁶⁴ *Kelo*, 125 S. Ct. at 2662 (quoting *Midkiff*, 467 U.S. at 244).

⁶⁵ *Id.* at 2663 (emphasis added).

⁶⁶ See, e.g., *id.* at 2658 (“the city of New London approved a development plan”), *id.* at 2659 (“the NLDC finalized an integrated development plan, “[t]he development plan encompasses seven parcels,” “NLDC intended the development plan to capitalize on the arrival of the Pfizer facility,” “the plan was also designed to make the City more attractive and to create leisure and recreational opportunities”), *id.* at 2661 (“The takings before us, however, would be executed pursuant to a ‘carefully considered’ development plan”), and *id.* at 2667 (“Such a one-to-one transfer of property, executed outside the confines of an integrated development plan, is not presented in this case.”).

⁶⁷ *Id.* at 2664–65 (footnote omitted).

⁶⁸ See, e.g., *id.* at 2684–85 (Thomas, J., dissenting) (“[I]t is backwards to adopt a searching standard of constitutional review for nontraditional property interests, such as welfare benefits . . . while deferring to the legislature’s determination as to what constitutes a public use when it exercises the power of eminent domain, and thereby invades individuals’ traditional rights in real property.”).

Lesson #4: Ripeness Requirements Continue to Be Significant Hurdles for Those Bringing Regulatory Takings Challenges

Although in theory regulations that go “too far” amount to unconstitutional takings,⁶⁹ in practice it remains a difficult task for a property owner to receive just compensation or other relief for allegedly confiscatory land regulations. That task was made even more arduous by the Supreme Court in 2005, when it issued its holding in *San Remo Hotel, L.P. v. City & County of San Francisco*.⁷⁰ The City Planning Commission assessed a \$567,000 “conversion fee” against the hotel for changing residential hotel units into tourist units, and the result was a set of lawsuits brought by the hotel owners: the first suit was a mandamus action in state court, followed a month later by a federal case alleging (among other claims) a regulatory taking.⁷¹

The federal district court granted summary judgment in the government’s favor; in the Ninth Circuit, the hotel owners requested that the federal court abstain and not hear their federal claims, so the parties returned to state court.⁷² However, the hotel owners made a fatal tactical error. Instead of reserving their takings claims, as instructed by the court of appeals, the owners actually raised claims before the federal district court that closely resembled those they were supposed to have reserved.⁷³ Ultimately, the California Supreme Court, applying a “reasonable relationship” test, denied the facial and as-applied challenges to the city’s Hotel Conversion Ordinance (HCO).⁷⁴ When the hotel owners returned to federal court, they did not get a warm reception, as the district court and court of appeals found that the owners’ takings claims had been precluded.⁷⁵

The specific issue before the United States Supreme Court was “whether federal courts may craft an exception to the full faith and credit statute, 28 U.S.C. § 1738, for claims brought under the Takings Clause of the Fifth Amendment.”⁷⁶ Complicating the matter was the fact that the hotel owners were required to go to state court in accordance with the Court’s decision in *William-*

⁶⁹ See *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 415 (1922) (“The general rule at least is that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking.”).

⁷⁰ 125 S. Ct. 2491 (2005).

⁷¹ *Id.* at 2496–97.

⁷² *Id.* at 2497.

⁷³ *Id.* at 2499–2500.

⁷⁴ *Id.* at 2500.

⁷⁵ *Id.* at 2499–2500.

⁷⁶ *Id.* at 2495.

son County Regional Planning Commission v. Hamilton Bank,⁷⁷ a 1985 case holding “that takings claims are not ripe until a State fails ‘to provide adequate compensation for the taking.’”⁷⁸ Nevertheless, the *San Remo* majority was ultimately unsympathetic with property owners who had failed to make wise litigation decisions:

At base, petitioners’ claim amounts to little more than the concern that it is unfair to give preclusive effect to state-court proceedings that are not chosen, but are instead *required* in order to ripen federal takings claims. Whatever the merits of that concern may be, we are not free to disregard the full faith and credit statute solely to preserve the availability of a federal forum. The Court of Appeals was correct to decline petitioners’ invitation to ignore the requirements of 28 U.S.C. § 1738.⁷⁹

The road to recovery for a regulatory taking would remain, for the foreseeable future, a long, winding, often frustrating path.

Lesson #5: The Text Trumps Legislative History

Efforts by government officials to reduce air pollution in metropolitan Los Angeles were negated by the Supreme Court’s finding of federal preemption in *Engine Manufacturers Ass’n v. South Coast Air Quality Mgmt. District*.⁸⁰ In 2000, the South Coast Air Quality Management District (SCAQMD) was charged with “developing and implementing a ‘comprehensive basinwide air quality management plan’ to reduce emission levels and thereby achieve and maintain ‘state and federal ambient air quality standards.’”⁸¹ SCAQMD adopted six Fleet Rules (for vehicles such as street sweepers, passenger vehicles, public transit vehicles, and others) specifying the “the types of vehicles that fleet operators must purchase or lease when adding or replacing fleet vehicles.”⁸² The Fleet Rules mandated the purchase or lease of alternative-fuel vehicles or of vehicles, such as Low-Emission and Zero-Emission Vehicles, among others, that “meet certain emission specifications established by the California Air Resources Board (CARB).”⁸³

The Engine Manufacturers responded in turn with a federal suit, “claiming that the Fleet Rules are pre-empted by § 209 of the CAA [Clean Air Act], which prohibits the adoption or attempted enforcement of any state or local ‘standard relating to

⁷⁷ 473 U.S. 172 (1985).

⁷⁸ *San Remo*, 125 S. Ct. at 2495 (quoting *Williamson*, 473 U.S. at 195).

⁷⁹ *Id.* at 2507.

⁸⁰ 541 U.S. 246, 248, 258–59 (2004).

⁸¹ *Id.* at 249 (quoting CAL. HEALTH & SAFETY CODE § 40402(e) (West 1996)).

⁸² *Engine Mfrs.*, 541 U.S. at 248–49.

⁸³ *Id.* at 250, 250 n.1, 250 n.3.

the control of emissions from new motor vehicles or new motor vehicle engines.”⁸⁴ The district court granted summary judgment to SCAQMD,⁸⁵ and the court of appeals affirmed,⁸⁶ but the Supreme Court reversed in an opinion for eight Justices written by Justice Scalia.⁸⁷

The Court’s decision was directed primarily at the word “standard,” the key term found in § 209(a).⁸⁸ Turning to one of his most trusty interpretive sources—“Webster’s Second”⁸⁹—Justice Scalia noted:

Today, as in 1967 when § 209(a) became law, “standard” is defined as that which “is established by authority, custom, or general consent, as a model or example; criterion; test.” Webster’s Second New International Dictionary 2455 (1945). The criteria referred to in § 209(a) relate to the emission characteristics of a vehicle or engine. To meet them the vehicle or engine must not emit more than a certain amount of a given pollutant, must be equipped with a certain type of pollution-control device, or must have some other design feature related to the control of emissions. This interpretation is consistent with the use of “standard” throughout Title II of the CAA (which governs emissions from moving sources) to denote requirements such as numerical emission levels with which vehicles or engines must comply, *e.g.*, 42 U.S.C. § 7521(a)(3)(B)(ii) [42 USCS § 7521(a)(3)(B)(ii)], or emission-control technology with which they must be equipped, *e.g.*, § 7521(a)(6).⁹⁰

Because it was “likely that at least certain aspects of the Fleet

⁸⁴ *Id.* at 251 (quoting 42 U.S.C. § 7543(a) (2000)).

⁸⁵ *Id.* at 251.

⁸⁶ *Id.* at 252.

⁸⁷ *Id.* at 247.

⁸⁸ *Id.* at 252–59.

⁸⁹ For other Supreme Court opinions in which Justice Scalia relied on the second edition of Webster’s New International Dictionary to define terms, many of which are parts of everyday usage, see *Vieth v. Jubelirer*, 541 U.S. 267, 274 (2004) (“gerrymander”); *Dastar Corp. v. Twentieth Century Fox Film Corp.*, 539 U.S. 23, 31 (2003) (“origin”); *Branch v. Smith*, 538 U.S. 254, 264, 298 (2003) (“enact” and “until”); *Republican Party of Minnesota v. White*, 536 U.S. 765, 776 (2002) (“impartial”); *Whitman v. Am. Trucking Ass’n.*, 531 U.S. 457, 465 (2001) (“public health”); *Reno v. Bossier Parish Sch. Bd.*, 528 U.S. 320, 333–34 (2000) (“abridge”); *Pa. Dep’t of Corr. v. Yeskey*, 524 U.S. 206, 211 (1998) (“eligible” and “participate”); *Textron Lycoming Reciprocating Engine Div. v. United Auto., Aerospace & Agric. Implement Workers of America*, 523 U.S. 653, 656–57 (1998) (“for”); *Brogan v. United States*, 522 U.S. 398, 400–01 (1998) (“statement”); *Allentown Mack Sales & Serv., Inc. v. Nat’l Labor Relations Bd.*, 522 U.S. 359, 367, 367 n.2 (1998) (“doubt” and “objective”); *Auer v. Robbins*, 519 U.S. 452, 461 (1997) (“subject to”); *Walters v. Metro. Educ. Enters., Inc.*, 519 U.S. 202, 207–08 (1997) (“have”); *Capitol Square Review & Advisory Bd. v. Pinette*, 515 U.S. 753, 763 (1995) (“endorsement”); *Asgrow Seed Co. v. Winterboer*, 513 U.S. 179, 187 (1995) (“market”); *MCI Telecomms. Corp. v. Am. Tel. & Tel. Co.*, 512 U.S. 218, 227–28, 242 n.5 (1994) (“modify”); *Deal v. United States*, 508 U.S. 129, 131 (1993) (“conviction”); *Bray v. Alexandria Women’s Health Clinic*, 506 U.S. 263, 274 (1993) (“invidious”); *Harmelin v. Michigan*, 501 U.S. 957, 976 (1991) (“unusual”); *Chan v. Korean Air Lines, Ltd.*, 490 U.S. 122, 128 (1989) (“irregularity”); *Pierce v. Underwood*, 487 U.S. 552, 564 (1988) (“substantial”).

⁹⁰ *Engine Mfrs.*, 541 U.S. at 252–53.

Rules are pre-empted” by § 209,”⁹¹ the decision of the court of appeals was vacated, and the case was remanded for further proceedings.⁹²

In contrast, Justice David Souter, the sole dissenter, argued that “legislative history should inform interpretive choice, and the legislative history of this preemption provision shows that Congress’s purpose in passing it was to stop States from imposing regulatory requirements that directly limited what manufacturers could sell.”⁹³ Justice Souter also highlighted the difference between his approach to the case and the majority’s:

In sum, I am reading “standard” in a practical way that keeps the Act’s preemption of standards in tune with Congress’s object in providing for preemption, which was to prevent the States from forcing manufacturers to produce engines with particular characteristics as a legal condition of sale. The majority’s approach eliminates this consideration of legislative purposes, as well as the presumption against preemption, by acting as though anything that could possibly be described as a standard must necessarily be a “standard” for the purposes of the Act: a standard is a standard is a standard. The majority reveals its misalliance with Gertrude Stein throughout its response to this dissent.⁹⁴

Even though the legislative history strongly indicated that the Fleet Rules were consistent with congressional intent, the words in the text of the preemptive provision ultimately controlled.

Lesson #6: Judges Appreciate the Administrative Burdens Faced by Local Officials

In *City of Los Angeles v. David*,⁹⁵ a car owner “made a federal case out of it” when he had to wait twenty-seven days for a hearing at which the city denied his claim that trees blocked his view of a “no parking sign.”⁹⁶ In a Per Curiam opinion, the Court rejected Edwin David’s claim “that the city, in failing to provide a sufficiently prompt hearing, had violated his federal right to ‘due process of law,’”⁹⁷ reversing the Ninth Circuit’s decision “that the Constitution required the city to provide an earlier payment-recovery hearing, perhaps within 48 hours of the towing and at least within 5 days.”⁹⁸

Central to the Supreme Court’s decision were the practical

⁹¹ *Id.* at 258.

⁹² *Id.* at 259.

⁹³ *Id.* at 261 (Souter, J., dissenting).

⁹⁴ *Id.* at 263–64 (Souter, J., dissenting) (footnote omitted).

⁹⁵ 538 U.S. 715 (2003).

⁹⁶ *Id.* at 716.

⁹⁷ *Id.*

⁹⁸ *Id.*

difficulties faced by a large city in processing hearings of this kind:

The nature of the city's interest in delay is one of administrative necessity. The city points out that it "conducts more than a thousand vehicle impound hearings annually." Pet. for Cert. 8. It holds about five percent of these hearings—those involving individuals who are unable to afford the impoundment fees—within 48 hours. It "takes time to organize hearings: there are only so many courtrooms and presiding officials; the city has to contact the towing officer and arrange for his appearance; the city may have to find a substitute to cover that officer's responsibilities while he attends the hearing." And the Ninth Circuit's holding, which presumably would require the city to schedule annually 1,000 or more hearings, instead of 50 hearings, within a 48-hour (or 5-day) time limit, will prove burdensome. The administrative resources available to modern police departments are not limitless.⁹⁹

The protections afforded private property owners by the Due Process Clause, far from absolute, are assessed in relation to the significant administrative tasks performed by local government and other public officials.

Lesson #7: Congress May Subject Municipalities to Suit in State Court Without Violating "State Sovereignty"

In 1996, Susan Jinks, the widow of a man who died in a Richland County, South Carolina, detention center, brought claims in federal district court under 42 U.S.C. § 1983 and the South Carolina Tort Claims Act.¹⁰⁰ By the time the federal trial court dismissed both claims, the state's two-year statute of limitations had run, which was the basis of the South Carolina Supreme Court's reversal of a state court jury verdict in Jinks's favor.¹⁰¹ The United States Supreme Court, in *Jinks v. Richland County*, agreed to hear the case after the state high court "held that 28 U.S.C. § 1367(d), which required the state statute of limitation to be tolled for the period during which petitioner's cause of action had previously been pending in federal court, is unconstitutional as applied to lawsuits brought against a State's political subdivisions."¹⁰²

First, Justice Scalia, in an opinion for a unanimous Court, dismissed the notion that Congress had exceeded its enumerated powers in enacting § 1367(d).¹⁰³ The opinion then moved to the respondent county's assertion "that § 1367(d) should not be in-

⁹⁹ *Id.* at 718 (quoting *David v. City of Los Angeles*, 307 F.3d 1143, 1149 (2002) (Kozinski, J., dissenting), *rev'd*, 538 U.S. 751 (2003)).

¹⁰⁰ *Jinks v. Richland County*, 538 U.S. 456, 460 (2003).

¹⁰¹ *Id.* at 460.

¹⁰² *Id.* at 458.

¹⁰³ *Id.* at 457, 461.

terpreted to apply to claims brought against a State's political subdivisions," which the Court found "also to be without merit."¹⁰⁴ The body of Rehnquist Court commentators, which in other cases supported an expansive notion of sovereign immunity,¹⁰⁵ made an important distinction between the elevated status of a state and its more vulnerable municipalities:

In respondent's view, § 1367(d)'s extension of the time period in which a State's political subdivisions may be sued constitutes an impermissible abrogation of "sovereign immunity." That is not so. Although we have held that Congress lacks authority under Article I to override a State's immunity from suit in its own courts, see *Alden v. Maine*, 527 U.S. 706 . . . (1999), it may subject a *municipality* to suit in state court if that is done pursuant to a valid exercise of its enumerated powers, see *id.*, at 756 Section 1367(d) tolls the limitations period with respect to *state-law* causes of action brought against municipalities, but we see no reason why that represents a greater intrusion on "state sovereignty" than the undisputed power of Congress to override state-law immunity when subjecting a municipality to suit under a federal cause of action. In either case, a State's authority to set the conditions upon which its political subdivisions are subject to suit in its own courts must yield to the enactments of Congress. This is not an encroachment on "state sovereignty," but merely the consequence of those cases (which respondent does not ask us to overrule) which hold that municipalities, unlike States, do not enjoy a constitutionally protected immunity from suit.¹⁰⁶

In other words, for immunity purposes, the hierarchy of nonfederal governments remains basically intact.

Lesson #8: It Takes Egregious or Arbitrary Government Conduct for Property Owners to Prove Substantive Due Process Violations

In *City of Cuyahoga Falls v. Buckeye Community Hope Foundation*, a unanimous Supreme Court, in an opinion by Justice Sandra Day O'Connor, found that an Ohio city did not violate an affordable housing developer's equal protection or due process rights when city officials submitted a referendum repealing the ordinance approving the developer's site plan.¹⁰⁷ Although the developer was successful in convincing the Ohio Supreme Court that the ordinance was not a proper subject of a referendum under state law¹⁰⁸ and in advancing its constitutional claims in the

¹⁰⁴ *Id.* at 465.

¹⁰⁵ See, e.g., *Alden v. Maine*, 527 U.S. 706, 712 (1999) ("[T]he powers delegated to Congress under Article I of the United States Constitution do not include the power to subject nonconsenting States to private suits for damages in state courts.").

¹⁰⁶ *Jinks*, 538 U.S. at 465–66.

¹⁰⁷ 538 U.S. 188, 190–91, 199 (2003).

¹⁰⁸ *Buckeye Cmty. Hope Found. v. City of Cuyahoga Falls*, 697 N.E.2d 181, 186 (Ohio

federal Sixth Circuit,¹⁰⁹ the Justices were much less sympathetic.

The developer's failure to offer proof of racially discriminatory intent or purpose, in accordance with the requirements of *Village of Arlington Heights v. Metropolitan Housing Development Corp.*,¹¹⁰ proved fatal to the equal protection claim.¹¹¹ On the due process claim, while the Sixth Circuit had held, "as a threshold matter, that respondents had a legitimate claim of entitlement to the building permits, and therefore a property interest in those permits, in light of the city council's approval of the site plan,"¹¹² the Supreme Court felt no need to "decide whether respondents possessed a property interest in the building permits, because the city engineer's refusal to issue the permits while the petition was pending in no sense constituted egregious or arbitrary government conduct."¹¹³ The Justices were equally unimpressed with the developer's assertion "that the City's submission of an administrative land-use determination to the charter's referendum procedures constituted *per se* arbitrary conduct."¹¹⁴ In this way, the Court sent a strong signal to landowners that the protections afforded by Due Process Clause were reserved for those penalized by the most "egregious" and "arbitrary" instances of official misconduct.

Lesson #9: The Court Endorses Careful Planning for Environmentally Sensitive Lands

One of the most important regulatory takings cases decided by the legal commentators comprising the Rehnquist Court involved a comprehensive and controversial wet-growth regulatory scheme to protect the pristine waters of Lake Tahoe. In *Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*,¹¹⁵ five colleagues joined Justice Stevens in declining to hold that "a moratorium on development imposed during the process of devising a comprehensive land-use plan constitutes a *per se* taking of property requiring compensation under the Takings Clause of the United States Constitution."¹¹⁶ The delays faced by landowners seeking to develop their property were not

1998).

¹⁰⁹ *Buckeye Cmty. Hope Found. v. City of Cuyahoga Falls*, 263 F.3d 627, 645 (6th Cir. 2001), *rev'd in part, vacated in part*, 538 U.S. 188 (2003).

¹¹⁰ 429 U.S. 252, 265 (1977).

¹¹¹ *Cuyahoga Falls*, 538 U.S. at 194.

¹¹² *Id.* at 198.

¹¹³ *Id.*

¹¹⁴ *Id.* "The subjection of the site-plan ordinance to the City's referendum process, regardless of whether that ordinance reflected an administrative or legislative decision, did not constitute *per se* arbitrary government conduct in violation of due process." *Id.* at 199.

¹¹⁵ 535 U.S. 302 (2002).

¹¹⁶ *Id.* at 305–06, 342–43.

insignificant:

This case actually involves two moratoria ordered by respondent Tahoe Regional Planning Agency (TRPA) to maintain the status quo while studying the impact of development on Lake Tahoe and designing a strategy for environmentally sound growth. The first, Ordinance 81-5, was effective from August 24, 1981, until August 26, 1983, whereas the second more restrictive Resolution 83-21 was in effect from August 27, 1983, until April 25, 1984. As a result of these two directives, virtually all development on a substantial portion of the property subject to TRPA's jurisdiction was prohibited for a period of 32 months.¹¹⁷

Nevertheless, the Court concluded "that the interest in 'fairness and justice' will be best served by relying on the familiar *Penn Central* [ad hoc balancing] approach when deciding cases like this, rather than by attempting to craft a new categorical rule."¹¹⁸

The *Tahoe Sierra* Court's decision not to recognize another category of *per se* regulatory taking can be attributed in a significant way to the majority's recognition of and respect for careful planning, especially in environmentally sensitive regions. This aspect of the decision is illustrated by the following excerpts from the majority opinion:

A narrower rule that excluded the normal delays associated with processing permits, or that covered only delays of more than a year, would certainly have a less severe impact on prevailing practices, but it would still impose serious financial constraints on the planning process. . . . [M]oratoria like Ordinance 81-5 and Resolution 83-21 are used widely among land-use planners to preserve the status quo while formulating a more permanent development strategy. In fact, the consensus in the planning community appears to be that moratoria, or "interim development controls" as they are often called, are an essential tool of successful development. . . .

The interest in facilitating informed decisionmaking by regulatory agencies counsels against adopting a *per se* rule that would impose such severe costs on their deliberations. Otherwise, the financial constraints of compensating property owners during a moratorium may force officials to rush through the planning process or to abandon the practice altogether. To the extent that communities are forced to abandon using moratoria, landowners will have incentives to develop their property quickly before a comprehensive plan can be enacted, thereby fostering inefficient and ill-conceived growth. . . .

We would create a perverse system of incentives were we to hold that landowners must wait for a takings claim to ripen so that planners can make well-reasoned decisions while, at the same time, holding that those planners must compensate landowners for the delay.

¹¹⁷ *Id.* at 306.

¹¹⁸ *Id.* at 342.

Indeed, the interest in protecting the decisional process is even stronger when an agency is developing a regional plan than when it is considering a permit for a single parcel.¹¹⁹

The message to regulators and landowners that emerges from this decision is that, in order to maintain the proper equilibrium between private property rights and public needs, a balancing test that considers the specific circumstances in which the regulatory power is exercised is, except in limited circumstances, more appropriate than a *per se* approach.

Lesson #10: Regulators Must Ensure That Landowners Retain Something More Than Token Value

In a second wet growth case, a five-Justice majority, in an opinion written by Justice Anthony Kennedy, refused to find that a landowner whose real property retained \$200,000 in development value even after the application of state wetlands restrictions was entitled to bring a *per se* regulatory takings challenge alleging a “total deprivation.”¹²⁰ Although the majority in *Palazzolo v. Rhode Island* remanded the case for a determination of whether the landowner could prevail under an alternative takings test,¹²¹ before it let go of the dispute, the Court explained that the fact that a property owner acquires a parcel after a regulation goes into effect does not necessarily preclude a regulatory takings challenge.¹²² Justice Kennedy cautioned: “[a] blanket rule that purchasers with notice have no compensation right when a claim becomes ripe is too blunt an instrument to accord with the duty to compensate for what is taken.”¹²³

The *Palazzolo* decision contains another, potentially important victory for landowners affected by environmental regulations. While, as noted above, the property in the case before the Court retained significant development value, there may be occa-

¹¹⁹ *Id.* at 337–40 (footnotes omitted).

¹²⁰ *Palazzolo v. Rhode Island*, 533 U.S. 606, 610, 616, 632 (2001).

¹²¹ *See id.* at 632 (“The claims under the *Penn Central* analysis were not examined, and for this purpose the case should be remanded.”); *see also* Peter B. Lord, *Westerly Wetlands Dispute Finally Over*, PROVIDENCE JOURNAL, Sept. 14, 2005, at B3:

Anthony Palazzolo’s wetlands dispute with the state of Rhode Island has grown in recent decades to become one of the state’s longest-running and most widely studied legal cases. This week, it quietly came to an end. . . .

During 23 years of administrative proceedings and 17 years of litigation, Palazzolo has tried to win permission to build his subdivision on the south shores of Winnapaug Pond, just north of Atlantic Avenue in Westerly. . . .

The Supreme Court sent the case back to the Rhode Island Superior Court for further consideration. After more testimony, Superior Court Judge Edwin Gale issued a 32-page ruling in July that went against Palazzolo once again.

¹²² *Palazzolo*, 533 U.S. at 627.

¹²³ *Id.* at 628.

sions in which a landowner suffers a dramatic, though less-than-total, deprivation. In that event, the Court instructed, “[a]ssuming a taking is otherwise established, a State may not evade the duty to compensate on the premise that the landowner is left with a token interest.”¹²⁴

Lesson #11: Judges Will Not Tolerate Backdoor Strategies

Persistence and creativity did not pay off for Santa Fe High School officials in Texas, whose practice of electing a school chaplain to deliver Christian prayers over a public address system before varsity football games was declared to be in violation of the Establishment Clause of the First Amendment.¹²⁵ School officials then opted for an alternative system, which they worked out over the summer and fall of 1995:

The August policy, which was titled “Prayer at Football Games,” . . . authorized two student elections, the first to determine whether “invocations” should be delivered, and the second to select the spokesperson to deliver them. Like the July policy, it contained two parts, an initial statement that omitted any requirement that the content of the invocation be “nonsectarian and nonproselytising,” and a fallback provision that automatically added that limitation if the preferred policy should be enjoined. . . .

The final policy (October policy) is essentially the same as the August policy, though it omits the word “prayer” from its title, and refers to “messages” and “statements” as well as “invocations.” It is the validity of that policy that is before us.¹²⁶

Six Justices, in an opinion penned by Justice Stevens, were not convinced that the school had gone far enough.¹²⁷ In *Santa Fe Independent School District v. Doe*, the Court concluded that “this policy does not provide the District with the constitutional safe harbor it sought.”¹²⁸

One of the messages sent by the Rehnquist Court commentators is that it is a difficult task for government officials to purge an invalid policy of its constitutional defects. Going back to the drawing board with the intent to change the letter but not the spirit of a tainted policy is insufficient. Context and history are important:

This case comes to us as the latest step in developing litigation brought as a challenge to institutional practices that unquestionably violated the Establishment Clause. One of those practices was the

¹²⁴ *Id.* at 631.

¹²⁵ *Santa Fe Indep. Sch. Dist. v. Doe*, 530 U.S. 290, 294, 301 (2000).

¹²⁶ *Id.* at 297–98.

¹²⁷ *Id.* at 292, 301.

¹²⁸ *Id.* at 317.

District's long-established tradition of sanctioning student-led prayer at varsity football games. The narrow question before us is whether implementation of the October policy insulates the continuation of such prayers from constitutional scrutiny. It does not. Our inquiry into this question not only can, but must, include an examination of the circumstances surrounding its enactment.¹²⁹

Local governments should be advised that trying to sneak a defective program or policy in through the back door is ultimately a formula for failure.

Lesson #12: The Equal Protection Clause Remains Potentially Effective as an Avenue of Relief Against Municipalities That Abuse Regulatory Power

When Grace and Thaddeus Olech requested that the Village of Willowbrook, Illinois, which the Olechs and others had unsuccessfully sued in an unrelated action, tie their property to the public water supply, local government officials responded with a condition that departed from the norm:¹³⁰

The Village at first conditioned the connection on the Olechs granting the Village a 33-foot easement. The Olechs objected, claiming that the Village only required a 15-foot easement from other property owners seeking access to the water supply. After a 3-month delay, the Village relented and agreed to provide water service with only a 15-foot easement.¹³¹

The federal district court dismissed Grace Olech's claim that the village had violated the Equal Protection Clause (her husband had died),¹³² but the Seventh Circuit reversed and held that "a plaintiff can allege an equal protection violation by asserting that state action was motivated solely by a 'spiteful effort to "get" him for reasons wholly unrelated to any legitimate state objective.'"¹³³ The Supreme Court, in its per curium opinion in *Village of Willowbrook v. Olech* answered in the affirmative the following question: "whether the Equal Protection Clause gives rise to a cause of action on behalf of a 'class of one' where the plaintiff did not allege membership in a class or group."¹³⁴

¹²⁹ *Id.* at 315.

¹³⁰ *Village of Willowbrook v. Olech*, 528 U.S. 562, 563 (2000) (per curium).

¹³¹ *Id.*

¹³² *Id.*

¹³³ *Id.* at 563–64. (internal quotation marks omitted) (quoting *Olech v. Vill. of Willowbrook*, 160 F.3d 386, 387 (7th Cir. 1998), *aff'd*, 528 U.S. 562 (2000), and quoting in turn *Esmail v. Macrane*, 53 F.3d 176, 180 (7th Cir. 1995)).

¹³⁴ *Olech*, 528 U.S. at 563–65. The Court noted that, in actuality, other neighbors who had joined the Olechs in their previous lawsuit had also been asked to dedicate a 33-foot easement. *Id.* at 564 n.*. *This led* the Justices to observe, "Whether the complaint alleges a class of one or of five is of no consequence because we conclude that the number of individuals in a class is immaterial for equal protection analysis." *Id.*

While it remains difficult for landowners to bring successful Equal Protection claims, without the benefit of strict scrutiny afforded plaintiffs in cases involving a suspect class or fundamental rights,¹³⁵ *Olech* is an important reminder that property owners are still protected from government abuse:

Olech's complaint can fairly be construed as alleging that the Village intentionally demanded a 33-foot easement as a condition of connecting her property to the municipal water supply where the Village required only a 15-foot easement from other similarly situated property owners. The complaint also alleged that the Village's demand was "irrational and wholly arbitrary" and that the Village ultimately connected her property after receiving a clearly adequate 15-foot easement. These allegations, quite apart from the Village's subjective motivation, are sufficient to state a claim for relief under traditional equal protection analysis.¹³⁶

Even if the regulatory takings movement is on the decline,¹³⁷ local land use regulators do not have a license to abuse or treat unfairly landowners and developers.

Lesson #13: Multiple Refusals of a Landowner's Reasonable Development Requests Could Lead to a Substantial Jury Award

Over a five-year period in the early 1980s, Del Monte Dunes and its predecessor in interest, landowners in the city of Monterey, California, submitted nineteen site plans in an effort to create a residential development on its 37.6-acre oceanfront parcel.¹³⁸ Although the planning commission's professional staff recommended approval of the developer's proposal in 1985 to devote nearly half of the site to public open space and only 5.1 acres to buildings and patios, the commission rejected the recommendation.¹³⁹ The next year, the city council followed suit, offering the following reasons for its denial:

[T]he council made general findings that the landowners had not provided adequate access for the development (even though the landowners had twice changed the specific access plans to comply with the

¹³⁵ See, e.g., *Kadrmas v. Dickinson Pub. Sch.*, 487 U.S. 450, 457–58 (1988) ("Unless a statute provokes 'strict judicial scrutiny' because it interferes with a 'fundamental right' or discriminates against a 'suspect class,' it will ordinarily survive an equal protection attack so long as the challenged classification is rationally related to a legitimate governmental purpose.").

¹³⁶ *Olech*, 528 U.S. at 565 (citation omitted).

¹³⁷ See, for example, the recent local government victories in *San Remo Hotel, L.P. v. City & County of San Francisco*, 125 S. Ct. 2491 (2005), and *Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency*, 535 U.S. 302 (2002).

¹³⁸ *City of Monterey v. Del Monte Dunes at Monterey, Ltd.*, 526 U.S. 687, 694, 698 (1999).

¹³⁹ *Id.* at 696–97.

city's demands and maintained they could satisfy the city's new objections if granted an extension), that the plan's layout would damage the environment (even though the location of the development on the property was necessitated by the city's demands for a public beach, view corridors, and a buffer zone next to the state park), and that the plan would disrupt the habitat of the Smith's Blue Butterfly (even though the plan would remove the encroaching ice plant and preserve or restore buckwheat habitat on almost half of the property, and even though only one larva had ever been found on the property).¹⁴⁰

Del Monte Dunes pursued equal protection, regulatory takings, and due process claims, under 42 U.S.C. § 1983, against the city in federal district court.¹⁴¹ Eventually, a jury returned verdicts in the landowner's favor on the first two grounds, and awarded \$1.45 million in damages.¹⁴²

When the Ninth Circuit affirmed, the city brought its case to the Supreme Court, which agreed to hear the following questions:

(1) whether issues of liability were properly submitted to the jury on Del Monte Dunes' regulatory takings claim, (2) whether the Court of Appeals impermissibly based its decision on a standard that allowed the jury to reweigh the reasonableness of the city's land-use decision, and (3) whether the Court of Appeals erred in assuming that the rough-proportionality standard of *Dolan v. City of Tigard*, 512 U.S. 374 . . . (1994), applied to this case.¹⁴³

While all members of the Court in *City of Monterey v. Del Monte Dunes at Monterey Ltd.* agreed that the Ninth Circuit's discussion of the *Dolan* test was "unnecessary" and "irrelevant to [the Supreme Court's] disposition of the case,"¹⁴⁴ there was a five-four split over the legitimacy of submitting the regulatory takings claim to a jury, with the majority holding in the affirmative.¹⁴⁵

Justice Kennedy, writing for the Court, concluded that:

to the extent Del Monte Dunes' challenge was premised on unreasonable governmental action, the theory argued and tried to the jury was that the city's denial of the final development permit was inconsistent not only with the city's general ordinances and policies but even with the shifting ad hoc restrictions previously imposed by the city. Del Monte Dunes' argument, in short, was not that the city had followed its zoning ordinances and policies but rather that it had not done so. As is often true in § 1983 actions, the disputed questions were whether the government had denied a constitutional right in acting outside the bounds of its authority, and, if so, the extent of any result-

¹⁴⁰ *Id.* at 697–98.

¹⁴¹ *Id.* at 698.

¹⁴² *Id.* at 701.

¹⁴³ *Id.* at 702.

¹⁴⁴ *See id.* at 692, 702–03.

¹⁴⁵ *See id.* at 692, 720–22.

ing damages. These were questions for the jury.¹⁴⁶

The result was a major financial disincentive to local governments that misuse their significant powers to approve some development proposals subject to shifting conditions, and to reject other proposals on the basis of unsupportable or highly suspicious rationales.

Lesson #14: Immunity for Local Legislators Is the Same as That of Their Federal and State Counterparts

In *Bogan v. Scott-Harris*, Justice Clarence Thomas, writing for a unanimous body of legal commentators, reversed the First Circuit's affirmance of a jury verdict against the mayor (Daniel Bogan) and the vice-president of the city council, Marilyn Roderick, of Fall River, Massachusetts.¹⁴⁷ The city officials were sued by Janet Scott-Harris, the former administrator of the city's Department of Health and Human Services, whose position was eliminated after she brought termination charges against a politically connected employee, Dorothy Biltcliffe, who had made racial and ethnic slurs directed at her (Biltcliffe's) colleagues.¹⁴⁸ In her suit, Scott-Harris "alleged that the elimination of her position was motivated by racial animus and a desire to retaliate against her for exercising her First Amendment rights in filing the complaint against Biltcliffe."¹⁴⁹ The plaintiff was successful in obtaining a favorable jury verdict on First Amendment grounds; the trial and appellate courts rejected the defendant officials' claims that they were entitled to legislative immunity.¹⁵⁰ The Supreme Court disagreed:

It is well established that federal, state, and regional legislators are entitled to absolute immunity from civil liability for their legislative activities. In this case, petitioners argue that they, as local officials performing legislative functions, are entitled to the same protection. They further argue that their acts of introducing, voting for, and signing an ordinance eliminating the government office held by respondent constituted legislative activities. We agree on both counts and therefore reverse the judgment below.¹⁵¹

In fact, the Court observed that the officials' acts "were, in form, quintessentially legislative,"¹⁵² and because "the ordinance, in substance, bore all the hallmarks of traditional legislation."¹⁵³

¹⁴⁶ *Id.* at 722.

¹⁴⁷ 523 U.S. 44, 46-48 (1998).

¹⁴⁸ *Id.* at 46-47.

¹⁴⁹ *Id.* at 47.

¹⁵⁰ *Id.* at 47-48.

¹⁵¹ *Id.* at 46.

¹⁵² *Id.* at 55.

¹⁵³ *Id.*

In this instance, the Court found convincing reasons for treating local lawmakers like their state and federal counterparts, who, according to precedent, are entitled to absolute legislative immunity:

Absolute immunity for local legislators under § 1983 finds support not only in history, but also in reason. The rationales for according absolute immunity to federal, state, and regional legislators apply with equal force to local legislators. Regardless of the level of government, the exercise of legislative discretion should not be inhibited by judicial interference or distorted by the fear of personal liability. Furthermore, the time and energy required to defend against a lawsuit are of particular concern at the local level, where the part-time citizen-legislator remains commonplace. And the threat of liability may significantly deter service in local government, where prestige and pecuniary rewards may pale in comparison to the threat of civil liability.¹⁵⁴

In the eyes of the Court, local legislators, who often find themselves threats of lawsuits by disgruntled landowners, are entitled to a significant privilege accorded those who are elected to serve in state capitals and Washington, D.C.

V. APPLYING THE COMMENTATORS' LESSONS IN HYDRO CITY

As we return to our hypothetical municipality—Hydro City—it is helpful to consider the Supreme Court Commentators' lessons in context. Consider the following four scenarios involving the implementation of wet-growth tools.

Scenario A

Hydro City officials have decided to be more rigorous in their inspections during pre-construction and construction phases and to assess additional fines in the event of violations. Some of the developers with poor compliance track records have filed suit against the city and the individual officials, claiming that they (developers) have a property right to fair enforcement of land regulations.

City officials would be wise to consider the following four lessons in planning their defense for possible lawsuits by these developers: First, the Court is skeptical about claims to property that are unsubstantiated by state law (Lesson #2). A naked assertion of a “property right to fair enforcement” should not be deemed sufficient to trigger judicial concern. Second, the Commentators have emphasized that comprehensive planning earns deference and trumps private rights-based arguments (Lesson #3). If city officials are acting in accordance with standard pro-

¹⁵⁴ *Id.* at 52 (citations omitted).

cedures in support of published plans, they reduce the likelihood of judicial interference. Third, it takes egregious or arbitrary government conduct for property owners to prove substantive due process violations (Lesson #8). The enforcement of otherwise valid regulations against landowners is not the kind of government activity that triggers heightened judicial scrutiny. The private party challenging the regulation carries a heavy burden in the face of significant judicial deference. Fourth, immunity for local legislators is the same as that of their federal and state counterparts (Lesson #14). While 42 U.S.C. § 1983 provides strong incentives to sue local governments and their officials for constitutional torts, local lawmakers are protected from disgruntled landowners who claim that their constitutional rights have been violated by the enactment of faulty ordinances or by other legislative acts.

Scenario B

SuperMegaMart has acquired land for a new discount retail facility on the city's north side. The city has responded by imposing a six-month moratorium on permits for big-box stores, ostensibly pending the drafting and adoption of a new set of regulations for 100,000+ square-foot stores. When the first moratorium was about to expire, a second six-month moratorium followed. While no real work has been performed on the ordinance, the city is considering a third moratorium.

Four of the lessons from the Court Commentators indicate that Hydro City officials are on shaky ground. First, the court looks at actual intent and does not accept sham purposes (Lesson #1). As each month passes without the introduction of an actual ordinance, the chances grow that a reviewing court will see through this charade. Second, the Justices will not tolerate back-door strategies (Lesson #11). Store counsel can effectively use the legislative history of the series of moratoria in a court challenge brought against the city. Third, the Equal Protection Clause remains potentially effective as an avenue of relief against municipalities that abuse regulatory power (Lesson #12). It is possible that a court will find that local officials have crossed the line between careful deliberation and unreasonable, retributive behavior. Fourth, multiple refusals of a landowner's reasonable development requests could lead to a substantial jury award (Lesson #13). Members of a jury in a § 1983 case, introduced to a landowner complying with existing land-use regulations who has met with a non-responsive or even belligerent response, could inflict costly damage on the taxpayers of Hydro City.

Scenario C

No new permanent buildings are permitted in buffer zones bordering the river, and owners of existing structures may not make additions or improvements. Owners who can show a seventy-five percent reduction in value can apply for a variance. Owners who can show a ninety percent reduction will be given rights to develop non-sensitive properties elsewhere.

There are three lessons from the Court that indicate the difficulties local governments face when implementing environmental regulations that have a significant impact on land values and uses. First, ripeness requirements continue to be significant hurdles for those bringing regulatory takings challenges (Lesson #4). Landowners and developers bringing regulatory takings challenges often find themselves forced to make difficult and time-consuming strategic choices concerning the choice of forum and the need to request permission or a variance after being denied relief initially (or even repeatedly). Second, the Court endorses careful planning for environmentally sensitive lands (Lesson #9). Courts have signaled their support for the development of comprehensive programs directed to reap defined and concrete environmental benefits for the entire community. Third, regulators must ensure that landowners retain something more than token value (Lesson #10). There is a point at which the financial burdens carried by one or a group of landowners are deemed too onerous, and local regulators must be aware of the general and specific effects of their actions.

Scenario D

City officials, concerned about water consumption, pass an ordinance that imposes a sliding scale—tying costs to usage (the more usage, the higher the per-unit cost). In order to secure enough votes to pass the ordinance, sponsors of the ordinance exempted existing users and other in-state companies from the new scheme. Lawsuits are threatened.

The Commentators have provided three lessons that address the fairness questions raised by these hypothetical facts. First, the text trumps legislative history (Lesson #5). If a piece of legislation creates unfair or illegal categories, even the best of intentions preceding its enactment will be deemed irrelevant. Second, judges appreciate the administrative burdens faced by local officials (Lesson #6). Though a separate branch, the judiciary is not unmindful of the significant challenges facing local legislatures today, when raising taxes is extremely difficult (and potentially fatal to a political career) and when financial support from Washington, D.C. is often insubstantial. Third, Congress may subject municipalities to suit in state court without violating “state sov-

ereignty" (Lesson #7). Unlike the states who created them (and have the power to alter their powers and boundaries), municipalities are vulnerable to costly and otherwise injurious litigation. This fact alone should lead to caution by local officials when they create distinctions that leave some landowners outside the benefited class.

VI. ON THE THRESHOLD OF CHANGE

Only time will tell whether recent changes to the Court's erstwhile stable membership (Roberts for Rehnquist and Alito for O'Connor) will mean a return to larger numbers of opinions, the formation of new alliances, or the creation of new, internal, institutional developments. For now and the foreseeable future, local government officials engaged in or considering the implementation of innovative wet-growth controls can benefit from heeding the lessons of the body of legal commentators comprising the Rehnquist Court over its last eleven Terms.

Considered together, the fourteen lessons caution a balanced approach to local, environmentally based regulations that have the potential not only to protect sensitive water bodies and lands and to benefit the human and nonhuman life that share our watersheds, but also to reduce the value and potential productive use of land by owners who are particularly burdened by even the wisest regulatory tools. This balance is suggested in the Court's skepticism about sham purposes and back-door methods on the one hand, and its generous deference to local officials on the other. The balance is embodied in the Justices' refusal to recognize municipal sovereignty, while shielding local lawmakers with absolute immunity. Most importantly, the balance is reflected in the Rehnquist Court commentators' strong endorsement of comprehensive land-use and environmental planning, while opening the door to relief for landowners who are left with no more than token value or who are mistreated by arbitrary and non-responsive public servants. It is this author's hope that, when we look back on the work product of the Roberts Court after it establishes its institutional persona, the same kind of beneficial balance will be readily apparent.

General Industrial Storm Water Permits and the Construction Industry: What Does the Clean Water Act Require?

*John H. Minan**

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I. INTRODUCTION

Regulators, under unprecedented pressure, face a range of demands, often contradictory in nature: be less intrusive—but more effective; be kinder and gentler—but don’t let the bastards get away with anything; focus your efforts—but be consistent; process things quicker—

* Professor of Law, University of San Diego School of Law. Professor Minan is the Chairman of the Water Board, San Diego Region, and he served on the Water Board that adopted various types of storm water permits. The views expressed in this article are his own, and do not represent those of the State of California or any of its agencies.

and be more careful next time; deal with important issues—but do not stray outside your statutory authority; be more responsive to the regulated community—but do not get captured by industry.

*Malcolm K. Sparrow*¹

If regulators are to make a difference in improving and protecting water quality, they must focus their attention, time, and energy on significant problem areas. This article examines one such area: the use of “general permits”² to regulate storm water discharges from construction activities under the Clean Water Act (CWA).³

This article explores the connection between construction activities and water quality, and the baseline rules governing storm water permitting. It also analyzes the legal controversy, which has split the federal circuits,⁴ of treating the Notice of Intent (NOI) to be covered by the terms of the general permit and accompanying Storm Water Pollution Prevention Plan (SWPPP) as the “functional equivalent” of a permit or permit application.⁵ This controversy springs primarily from the fact that the CWA does not define the terms “permit” or “permit application.”⁶ In a broad sense, the central inquiry is one of statutory construction: What does the CWA require?

The functional equivalent theory is significant because its application to a NOI and accompanying SWPPP triggers the statutory entitlement to a public hearing and public availability.⁷

¹ MALCOLM K. SPARROW, *THE REGULATORY CRAFT: CONTROLLING RISKS, SOLVING PROBLEMS, AND MANAGING COMPLIANCE* 17 (2000).

² General permits are an administrative mechanism developed by the EPA to regulate an entire group or category of similarly situated activities in the least burdensome manner for the permittee and administering agency. A “general permit may be written to regulate one or more categories or subcategories of discharges or sludge use or disposal practices or facilities, within the area described in paragraph (a)(1) of this section, where the sources within a covered subcategory of discharges are . . . [s]torm water point sources[.] . . .” 40 C.F.R. § 122.28(a)(2) (2004).

³ Clean Water Act §§ 101–607, 33 U.S.C. §§ 1251–1387 (2000). The CWA is commonly cited to both its original section numbers and the United States Code.

⁴ *Env'tl. Def. Ctr., Inc. v. United States Env'tl. Prot. Agency* [hereinafter EPA], 344 F.3d 832, 853 (9th Cir. 2003) (treating the Notice of Intent (NOI), in some regards, as the “functional equivalent” of a permit or permit application); *Tex. Indep. Producers and Royalty Owners Ass'n v. EPA*, 410 F.3d 964, 978 (7th Cir. 2005), reh'g denied en banc Aug. 26, 2005, (concluding that the terms “permit application” and “permit” do not include NOIs and SWPPPs).

⁵ Clean Water Act § 402(a)(1), 33 U.S.C. § 1342(a)(1) (2000) provides that “the Administrator [of the EPA] may, after opportunity for public hearing, issue a permit” See also discussion *infra* Part VII. The “Functional” Permit Theory.

⁶ Clean Water Act §§ 101–607, 33 U.S.C.S. §§ 1251–1387 (LexisNexis 2002); see *Env'tl. Def. Ctr., Inc. v. EPA*, 344 F.3d 832, 853 (9th Cir. 2003) (interpreting congressional intent to aid in defining the scope of the term “permit”).

⁷ Clean Water Act § 402(a)(1) sets forth the public hearing requirement: “the Administrator may, after opportunity for public hearing, issue a permit.” Clean Water Act §

A public hearing and the opportunity for public comment is afforded when the “general permit” is promulgated by the U.S. Environmental Protection Agency (EPA) in the Federal Register, not typically at the time the individual NOI is submitted to the permitting agency by the owner or operator of the construction site.⁸

An active and involved public is crucial to the success of the construction storm water management program. Public hearings are generally recognized as an essential component to sound decision making and to the advancement of democratic ideals. However, it may be argued that a public hearing on an individual NOI and SWPPP is not required by the CWA. This argument ought not be construed as a general argument against public hearings or public participation. Providing a hearing upon filing a NOI may undermine the general permitting scheme by creating an undue administrative burden on the agency issuing construction storm water permits. Nevertheless, in those jurisdictions subscribing to the “functional equivalent” theory, administrative solutions must be found to deal with this requirement.

Any statute, including those that are well drafted and seemingly clear, may lead to a variety of argued-for statutory constructions. This situation is equally true with respect to the functional equivalent theory. Language is inherently a breeding ground for ambiguity. On some occasions, the ambiguity is intentional on the part of Congress, whereas at other times it is not. Oftentimes the varying interpretations or constructions become apparent only after viewed through the lens of creativity.

The proper statutory construction of the meaning of “permit” or “permit application” lies at the heart of the constructional issue that has divided the federal courts.⁹ Like most questions of statutory construction, Congress has within its power the ability to settle the controversy by clarifying its intent. Alternatively, the Supreme Court of the United States may be asked to resolve the controversy, which is likely given the division between the federal circuits on the functional equivalent theory. The need for uniformity in administering the CWA, the economic impact of the

402(j) states: “A copy of each permit application and each permit issued under this section shall be available to the public. Such permit application or permit, or portion thereof, shall further be available on request for the purpose of reproduction.”

⁸ See ABA SECTION OF ENV'T, ENERGY, AND RES., THE CLEAN WATER ACT HANDBOOK 44–47 (Mark A. Ryan ed., 2d ed. 2003).

⁹ *Env'tl. Def. Ctr., Inc. v. EPA*, 344 F.3d 832, 853, 858 (9th Cir. 2003) (treating the Notice of Intent (NOI) as “functionally equivalent” to a permit or permit application, and thus requiring it to be “available to the public” and “subject to public hearings.”); *Tex. Indep. Producers and Royalty Owners Ass'n v. EPA*, 410 F.3d 964, 978–79 n.13 (7th Cir. 2005), reh'g denied *en banc* Aug. 26, 2005, (rejecting the functional equivalent theory).

theory on the regulated community, and the importance of public participation to the community also provide strong impetus to the need of settling the controversy.

The general goal of regulation is to abate and control the risks to society. The CWA, which is the principal regulatory statute designed to protect society and the integrity of our nation's waters, provides the legal structure for regulating storm water runoff.¹⁰ Regulating discharges to waters of the United States from construction activities is an important chapter in the story of storm water management. But it is only part of the larger story of regulating storm water runoff from other industrial and municipal activities.

The federal National Pollutant Discharge Elimination System (NPDES)¹¹ of the CWA authorizes¹² the use of "general" permits for construction activities that discharge storm water¹³ either directly to waters of the United States or indirectly through a municipal "separate" storm sewer system (MS4).¹⁴ The principal tool or condition contained in the NPDES general storm water permit used to manage such discharges is the SWPPP.¹⁵ The SWPPP identifies the potential sources of pollution that are expected from the construction site, describes the best management practices (BMPs)¹⁶ to be used by the developer to reduce the

¹⁰ Clean Water Act § 101(a), 33 U.S.C. § 1251(a) (2000) declares Congress's objective to be "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The other important federal statute dealing with water quality is the Safe Drinking Water Act, 42 U.S.C.A. §§ 300f-300j-9 (West 2003). It directs the EPA to set primary and secondary maximum levels for contaminants in public drinking water systems.

In 1987, the CWA was amended to add specific provisions dealing with the regulation of storm water, which are contained in Section 402(p). Clean Water Act § 402(p), 33 U.S.C. § 1342(p) (2000).

¹¹ Clean Water Act § 402, 33 U.S.C. § 1342 (2000).

¹² 40 C.F.R. § 122.28(a)(2)(i) (2004); *see also* Clean Water Act § 402(p)(6), 33 U.S.C. § 1342(p)(6) (2000).

¹³ Storm water is defined in the EPA regulations to include "storm water runoff, snow melt runoff, and surface runoff and drainage." 40 C.F.R. § 122.26(b)(13); *see also* 40 C.F.R. § 122.26(b)(14) (dealing with discharges associated with industrial activities).

¹⁴ 40 C.F.R. § 122.26(b)(8) (2004) (defining the term "separate" as a conveyance system that discharges directly to the receiving water without any pretreatment). In contrast, a combined sewer system conveys sanitary wastewater and storm water through a single set of pipes to a publicly owned treatment works (POTW) for treatment prior to discharge to a receiving water. *Id.*

¹⁵ The required content of the SWPPP is described in *NPDES General Permit for Storm Water Discharges from Construction Activities*, at ¶ 3.4 (2005), available at http://www.epa.gov/npdes/pubs/cgp2003_entirepermit.pdf (last visited Feb. 11, 2006) [hereinafter NPDES General Permit].

¹⁶ A BMP is a technique, process, activity, or structure used to reduce pollutants. It may be nonstructural, such as good housekeeping or simply preventive maintenance, or structural, such as bio-retention swales to promote infiltration. *Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* (EPA) Oct. 1992, at 8.

pollutants, and affirms that the developer will comply with the terms and conditions of the storm water permit.¹⁷

In regulating the pollutants in storm water discharges from construction sites, general permits, which regulate an entire group or category of similarly situated activities, are the norm throughout the United States.¹⁸ The reason is straightforward: administrative necessity. The number of construction sites subject to the storm water provisions of the CWA is simply too large to be regulated by individually tailored NPDES construction storm water permits. This reality elevates the practical importance of general permits relative to individually issued permits.

The General Permit for Storm Water Discharges from Construction Activities (CGP) is promulgated by the EPA.¹⁹ The CGP has gone through a series of updates and changes since the storm water provisions contained in Section 402(p) of the CWA were added to the law in 1987.²⁰ The first general storm water permit for construction activities was issued by the EPA in 1992.²¹ This was followed by the 1998 CGP.²² The 2003 CGP,²³ which supersedes the earlier permits and applies both to large and to small construction sites, became effective on July 1, 2003.²⁴ The CGP does not deal with or authorize post-construction discharges of storm water as these discharges are separately regulated.²⁵ As discussed later in this article, states may also administer the federal storm water discharge program under an EPA-approved program.²⁶

Prior to the commencement of construction, the owner of the building site submits a NOI to be covered by the CGP²⁷ to the

¹⁷ NPDES General Permit, *supra* note 15, at ¶ 3.1.

¹⁸ The use of general permits was first suggested to the EPA in response to its attempt to exempt large categories of storm water discharges from NPDES permit requirements. *See, e.g.,* Nat'l Res. Def. Counsel v. Train, 396 F. Supp. 1393, 1395, 1401–02 (D.C. 1975), *aff'd*, Nat'l Res. Def. Counsel v. Costle, 568 F.2d 1369 (D.C. Cir. 1977).

¹⁹ *See* NPDES General Permit, *supra* note 15.

²⁰ Clean Water Act § 402(p), 33 U.S.C. § 1342(p) (2000).

²¹ 57 Fed. Reg. 41,176 (Sept. 9, 1992). Public comment on the permit was requested in 56 Fed. Reg. 40,948 (Aug. 16, 1991).

²² 63 Fed. Reg. 7858 (Feb. 17, 1998) (“The Regional Administrators of Regions 1, 2, 3, 7, 8, 9 and 10 are today issuing final National Pollutant Discharge Elimination System (NPDES) general permits for stormwater discharges associated with construction activity.”); 63 Fed. Reg. 36,490 (July 6, 1998) (“Region 6 is issuing the final [NPDES] general permits for stormwater discharges associated with construction activity in Region 6.”).

²³ NPDES General Permit, *supra* note 15, at ¶ 1.2.

²⁴ 68 Fed. Reg. 39,087 (July 1, 2003).

²⁵ NPDES General Permit, *supra* note 15, at ¶ 1.3.C.

²⁶ Clean Water Act § 402(b), 33 U.S.C. § 1342(b) (2000). *See also* discussion *infra* Part V. The Role of the States in Storm Water Regulation.

²⁷ 68 Fed. Reg. 39,087, 39,089 (July 1, 2003). The EPA’s Construction General Permit also uses the term “operator” to describe the party responsible for complying with its terms. An operator is any party associated with a construction project that meets either

EPA or state-approved agency administering the storm water law with the certification, made under the penalty of law,²⁸ that the CGP will be implemented.²⁹ Permitting authorities vary in their treatment of NOIs. Some authorities automatically grant permit coverage upon submittal or receipt of the NOI or after a stipulated waiting period. Other permitting authorities require the operator to wait for confirmation that coverage has been granted.³⁰ In response to *Environmental Defense Center, Inc. v. EPA*,³¹ the EPA “recommends,” but does not require, that permitting authorities make NOIs available to the public at least thirty days before authorization to discharge.³² This recommendation is typical of the “waiting period” approach.

Providing a public hearing for each construction activity seems at odds with the system of general permits. Consequently, a retooling of the current administrative practice is necessary to accommodate the view that the CWA requires a public hearing. Until the law is settled, administrative solutions must be found in those federal judicial circuits that require that a public hearing be provided on NOIs and SWPPPs in order to be able to move forward with regulating construction activities. These solutions must be found in a timely manner because the construction industry is both dynamic and one of the country’s largest engines of economic growth. Administrative uncertainty as to the legal mandates adds delay and increased cost to construction projects, which inevitably must be borne by consumers.

of the following criteria: 1) operational control over the construction plans and specifications, or 2) day-to-day operational control of those activities that are necessary to comply with a SWPPP or other permit conditions. See NPDES General Permit, *supra* note 15, at Appendix A-2.

²⁸ See, e.g., EPA, *Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity Under a NPDES General Permit*, Form 3510-9 (Rev.6/03), available at <http://www.epa.gov/compliance/resources/publications/monitoring/inspections/npdesinspect/npdesinspectappt.pdf>.

²⁹ See, e.g., NPDES General Permit, *supra* note 15, at ¶ 2.4.

³⁰ EPA National Pollutant Discharge Elimination System (NPDES) Storm Water Program Questions and Answers, “What does the submittal of an NOI mean?” 4 (January 21, 2004) (on file with author); see also NPDES General Permit, *supra* note 15, at ¶ 2.1(B) (authorizing the discharge seven calendar days after acknowledgment of the completed NOI). The EPA has proposed a new 30 day waiting period that begins on the day that the NOI is posted on its e-NOI web site. Proposed 2006 Multi-Sector General Permit, ¶ 3.3, available at www.epa.gov/npdes/pubs/msgp2006_all-proposed.pdf.

³¹ 344 F.3d 832 (9th Cir. 2003), *cert. denied*, Tex. Cities Coal. on Stormwater v. EPA, 541 U.S. 1085 (2004). The Phase II Rule was challenged in separate actions in the Fifth, Ninth, and D.C. Circuits, which were subsequently consolidated before the Ninth Circuit. *Id.* at 843.

³² Memorandum, “Implementing the Partial Remand of the Stormwater Phase II Regulations Regarding Notices of Intent & NPDES General Permitting for Phase II MS4s,” dated April 16, 2006, from James A. Hanlon, Director, EPA Office of Wastewater Management to Water Management Division Directors, Regions I-X, available at <http://www.epa.gov/npdes/pubs/hanlonphase2apr14signed.pdf> (last visited Feb. 19, 2006) [hereinafter Hanlon, Memorandum].

Another reason why timely resolution is essential involves enforcement. If the issuance of the general permit is legally challengeable for the noncompliance with the public hearing requirement, litigation under the citizen suit provisions of the CWA is predictable.³³ Future EPA and state administrative enforcement practices also are potentially affected. Regulatory enforcement against storm water violators assumes a validly issued permit. The failure to provide a “required” public hearing on NOIs and SWPPPs squarely challenges the validity of this assumption.

II. INDUSTRY COMPLIANCE AND ENFORCEMENT

Failure to comply with the provisions of the CWA applicable to storm water management may trigger significant civil³⁴ and criminal sanctions.³⁵ The potential application of these sanctions to violators provides regulators with the necessary regulatory hammer to assure compliance with the law. This regulatory hammer is increasingly being used.

Industry compliance with the construction storm water regulations has been slow. The EPA estimated construction activities exceed 62,000 starts per year, but that fewer than 20,000 construction sites applied for storm water coverage in 1999.³⁶ States also recognized the compliance problem. In California, for example, the legislature acted by requiring Regional Water Boards to annually identify dischargers who had not obtained coverage under an appropriate storm water permit.³⁷ Non-filers were recognized as a serious compliance problem, but they were not the only concern: many builders who applied for industrial storm water permits were also found to be in non-compliance with their submitted NOI.³⁸ Additional regulatory action to assure compliance with the mandates of the CWA was needed. As a result, the EPA has increased its enforcement focus on development and

³³ Clean Water Act § 505, 33 U.S.C. § 1365 (2000).

³⁴ Clean Water Act § 309(d), 33 U.S.C. § 1319(d) (2000) (Any person who violates any section of this Title or any order issued by the Administrator shall be subject to a civil penalty not to exceed \$25,000 *per day* for each violation.).

³⁵ Clean Water Act § 309(c), 33 U.S.C. § 1319(c) (2000). For example, a criminal fine in the amount of \$600,000 for industrial runoff from a collection pit to the Los Angeles and San Gabriel Rivers was imposed on a Southern California soft drink bottler, 7-Up/RC Bottling. Wendy Thermos, *Bottler to Pay \$1 Million for Pollution of 2 Rivers; Runoff was harmful to humans and marine life*, L.A. TIMES, Nov. 11, 2005, at B5.

³⁶ Memorandum from Walker B. Smith, Director, EPA Office of Regulatory Enforcement, 2003 Storm Water Compliance and Enforcement Strategy, at 12 (Aug. 14, 2003), available at <http://www.epa.gov/compliance/resources/policies/civil/cwa/stwenfstrategy2003.pdf> [hereinafter Memorandum from Walker B. Smith].

³⁷ CAL. WATER CODE § 13399.30(a)(1).

³⁸ Memorandum from Walker B. Smith, *supra* note 36, at 1.

construction activities.³⁹

Storm water regulation of these activities has been identified as an EPA enforcement priority, with particular attention on large-scale developers exhibiting a corporate-wide pattern of non-compliance.⁴⁰ Commercial developers of “big-box” stores and large national residential builders⁴¹ are currently high profile enforcement targets.⁴² The building industry is now in the enforcement cross hairs of the EPA and state regulators.

The EPA has initiated numerous enforcement actions seeking millions of dollars in civil penalties from developers and builders for failing either to secure a storm water permit, so-called non-filers, or for failing to comply with its terms. In 2004, for example, the U.S. Department of Justice and the EPA, along with the U.S. Attorney’s Office for the District of Delaware, and the states of Tennessee and Utah reached a settlement for storm water discharge violations at Wal-Mart store construction sites across the country.⁴³ According to the factual allegations in the EPA’s complaint, Wal-Mart constructs more than one hundred Wal-Mart, Wal-Mart Supercenter and Sam’s Club stores per year.⁴⁴ As a result of this enforcement action, Wal-Mart agreed to pay a \$3.1 million civil penalty and to reduce storm water runoff at its sites by instituting better control measures.⁴⁵

States are also actively pursuing construction storm water violations. In 2005, the San Diego Regional Water Board issued a \$1.2 million administrative civil liability complaint⁴⁶ to JRM

³⁹ *Region 4 Continues Systematic Enforcement of Storm Water Violations* (American Bar Ass’n Env’tl. Crimes & Enforcement Comm.), Oct. 2004, at 19. See also Memorandum Eric V. Schaeffer, Director, Office of Regulatory Enforcement to Water Management Division Directors Regions I-X (Jan. 18, 2000), available at <http://www.epa.gov/compliance/resources/policies/civil/cwa/stmwtrstra.pdf>.

⁴⁰ Rafe Petersen, *Regulation of Stormwater Pollution: An Area of Increasing Importance to the Construction Industry*, 19 PROB. & PROP. 45 (2005); see generally Memorandum from Walker B. Smith, *supra* note 36, at 3.

⁴¹ *United States v. Wal-Mart Stores, Inc.*, No. 04-301 (D. Del. Oct. 14, 2004) (order requiring all parties to submit further explanations as to why the court should approve consent decree).

⁴² *Id.*

⁴³ Consent Decree, *United States v. Wal-Mart Stores, Inc.* (D. Del. 2004), available at <http://www.epa.gov/compliance/resources/decrees/civil/cwa/walmart2-cd.pdf>.

⁴⁴ Complaint at ¶ 24, *United States v. Wal-Mart Stores, Inc.*, available at <http://cfpub.epa.gov/compliance/cases/> (Search: Wal-Mart II Storm Water Settlement).

⁴⁵ Consent Decree, *United States v. Wal-Mart Stores, Inc.*, *supra* note 43. This settlement was the second enforcement action resulting in a settlement with Wal-Mart for violations of the Clean Water Act. In 2001, Wal-Mart and several contractors entered into a settlement with the U.S. to address storm water violations at 17 sites in several states. The 2001 settlement included a penalty of \$1 million and required Wal-Mart to develop a storm water training program for its contractors and to inspect and oversee storm water controls at construction sites. Complaint at ¶¶ 22–23, *United States v. Wal-Mart Stores, Inc.*, *supra* note 44.

⁴⁶ Complaint, No. R9-2005-0059 (Mar. 10, 2005); see also the 2005 news report on the

Real Estate, Inc. for alleged violations at the 186-acre Escondido Research and Technology Center (ERTC) construction site in Escondido, California.⁴⁷ The complaint alleged ongoing violations of the California Construction Storm Water Permit (CCSWP),⁴⁸

including: 82 days of sediment discharge to Escondido Creek directly or indirectly via the City of Escondido's Municipal Separate Storm Sewer System (MS4), 166 days of inadequately installed Best Management Practices (BMPs), at least 16 days of failure to collect and analyze storm water runoff and to submit monitoring reports, and failure to assess BMPs after storm events.⁴⁹

III. THE CONSTRUCTION INDUSTRY AND WATER QUALITY

In late August of 2005, Hurricane Katrina devastated a portion of the coastal region of Louisiana, Mississippi, and Alabama that President Bush estimated to be larger than the size of Great Britain.⁵⁰ Several weeks later, Hurricane Rita slammed into Texas and Louisiana creating further havoc in the region.⁵¹ The combined effects from these storm events have been immense in terms of human life, personal suffering, and economic loss.⁵² Repairing the damage to the public infrastructure from these hurricanes will take years, and many parts of the coastal region will never be the same.

developers of a 1,000-acre subdivision paying a \$575,000 fine for violations of California storm water regulations, SACRAMENTO BEE (Sacramento, CA) *available at* <http://www.sacbee.com/content/news/story/13737215p-14579232c/>.

⁴⁷ See SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD, EXECUTIVE OFFICER'S REPORT 9 (May 11, 2005), *available at* http://www.swrcb.ca.gov/rwqcb9/eo_report/reports/5-11-05%20eo.pdf.

⁴⁸ Complaint, No. R9-2005-0059, *supra* note 46; National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (General Permit), Water Quality Order No. 99-08-DWQ. The CCSWP, part of Order No. 99-08-DWQ, is NPDES Permit No. CAS000002, "Waste Discharge Requirements (WDRS) for Discharges of Storm Water Runoff Associated with Construction Activity," *available at* <http://www.swrcb.ca.gov/stormwtr/docs/finalconstpermit.pdf> [hereinafter Order No. 99-08]. Revisions to Order 99-08 are currently being considered, and a revised storm water order is expected in 2007.

⁴⁹ SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD, *supra* note 47.

⁵⁰ Hurricane Katrina first made landfall just north of Miami, Florida on August 25, 2005, then again on August 29 along the Central Gulf Coast near New Orleans, Louisiana. To date, Katrina is considered the most destructive and costliest natural disaster in the history of the United States. See Wikipedia, *Hurricane Katrina*, http://en.wikipedia.org/wiki/Hurricane_Katrina (last visited Feb. 11, 2006); see also BBC News, *Bush Boosts Katrina Rescue Force: An Extra 17,000 Troops are Being Sent Into the Area of the Southern US Devastated by Hurricane Katrina*, Sept. 4, 2005, <http://news.bbc.co.uk/2/hi/americas/4211528.stm>.

⁵¹ Hurricane Rita first struck Florida, and then went on to strike Texas and Louisiana. "A day prior to landfall, the resultant storm surge also reopened some of the levee breaches caused by Hurricane Katrina a month earlier, and reflooded parts of New Orleans. Post-landfall damage was extensive in the coastal areas in southwestern Louisiana and extreme southeastern Texas." See Wikipedia, *Hurricane Rita*, http://en.wikipedia.org/wiki/Hurricane_Rita (last visited Feb. 11, 2006).

⁵² *Id.*

Extreme weather events provide important lessons about flood control management and coping with natural disasters. At the less extreme end of the weather spectrum, these storm events should also focus attention on the importance of effective storm water planning and management.⁵³

These hurricanes are contemporary reminders of the importance of clean water as a basic human need, one that is also essential to the nation's health, economy, security, and ecology. A fundamental thesis can be advanced. Clean water is critical to human health and welfare, to preserving habitat and ecological diversity, and to insuring viable populations of wildlife and aquatic life. A corollary to this thesis is that controlling the pollution in storm water runoff is often directly linked to clean water. Unless effectively regulated, storm water runoff from construction activities has the potential to contaminate and degrade the nation's waters—our streams, creeks, lakes, reservoirs, and coastal waters.

The relationship between construction activities and water quality is important to understanding storm water regulation. Both the 2003 Pew Oceans Commission⁵⁴ and the 2004 U.S. Commission on Ocean Policy⁵⁵ documented serious declines in the health of oceans and coastal areas, the severe degradation of natural resources that depend on healthy oceans and coastal areas, and the threat to economic activities based on these resources.⁵⁶ The Pew Report recognized that runoff is a major component of this threat to our oceans.⁵⁷ Runoff from general development activities in our coastal regions is causing the decline of ocean wildlife and the collapse of ocean ecosystems.⁵⁸ The Pew Report, for example, cites estimates that the oil running off our streets and driveways and flowing into the oceans from storm water is equal to an Exxon Valdez oil spill every eight months.⁵⁹ The Commission also reports that "more than 13,000

⁵³ See, e.g., Carol Brzozowski, *Hurricanes: The Effects on Stormwater Management*, STORMWATER: THE JOURNAL FOR SURFACE WATER QUALITY PROFESSIONALS 9 (Mar./Apr. 2005), available at www.stormh2o.com/sw_0503_hurricanes.html.

⁵⁴ PEW OCEANS COMMISSION, AMERICA'S LIVING OCEANS: CHARTING A COURSE FOR SEA CHANGE, (May 2003), available at <http://www.pewoceans.org> [hereinafter AMERICA'S LIVING OCEANS].

⁵⁵ U.S. COMMISSION ON OCEAN POLICY, AN OCEAN BLUEPRINT FOR THE 21ST CENTURY (Jul. 22, 2004), available at http://www.oceancommission.gov/documents/full_color_rpt/000_ocean_full_report.pdf [hereinafter OCEAN BLUEPRINT].

⁵⁶ AMERICA'S LIVING OCEANS, *supra* note 54, at v; OCEAN BLUEPRINT, *supra* note 55, at 1.

⁵⁷ AMERICA'S LIVING OCEANS, *supra* note 54 at vi.

⁵⁸ *Id.*

⁵⁹ *Id.* In 1989, the grounding of the ship Exxon Valdez caused the release of over 11 million gallons of oil in Alaska's water and polluted some 1200 miles of shoreline. Largely in response to this event, Congress enacted the Oil Pollution Act of 1990 (OPA), which

beaches were closed or under pollution advisories in 2001 [from runoff,] an increase of 20 percent from the [previous year].”⁶⁰ The U.S. Commission Report also observes that increased development increases sediment flows and contributes to coastal water pollution.⁶¹

States have also recognized runoff as a major source of impaired water quality.⁶² Every state and every major watershed in the United States is under similar assault from unregulated or under-regulated sources of runoff.⁶³ In northern Wisconsin, the runoff assault is from dairy farms, in North Carolina, it is from hogs, and in Oregon, it is from clear-cutting of forests.⁶⁴ Housing and urban development also contribute to the runoff problem in many watersheds throughout the nation.⁶⁵ The California legislature has stated that unregulated storm water runoff is a leading cause of contamination of its surface water and groundwater.⁶⁶

In the *National Water Quality Inventory: 2000 Report*⁶⁷ to Congress, the EPA cites urban storm water runoff and discharges from storm sewers as primary causes of impaired water quality.⁶⁸ The *2000 Report* notes that “[t]hese sources contributed to 13 percent of impaired rivers and streams, 18 percent of impaired lakes, 55 percent of impaired ocean shorelines, and 32 percent of impaired estuaries.”⁶⁹ Little doubt exists as to the connection

contains nine separate titles ranging from general provisions regarding oil pollution down to specific requirements. 33 U.S.C.A. §§ 2701–2761 (West 2001).

The U.S. Environmental Protection Agency estimates that American households generate 193 million gallons of used oil annually, some of which is improperly disposed of. It estimates that households improperly dump the equivalent of 17 Exxon Valdez oil spills each year. See EPA, *Featured Story: Stormwater Runoff*, available at <http://www.epa.gov/Region9/water/npdes/stormwater-feature.html> (last visited Feb. 24, 2006).

⁶⁰ AMERICA’S LIVING OCEANS, *supra* note 54, at 4.

⁶¹ OCEAN BLUEPRINT, *supra* note 55, at 14–15.

⁶² See, e.g., OLIVER A. HOUCK, *THE CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY AND IMPLEMENTATION* 4 (Env’tl. Law Inst., 2d ed. 2002).

⁶³ *Id.* Basing regulation on watershed principles is further complicated by the fact that political boundaries and administrative institutions typically do not follow the natural topographical configuration of watersheds. In California, for example, “the average . . . county includes portions of six different watersheds.” John T. Woolley et al., *The California Watershed Movement: Science and the Politics of Place*, 42 NAT. RESOURCES J. 133, 136 (2002).

⁶⁴ HOUCK, *supra* note 62.

⁶⁵ *Id.*

⁶⁶ See STATE WATER RESOURCES CONTROL BOARDS & REGIONAL WATER QUALITY CONTROL BOARDS, *STRATEGIC PLAN 7* (Nov. 15, 2001), available at http://www.waterboards.ca.gov/strategicplan/docs/01strategic_plan.pdf.

⁶⁷ National Water Quality Inventory: 2000 Report (EPA Aug. 2002), available at <http://www.epa.gov/305b/2000report/>.

⁶⁸ *Id.* at ES-3; EPA, *United States v. Wal-Mart Stores, Inc.* Fact Sheet, at 3 (May 12, 2004) (printed as revised Dec. 28, 2004), available at <http://www.epa.gov/compliance/resources/cases/civil/cwa/walmart2-fs.pdf>.

⁶⁹ EPA, *U.S. v. Wal-Mart Stores, Inc.* Fact Sheet, *supra* note 68, at 3.

between storm water runoff and water quality.

The EPA maintains that uncontrolled storm water runoff from industrial facilities and construction sites harms both the environment and public health.⁷⁰ The EPA argues that “[s]everal studies reveal that storm water runoff from urban areas can include a variety of pollutants, such as sediment, bacteria, organic nutrients, hydrocarbons, metals, oil and grease.”⁷¹

While the links between construction activities, storm water runoff, and impaired water quality seem well established, the construction industry argues that a more nuanced analysis is important to considering water quality priorities.⁷² It argues that the EPA’s position on the role of the construction industry confuses the categories of sources contributing to the storm water runoff problem.⁷³ The industry maintains that the category of “urban runoff and storm sewers,” which is the focus of much of the policy and priority discussion by the EPA, is entirely different from the category of “storm water runoff from industrial and construction sites.”⁷⁴ It contends that the admittedly dangerous content of urban runoff, which often includes “pathogens, oil and grease, and metals are seldom found in storm water runoff from construction sites.”⁷⁵

The construction industry seeks to buttress its claim that the EPA is firing at the wrong target by citing the EPA’s own research. This research reveals that

[c]onstruction activities during site development are not believed to be major contributors of these contaminants [oil and grease] to storm water runoff. Improper operation and maintenance of construction equipment at construction sites, as well as poor housekeeping practices (e.g., improper storage of oil and gasoline products), could lead to leakage or spillage of products that contain hydrocarbons, but these incidents would likely be small in magnitude and managed before off-site contamination could occur.⁷⁶

In short, the building industry complains that often repeated generalizations about the runoff problem are misdirected against the construction industry, and that the scientific links between construction activities and the urban runoff, and the storm water

⁷⁰ *Id.* at 2–4.

⁷¹ *Id.* at 2.

⁷² *See, e.g.*, letter from Gerald M. Howard, Executive Vice President & CEO, National Association of Home Builders, to Information Quality Guidelines Staff (July 9, 2004), at 3.

⁷³ *Id.*

⁷⁴ *Id.* (internal citations omitted).

⁷⁵ *Id.* at 3–4.

⁷⁶ EPA, *Environmental Assessment of Construction and Development Proposed Effluent Guidelines* (June 2002), at 2–11.

problem are substantially missing.⁷⁷ From the building industry's perspective, the bottom line is clear: "[i]f [the] EPA intends to continue to single out residential builders for enforcement attention, [the] EPA will need to provide a different justification."⁷⁸

However, additional justifications for focusing on the construction industry do exist to support the mandate for regulatory action. Oftentimes, the first activity undertaken at a construction site involves preparing the land by removing unnecessary vegetation and grading.⁷⁹ This means that the exposed soil is highly susceptible to erosion from storm events. Additional construction activities typically follow that reduce the permeability of the soil to naturally absorb precipitation, such as building roads and sidewalks. Thus, and perhaps not surprisingly, erosion and sediment transfer to rivers, streams, and other receiving waters during and after construction is a well documented phenomenon affecting water quality.⁸⁰

The water quality problems from erosion include increased turbidity, which results in the blockage of light as well as decreased oxygen, in the receiving waters.⁸¹ This condition may result "in loss of in-stream habitat for fish and other aquatic species" and plants.⁸² In addition, sediment-laden runoff carried to the receiving waters can "kill fish directly, destroy spawning beds, and suffocate fish eggs and bottom dwelling organisms."⁸³ Sediment discharges from construction sites to MS4 conveyance systems also have the potential to clog pipes and pumps, and impair the systems' effectiveness.

Most construction activities also alter the natural landscape through compaction and excavation.⁸⁴ These necessary building activities also increase the potential for runoff and erosion from construction sites, thus increasing the potential for sediment transport to the receiving waters.⁸⁵ In California, the State Wa-

⁷⁷ Letter from Gerald M. Howard, *supra* note 72, at 8.

⁷⁸ *Id.* at 11.

⁷⁹ 40 C.F.R. § 122.26(15)(i) states that storm water discharges from "small construction activity does not include routine [road] maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility." *Id.* To the extent that road construction and maintenance involves the development of the land for agricultural activities, it may be exempt by exclusion from the definition of a PS. Clean Water Act § 502(14), 33 U.S.C. § 1362(14) (2000) (defining point source, or PS). *See also*, 63 Fed. Reg. 7858, 7876 (Feb. 17, 1998) (neither agricultural runoff nor development of land for agricultural purposes are regulated by the NPDES program).

⁸⁰ *See, e.g.*, National Water Quality Inventory: 2000 Report, *supra* note 67, at Table A-4 (providing data from various locations, including site-specific data).

⁸¹ EPA, U.S. v. Wal-Mart Stores, Inc. Fact Sheet, *supra* note 68, at 3.

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Id.*

ter Board has found that construction activities⁸⁶ are a potential significant source of pollutants and have the reasonable potential to contribute to an excursion above the Water Quality Standards (WQSs)⁸⁷ for sediment.⁸⁸

The movement of trucks and heavy construction equipment also can "track" soil to adjacent streets in much the same way that dirt and mud can be "tracked" into a house from outside during and after rain events unless preventive steps are taken. To the extent that pollutants other than sediment⁸⁹ are physically present, such as construction debris and other building-related detritus, they also may be carried off the site to the receiving waters by the storm water flows unless effectively controlled.⁹⁰

Notwithstanding the protests from the building industry, the focus on the construction industry is appropriate for another reason. Many of the enforcement claims against the construction industry are for failing to file for NPDES permits as required by the CWA.⁹¹ In these cases, the appropriateness of the focus is straightforward. The CWA requires that action be taken against such non-filers.⁹² In addition, storm water source control and pollution prevention, as distinguished from remediating the water quality impairment after the fact, is desirable as a matter of public policy. The public benefits of prevention and control are only available after non-filers are brought within the regulatory framework of the NPDES storm water permitting program.

Once a construction company files a NOI, the next regulatory challenge becomes assuring compliance with the CGP requirements. This assurance normally is accomplished through inspection and, if necessary, enforcement. Regulatory enforcement actions challenging the adequacy of the BMPs employed at a

⁸⁶ Typical construction activities with the potential to produce off-site sediment transfers include, for example, exposed soil areas, active grading areas, poorly stabilized slopes, the lack of perimeter controls, areas of concentrated flow to unprotected soils, and unprotected soil stockpiles. Order No. 99-08, *supra* note 48.

⁸⁷ The CWA provides for WQSs and associated implementation plans. Clean Water Act § 303, 33 U.S.C. § 1313 (2000).

⁸⁸ Order No. 99-08, *Water Discharge Requirements* (General Permit), at ¶ 8 (1999), available at <http://www.swrcb.ca.gov/stormwtr/construction.html>.

⁸⁹ The Small Business Liability Relief and Brownfields Revitalization Act, Pub. L. No. 107-118, 115 Stat. 2356 (Jan. 11, 2002), which amended the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), encourages the development of contaminated commercial property. A "brownfield" is "real property the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." CERCLA § 101(39)(A), 42 U.S.C. § 9601(39)(A) (2000). Storm water runoff from "brownfield" re-development raises special concerns beyond sediment transfers.

⁹⁰ *U.S. v. Wal-Mart Stores, Inc.* Fact Sheet, *supra* note 68, at 3.

⁹¹ Petersen, *supra* note 40, at 46.

⁹² Clean Water Act § 402(b)(7), 33 U.S.C. § 1342(b)(7) (2000).

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particular construction site by an owner or operator often involve some degree of regulatory discretion in determining compliance.⁹³ But as the following photographs attest, some violations can be clearly identified.



Sediment from construction site to unnamed tributary of Santa Gertrudis Creek. Roripaugh Ranch Project, Riverside County, California, March 17,

2003.⁹⁴

Storm drain inlet is not protected by adequate BMPs to prevent sediment from entering the storm drain. Pulte Homes Construction site, Eastlake, California,

⁹³ Petersen, *supra* note 40, at 46. "The magnitude of this interpretation of a permit violation is seen when one considers that a large site may have hundreds of different BMPs in place." *Id.* at 47.

⁹⁴ Source on file with author.

February 3, 2004.⁹⁵

IV. THE CONSTRUCTION INDUSTRY AND CLEAN WATER ACT (CWA) STORM WATER REGULATION

The discretion invested in regulatory agencies to regulate the storm water discharges from construction activities requires an understanding of the structure of the CWA. The CWA provides that the “discharge”⁹⁶ of any “pollutant”⁹⁷ into “navigable waters”⁹⁸ from a “point source” (PS)⁹⁹ is unlawful unless it is in compliance with an NPDES permit.¹⁰⁰ These four touchstones (discharge, pollutant, navigable waters, and point source) are prerequisites to the application of the NPDES Program.¹⁰¹ However, an important statutory exemption from the definition of PS

⁹⁵ Source on file with author.

⁹⁶ Clean Water Act § 502(12), 33 U.S.C. § 1362 (12) (2000) (“The term ‘discharge of a pollutant’ and the term ‘discharge of pollutants’ each means (A) any addition of any pollutant to navigable waters from any point source, (B) any addition of any pollutant to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft.”).

⁹⁷ The term “pollutant” is broadly defined in Clean Water Act § 502(6), 33 U.S.C. § 1362(6) (2000) (“The term ‘pollutant’ means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.”).

⁹⁸ The constitutional basis for the Clean Water Act is the Commerce Clause. U.S. Const. Art. I, § 8. For much of the nation’s history, Congress believed the commerce power applied only to navigable waters. Congress used this traditional touchstone in the CWA, but also stretched the meaning of “navigable waters.” Thus, as used in the CWA the term “navigable waters” broadly “means the waters of the United States, including the territorial seas.” Clean Water Act § 502(7), 33 U.S.C. § 1362(7) (2000). The term “navigable waters” has been broadly applied to “waters” that are not traditionally navigable. See e.g., *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 123–24 (1985) (holding that wetlands adjacent to navigable waters are subject to CWA jurisdiction).

Determining the precise boundaries of the meaning of the term “navigable waters” for jurisdictional purposes has proven illusive as evidenced by the varying interpretations of the meaning and application of the decision in *Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers*, 531 U.S. 159 (2001). In 2006, the Supreme Court will hear two cases from the Sixth Circuit involving the touchstone of “navigable waters” and its application to wetlands. *Carabell v. United States Army Corps of Engineers*, 391 F.3d 704 (6th Cir. 2004), cert. granted *Carabell v. United States Army Corps of Engineers*, 126 S. Ct. 415 (2005) and *United States v. Rapanos*, 376 F.3d 629 (6th Cir. 2004), cert. granted *Rapanos v. United States*, 126 S. Ct. 414 (2005). The *Rapanos* case describes the varying interpretations of the SWANCC decision by the federal appellate courts. *Id.* at 638. The Supreme Court decisions in *Carabell* and *Rapanos* are apt to have important consequences to the building industry because the discharge of storm water to navigable waters is a prerequisite to the assertion of jurisdiction under the CWA.

⁹⁹ Clean Water Act § 502(14), 33 U.S.C. § 1362(14) (2000) (“The term ‘point source’ means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.”).

¹⁰⁰ Clean Water Act § 301(a), 33 U.S.C. § 1311 (2000).

¹⁰¹ Clean Water Act § 402, 33 U.S.C. § 1342 (2000) (describing the NPDES system).

exists for agricultural storm water discharges.¹⁰²

In 1987, CWA Section 402(p) expressly designated storm sewer discharges to navigable waters as “point sources.”¹⁰³ As a result, both MS4 and industrial storm water dischargers were expressly identified as being subject to the NPDES permit program requirements of the CWA.¹⁰⁴ This addition to the law was an important step in storm water regulation.

The EPA has defined storm water discharges associated with industrial activity in a comprehensive manner. The definition includes the addition of any pollutant from any system used for collecting and conveying storm water within eleven industrial categories.¹⁰⁵ Construction activities, subject to some statutory exceptions,¹⁰⁶ are subject to the industrial storm water permitting requirements of Section 402(p).¹⁰⁷ The most recent set of federal regulations, which went into effect in 2003, expanded the scope of coverage to construction activities that disturb from one to five acres.¹⁰⁸ Construction activities disturbing five acres or more were regulated prior to 2003.¹⁰⁹

A NPDES permit contains various standard conditions, such as those relating to monitoring and reporting.¹¹⁰ One of the most important permit conditions relates to the “effluent limita-

¹⁰² Clean Water Act § 502(14), 33 U.S.C. § 1362(14) (2000). The application of the agricultural exemption to runoff has created controversy. The EPA has narrowly construed this storm water exclusion to apply to the runoff from land applications of fertilizers only to the extent that the application is in accordance with proper agricultural practices. 66 Fed. Reg. 2960, 3029–30 (Jan. 12, 2001). *See also* Concerned Area Residents for the Env’t v. Southview Farm, 34 F.3d 114 (2d Cir. 1994) (holding that runoff during a rain event from a Concentrated Animal Feeding Operation (CAFO) that was primarily caused by the excessive application of liquid manure to the land may violate the CWA notwithstanding the storm water exemption). This decision by the EPA applies to CAFOs which are included within the statutory definition of PS. Clean Water Act § 502(14), 33 U.S.C. § 1362(14) (2000) (identifying a CAFO as a point source).

In California, the term “waste discharge requirements” is the equivalent of the term “permits” as used in the CWA. CAL. WATER CODE § 13374. While federal law contains a general exemption for agricultural activities that do not fit within the CAFO category, state law may not be as generous. The California Water Code, for example, provides that anyone discharging or proposing to discharge waste that could affect water quality must file a Report of Waste Discharge (ROWD). CAL. WATER CODE § 13260. Unlike federal law, no automatic exemption from this requirement exists. Thus, a ROWD is required under state law for irrigation return flows and storm water runoff from agricultural lands unless a waiver is granted under the provisions contained in Water Code § 13269.

¹⁰³ Clean Water Act § 402(p), 33 U.S.C. § 1342(p) (2000).

¹⁰⁴ Clean Water Act § 402(p)(3)(A)-(B), 33 U.S.C. § 1342(p)(3)(A)-(B) (2000).

¹⁰⁵ 40 C.F.R. §§ 122.26(b)(14)(i)-(xi) (2004).

¹⁰⁶ Clean Water Act § 402(l), 33 U.S.C. § 1342(l) (2000).

¹⁰⁷ Clean Water Act § 402(p).

¹⁰⁸ Small construction activities may apply for a waiver from the NPDES permitting requirements contained in the General Permit. NPDES General Permit, *supra* note 15 Construction Activities, at ¶1.4, Appendix D.

¹⁰⁹ 40 C.F.R. § 122 (2003).

¹¹⁰ *See* NPDES General Permit, *supra* note 15, at ¶¶ 4.3, 9(A)(1)(d).

tion” on the quantities or concentrations of pollutants that can be legally discharged pursuant to Section 301.¹¹¹ The term “effluent limitation” is broadly defined, and encompasses “any restriction . . . on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters” of the United States.¹¹²

Two types of effluent limitation exist and operate in tandem. One type is prescribed by the EPA using nationally uniform, technology-based requirements.¹¹³ When a technology-based effluent limitation has not been promulgated, which is the situation with respect to construction storm water regulation, the permitting authority must use its best professional judgment (BPJ) in formulating the effluent limitation.¹¹⁴ The other type is a water quality-based effluent limitation (WQBEL) derived from the impact of the discharge on the receiving water.¹¹⁵ Congress recognized that both types of limitation were necessary because meeting technology-based standards at a point of discharge was no guarantee that the water quality in the receiving water would not degrade below acceptable levels.¹¹⁶ Technology-based requirements do not consider cumulative impacts of a discharge on the receiving water, whereas WQBELs do.¹¹⁷

Technology-based limitations, which are derived from technological and economic considerations for particular discharge categories,¹¹⁸ are based on the pollution reducing performance achieved by using established pollution control technologies.¹¹⁹ As a general matter, technology-based limitations, which vary by the nature of the pollutant being discharged, are commonly ex-

¹¹¹ Clean Water Act § 301, 33 U.S.C. § 1311 (2000).

¹¹² Clean Water Act § 502(11), 33 U.S.C. § 1362(11) (2000).

¹¹³ Clean Water Act §§ 301(b)(1)(A), (2)(A), 33 U.S.C. § 1311(b)(1)(A), (2)(A) (2000). The EPA is responsible for establishing effluent limitations for various types of point sources based on what the available technology could accomplish. This approach avoids the technical difficulty of evaluating individual effluent limits for discharges. JAMES SALZMAN AND BARTON H. THOMPSON, JR., ENVIRONMENTAL LAW AND POLICY 129 (2003).

¹¹⁴ See Clean Water Act § 402(a)(1)(B) (The Administrator may issue a permit after an entity meets “such conditions as the Administrator determines are necessary to carry out the provisions of this Act.”), 33 U.S.C. § 1342(a)(1)(B) (2000); see also 40 C.F.R. § 125.3(d) (2004) (listing factors that the permit writer must consider in setting case-by-case limitations).

¹¹⁵ See Clean Water Act § 301, 33 U.S.C. § 1311 (2000).

¹¹⁶ See *EPA v. State Water Res. Control Bd.*, 426 U.S. 200, 205 n.12 (1976).

¹¹⁷ See Clean Water Act § 304(b)(4)(B), 33 U.S.C. § 1314(b)(4)(B) (2000).

¹¹⁸ See *E. I. du Pont de Nemours & Co. v. Train*, 430 U.S. 112, 128 (1977) (holding, among other things, that effluent limitations for existing plant sources for 1977 and 1983 are to be set by regulation with some allowances “made for variations in individual plants,” but not solely on an individual basis during the permit issuance process).

¹¹⁹ See Clean Water Act § 301(b), 33 U.S.C. § 1311(b) (2000); see also 40 C.F.R. § 122.44 (2004).

pressed in numeric or narrative terms.¹²⁰ As one might expect, a numeric criterion establishes a quantitative limitation on pollutant concentrations or levels, whereas a narrative criterion is a descriptive, non-numeric limitation.¹²¹

The relevant technology used to determine a technology-based limitation depends on whether the discharged pollutant is classified as “toxic,”¹²² “conventional,”¹²³ or “nonconventional.”¹²⁴ Once the effluent limitation is determined for the type of pollutant based on the appropriate technology, such as Best Available Technology (BAT), the PS discharger may comply with the effluent limitation in whatever way it chooses.¹²⁵ The particular technology employed is left to the discretion of the discharger.¹²⁶

This approach to determining an effluent limitation or compliance standard is considered “performance-based” because the EPA or state regulatory agency is concerned solely with performance, and not with the specific processes or management techniques employed by the discharger to meet the effluent limitation.¹²⁷ In fact, prescriptive performance methods, such as specifying the process or technique, may be precluded.¹²⁸

In contrast, WQBELs¹²⁹ are based on the amount of pollutants allowed in a defined receiving water body¹³⁰ after taking into

¹²⁰ BMPs may be used when “[a]uthorized under section 402(p) of the CWA for the control of storm water discharges [or when] [n]umeric effluent limitations are infeasible.” 40 C.F.R. § 122.44(k)(2)-(3) (2004). The EPA recently decided against adopting effluent limitation guidelines for storm water discharges associated with construction activity, and instead decided to rely on “existing programs, regulations, and initiatives at the Federal, State, and local level.” 40 C.F.R. § 450 (2004).

The issue of whether direct discharges of toxic pollutants from non-construction, industrial storm water activities is subject to numeric limitations is currently on appeal before the California Court of Appeal for the Fourth Appellate District in *Divers’ Env’tl. Conservation Org. v. State Water Res. Control Bd.*, San Diego Superior Court, Case No. GIC819689 (case no. D046112) (2005).

¹²¹ See, e.g., 40 C.F.R. § 131.3(b) (2004).

¹²² Clean Water Act § 307(a)(1), 33 U.S.C. § 1317(a)(1) (2000) (referring to a list of toxic pollutants subject to the CWA).

¹²³ Clean Water Act § 304(a)(4), 33 U.S.C. § 1314(a)(4) (2000) (conventional pollutants are pollutants that include, but are not limited to “pollutants classified as biological oxygen demanding, suspended solids, fecal coliform, and pH.”).

¹²⁴ Clean Water Act § 301(g)(4)(B)(iv), 33 U.S.C. § 1311(g)(4)(B)(iv) (2000) (Pollutants that are not specifically classified as “toxic” or “conventional” are considered “nonconventional.”).

¹²⁵ See Clean Water Act §§ 301(b)(2)(A), 307(a)(2), 33 U.S.C. §§ 1311(b)(2)(A), 1317(a)(2) (2000).

¹²⁶ See Clean Water Act § 301(b)(2)(A), 33 U.S.C. § 1311(b)(2)(A).

¹²⁷ Clean Water Act § 306(a)(1), 33 U.S.C. § 1316(a)(1) (2000).

¹²⁸ CAL. WATER CODE § 13360 (2005) (prohibits waste discharge requirements from specifying the “design, location, type of construction, or particular manner” of compliance).

¹²⁹ See Clean Water Act § 303(e)(3)(A), 33 U.S.C. § 1313(e)(3)(A) (2000).

¹³⁰ See Clean Water Act § 303(d), 33 U.S.C. § 1313(d) (2000) (establishing states’ roles in determining water quality standards).

account the beneficial uses of the receiving water and its assimilative pollutant capacity.¹³¹ They are calculated based on the impact of the waste discharge.¹³² Water Quality Standards (WQSs)¹³³ serve as a general baseline for deriving WQBELs.¹³⁴

WQSs also serve an additional function beyond their connection to WQBELs. The CWA requires states to identify all water bodies for which technology-based effluent limitations are insufficient to meet WQSs.¹³⁵ Thus, WQSs also provide the baseline for remedial action under the Total Maximum Daily Load (TMDL) program.¹³⁶ The connection between WQSs and TMDLs is relevant to construction activities because sediment is a commonly recognized pollutant that has triggered Section 303(d), TMDL listings.¹³⁷

WQBELs are established at levels designed to ensure that WQSs are not exceeded in the receiving water.¹³⁸ One of the factors in determining a WQBEL is the extent to which the assimilative capacity of the receiving waters will be allowed.¹³⁹ If a WQBEL is calculated without any allowance for assimilative capacity of the receiving waters, a discharge in excess of the WQBEL would constitute a permit violation without exceeding the WQS. Thus, the often repeated statement that “simply put, WQBEL’s implement [WQSs]”¹⁴⁰ is potentially misleading.

The timing and variability of the pollutants in storm water discharges present a different set of concerns than those associated with a typical steady-state discharge common to many industrial wastewater discharges. Construction activities are both

¹³¹ See Clean Water Act § 304(b), 33 U.S.C. § 1314(b) (2000).

¹³² Clean Water Act § 102(c)(2)(A), 33 U.S.C. § 1313(c)(2)(A) (2000) (mandating that state planning agencies establish a comprehensive pollution control plan).

¹³³ In California, WQSs are established through regional water quality control management plans, commonly known as basin plans, which are adopted by the appropriate Regional Water Board after a public hearing. CAL. WATER CODE §§ 13240, 13244. Basin plans become effective upon approval by the State Water Board. CAL. WATER CODE § 13245.

¹³⁴ See *Arkansas v. Oklahoma*, 503 U.S. 91, 106 (1992) (holding that the EPA’s requirement that NPDES dischargers must comply with downstream states’ WQS was a reasonable exercise of the agency’s statutory discretion).

¹³⁵ Clean Water Act § 303(d)(1)(A), 33 U.S.C. § 1313(d)(1)(A) (2000); see also 40 C.F.R. § 130(h) (2004).

¹³⁶ Clean Water Act § 303(d), 33 U.S.C. § 1313(d) (2000). A TMDL is a written, quantitative plan and analysis for attaining and maintaining WQS for a specific body of water and pollutant. 40 C.F.R. § 130.2(i) (2005).

¹³⁷ Water bodies listed under Section 303(d) for sediment are identified in Order No. 99-08, *supra* note 48, at Attachment 3, available at <http://www.swrcb.ca.gov/stormwtr/construction.html> (last visited Feb. 12, 2006).

¹³⁸ See Clean Water Act § 303(d)(1), 33 U.S.C. § 1313(d)(1) (2000).

¹³⁹ Clean Water Act § 303(d)(1)(D), 33 U.S.C. § 1313(d)(1)(D) (2000).

¹⁴⁰ See *e.g.*, *Cmtys. for a Better Env’t v. State Water Res. Control Bd.*, 34 Cal. Rptr. 3d 396, 399 (1st Dist. 2005).

dynamic and itinerant. They are dynamic because the palette of potential pollutants changes as a construction project progresses toward completion.¹⁴¹ But they are also itinerant because once the construction project is finished, the builder typically moves to a new location with different site-specific concerns.

Storm water permits attempt to take into consideration these different concerns by prohibiting discharges that cause or contribute to the exceedence of WQSs in the receiving water.¹⁴² But this approach creates some regulatory uncertainty because WQSs do not easily translate into numeric WQBELs that can be applied at the discharge point or PS. Simply using the numeric component of a WQS would result in most, if not all, storm water discharges violating the WQBEL, which would expose the builders to regulatory enforcement actions.

Within this effluent limitation framework, Congress established a two-phased approach to storm water regulation when it added Section 402(p).¹⁴³ In 1990, the EPA adopted the Phase I final regulations for storm water discharges associated with industrial activities.¹⁴⁴ These regulations required construction sites larger than five acres to secure NPDES storm water permits for PS discharges to waters of the United States.¹⁴⁵

The regulatory ratchet applied to construction activities was tightened by the Phase II Rule, which became effective in 2003.¹⁴⁶ It also requires discharges from “small construction sites,” as well as dischargers from small MS4s, to be regulated.¹⁴⁷ To avoid “small” developers from gaming the system to avoid regulation, sites less than one acre that are part of a larger de-

¹⁴¹ See Lower Platte South Natural Resource District City of Lincoln Watershed Management, *Stormwater Pollution Prevention Plan (SWPPP) Guidance and Design Criteria*, at ¶ A4, available at www.lpsnrd.org/docs/Permits/swppp.pdf (last visited Feb. 12, 2006) (because project plans are subject to change, the SWPPP must be dynamic in order to be effective).

¹⁴² NPDES General Permit, *supra* note 15, at Part 1, ¶ 1.3.C.4; see Clean Water Act § 402(p)(3)(B)(iii), 33 U.S.C. § 1342 (p)(3)(B)(iii) (2000) (permits for discharges from municipal storm sewers shall require reduced discharge to the maximum extent practicable); see also *Bldg. Ind. Ass’n of San Diego County v. State Water Res. Control Bd.*, 22 Cal. Rptr. 3d 128, 130–31 (2004), *reh’g denied* Jan. 4, 2005 (upholding the discretionary authority of California to prohibit MS4 discharges that cause or contribute to an exceedence of WQSs).

¹⁴³ Clean Water Act § 402(p)(4), 33 U.S.C. § 1362 (p)(4) (2000).

¹⁴⁴ 55 Fed. Reg. 47,990 (Nov. 16, 1990) (codified as 40 C.F.R. § 122.26).

¹⁴⁵ See National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed. Reg. 47,990 (Nov. 16, 1990) (codified as 40 C.F.R. § 122.26(b)(14)(x)). The EPA’s Phase I Rule regulating construction sites that were only in excess of five acres was found “arbitrary and capricious” in *Natural Res. Def. Council v. EPA*, 966 F.2d 1292, 1306 (9th Cir. 1992).

¹⁴⁶ EPA, Phase II Storm Water Regulations, 64 Fed. Reg. 68,722 (Dec. 8, 1999) (codified as 40 C.F.R. pts 9, 122, 123, 124).

¹⁴⁷ *Id.*

velopment plan are also subject to Phase II regulation.¹⁴⁸ Thus, for example, a developer cannot avoid storm water regulation by building a commercial structure on a one-half acre parcel that is part of a larger ten-acre retail center.

The Phase I and II storm water regulations are primarily “process-based,” not “performance-based.”¹⁴⁹ Performance-based standards have yet to be developed and applied to storm water discharges, and therefore the permitting authority must develop technology-based limitations based on its BPJ.¹⁵⁰ Unlike most discharges that are controllable at the PS, the makeup of a storm water discharge is highly variable depending on the severity of a particular storm event, the frequency of storm events, flow rates, absorption capacities of surrounding soils, pollutant types and concentrations, and so on. This variability makes storm water regulation more complex than the typical NPDES waste discharges from a PS.

The concentration of pollutants at the point of discharge may be sampled.¹⁵¹ But getting a representative storm water sample is difficult because of variability in volume and pollutant loading. As a result, translating storm water discharge information into a workable numeric effluent limitation is difficult. Consequently, the EPA has not yet developed a set of technology-based numeric effluent limitations suitable for the regulation of storm water as it has for other types of PS discharges.¹⁵² Rather, the EPA has determined that a “process-based” strategy using BMPs is effective to adequately meet WQSs.¹⁵³

A discharger “may” be considered in compliance with the storm water permit by regulators so long as it is implementing its identified “process-based” narrative control measures, such as the siting, construction and operation of BMPs, contained in the SWPPP applicable to the construction site or, if discharging into an MS4, with the control measures identified in the MS4 storm water management plan (SWMP).¹⁵⁴ No guarantee exists with

¹⁴⁸ 40 C.F.R. § 122.26(b)(15) (defining “small construction activity”).

¹⁴⁹ Clean Water Act § 402(a)(1)(B), 33 U.S.C. § 1342(a)(1)(B) (2000); *see also* 40 C.F.R. § 125.3(d) (2004).

¹⁵⁰ *See* Clean Water Act § 402(a)(1)(B), 33 U.S.C. § 1342(a)(1)(B) (2000); *see also* 40 C.F.R. § 125.3(d) (2004).

¹⁵¹ *See e.g.*, EPA, Load Calculation Protocol, Department of Environment and Conservation 2.2.1 (Feb. 2005).

¹⁵² 61 Fed. Reg. 57,425, 57,426 (Nov. 6, 1996) (noting that the CWA does not mandate that effluent limitations be numeric).

¹⁵³ EPA, National Pollutant Discharge Elimination System (NPDES) Storm Water Program Questions and Answers (Best Management Practices), Jan. 21, 2004, at 8 (on file with author).

¹⁵⁴ *See* discussion *infra* Part VII. Dual Regulation of Construction Storm Water Activities.

respect to compliance, however.¹⁵⁵

V. THE ROLE OF THE STATES IN STORM WATER REGULATION

One might reasonably think that the EPA is at the forefront of construction storm water permitting and enforcement. However, this view is not exactly the case.¹⁵⁶ The CWA recognizes that states are fully competent to manage their own water quality programs so long as they do not compromise federal clean water standards.¹⁵⁷ Upon application by a state, Section 402(b) of the CWA allows the EPA to authorize a state to exercise NPDES permitting authority providing the state has the adequate authority to carry out the federal program.¹⁵⁸ The EPA has authorized most states,¹⁵⁹ subject to continuing regulatory oversight by the EPA,¹⁶⁰ to administer this authority.¹⁶¹ Although this oversight pertains to the state's administration of federal law, a legal reservoir of state constitutional authority, independent of the CWA authorization, exists to deal with state water quality issues.¹⁶²

¹⁵⁵ See discussion *infra* Part VIII. The "Functional" Permit Theory: Divergent Views.

¹⁵⁶ Construction industry storm water compliance assistance for each state is included in *Construction Industry Compliance Assistance: Status of the Storm Water Phase II Permits as of November 12, 2004*, available at <http://www.cicacenter.org/> [click on stormwater icon] (last visited Feb. 13, 2006).

¹⁵⁷ Clean Water Act § 101(b), 33 U.S.C. § 1251(b) (2000).

¹⁵⁸ Clean Water Act § 402(b), 33 U.S.C. § 1342(b) (2000).

¹⁵⁹ The following states have approved programs: Alabama; Arizona; Arkansas; California; Colorado; Connecticut; Delaware; Florida; Georgia; Hawaii; Illinois; Indiana; Iowa; Kansas; Kentucky; Louisiana; Maine; Maryland; Michigan; Minnesota; Mississippi; Missouri; Montana; Nebraska; Nevada; New Jersey; New York; North Carolina; North Dakota; Ohio; Oklahoma; Oregon; Pennsylvania; Rhode Island; South Carolina; South Dakota; Tennessee; Texas; Utah; Vermont; Virginia; Washington; West Virginia; Wisconsin; Wyoming. EPA, *State NPDES Program Authority*, available at <http://cfpub2.epa.gov/npdes/statestats.cfm> (last visited Feb. 13, 2006).

¹⁶⁰ The EPA may withdraw its delegation based on the circumstances set forth in 40 C.F.R. § 123.63(a) (2005).

¹⁶¹ See CAL. WATER CODE § 13370(c) (2004). This section provides:

It is in the interest of the people of the state, in order to avoid direct regulation by the federal government of persons already subject to regulation under state law pursuant to this division, to enact this chapter in order to authorize the state to implement the provisions of the Federal Water Pollution Control Act [CWA] and acts amendatory thereof or supplementary thereto, and federal regulations and guidelines issued pursuant thereto, provided, that the state board shall request federal funding under the Federal Water Pollution Control Act [CWA] for the purpose of carrying out its responsibilities under this program.

Id.

¹⁶² The California Supreme Court recently rejected the contention of the Natural Resources Defense Council (NRDC) that a state exercising the discretionary authority recognized by the CWA acts pursuant to federal law based on the theory that the CWA incorporates state water policy into federal law. *City of Burbank v. State Water Res. Control Bd.*, 108 P.3d 862, 870 (2005) ("Nothing in the federal Clean Water Act suggests that a state is free to disregard or to weaken the federal requirements for clean water

Most states have EPA-approved programs.¹⁶³ This fact means that those states administering the industrial storm water provisions are, as a practical matter, at the forefront of both the permitting and the enforcement efforts. To the extent that an enforcement action against a large-scale, development operation involves multiple states, the EPA will assume the controlling enforcement role, although coordination with state regulators is essential.¹⁶⁴

In late 2005, the EPA's state-authorization process hit a new legal obstacle. In *Defenders of Wildlife v. EPA*,¹⁶⁵ the Ninth Circuit held that the EPA had taken inconsistent positions during litigation on its legal obligation to consult, pursuant to Section 7 of the Endangered Species Act (ESA), with the federal Fish and Wildlife Service in deciding to transfer CWA permitting authority to Arizona.¹⁶⁶ Although the case was remanded to the EPA to articulate a coherent and consistent position, which is an arguable basis for narrowly applying the decision, the court was clearly of the opinion that the EPA was unreasonable in concluding that it was required to disregard the impact of the CWA permitting transfer on species protected by the ESA.¹⁶⁷ To the extent that the EPA does not comply with the federal consultation provisions of the ESA in deciding to approve an NPDES permitting transfer to the state, such a transfer may be in legal jeopardy.¹⁶⁸

VI. THE CALIFORNIA "GENERAL CONSTRUCTION STORM WATER PERMIT"

The Porter-Cologne Water Quality Control Act is the principal law governing water quality in California.¹⁶⁹ It establishes a comprehensive program to protect water quality under the auspices of the State Water Board and nine semi-autonomous Regional Water Boards.¹⁷⁰ In Chapter 5.5 of Porter-Cologne, the legislature established a program to comply with the provisions

when an NPDES permit holder alleges that compliance with those requirements will be too costly.”).

¹⁶³ See EPA, *State NPDES Program Authority*, *supra* note 159.

¹⁶⁴ National Science & Technology Center, Bureau of Land Management, Water Quality Law Summary, Chapter 4: *The Total Maximum Daily Load Program*, at 5, available at <http://www.blm.gov/nstc/WaterLaws/Chap4.html> (last visited Feb. 13, 2006).

¹⁶⁵ *Defenders of Wildlife v. EPA*, 420 F.3d 946 (9th Cir. 2005).

¹⁶⁶ See *id.* at 959–60 (noting that the EPA's positions in litigation were inconsistent, but that its positions during administrative processes were consistent).

¹⁶⁷ *Id.* at 960–61.

¹⁶⁸ Whether the *Defenders of Wildlife* decision will or should trigger the re-opening of earlier EPA transfers to other states is beyond the scope of this article.

¹⁶⁹ CAL. WATER CODE §§ 13000–14958 (2005).

¹⁷⁰ See CAL. WATER CODE § 13001 (2005), Order No. 99-08, *supra* note 48.

of the CWA.¹⁷¹ As a result, California has been authorized by the EPA to administer the federal NPDES program, including its storm water provisions.¹⁷² Porter-Cologne also contains a separate chapter on storm water enforcement practices that is supplementary¹⁷³ to the Chapter 5.5 provisions authorizing administration of the federal program.¹⁷⁴

In California, construction activities are subject to CWA regulation through the General Construction Storm Water Permit (GCSWP).¹⁷⁵ A landowner whose development or building project disturbs one or more acres of soil, or whose project is less than one acre but is part of a larger common project, is required either to obtain an individual NPDES permit or to file a NOI with the State Water Board indicating the intent to be covered by the GCSWP.¹⁷⁶ It specifies that the landowner is responsible for obtaining coverage under the permit by signing the NOI.¹⁷⁷

The GCSWP is similar to the federal CGP in that it relies on process-based BMPs to control storm water discharges.¹⁷⁸ However, unlike the CGP, the GCSWP contains a receiving water limitation that discharges “do not cause or contribute to an exceedence of any applicable water quality standard [WQS].”¹⁷⁹

As with the federal CGP, the GCSWP requires a permittee to develop and implement an SWPPP, which has several substantive purposes. First, it identifies likely sources of sediment and other pollutants that will affect the water quality from the construction storm water discharge.¹⁸⁰ Second, it describes the BMPs that will be used to control, to reduce or to eliminate these sources.¹⁸¹ Lastly, the SWPPP identifies the monitoring program that will be used to determine whether the BMPs are working.¹⁸²

The GCSWP requires that the SWPPP be available at the construction site from the start of the construction activities through the termination of coverage under the permit.¹⁸³ But the

¹⁷¹ CAL. WATER CODE §§ 13370–13389 (2005).

¹⁷² See Order No. 99-08, *supra* note 48.

¹⁷³ CAL. WATER CODE § 13399.25 (2005).

¹⁷⁴ *Id.* at §§ 13399.25–13399.43.

¹⁷⁵ See Order No. 99-08, *supra* note 48.

¹⁷⁶ *Id.*

¹⁷⁷ California EPA, State Water Resources Control Board, *Storm Water Program: Construction Frequently Asked Questions*, question number 3, available at <http://www.swrcb.ca.gov/stormwtr/constfaq.html> (last visited Feb. 13, 2006) [hereinafter Construction FAQs].

¹⁷⁸ See Order No. 99-08, *supra* note 48.

¹⁷⁹ *Id.*

¹⁸⁰ *Id.*

¹⁸¹ *Id.*

¹⁸² See Construction FAQs, *supra* note 177, at question number 12.

¹⁸³ Order No. 99-08 provides: “The SWPPP shall remain on the [construction] site

current permit only requires the SWPPP to be available on-site at the construction location.¹⁸⁴ This on-site requirement is unnecessarily restrictive in that it hinders private citizens and environmental groups from gaining ready access for the purpose of inspecting and determining the SWPPP's legal adequacy.

To improve public access to SWPPPs, the Executive Director of the State Water Board recently requested Regional Water Boards to assist members of the public in gaining access to them.¹⁸⁵ But a stronger nostrum is required than simply encouraging cooperation by Regional Water Boards. The permit itself should reflect the obligation to meet a broader public dissemination policy. With the electronic digitization of records, regulatory agencies should be required, at a minimum, to post NOIs as well as SWPPPs on officially maintained web sites to improve public access. The EPA recently proposed this approach for the 2006 industrial storm water permit applicable to areas of the United States not authorized to administer the NPDES permit program.¹⁸⁶

Another concern is the uncertainty with respect to permit compliance. This concern has caused frustration for dischargers, regulators, and environmental groups.¹⁸⁷ The State Water Board has formed a Blue Ribbon panel to assess the potential for making the storm water program more performance-based, and thus more certain.¹⁸⁸ The panel is tasked with assessing whether it is technically feasible to establish numeric effluent limitations, or some other objective criteria, for inclusion in storm water permits generally, including the general construction storm water permit.¹⁸⁹

while the site is under construction, commencing with the initial mobilization and ending with termination of coverage under the permit." *Id.*

¹⁸⁴ *Id.*

¹⁸⁵ E-mail from Celeste Cantu, Executive Director, to Regional Water Board Executive Officers and Assistant Executive Officers (on file with author).

¹⁸⁶ EPA, Office of Wastewater Management, *View Stormwater NOIs*, available at <http://www.epa.gov/npdes/stormwater/noisearch> (last visited Feb. 13, 2006).

¹⁸⁷ California EPA, State Water Resources Control Board Water Quality, *Notice of Public Meeting: National Pollutant Discharge Elimination System (NPDES) Storm Water Program, Meeting of Storm Water Panel of Experts* available at http://www.waterboards.ca.gov/stormwtr/docs/panel_notice.pdf (last visited Feb. 14, 2006).

¹⁸⁸ *Id.*; see also letter, "State Water Board Process for the Development of Quantitative Measurements for Stormwater Program Compliance" (Aug. 15, 2005), from Karen Ashby, Chair, California Stormwater Quality Association to Bruce Fujimoto, Chief, Storm Water Program, State Water Board, <http://www.waterboards.ca.gov/stormwtr/docs/numericcom/casqa.pdf>.

¹⁸⁹ *Id.*

VII. DUAL REGULATION OF CONSTRUCTION STORM WATER ACTIVITIES

Construction storm water activities are directly regulated as industrial activities.¹⁹⁰ They are also potentially subject to regulation under the municipal discharge requirements of Section 402(p).¹⁹¹ MS4 permittees,¹⁹² usually local governments, are required to “effectively prohibit non-stormwater discharges” into their storm sewer conveyance systems.¹⁹³

The MS4 requirements effectively create a dual system of regulation.¹⁹⁴ A MS4 permittee is required to enforce its local land use ordinances and accompanying construction permits in a manner that satisfies the above input “into” the conveyance system prohibition as well as the PS discharge requirements output “from” the system.¹⁹⁵ Thus, a construction storm water discharge may be regulated both on the basis of its connection or discharge into the MS4 and also as an industrial activity.

As a matter of regulatory theory, the MS4 and GCSWP programs are intended to complement and support each other in achieving the shared goal of minimizing pollutant discharges in runoff from construction sites.¹⁹⁶ MS4 regulation is based on the principle that local government controls most construction activities through the issuance of development and other land use

¹⁹⁰ Clean Water Act § 402(p)(3)(A), 33 U.S.C. § 1342 (p)(3)(A) (2000).

¹⁹¹ Clean Water Act § 402(p), 33 U.S.C. § 1342(p) (2000).

¹⁹² The Clean Water Act does not define the term “municipal separate storm sewer.” However, it is defined in the storm water regulations at 40 C.F.R. § 122.26(b)(8) (2004):

Municipal separate storm sewer means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;
- (ii) Designed or used for collecting or conveying storm water;
- (iii) Which is not a combined sewer; and
- (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR section 122.2.

¹⁹³ Clean Water Act § 402(p)(3)(B)(ii), 33 U.S.C. § 1342(p)(3)(B)(ii) (2000).

¹⁹⁴ See generally 40 C.F.R. Parts 122, 123, and 124 (2004). The EPA places enforcement responsibility on local government to develop and implement regulatory mechanisms to control sediment and erosion and to use sanctions to ensure compliance. 40 C.F.R. § 122.34(b)(4)(ii)(A) (2004).

¹⁹⁵ Clean Water Act § 402(p)(3)(B), 33 U.S.C. § 1342(p)(3)(B) (2000).

¹⁹⁶ See Clean Water Act § 402(p)(3)(B)(ii), 33 U.S.C. § 1342(p)(3)(B)(ii) (2000).

permits.¹⁹⁷ As the lead permitting authority for construction activities, local government therefore has the principal responsibility for controlling the water quality consequences from storm water discharges resulting from its planning, construction, and land use decisions. One area that has received too little attention to date is the importance of coordinating standard MS4 and GCSWP permit requirements, such as monitoring and reporting, for purposes of regulatory consistency.¹⁹⁸

In California, the State Water Board and Regional Water Boards look first to local government to enforce compliance with its applicable ordinances and permits under the MS4 permit.¹⁹⁹ State regulators have several non-exclusive options when confronted with a construction storm water violation. They may bring an enforcement action directly against the builder-developer of the construction activity for non-compliance with the terms of the GCSWP.²⁰⁰ They also may bring an enforcement action against the local government for violating the MS4 permit requirements.²⁰¹

VIII. THE "FUNCTIONAL" PERMIT THEORY: DIVERGENT VIEWS

In *Environmental Defense Center, Inc. v. EPA*,²⁰² the EPA generally prevailed against various administrative, statutory, and constitutional challenges to the Phase II Storm Water Rule regulating small MS4s and small construction sites.²⁰³ However, the Ninth Circuit also held that the Rule was legally deficient in certain important respects.²⁰⁴ The Rule allows operators to obtain coverage under the CGP simply by filing a NOI.²⁰⁵ Coverage was available without regulatory review by the EPA, and also without public participation on the issuance of the specific NOI and accompanying SWPPP.²⁰⁶ The court found that this process violated the express provisions of the CWA.²⁰⁷ As a result, the court vacated those parts of the Rule that were procedurally defi-

¹⁹⁷ 40 C.F.R. § 122.26(b)(8) (2004).

¹⁹⁸ The detailed analysis of this concern is beyond the scope of this article.

¹⁹⁹ California EPA, San Diego Regional Water Quality Control Board, *Municipal Storm Water Permit—Frequently Asked Questions*, question number 12, available at <http://www.swrcb.ca.gov/rwqcb9/programs/stormwater/faq.html> (last visited Feb. 14, 2006).

²⁰⁰ Order No. 99-08, *supra* note 48.

²⁰¹ *Id.*; Clean Water Act § 309(e).

²⁰² 344 F.3d 832 (9th Cir. 2003), *cert. denied*, Tex. Cities Coal. on Stormwater v. EPA, 541 U.S. 1085 (2004).

²⁰³ *Id.* at 840.

²⁰⁴ *Id.*

²⁰⁵ *Id.* at 853.

²⁰⁶ *Id.*

²⁰⁷ *Env'tl. Def. Ctr., Inc.*, 344 F.3d at 855–56.

cient and remanded the matter to the EPA.²⁰⁸

In 2005, the Second Circuit decided *Waterkeeper Alliance, Inc. v. EPA*,²⁰⁹ which dealt with the EPA Rule applicable to Concentrated Animal Feeding Operations (CAFOs) and Nutrient Management Plans (NMPs).²¹⁰ The court applied an “actual discharge” of pollutants standard to navigable waters.²¹¹ But for our purposes, the Second Circuit’s decision is arguably significant because it cites with approval the Ninth Circuit’s reasoning on the failure to require permitting authority review of the NMP before issuing a permit.²¹² According to the court, NMPs for CAFOs, which function similarly to SWPPPs for construction sites, should have been included as part of the permit.²¹³

A split in the federal circuits occurred several months after the *Waterkeeper Alliance* decision.²¹⁴ The Seventh Circuit decided *Texas Independent Producers and Royalty Owners Association v. EPA*.²¹⁵ Unlike the Ninth Circuit, the Seventh Circuit held that construction-project NOIs are not the “functional equivalent” of a permit, and SWPPPs are not subject to the public participation requirements of the CWA.²¹⁶

The “functional equivalent” theory is critical to the application of the “public hearing” and “public availability” requirements found in the CWA.²¹⁷ Section 402(a)(1) sets forth the public hearing requirement: “the Administrator may, after opportunity for public hearing, issue a permit.”²¹⁸

The precondition to the issuance of a permit is the opportunity for a public hearing.²¹⁹ For the 2003 CGP and its earlier versions, the opportunity for a public hearing was satisfied during the notice and opportunity to comment period.²²⁰ The question of statutory construction is whether a public hearing is also required upon filing of a NOI, which depends on whether the NOI

²⁰⁸ *Id.* at 840.

²⁰⁹ 399 F.3d 486, 507 (2d Cir. 2005) (holding in part that the EPA’s failure to require substantive permitting agency review of Nutrient Management Plans (NMPs) for Concentrated Animal Feeding Operations (CAFOs), which are point sources under 33 U.S.C. § 1362(14) (2000), violated the CWA).

²¹⁰ *Id.* at 486.

²¹¹ *Id.* at 505 (finding that in the absence of an “actual” addition of any pollutant to navigable waters from any point, there is no PS).

²¹² *Id.* at 500 n.18.

²¹³ *Id.* at 500.

²¹⁴ *Tex. Indep. Producers and Royalty Owners Ass’n v. EPA*, 410 F.3d 964, 978 (7th Cir. 2005).

²¹⁵ *Id.*

²¹⁶ *Id.* at 978 n.13.

²¹⁷ *Id.*

²¹⁸ Clean Water Act § 402(a)(1), 33 U.S.C. § 1342(a)(1) (2000).

²¹⁹ *Id.*

²²⁰ *See generally Env’tl. Def. Ctr., Inc.*, 344 F.3d at 852–53.

should be considered the “functional equivalent” of a “permit” or “permit application.”²²¹

The public availability issue also turns on finding a permit or permit application. Section 402(j) states: “A copy of each permit application and each permit issued under this section shall be available to the public. Such permit application or permit, or portion thereof, shall further be available on request for the purpose of reproduction.”²²² The problem here also depends on finding the NOI a “permit” or “permit application.”²²³ If it is either, then presumably the SWPPP may be treated as a “portion thereof,” and therefore also subject to the “available to the public” requirement.²²⁴

Regardless of whether NOIs or SWPPPs are treated as the functional equivalent of permits, they ought to be subject to the public availability provisions of CWA Section 308(b)²²⁵ and the requirement that records, including a description of the SWPPP, be available to the public at reasonable times during regular business hours.²²⁶ The posting of electronic copies of NOIs and SWPPPs on officially maintained web sites would aid public access to these important documents without imposing a significant administrative burden. Thus, the more significant legal questions are the application of the public hearing requirement and the public opportunity to meaningfully comment on the SWPPP.

A. *Environmental Defense Center, Inc. v. EPA*

A closer examination of *Environmental Defense Center, Inc. v. EPA*²²⁷ is necessary. The focus was on the legality of the Phase II Rule (Rule).²²⁸ Consequently, one might be tempted to argue that the “functional” permit theory should be limited to the operation of the Phase II Rule. One might argue that the functional permit analysis outside the Rule is *dicta* or that the permitting scheme under the Rule differs from the traditional permitting model.²²⁹

²²¹ *Id.* at 857 (holding NOIs are the functional equivalent to permit applications); see *Tex. Indep. Producers and Royalty Owners Ass’n*, 410 F.3d at 978 (holding NOIs are not permit applications).

²²² Clean Water Act § 402(j), 33 U.S.C. § 1342(j) (2000).

²²³ *Tex. Indep. Producers and Royalty Owners Ass’n*, 410 F.3d at 978.

²²⁴ Clean Water Act § 402(j), 33 U.S.C. § 1342(j) (2000).

²²⁵ Clean Water Act § 308(b), 33 U.S.C. § 1318(b) (2000).

²²⁶ 40 C.F.R. § 122.34(g)(2) (2004).

²²⁷ 344 F.3d 832 (9th Cir. 2003), *cert. denied*, *Tex. Cities Coal. on Stormwater v. EPA*, 541 U.S. 1085 (2004) (denying cert. on the petition of whether the EPA’s Phase II Stormwater Rule violated the Tenth Amendment by coercing local governmental entities either to enforce a federal program or to surrender their police powers).

²²⁸ *Id.* at 840.

²²⁹ *Id.* at 854.

This narrow view of the decision misses important additional considerations that arguably support its broader application. The Second Circuit's decision in *Waterkeeper Alliance v. EPA*,²³⁰ which endorsed the Ninth Circuit's reasoning, suggests that the Ninth Circuit's reasoning in *Environmental Defense Center* has broader persuasive appeal than being limited to small MS4s.²³¹ The Second Circuit captures this point in the following statement: "The demand that permits authorizing municipal storm sewer discharges must 'require controls' is, in sum and substance, identical to the demand that permits authorizing discharges from *other* point sources must 'assure compliance with' applicable effluent limitations. Both provisions require regulation of discharges *in fact*."²³² In essence, the narrow focus on the Phase II Rule is a distinction without a difference to the broader point of necessary regulatory oversight to protect water quality.

The critical part of the Ninth Circuit's reasoning in *Environmental Defense Center* is found in the following statement adopting a functional equivalent theory: "[T]he EPA's failure to require review of the NOIs, which are the *functional equivalents* of permits under the Phase II General Permit option, and its failure to make NOIs available to the public or subject to public hearings contravene the express requirements of the Clean Water Act."²³³ The finding that the NOI was the functional equivalent to a permit was critical because it provides the foundation for the conclusion that the Rule contravenes the CWA requirements that permits be "available to the public" and "subject to public hearings."²³⁴

Several considerations led the court to conclude that the NOI was the functional equivalent of a permit or permit application.²³⁵ First is the substantive importance of the NOI pursuant to the Rule.²³⁶ The NOI, the court reasoned, contains the substantive information necessary to determining whether the statutory effluent limitation standard of "maximum extent practicable" (MEP) has been met.²³⁷ The CGP does not contain this information; only the NOI contains it.²³⁸ Under the Rule, an operator satisfies the statutory requirement to reduce discharges to

²³⁰ 399 F.3d 486 (2d Cir. 2005).

²³¹ *See id.* at 500 n.18.

²³² *Id.*

²³³ *Env'tl. Def. Ctr., Inc.*, 344 F.3d at 879 (emphasis added).

²³⁴ *Id.* at 857.

²³⁵ *Id.*

²³⁶ *Id.*

²³⁷ *Id.* at 853.

²³⁸ *Id.* at 853–57.

the MEP upon implementing its identified SWPPP.²³⁹ Thus, the court found that the Rule on the NOI “crosses the threshold from being an item of procedural correspondence to being a substantive component of a regulatory regime.”²⁴⁰

The Rule states that “[c]ompliance with the conditions of the general permit and the series of steps associated with identification and implementation of the minimum control measures will satisfy the MEP standard.”²⁴¹ This aspect of the Rule has an important substantive consequence. By merely implementing the BMPs chosen by the operator, the operator is deemed to meet the MEP effluent limitation requirement.²⁴² The court reasoned that all an operator needs to do is to decide for itself the steps needed to meet MEP and to implement them.²⁴³ Without a mandatory system of regulatory review of the NOI and accompanying SWPPP, nothing prevents an operator from either misunderstanding or misrepresenting its own predetermined storm water compliance.²⁴⁴ In the end, the Rule provides no system of regulatory review to assure that the storm water measures chosen and implemented by the operator *in fact* reduce the discharges to the MEP.²⁴⁵

Once the “functional permit” theory was found to apply, the Ninth Circuit pointed to the Rule’s failure to provide for adequate public participation.²⁴⁶ The public received neither notice nor the opportunity for a hearing on the NOI.²⁴⁷ The EPA argued that the NOI was neither a “permit” nor “permit application,” and therefore was not subject to the public hearing and public availability provisions of the CWA.²⁴⁸ A NOI is legally distinguishable from a permit application because a NOI is submitted after the general permit has been promulgated by the EPA.²⁴⁹ Assuming *arguendo* that the NOI should be considered a “permit” or “permit application,” the EPA maintained that the public availability requirements were met through a combination of the public involvement minimum measures,²⁵⁰ the Federal Freedom of Information Act,²⁵¹ and state freedom of information acts.²⁵²

²³⁹ 40 C.F.R. § 122.34(a) (2004).

²⁴⁰ *Env'tl. Def. Ctr., Inc.*, 344 F.3d at 853.

²⁴¹ 64 Fed. Reg. 68,722, 68,754 (Dec. 8, 1999).

²⁴² *Env'tl. Def. Ctr., Inc.*, 344 F.3d at 855 n.34.

²⁴³ *Id.* at 855.

²⁴⁴ *Id.*

²⁴⁵ *Id.*

²⁴⁶ *Id.* at 857.

²⁴⁷ *Id.* at 856.

²⁴⁸ *Id.*

²⁴⁹ *Id.* at 853, 857.

²⁵⁰ *Id.* at 857.

²⁵¹ 5 U.S.C.A. § 552 (West 1989).

The court rejected the EPA's public participation arguments.²⁵³ It reasoned that the "technical issues" applicable to permitting should be decided in "the most open, accessible forum possible, and at a stage where the [permitting authority] has the greatest flexibility to make appropriate modifications to the permit."²⁵⁴ This openness was lacking, and as a result, the Rule violated the "clear intent of Congress."²⁵⁵

B. *Texas Independent Producers and Royalty Owners Association v. EPA*

The Seventh Circuit adopted a different view of the GCP in *Texas Independent Producers and Royalty Owners Association v. EPA*.²⁵⁶ The Natural Resources Defense Council (NRDC) filed a petition to review the CGP.²⁵⁷ The court found that the NRDC did not have standing to present a substantive challenge to the merits of the CGP,²⁵⁸ but that it did have standing to present certain procedural challenges based on the failure to provide a public hearing on the NOI and SWPPP and the failure to mandate their public availability.²⁵⁹ As might be expected, the procedural challenges were based on Sections 402(j) and 402(a)(1).²⁶⁰ The court rejected the NRDC's procedural claims, which relied on a functional equivalent theory.²⁶¹

The Seventh Circuit's reasoning turns on the application of the *Chevron v. Natural Resources Defense Council* decision.²⁶² In *Chevron*, the Supreme Court established a two-step judicial test for reviewing federal agency interpretations:

When a court reviews an agency's construction of the statute which it administers, it is confronted with two questions. First, always, is the question whether Congress has directly spoken to the precise question at issue. If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency,

²⁵² *Env'tl. Def. Ctr., Inc.*, 344 F.3d at 857.

²⁵³ *Id.*

²⁵⁴ *Id.* at 856–57 (quoting 44 Fed. Reg. 32,854, 32,885 (June 7, 1979)).

²⁵⁵ *Id.* at 857.

²⁵⁶ 410 F.3d 964, 967 (7th Cir. 2005).

²⁵⁷ On July 1, 2003, the EPA issued its Final NPDES General Permit for Storm Water Discharges from Construction Activities (CGP). 68 Fed. Reg. 39,087 (July 1, 2003); see also *Tex. Indep. Producers*, 410 F.3d at 967.

²⁵⁸ *Tex. Indep. Producers*, 410 F.3d at 967.

²⁵⁹ *Id.* at 977.

²⁶⁰ *Id.*, 33 U.S.C. §§ 1342(j), 1342(a)(1) (2000). The NRDC also claimed that the CGP violated the CWA for failing to ensure that the discharge meets the water quality and technology requirements of the CWA, and that the CGP violated the Endangered Species Act. *Tex. Indep. Producers*, 410 F.3d at 969–70.

²⁶¹ *Id.* at 978 n.13.

²⁶² *Chevron, U.S.A., Inc. v. Natural Res. Def. Council*, 467 U.S. 837 (1984).

must give effect to the unambiguously expressed intent of Congress. If, however, the court determines Congress has not directly addressed the precise question at issue, the court does not simply impose its own construction on the statute, as would be necessary in the absence of an administrative interpretation. Rather, if the statute is silent or ambiguous with respect to the specific issue, the question for the court is whether the agency's answer is based on a *permissible* construction of the statute.²⁶³

The Seventh Circuit applied the step-two deference of *Chevron*.²⁶⁴ The Seventh Circuit reasoned that Congress had not spoken to the issue and, if it had, its directions were at best ambiguous.²⁶⁵ This view that the Rule does not present a step-one analysis under *Chevron* is persuasive. Congress did not define what constitutes a "permit" or "permit application," nor did it provide any explanation of the manner in which NPDES permits and permit applications are to be made publicly available.²⁶⁶ Thus, the challenge to properly applying *Chevron* was whether the determination that NOIs and SWPPPs were not "permits" or "permit applications" was a permissible statutory construction by the EPA.

The court found that arguments advanced by the EPA were a permissible construction of the CWA under *Chevron*.²⁶⁷ The EPA argued that a fundamental distinction exists between a "general permit," which is proposed through the notice and comment process, and a "permit application," which is considered by the public at a hearing during the application process.²⁶⁸ This distinction supports the view that no additional need exists either for public comment or notice with respect to general permits.²⁶⁹

The EPA also maintained that requiring the opportunity for an additional public hearing for each NOI and SWPPP was not sound as a matter of policy.²⁷⁰ It "would eviscerate the administrative efficiency inherent in the general permitting concept."²⁷¹ Such a requirement would place too heavy a burden on the administration of the system of general permitting, and thus conflict with Congress' intent to allow the use of general permits.²⁷²

²⁶³ *Id.* at 842–43 (emphasis added).

²⁶⁴ *Tex. Indep. Producers*, 410 F.3d at 978.

²⁶⁵ *Id.*

²⁶⁶ *Id.*

²⁶⁷ *Id.*

²⁶⁸ *Id.*

²⁶⁹ *Tex. Indep. Producers*, 410 F.3d at 978.

²⁷⁰ *Id.*

²⁷¹ *Id.*

²⁷² *Id.*

As recognized in *NRDC v. Costle*,²⁷³ the CWA allows the use of general permits: “Area-wide regulation is one well-established means of coping with administrative exigency.”²⁷⁴

The Seventh Circuit was aware of the Ninth Circuit’s “functional equivalent” theory and specifically rejected it:

The Ninth Circuit’s majority . . . found under step one of *Chevron* that Congress clearly intended NOIs to be subject to the public availability and public hearing requirements because NOIs are the functional equivalent of a permit application. . . . [T]he statutory language [CWA Sections 402(j) and 402(a)(1)] at issue addresses only “permit applications” and fails to include any mention of NOIs, SWPPPs, or other so-called “functional equivalents.”²⁷⁵

In addition to rejecting it, the Seventh Circuit recognized that its opinion creates a split between the federal circuits.²⁷⁶

C. The Constructional Principle “*In Pari Materia*”

Certain principles of statutory construction undermine the *raison d’être* for the functional permit theory. Section 402(p) authorizes the use of “system or jurisdiction-wide” permits for municipal discharges.²⁷⁷ While this section does not expressly authorize them for industrial storm water discharges, Section 402(p)(6) does direct the EPA to establish a “comprehensive program” to regulate storm water discharges that may include “performance standards, guidelines, guidance, and management practices and treatment requirements”²⁷⁸ The EPA’s general permit program of construction storm water regulation arguably fits within this congressional direction. Similarly, given the administrative and technical complexity of storm water regulation, Section 402(p)(6) also provides the justification for applying step two of *Chevron*.²⁷⁹

The industrial storm water provisions of Section 402(p) incorporate the requirements of Section 301, which contains two regulatory strategies: WQSs and technology-based standards, which in the case of storm water regulation is MEP achieved through BMPs.²⁸⁰ The Ninth Circuit did not consider the role played by WQSs as a regulatory oversight tool to ensure that wa-

²⁷³ Nat’l Res. Def. Council, Inc. v. Costle, 568 F.2d 1369 (D.C. Cir. 1977).

²⁷⁴ *Id.* at 1381.

²⁷⁵ *Tex. Indep. Producers*, 410 F.3d at 978–79 n.13 (internal citations omitted).

²⁷⁶ *Id.*

²⁷⁷ Clean Water Act § 402(p)(3)(B)(i), 33 U.S.C. § 1342(p)(3)(B)(i) (2000).

²⁷⁸ Clean Water Act § 402(p)(6), 33 U.S.C. § 1342(p)(6) (2000).

²⁷⁹ Clean Water Act § 402(p)(6), 33 U.S.C. § 1342(p)(6) (2000); see *supra* note 263 and accompanying text.

²⁸⁰ Clean Water Act §§ 301(b), 402(p)(3)(B)(iii), 33 U.S.C. §§ 1311(b), 1342(p)(3)(B)(iii) (2000).

ter quality is *in fact* protected.²⁸¹ Section 301(b)(1)(C) states:

not later than July 1, 1977, any more stringent limitation, including those necessary to meet water quality standards, treatment standards, or schedule of compliance, established pursuant to any State law or regulations, (under authority preserved by Section 510 [of this title]) or any other Federal law or regulation, or required to implement any applicable water quality standard established pursuant to this Act.²⁸²

A NPDES permit cannot legally authorize a discharge in violation of WQSs regardless of the perceived substantive role played by the SWPPP under the Rule.²⁸³ In short, the CWA requires that limitations necessary to meet WQSs be implemented.²⁸⁴ Equally important, the CGP also recognizes this obligation.²⁸⁵

The storm water provisions added by Congress in 1987 require the EPA to issue storm water regulations to “protect water quality.”²⁸⁶ In doing so, Congress created a moratorium on storm water discharges occurring prior to October 1, 1994.²⁸⁷ But the moratorium does not apply to a discharge that “contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.”²⁸⁸

The overview to the Rule itself recognizes the obligation to protect WQSs. It states: “[a]bsent evidence to the contrary, EPA presumes that a small MS4 program that implements the six minimum measures in today’s rule does not require more stringent limitations to meet water quality standards [WQSs].”²⁸⁹

The language creates a presumption that additional limitations are not required. But it is a rebuttable presumption because the presumption applies “[a]bsent evidence to the contrary.”²⁹⁰ Consequently, evidence may be submitted by regulators or other interested parties to demonstrate that the “minimum measures” do not in fact meet WQSs.²⁹¹ Thus, if after

²⁸¹ This failure by the Ninth Circuit is curious in light of *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1164 (9th Cir. 1999) (reasoning that only industrial dischargers were “expressly” required by § 1342(p)(3)(A) to comply with WQS).

²⁸² Clean Water Act § 301(b)(1)(C), 33 U.S.C. § 1311(b)(1)(C) (2000); *see also* Clean Water Act § 303(e)(3)(A), 33 U.S.C. § 1313(e)(3)(A) (2000).

²⁸³ Clean Water Act § 301(a), 33 U.S.C. § 1311(a) (2000).

²⁸⁴ Clean Water Act § 301(b)(1)(C), 33 U.S.C. § 1311(b)(1)(C) (2000).

²⁸⁵ *See* NPDES General Permit *supra* note 15.

²⁸⁶ Clean Water Act § 402(p)(6), 33 U.S.C. § 1342(p)(6) (2000).

²⁸⁷ Clean Water Act § 402(p)(1), 33 U.S.C. § 1342(p)(1) (2000).

²⁸⁸ Clean Water Act § 402(p)(2)(E), 33 U.S.C. § 1342(p)(2)(E) (2000).

²⁸⁹ EPA, Regulations for the Revision of the Water Pollution Control Program, 64 Fed. Reg. 68,722, 68,753 (Dec. 8, 1999).

²⁹⁰ *Id.*

²⁹¹ *Id.*

implementing the minimum control measures identified by the Rule, evidence exists that the discharger is nonetheless causing or contributing to non-attainment of WQSs, the builder may be required to take additional substantive steps by expanding or better tailoring its BMPs.²⁹² In short, the substantive effect of the Rule is not as complete as the Ninth Circuit reasons in *Environmental Defense Center, Inc. v. EPA*.²⁹³

In addition, the court failed to consider the existence or possible application of the federal antidegradation policy. The constructional principle *in pari materia* (part of the same material) counsels that legislation should be interpreted by the courts so that the respective parts of the law being construed are internally consistent.²⁹⁴ In the context of storm water regulation, its application is based on the normative view that Congress was cognizant of the antidegradation or anti-backsliding provisions of the CWA²⁹⁵ when it added Section 402(p) in 1987.

As part of the WQS program, a state is required to have an antidegradation policy that also limits the perceived determinative effect of the Rule.²⁹⁶ The federal antidegradation policy provides:

(a) The State shall develop and adopt a statewide antidegradation policy and identify the methods for implementing such policy pursuant to this subpart. The antidegradation policy and implementation methods shall, at a minimum, be consistent with the following:

(1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

(2) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

(3) Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.²⁹⁷

²⁹² *Id.*; see also 40 C.F.R. § 122.34(b) (2004).

²⁹³ 344 F.3d 832 (9th Cir. 2003).

²⁹⁴ See e.g., *Quackenbush v. Allstate Ins. Co.*, 517 U.S. 706, 711(1996).

²⁹⁵ Clean Water Act § 402(o)(1), 33 U.S.C. § 1342(o)(1) (2000).

²⁹⁶ 40 C.F.R. § 131.12 (2004).

²⁹⁷ *Id.*

The implementation of this policy must ensure that existing beneficial uses and “high quality waters” are protected.²⁹⁸ Thus, the antidegradation policy provides an additional regulatory instrument to assure regulatory oversight.

In California, the antidegradation policy is formally known as the Statement of Policy with Respect to Maintaining High Quality of Waters in California.²⁹⁹ It restricts discharges that degrade surface and ground waters.³⁰⁰ Under the policy, any actions that can adversely affect water quality in any surface and ground waters must “be consistent with the maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in [water quality basin plans].”³⁰¹ This policy is consistent with federal requirements.³⁰²

The congressional grant of authority to the EPA to create a general permit system reasonably includes the authority to implement it without the imposition of a NOI public hearing obligation.³⁰³ This point was made by the dissent in *Environmental Defense Center*:

The majority’s position fails to give deference to [the] EPA and imposes the majority’s own wishes instead. EPA would have been justified in creating a system entirely reliant on general or area permits. Its imposition of NOIs is an indulgence to certain policy prerogatives, namely public involvement and the collection of additional information. But the power to create a general permit system necessarily implies the power to require subordinate steps for NOIs that do not quite reach the level of inquiry associated with actual permits.³⁰⁴

Finally, public policy should be considered. To the extent that the filing of a NOI or SWPPP triggers the need for a public hearing, this requirement eviscerates the administrative efficiency inherent in the general permitting concept that has been authorized by Congress. Providing a public hearing for each NOI or SWPPP would undoubtedly compromise important aspects of administrative efficiency.

²⁹⁸ *Id.*

²⁹⁹ California State Water Resources Control Board, Resolution No. 68-16: *Statement of Policy with Respect to Maintaining High Quality of Waters in California*, available at <http://www.waterboards.ca.gov/plnspols/wqplans/res68-16.pdf> (last visited Feb. 19, 2006).

³⁰⁰ *Id.*

³⁰¹ *Id.*

³⁰² *See id.*

³⁰³ *See* *Env’tl. Def. Ctr., Inc., v. EPA*, 344 F.3d 832, 882 (9th Cir. 2003) (Tallman, J., dissenting).

³⁰⁴ *Id.*

D. Administrative Compliance with the “Functional” Permit Theory

No evidence exists that *Environmental Defense Center, Inc. v. EPA*³⁰⁵ has an appreciable effect on the actual administration of construction storm water permitting in California. This situation is somewhat reminiscent of Andrew Jackson’s comment on the Supreme Court’s decision in *Worcester v. Georgia*,³⁰⁶ which held Georgia’s anti-Cherokee statutes unconstitutional.³⁰⁷ He remarked: “John Marshall has made his decision, now let him enforce it.”³⁰⁸

In response to the *Environmental Defense Center, Inc. v. EPA*,³⁰⁹ the EPA “recommends” the following:

[P]ermitting authorities include permit language explaining the process for requesting a public hearing on an NOI, the standard by which such requests will be judged, the procedures for conducting public hearing requests that are granted, and the procedures for permitting authority consideration of the information submitted at the hearing in determining whether to grant authorization to discharge to the submitter of the NOI. If a public hearing is requested, the permitting authority should consider both whether to grant a hearing and the range of options for the conduct of the hearing, including, for example, a single public hearing for consideration of multiple Phase II MS4 permittee NOIs.³¹⁰

The EPA does not recommend any specific administrative action. Little disagreement exists with the recommendation that the process for requesting the public hearing should be explained.³¹¹ But the critical issue is specifying the process to accommodate the requirement. Unfortunately, the EPA’s recommendation is at such a level of generality that it falls short in being useful to those who have to implement the process.

Another aspect of the EPA’s response is worth noting. The recommendation that “the permitting authority should consider . . . whether to grant a hearing”³¹² seems at odds with the application of the functional permit theory. The EPA appears to

³⁰⁵ 344 F.3d 832 (9th Cir. 2003).

³⁰⁶ 31 U.S. 515 (1832).

³⁰⁷ *Id.* at 595.

³⁰⁸ LEONARD BAKER, JOHN MARSHALL: A LIFE IN LAW 745 (1974) (internal citations omitted).

³⁰⁹ 344 F.3d 832 (9th Cir. 2003).

³¹⁰ Hanlon, Memorandum, *supra* note 32.

³¹¹ See N.C. Div. of Water Quality, *NPDES Program FAQs*, <http://h2o.enr.state.nc.us/NPDES/faqs.html> (last visited Feb. 19, 2006) (explaining procedures for requesting a public hearing); Utah Dep’t of Env’tl. Quality, *Environmental Permit Brochure*, http://www.deq.utah.gov/references/docs_rules/Permit.htm#wq (last visited Feb. 19, 2006) (explaining the same).

³¹² Hanlon, Memorandum, *supra* note 32.

be signaling its continuing support for the Rule, except in the Ninth Circuit where it has been judicially invalidated.³¹³ In short, this guidance to regulators may also be an invitation to the Supreme Court to resolve the issue.

Several administrative strategies may be suggested to respond to the application of the functional permit theory. The public hearing requirement might be satisfied by placing the NOI and SWPPP on the “uncontested items calendar” agenda of the permit-issuing agency.³¹⁴ This timesaving approach to administratively managing noncontroversial agenda items would satisfy the hearing requirement. The public hearing requirement might be easily accommodated because items on the consent calendar, more formally known as the uncontested items calendar, may be considered and voted on by one motion.³¹⁵

A concern with using the “consent calendar” as the administrative mechanism to satisfy the public hearing requirement is the ease with which any item can be removed from it. The agenda notice for action items coming before the San Diego Regional Water Board, for example, states:

*CONSENT CALENDAR: The agenda contains items listed on a consent calendar which is for matters considered routine or otherwise not requiring further deliberation. A committee or the Board will take action as recommended by one motion. There will be no individual discussion on such items prior to the vote unless an item is removed for discussion. If a member of the public wishes to talk about a consent calendar item, please notify the Chair before the calendar is called. Persons who wish to be heard on an item are encouraged to speak before the assigned committee.*³¹⁶

Because any person can request a hearing, the possibility exists that NOIs may be routinely removed from the consent calendar by opponents of a particular project.³¹⁷ Easy removal would slow the permitting process since a hearing would be required. It would give advocates of slow-growth or no-growth a convenient, as well as powerful, mechanism to challenge construction projects.

Another concern is the management of the consent calendar. Although placing the matter for expedited consideration may avoid a lengthy formal or informal hearing, if the NOI is removed, items must be complete before the permit issuing agency

³¹³ See *id.*

³¹⁴ See CAL. CODE REGS. tit. 23, § 647.2(f) (2005).

³¹⁵ See *id.*

³¹⁶ San Diego County Water Authority, *Notice to the Public*, available at <http://www.sdewa.org/board/notice.phtml> (last visited Feb. 19, 2006).

³¹⁷ See *id.*

takes action at the public hearing.³¹⁸ This requires the administrative staff to review and to recommend action on every SWPPP for expedited consideration. Using the consent calendar may assist in meeting the hearing requirement, but it is no panacea.

A second approach might be to rely on the citizen-suit notice provisions as the mechanism to trigger the public hearing request.³¹⁹ Like most federal environmental statutes, the CWA grants citizens the right to file suit in federal court when there is an alleged failure to perform any act or duty under the CWA that is not discretionary.³²⁰ Before filing suit, the CWA requires plaintiffs to provide 60 days' notice to the alleged violator, which in this case would be the permitting agency.³²¹ The notice requirement exists to allow the agency to take corrective action without the necessity of litigation.

This citizen-suit notice might be used by regulators as the basis for providing the mechanism to request the public hearing in particular cases. Upon receiving notice, the permitting agency could consider the request and grant the hearing as appropriate. But this strategy suffers the same shortcoming as using the consent calendar. The 60 days' notice could easily turn into a *pro forma* request by objectors to any and all construction projects.

A more fundamental concern exists. Using the citizen-suit notice provisions to request the public hearing might be seen as the systematic creation of a cumbersome procedural barrier, and one that is inconsistent with the core principle of the functional equivalent theory. In California, the Porter-Cologne law provides that the Regional Water Board shall prescribe waste discharge requirements "after any necessary hearing."³²² A hearing is necessary according to the application of the functional equivalent theory.³²³ Thus, a hearing should be routinely available without the necessity of threatening litigation.

In the end, providing a hearing on every storm water NOI and SWPPP has the potential to bring the construction storm water permit issuing process to a grinding halt. Perhaps a more sensible solution exists by focusing on the substantive nature of

³¹⁸ See generally *id.*

³¹⁹ The availability of citizen suit enforcement actions was rejected as a substitute for the EPA's enforcement responsibility. See e.g., *Env'tl. Def. Ctr., Inc. v. EPA*, 344 F.3d 832, 855 n.32 (9th Cir. 2003). The argument being made here is that the citizen suit provision might be used as the basis for administering the request for a public hearing.

³²⁰ Clean Water Act § 505(a), 33 U.S.C. § 1365(a) (2000).

³²¹ Clean Water Act § 505(b)(1)(A), 33 U.S.C. § 1365(b)(1)(A) (2000).

³²² CAL. WATER CODE ANN. § 13263(a) (West 2005).

³²³ See Clean Water Act § 402(a)(1), 33 U.S.C. § 1342(a)(1) (2000) (providing that "the Administrator [of the EPA] may, after opportunity for public hearing, issue a permit"); see also discussion *infra* Part VIII. The "Functional" Permit Theory: Divergent Views.

the SWPPP. To the extent that the SWPPP is not treated as substantively determinative, the claim that the functional equivalent theory should apply is arguably unavailing.

MS4 storm water permits do not treat the Storm Water Management Plan (SWMP), which is functionally similar to the SWPPP, as satisfying the statutory requirement of MEP.³²⁴ This policy approach could be incorporated into the construction storm water permitting program. In essence, the minimum measures that are treated as compliance with MEP by the Phase II Rule need to be viewed more flexibly, and less determinatively.

This approach goes to the *raison d'être* for applying the functional permit theory. The absence of regulatory oversight was the trigger for the opportunity for a public hearing.³²⁵ In other words, providing the opportunity for a hearing through the functional permit theory is the legal mechanism to assure oversight. The determination of whether a builder has reduced pollutants to the MEP by using various BMPs can only be made by the permit-issuing agency, not by the developer. Otherwise, the system is self-regulatory.

MEP ought to be viewed as a dynamic standard by regulators and developers alike. The standard should be treated as requiring developers to use whatever combination of pollution prevention, source control, and BMPs that are technologically and economically effective. To the extent that regulatory monitoring or on-site inspection reveals that additional or modified BMPs are needed to protect water quality, the ability of regulators to require corrective action by developers exists. In addition to having the authority to require corrective action, regulators have the authority under the CWA to take other enforcement action.³²⁶

³²⁴ But see 33 U.S.C. § 1342(p)(3)(B)(iii) (2000) ("Permits for discharges from municipal storm sewers . . . (iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable . . ."); California EPA, State Water Resources Control Board, *Storm Water Program: Phase II Small MS4 General Permit Questions and Answer Document*, <http://www.swrcb.ca.gov/stormwtr/smallms4faq.html> (last visited Feb. 24, 2006) ("[P]ermits for [MS4] must require municipalities to reduce pollutants in their storm water discharges to the MEP. . . . MS4 permits 'shall require controls to reduce the discharges of pollutants to the maximum extent practicable, including management practices, control techniques and systems, design and engineering methods.'"); California EPA, State Water Resources Control Board, *Stormwater Program: Municipal Program*, <http://www.swrcb.ca.gov/stormwtr/municipal.html> (last visited Feb. 24, 2006) ("The MS4 permits require the discharger to develop and implement a Storm Water Management Plan/Program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the Clean Water Act.")

³²⁵ See *Env'tl. Def. Ctr., Inc. v. EPA*, 344 F.3d 832, 852 (9th Cir. 2003).

³²⁶ See Clean Water Act § 309, 33 U.S.C. § 1319 (2000).

IX. CONCLUSION

A compelling case exists that construction activities are a potential source of water quality impairment. Sediment runoff from construction sites, which exceeds natural erosion rates when land is cleared or altered during development, is one of the largest pollutant concerns.³²⁷ But sediment runoff is not the only concern. Regulators are also concerned with a wide array of additional pollutants, such as nutrients used to fertilize landscaping, the application of toxic pesticides, and the generation of trash and other construction debris.³²⁸ Some best management practices (BMPs) carry special concerns. Standing water in filtration basins, for example, may encourage vector production that may threaten public health.³²⁹ The actual palette of pollutants depends on climatic conditions as well as the particulars at the construction site. The type of pollutant subject to off-site release also varies as the project progresses through its various phases toward completion, and thus is dynamic.

The Clean Water Act (CWA), which is based on Congress' authority under the Commerce Clause, sets out the requirements that must be satisfied by dischargers to comply with federal law. The jurisdictional prerequisites to regulation and enforcement are the discharge of a pollutant to waters of the United States from a point source (PS).³³⁰ Thus, the CWA does not apply without these requirements (discharge, pollutant, navigable waters, and PS) being met.

The CWA regulates the pollutants in storm water discharges from construction activities under the permitting system established by National Pollutant Discharge Elimination System (NPDES) program.³³¹ Discharges of any pollutant into navigable waters from a point source are unlawful unless the discharge complies with an NPDES permit.³³² The failure to secure a required permit as well as the noncompliance with the terms of an NPDES permit are both unlawful, and subject the violator to civil and criminal sanctions.³³³

³²⁷ EPA, *Storm Water Phase II Final Rule Fact Sheet Series, Small Construction Program Overview* (Jan. 2000), available at <http://www.undecr.org/watman/stormwater/factsheets/fact3-0.pdf>.

³²⁸ EPA, *U.S. v. Wal-Mart Stores, Inc.* Fact Sheet, *supra* note 68, at 3–4.

³²⁹ See Swarna Muthukrishnan, Richard Field & Daniel Sullivan, *The Use of Best Management Practices (BMPs) in Urban Watersheds* (Sept. 2004), at 2–38, available at <http://www.epa.gov/ORD/NRMRL/pubs/600r04184/600r04184chap2.pdf> (last visited Feb. 19, 2006).

³³⁰ See, e.g., Clean Water Act § 311(b), 33 U.S.C.S. § 1321(b) (LexisNexis 2002).

³³¹ See Clean Water Act § 402, 33 U.S.C. § 1342 (2000).

³³² *Id.*

³³³ See Clean Water Act § 309, 33 U.S.C. § 1319 (2000).

In 1987, the CWA was amended adding the industrial storm water provisions of Section 402(p).³³⁴ Construction activities, which fall within the industrial category, that disturb one acre or more of land and meet the requirements of the CWA are now regulated.³³⁵ Given the large number of construction sites subject to CWA regulation, most developers elect to be regulated by a “general permit” designed to regulate an entire group or category of activities. Although individually issued NPDES permits may be issued to developers, individual NPDES storm water permits are not the norm. Thus, the effective and efficient administration of the “general permit” storm water system is critically important to regulators, the building industry, and the community. It is also significant because construction storm water regulation has been elevated as an enforcement priority by regulators.³³⁶

A developer requests coverage under the general storm water permit by filing a Notice of Intent (NOI).³³⁷ At this time, the implementation of best management practices (BMPs) is considered by regulators to be the most appropriate method of meeting the maximum extent practicable (MEP) standard.³³⁸ A Storm Water Pollution Prevention Plan (SWPPP), which accompanies the NOI, identifies the proposed BMPs to reduce pollutants.³³⁹ It also identifies the potential sources of pollution that are expected from the construction site, and contains the assurance that the developer will comply with the terms and conditions of the construction storm water permit.³⁴⁰

The states play an important role in administering the storm water law. Most states are authorized by the EPA to administer the NPDES program, subject to continuing oversight by the EPA.³⁴¹ As a result, the states tend to be at the forefront of administering the storm water program, including enforcement.³⁴²

³³⁴ Clean Water Act of 1987, Pub. L. No. 100-4, 101 Stat. 7 (Feb. 4, 1987).

³³⁵ Extension of National Pollutant Discharge Elimination System (NPDES) Permit Deadline for Storm Water Discharges for Oil and Gas Activity That Disturbs One to Five Acres, 70 Fed. Reg. 11,560 (Mar. 9, 2005), available at http://www.epa.gov/npdes/regulations/sw_oil_gas_final_rule.pdf.

³³⁶ EPA, *Compliance and Enforcement National Priority: Clean Water Act, Wet Weather, Storm Water* (Nov. 2004), <http://www.epa.gov/compliance/resources/publications/data/planning/priorities/fy2005prioritycwastorm.pdf>.

³³⁷ EPA, EPA's Electronic Stormwater Notice of Intent (eNOI) Home Page, <http://cfpub.epa.gov/npdes/stormwater/enoi.cfm> (last visited Feb. 20, 2006).

³³⁸ See 40 C.F.R. § 122.34 (2004).

³³⁹ See EPA, Storm Water Pollution Prevention Plans for Construction Activities, <http://cfpub.epa.gov/npdes/stormwater/swppp.cfm> (last visited Feb. 20, 2006).

³⁴⁰ See *id.*

³⁴¹ Clean Water Act § 402(b), 33 U.S.C. § 1342(b) (2000); see also discussion *supra* Part IV. The Construction Industry and Clean Water Act (CWA) Storm Water Regulation.

³⁴² See EPA, Authorization Status for EPA's Stormwater Construction and Industrial Programs, <http://cfpub.epa.gov/npdes/stormwater/authorizationstatus.cfm> (last visited Feb. 20, 2006) (providing a table listing which states have been authorized to implement

States also play an important role when acting to protect water quality based on state law considerations independent of the CWA. In such cases, a state may provide more protection than provided by the CWA even though the formal mechanism to providing this additional protection may be incorporated in the federal NPDES permit.³⁴³

In California, for example, any person discharging or proposing to discharge waste that could affect the water quality of the waters of the state is subject to regulation.³⁴⁴ This grant of regulatory authority—“could affect the water quality”—is broader than the “discharge to navigable waters” Commerce Clause requirement of the CWA.³⁴⁵ A legal reservoir of independent state constitutional authority exists to provide greater water quality protection than that available under federal law.

The CWA requires the opportunity for a public hearing on a “permit” or “permit application.”³⁴⁶ But actually providing a public hearing for each construction activity seems at odds with the nature of a general permit system. The federal circuits are divided as to whether this hearing requirement applies to a NOI and accompanying SWPPP.³⁴⁷ The failure of Congress to define “permit” or “permit application” is the starting point to understanding the controversy that led to the functional permit theory.³⁴⁸ Ultimately, the functional equivalent permit theory must be addressed by Congress or the Supreme Court of the United States.

This article has examined the divergent views on this theory. In *Environmental Defense Center, Inc. v. EPA*,³⁴⁹ the Ninth Circuit considered the NOI and accompanying SWPPP the functional equivalent to a “permit” or “permit application.”³⁵⁰ The

the NPDES storm water program).

³⁴³ See *City of Burbank v. State Water Res. Control Bd.*, 108 P.3d 862, 870 (2005) (rejecting the argument that state exercising the discretionary authority recognized by the CWA acts pursuant to federal law based on the theory that the CWA incorporates state water policy into federal law).

³⁴⁴ CAL. WATER CODE ANN. § 13260(1) (West 2005).

³⁴⁵ See CAL. WATER CODE ANN. § 13260(a)(1) (West 2005); see also Clean Water Act § 401(a)(1), 33 U.S.C. § 1341(a) (2000).

³⁴⁶ Clean Water Act § 402(a)(1), 33 U.S.C. § 1342(a)(1) (2000) (providing that “the Administrator [of the EPA] may, after opportunity for public hearing, issue a permit . . .”).

³⁴⁷ See *Env'tl. Def. Ctr., Inc. v. EPA*, 344 F.3d 832 (9th Cir. 2003), *cert. denied*, Tex. Cities Coal. on Stormwater v. EPA, 541 U.S. 1085 (2004), *accord* Waterkeeper Alliance, Inc. v. EPA, 399 F.3d 486 (2d Cir. 2005), *but see* Tex. Indep. Producers and Royalty Owners Ass'n v. EPA, 410 F.3d 964 (7th Cir. 2005) *reh'g denied* en banc Aug. 26, 2005.

³⁴⁸ See discussion *supra* Part VIII. The “Functional” Permit Theory: Divergent Views.

³⁴⁹ 344 F.3d 832 (9th Cir. 2003), *cert. denied*, Tex. Cities Coal. on Stormwater v. EPA, 541 U.S. 1085 (2004).

³⁵⁰ *Id.* at 858.

Phase II Rule did not provide for regulatory oversight, which led the court to conclude that the Rule constituted an impermissible self-regulatory regime.³⁵¹ In other words, the functional permit theory became the legal mechanism to assure regulatory oversight by providing the opportunity for a public hearing. The court applied the Supreme Court the first step of the two-part test set forth in *Chevron v. Natural Resources Defense Council* and found that this lack of oversight contravened the express requirements of the CWA.³⁵²

In 2005, the Seventh Circuit decided *Texas Independent Producers and Royalty Owners Association v. EPA*.³⁵³ It rejected the functional permit theory as it applies to storm water regulation.³⁵⁴ Because Congress had not defined the critical terms “permit” or “permit application,” the court reasoned that the critical issue was the application of step two of *Chevron*: whether the EPA’s construction of the CWA requirements was “permissible.”³⁵⁵

Several considerations led the court to conclude that the EPA’s position was permissible and should be sustained. First, the opportunity for a public hearing was granted when the permit was promulgated by the EPA for notice and comment in the Federal Register.³⁵⁶ The public had the opportunity at this time to weigh in on the proposed permit when it was promulgated.³⁵⁷ Furthermore, Congress did not specify that a NOI or SWPPP should be considered a “permit” or “permit application.”³⁵⁸ Rather, it assigned the EPA the task of developing a comprehensive storm water program.³⁵⁹ Second, granting a public hearing on each NOI and accompanying SWPPP was simply unworkable as an administrative matter given the large number of construction activities subject to possible regulation.³⁶⁰ Finally, granting a public hearing on each NOI and SWPPP would undermine the general permitting scheme approved by Congress.³⁶¹ Thus, the functional permit theory appears not to further Congress’ intent but to be inconsistent with it.

When pared to the core, the functional permit theory is

³⁵¹ *Id.* at 852.

³⁵² *Id.*

³⁵³ 410 F.3d 964 (7th Cir. 2005), *reh’g denied* en banc Aug. 26, 2005.

³⁵⁴ *Id.* at 978.

³⁵⁵ *Id.*

³⁵⁶ *Id.*

³⁵⁷ *See id.*

³⁵⁸ *Id.*

³⁵⁹ *Tex. Indep. Producers and Royalty Owners Ass’n v. EPA*, 410 F.3d 964, 968 (7th Cir. 2005), *reh’g denied* en banc Aug. 26, 2005.

³⁶⁰ *See id.* at 978.

³⁶¹ *Id.*

based on the perceived substantive importance of the SWPPP. I have argued that its substantive importance is minimized, and thus the *raison d'être* for its existence, when additional factors involving regulatory oversight and enforcement are taken into account. The role of Water Quality Standards (WQSs) and the federal antidegradation policy were not considered in considering the appropriateness of the theory. When they are taken into account, the Rule proposed by the EPA is significantly less “self-regulatory” than envisioned by the Ninth Circuit.³⁶² I have also argued that the Seventh Circuit’s analysis is more persuasive based on the application of *Chevron*. The Rule is a “permissible” construction by the EPA furthering the intent of Congress to promote the use of general permits.³⁶³

The division between the federal circuit courts on the role of the functional equivalent theory leaves developers, regulators, and the community with no clear answer to the question: What does the CWA require? Pending resolution of the answer either by Congress or the Supreme Court, I have suggested several solutions for coping with the requirement to provide the opportunity for a public hearing in those federal circuits applying the theory.

Perhaps the most promising approach is for regulators to treat the minimum BMP measures more flexibly, and less determinatively in meeting the statutory requirement of “maximum extent practicable” (MEP).³⁶⁴ In doing so, this would require developers to recognize that implementing the BMP measures identified in the applicable construction SWPPP is no assurance that regulators will treat the developer in compliance with the CWA. This approach inevitably results in some uncertainty with respect to compliance. Thus, the regulatory challenge that lies ahead to reduce uncertainty is a scientific one: the formulation of a more certain regulatory standard for storm water discharges.

³⁶² See *id.*

³⁶³ *Id.*

³⁶⁴ See 40 C.F.R. § 122.34 (2004).

Urban Runoff and Ocean Water Quality in Southern California: What Tools Does the Clean Water Act Provide?

*Robin Kundis Craig**

I. INTRODUCTION: URBAN RUNOFF AND OCEAN WATER QUALITY

The water quality effects of urban runoff—that is, “[s]torm water that flows through urbanized areas to receiving waters”¹—are well known.

Urban and suburban development, with the creation of buildings and roads, and the innumerable related activities, turns the rain and snow into unwitting agents of damage to our nation’s waterways. This urban and suburban runoff, legally known as stormwater, is—with agricultural runoff—one of the most significant water pollution problems in the United States.²

One significant victim of urban runoff pollution is coastal water quality.

The nation’s coastal waters are far from pristine. In January 2005, the U.S. Environmental Protection Agency (EPA) released its second *National Coastal Condition Report*,³ concluding, as it had in the original 2001 report,⁴ that the overall condition of the nation’s coastal waters was somewhere between “fair” and “poor,”

* Attorneys’ Title Insurance Fund Professor of Law, Florida State University College of Law, Tallahassee, Florida. I can be reached by e-mail at rcraig@law.fsu.edu. B.A. 1985, Pomona College; M.A. 1986, The Johns Hopkins University; Ph.D. 1993, University of California, Santa Barbara; J.D. 1996, Lewis & Clark School of Law. I would like to thank Professor Tony Arnold and the members of the Chapman University Law Review for inviting me to participate in this symposium.

¹ CAL. COASTAL COMM’N, *ET AL.*, MODEL URBAN RUNOFF PROGRAM: A HOW-TO GUIDE FOR DEVELOPING URBAN RUNOFF PROGRAMS FOR SMALL MUNICIPALITIES 1-2 (July 1998, as revised Feb. 2002), <http://www.coastal.ca.gov/la/docs/murp/chapter1.pdf> (listing the same pollutants).

² Natural Res. Def. Council, *Introduction*, in STORMWATER STRATEGIES: COMMUNITY RESPONSES TO RUNOFF POLLUTION, <http://www.nrdc.org/water/pollution/storm/intro.asp> (last visited Feb. 25, 2006).

³ EPA, OFFICE OF RESEARCH & DEV. & OFFICE OF WATER, EPA-620/R-03/002, NATIONAL COASTAL CONDITION REPORT II, (Jan. 2005), *available at* <http://www.epa.gov/owow/oceans/nccr2/> [hereinafter NATIONAL COASTAL CONDITION REPORT II].

⁴ EPA, OFFICE OF RESEARCH & DEV. & OFFICE OF WATER, EPA-620/R-01/005, NATIONAL COASTAL CONDITION REPORT, (Jan. 2005), <http://www.epa.gov/owow/oceans/nccr/>.

with the overall water quality index calculated as “fair.”⁵ Of greater concern was the fact that the EPA reported wholly “good” indicators only for the marine waters off the southeastern coast of the United States.⁶ Of the thirty-six percent of the nation’s estuaries that the EPA had assessed, over half were impaired in some way.⁷ With respect to water quality, eleven percent of the assessed estuaries have “poor” water quality, while an additional forty-nine percent enjoy only “fair” water quality.⁸ Thus, the nation’s coastal water quality remains a significant issue.

In California, urban runoff is—and has been for at least a decade—a major contributor to coastal water quality problems.⁹ Moreover, these water quality effects have implications for human health, regional economics, and environmental well-being. For example, “[l]and-based runoff is increasingly being recognized as a source of fecal bacteria and a public health concern at swimming beaches.”¹⁰ According to at least one study, “illness rates more than double when swimming at beaches near urban runoff outlets.”¹¹ In the summer of 1999, elevated levels of bacteria led to the closures of miles of Huntington Beach in Orange County, with economic impacts for both that county and California as a whole.¹² Although “researchers still aren’t sure what caused the bacteria levels to jump” in 1999, “many point the finger at urban runoff.”¹³ Soon after the Huntington Beach closures, researchers at the University of Southern California detected poliovirus, cocksackie virus, and hepatitis A virus in urban

⁵ NATIONAL COASTAL CONDITION REPORT II, *supra* note 3, at ES.2, fig. ES-1.

⁶ *Id.*

⁷ *Id.* at ES.7.

⁸ *Id.* at 28.

⁹ EPA, *National Summary of Water Quality Conditions* 12 tbl 4, in NATIONAL WATER QUALITY INVENTORY: 1994 REPORT TO CONGRESS (1994), available at http://www.epa.gov/owow/305b/94report/nat_sum.pdf (listing urban runoff and storm sewers as the leading cause of water quality impairment in estuaries).

¹⁰ Rachel T. Noble, *et al.*, *Storm Effects on Regional Beach Water Quality Along the Southern California Shoreline*, 1.1 J. WATER & HEALTH 23, 23 (2003).

¹¹ *Id.* at 24 (citing R.W. Haile, *et al.*, *The Health Effects of Swimming in Ocean Water Contaminated by Storm Drain Runoff*, 104 J. EPIDEMIOLOGY 355–63 (1999)).

¹² Sunny Jiang, Rachel Noble, & Weiping Chu, *Human Adenoviruses and Coliphages in Urban Runoff-Impacted Coastal Waters of Southern California*, 67:1 APPLIED & ENVTL. MICROBIOLOGY 179, 179 (Jan. 2001); Jeff Gottlieb, *UC Irvine Ocean Study Blames Familiar Suspect: Runoff; Germ-laden Discharge Makes Orange County Waters Worse than Santa Cruz’s, Experts Find*, L.A. TIMES, Apr. 6, 2004, available at <http://www.mindfully.org/Water/2004/Urban-Runoff-Waters6apr04.htm>.

¹³ See Gottlieb, *supra* note 12; see also Noble, *supra* note 10 (surveying beaches from Santa Barbara, California, to Ensenada, Mexico, after storm events and finding that “[s]ixty percent of the shoreline failed water quality standards after the storm compared to only 6% during dry weather” and that “[f]ailure of water quality standards increased to more than 90% for shoreline areas adjacent to urban runoff outlets.”); Jiang, Noble, & Chu, *supra* note 12, at 183 (noting that “[h]uman adenoviruses were detected at the mouths of four major urban rivers in Southern California, pointing to urban runoff as a source of coastal viral contamination.”).

runoff pouring from storm drains into California beach waters, including Santa Monica Bay.¹⁴ The EPA has also acknowledged the health effects of urban stormwater runoff in coastal waters.¹⁵

Despite implementation of urban runoff control measures in many southern California jurisdictions, urban runoff-related health issues have not disappeared from the southern California coastal waters.¹⁶ In April 2004, researchers at the University of California, Irvine, reported that “[o]cean swimmers near densely populated areas are more likely to get sick than those who swim off rural coastlines,” because “[t]he ocean off populated regions contains more germs because of the amount of untreated urban runoff discharged into the water.”¹⁷ Specifically, “[r]esearchers found that over a two-year period, surfers in Newport Beach and

¹⁴ Bob Calverley, *Researchers Probe Dangers in Urban Runoff*, USC NEWS (Sept. 9, 1999), available at <http://uscnews.usc.edu/detail.php?recordnum=4753>.

¹⁵ National Pollutant Discharge Elimination System—Regulations for the Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed. Reg. 68,722, 68,727 (Dec. 8, 1999) (codified at 40 C.F.R. Parts 9, 122, 123, and 124) [hereinafter Phase II Stormwater Regulations]. Specifically, the EPA stated that

[u]rban wet weather flows have been recognized as the primary sources of estuarine pollution in coastal communities. Urban storm water runoff, sanitary sewer overflows, and combined sewer overflows have become the largest causes of beach closings in the United States in the past three years. Storm water discharges from urban areas not only pose a threat to the ecological environment, they also can substantially affect human health. A survey of coastal and Great Lakes communities reports that in 1998, more than 1,500 beach closings and advisories were associated with storm water runoff (Natural Resources Defense Council. 1999. “A Guide to Water Quality at Vacation Beaches” New York, NY). Other reports also document public health, shellfish bed, and habitat impacts from storm water runoff, including more than 823 beach closings/advisories issued in 1995 and more than 407 beach closing/advisories issued in 1996 due to urban runoff (Natural Resources Defense Council. 1996. *Testing the Waters Volume VI: Who Knows What You’re Getting Into*. New York, NY; NRDC. 1997. *Testing the Waters Volume VII: How Does Your Vacation Beach Rate*. New York, NY; Morton, T. 1997. *Draining to the Ocean: The Effects of Stormwater Pollution on Coastal Waters*. American Oceans Campaign, Santa Monica, CA). The Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay (Haile, R.W., et. al. 1996. “An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay.” Final Report prepared for the Santa Monica Bay Restoration Project) concluded that there is a 57 percent higher rate of illness in swimmers who swim adjacent to storm drains than in swimmers who swim more than 400 yards away from storm drains. This and other studies document a relationship between gastrointestinal illness in swimmers and water quality, the latter of which can be heavily compromised by polluted storm water discharges.

Id.

¹⁶ See, e.g., City of Santa Monica, *Urban Runoff: Working for a Cleaner Bay*, http://santa-monica.org/epd/residents/Urban_Runoff/urban.htm (last visited Feb. 25, 2006) (advising residents that “[b]y reducing the quantity of runoff and improving the quality of runoff, we lower levels of harmful bacteria, toxics, and other forms of pollutants affecting the bay. Reducing the amount of urban runoff and the amount of pollutants contained in the runoff are essential for the health and safety of our community.”).

¹⁷ Gottlieb, *supra* note 12.

Huntington Beach were almost twice as likely to get sick than their counterparts in Santa Cruz County, about 400 miles north.”¹⁸ At least two surfing organizations now warn surfers about the health risks from surfing in California waters subject to urban runoff, particularly right after storms.¹⁹

Urban runoff also causes environmental problems for marine waters, many of which also come with associated economic costs.²⁰ For example, storm events that increase urban runoff often result in violations of state ocean water quality standards.²¹ In addition, “[l]eft unregulated and uncontrolled, urban stormwater . . . closes or shrinks lucrative rockfish, shad, flounder, crab, oyster, and other commercial fisheries due to chemical contamination, oxygen starvation, and the resulting loss of habitat” and “fouls beaches and other recreational waters, causing losses in revenues from declines in boating, fishing, duck hunting and

¹⁸ *Id.*

¹⁹ See, e.g., Surfrider Found., *Beach Health Indicators: Surf Zone Water Quality*, in STATE OF THE BEACH 2005, <http://www.surfrider.org/stateofthebeach/01-bi/body.asp?sub=ba> (2005).

Scientific research indicates that swimming in water with high bacteria levels can increase the swimmer’s risk of experiencing adverse health conditions like fever, nausea, gastroenteritis, nasal congestion, sore throat, and cough. Beyond bacteria, other common pollutants found in the surf zone are heavy metals such as lead and arsenic, organic chemicals such as pesticides and oil, other pathogens such as viruses, and nutrients that can create harmful algal blooms. Polluted water affects both the mating and feeding habits of wildlife.

Id. (internal citations omitted); Pat Zabrocki, *What’s that Smell? Oil, Litter, Pesticides, and Feces Wash Into The Ocean You Surf In*, SURFSHOT MAGAZINE, http://www.surfshot.com/items/magazine_item.html?context_id=221&item_id=225 (last visited Feb. 25, 2006).

Want to surf after it rains? Are you sure? The waves might be good, but is it worth the consequences? With the start of the rainy season, it’s time for a reminder on the dangers of URBAN RUNOFF.

....

There are some things all surfers should know. One of the most important things to realize is that the ocean we surf in is the trashcan for everything on land. In San Diego County, nearly 3,000 square miles of land eventually drain onto the beach. For example, someone who dumps oil down a storm drain in Julian would pollute the water in Ocean Beach.

Id.

²⁰ See, e.g., Natural Res. Def. Council, *Executive Summary*, in STORMWATER STRATEGIES: COMMUNITY RESPONSES TO RUNOFF POLLUTION, *supra* note 2.

Most of the U.S. population lives in urban and coastal areas where the water resources are highly vulnerable to and are often severely degraded by urban runoff. Even a partial accounting shows that hundreds of millions of dollars are lost each year through added government expenditures, illness, or loss in economic output due to urban stormwater pollution. The ecological damage is at least as significant.

Id.

²¹ Noble, *supra* note 10 (surveying beaches from Santa Barbara, California, to Ensenada, Mexico, after storm events and finding that “[f]ailure of water quality standards increased to more than 90% for shoreline areas adjacent to urban runoff outlets.”).

coastal tourism.”²²

Other kinds of ecological effects have also been detected in coastal waters plagued by urban runoff. For example, in February 2000, researchers at the University of California, Santa Cruz, concluded “that urea in urban and agricultural runoff may play a greater role than previously thought in triggering or sustaining harmful algal blooms found growing off California’s coastline.”²³ The harmful algal blooms at issue in that study were the red tides caused by rapidly increasing numbers of a type of phytoplankton (small marine plants) known as dinoflagellates, which secrete neurotoxins that make shellfish unsafe to eat and water potentially unfit for swimming.²⁴ Most recently, in November 2005, scientists “discovered sexually altered fish off the Southern California coast, raising concerns that treated sewage discharged into the ocean contains chemicals that can affect an animal reproductive system.”²⁵

Protection of coastal water quality from urban runoff depends on the interface of point and nonpoint source water quality regulation. As “runoff,” urban runoff begins as nonpoint source water pollution—that is, as a diffuse, uncontrolled and uncontained source of pollutants.²⁶ However, many industries and communities collect this uncontrolled urban runoff into human-controlled disposal systems, potentially transforming the nonpoint source runoff into point source pollution. In coastal states like California, the interface between the regulation of nonpoint source urban runoff and point source urban runoff is delineated through the interaction between the Coastal Zone Management

²² Natural Res. Def. Council, *The Problem of Urban Stormwater Pollution*, <http://www.nrdc.org/water/pollution/fstorm.asp> (last visited Mar. 19, 2006).

²³ Press Release, U.C. Santa Cruz, Sewage in Urban Runoff May Spur Growth of Harmful Algal Blooms (Feb. 24, 2000), http://www.ucsc.edu/news_events/press_releases/archive/99-00/02-00/algal_blooms.htm.

²⁴ See *id.*

²⁵ Associated Press, “Intersex” Fish Discovered off Southern California Coast (Nov. 15, 2005), <http://www.enn.com/today.html?id=9250>. While treated sewage is generally not considered urban runoff *per se*, it is part of the urban discharges to ocean waters, and “[n]early a billion gallons of treated sewage are released into the Pacific Ocean every day through three underwater pipelines off Huntington Beach, Playa del Rey and Palos Verdes Peninsula.” *Id.* Moreover, in parts of the country that have combined sewer overflows (CSOs), such sewage components can legitimately be considered part of the urban runoff problem.

²⁶ See EPA, *What is Nonpoint Source (NPS) Pollution: Questions and Answers*, <http://www.epa.gov/OWOW/NPS/qa.html> (last visited Feb. 27, 2006) (describing various types of nonpoint source pollution); Robert I. Fassbender, *Reducing Great Lakes Toxics: Can we do More for Less Through Wastewater Effluent Trading?*, 1 WIS. ENVTL. L. J. 57, 63 (1994) (“Nonpoint sources of pollution include any diffuse source of pollutant loading, such as waste disposal sites, contaminated sediments, spills, and agricultural and urban runoff.”).

Act's (CZMA's) nonpoint source management requirements²⁷ and the Clean Water Act's stormwater permitting requirements.²⁸ Essentially, since 1987, if the Clean Water Act's stormwater permit program does not cover a particular source of urban runoff pollution, that urban runoff is nonpoint source pollution governed by the CZMA.²⁹ However, complicating this interface is the fact that Congress provided for progressive implementation of the Clean Water Act's stormwater permit program, with the result that regulation of urban runoff has been shifting from a CZMA nonpoint source to a Clean Water Act point source regulatory approach.³⁰ This shift has positive implications for the protection of ocean water quality, because more and more urban runoff is now subject to the larger water quality protections of the Clean Water Act.

This article outlines the regulation of urban runoff in coastal states to protect coastal water quality. It begins with urban runoff's dual status as point and nonpoint source pollution and the CZMA's requirements for nonpoint source urban runoff in the coastal zone. This article then presents an overview of the Clean Water Act and that Act's stormwater permit program. Finally, this article discusses the more expansive water quality protections in the Clean Water Act, arguing that one of the main advantages of the stormwater permit program is its ability to subject urban runoff to the Clean Water Act's other protections for coastal water quality, including water quality-based effluent limitations, ocean discharge criteria, and the state certification and total maximum daily load (TMDL) requirements.

II. URBAN RUNOFF AS NONPOINT SOURCE POLLUTION AND THE COASTAL ZONE MANAGEMENT ACT (CZMA)

A. The Point Source/Nonpoint Source Divide

One of the most basic divisions in federal water quality regu-

²⁷ Coastal Zone Management Act §§ 302–19, 16 U.S.C. §§ 1451–1466 (2000); *see also* EPA, *Management Measures for Urban Areas—I. Introduction*, <http://www.epa.gov/owow/nps/MMGI/Chapter4/ch4-1.html> (last visited June 27, 2006) (excluding from the CZMA nonpoint source guidance all sources covered by the Clean Water Act's stormwater permit program, discussed *infra* in Part IV. PROTECTING OCEAN WATER QUALITY THROUGH STORMWATER NPDES PERMITS).

²⁸ Clean Water Act § 402(p), 33 U.S.C. § 1342(p) (2000).

²⁹ *See, e.g.*, Coastal Nonpoint Pollution Control Program, 63 Fed. Reg. 27,053, 27,053 (May 15, 1998) (noting that CZARA nonpoint source programs “shall be developed in close coordination with State and local water quality plans and programs required under the Clean Water Act (CWA) and will provide an update to the State’s nonpoint source program.”).

³⁰ *See* Clean Water Act §§ 402(p)-(q), 33 U.S.C. §§ 1342(p)-(q) (2000) (describing exceptions to permit requirements after Oct. 1, 1994).

lation is the distinction between point source and nonpoint source pollution. This division derives from the Federal Water Pollution Control Act, more popularly known as the Clean Water Act.³¹ Specifically, the distinction between point and nonpoint source water pollution derives from the Clean Water Act's most basic operative provision for individual dischargers, section 301(a), which states that, "[e]xcept as in compliance with [the Act], the discharge of any pollutant by any person shall be unlawful."³² The Act then defines "discharge of a pollutant" to mean: "(A) any addition of any pollutant to navigable waters from any *point source*, (B) any addition of any pollutant to the waters of the contiguous zone or the ocean from any *point source other than a vessel or other floating craft*."³³ Thus, the Clean Water Act's prohibition on discharges applies only to *point source* discharges.

The Clean Water Act defines "point source" fairly broadly to include:

any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.³⁴

Nevertheless, while the Act's definition of "point source" is broad,³⁵ it does not cover all forms of water pollution. By negative implication, any source of water pollution that is not a point source is a nonpoint source.³⁶ Section 319 of the Act assigns

³¹ 33 U.S.C. §§ 1251–1387 (2000).

³² Clean Water Act § 301(a), 33 U.S.C. § 1311(a) (2000).

³³ Clean Water Act § 502(12), 33 U.S.C. § 1362(12) (2000) (emphasis added).

³⁴ Clean Water Act § 502(14), 33 U.S.C. § 1362(14) (2000).

³⁵ See, e.g., *Borden Ranch P'ship v. United States Army Corps of Eng'rs*, 261 F.3d 810, 815 (9th Cir. 2001) (holding that bulldozers and tractors used to pull waste through soil were "point sources" and commenting that the statutory definition of "point source" is "extremely broad"); *Barcelo v. Brown*, 478 F.Supp. 646, 664 (D.P.R. 1979), *rev'd on other grounds*, 643 F.2d 835 (1st Cir. 1981), *aff'd sub nom.*, *Weinberger v. Romero-Barcelo*, 456 U.S. 305, (1982) (the release or firing of ordnance from aircraft into the water is a point source); *Avoyelles Sportsmen's League v. Marsh*, 715 F.2d 897, 922 (5th Cir. 1983) (bulldozers and backhoes constitute point sources); *Concerned Area Residents for Env't v. Southview Farm*, 34 F.3d 114, 119 (2d Cir. 1994), *cert. denied*, 514 U.S. 1082 (1995) (manure spreader which distributed manure in field deemed a point source); *United States v. W. Indies Transp., Inc.*, 127 F.3d 299, 308 (3d Cir. 1997), *cert. denied*, 522 U.S. 1052 (1998) (barge from which cement blocks were dumped and paint chips from sandblasting were projected is a point source); *Stone v. Naperville Park Dist.*, 38 F.Supp.2d 651, 655 (D.Ill. 1999) (shooting range where lead shots and airborne clay targets ultimately land in the water is a point source); see also *United States v. Plaza Health Lab., Inc.*, 3 F.3d 643, 651–652 (2d Cir. 1993) (Oakes, J., dissenting) (asserting that "point source" should be defined broadly and listing cases defining the term in such a manner).

³⁶ See *City of Arcadia v. State Water Res. Control Bd.*, 2006 WL 177789 (4th Dist. 2006) ("The Clean Water Act does not define nonpoint source pollution, but it has been

regulation of nonpoint source pollution largely to the states.³⁷

The Clean Water Act's focus on "discernible, confined, and discrete conveyances" generally means that diffuse stormwater runoff does *not* qualify as point source pollution,³⁸ as the Act's specific elimination of agricultural stormwater runoff makes clear. Indeed, runoff is the quintessential form of nonpoint source pollution, unless humans intervene and collect or channel that runoff in some way.³⁹

Nevertheless, urban runoff implicates both sides of the point source/nonpoint source divide in the Clean Water Act's regulatory regime. Because urban runoff begins as a form of diffuse and uncollected stormwater runoff, it often defaults to being nonpoint source pollution that is not subject to the Clean Water Act's permit requirements.⁴⁰ Thus, when urban runoff flows freely into rivers, streams, and the ocean itself, it is nonpoint source pollution.⁴¹ However, when cities and counties collect ur-

described as "nothing more [than] a [water] pollution problem not involving a discharge from a point source." " " (quoting *Defenders of Wildlife v. EPA*, 415 F.3d 1121, 1123-24 (10th Cir. 2005)).

³⁷ Clean Water Act § 319, 33 U.S.C. § 1329 (2000). As is discussed later, however, in coastal states, section 6217 of the 1990 Coastal Zone Act Reauthorization Amendments (CZARA) has largely displaced section 319 of the Clean Water Act regarding nonpoint source pollution of the coastal zone.

³⁸ See *Concerned Area Residents for Env't v. Southview*, 34 F.3d 114, 120 (C.A.2 NY 1994) ("We agree that agricultural stormwater run-off has always been considered nonpoint-source pollution exempt from the [Water Quality] Act."); *Howard County v. Davidsonville Area Civic and Potomac River Ass'ns, Inc.*, 527 A.2d 772, 775, 72 Md. App. 19, 26 (Md. App. 1987) (nonpoint sources include "farm runoff, urban storm water, ground water inflow," etc.); *c.f. Sarasota, Florida v. EPA*, 799 F.2d 674, 677 (11th Cir. 1986) ("In the opinion of the Washington office, the data did not indicate and the city could not establish that the treatment plant discharge rather than nonpoint source pollution (urban stormwater runoff, siltation from coastal development, etc.) had degraded the waters of the Bay.")

³⁹ See *Conservation Law Found. v. Hannaford Bros. Co.*, 327 F. Supp. 2d 325, 326 (D. Vt. 2004) (when stormwater runoff is collected by a storm drain and channeled through a pipe to a local brook, the storm drain and pipe constitute a "point source" under the Clean Water Act); *Env'tl. Def. Ctr. v. EPA*, 344 F.3d 832, 841, 842 n.8 (9th Cir. 2003) (noting that storm sewers are "established as point sources subject to NPDES permitting requirements," whereas "[d]iffuse runoff, such as rainwater that is not channeled through a point source, is considered nonpoint source pollution and is not subject to federal regulation."); *Natural Res. Def. Council v. Costle*, 186 U.S. App. D.C. 147 (D.C. Cir. 1977) (discussing storm sewers containing storm runoff as point sources).

⁴⁰ *Env'tl. Def. Ctr., Inc. v. EPA*, 344 F.3d 832, 841 & n.8 (9th Cir. 2003) (comparing urban storm sewers, which "are established point sources subject to NPDES permitting requirements," to "[d]iffuse runoff, such as rainwater that is not channeled through a point source," which "is considered nonpoint source pollution and is not subject to federal regulation" (citing *Or. Natural Desert Ass'n v. Dombeck*, 172 F.3d 1092, 1095 (9th Cir. 1998))).

⁴¹ See Dana R. Flick, *The Future of Agricultural Pollution Following USDA and EPA Drafting of a Unified National Strategy for Animal Feeding Operations*, 8 DICK. J. ENVTL. L. & POL'Y 61, 67 n.50 (1999).

The EPA has adopted the following non-regulatory definition: "Nonpoint source pollution is caused by diffuse sources that are not regulated as point

ban runoff into storm drains and stormwater systems, urban runoff arguably becomes point source pollution.⁴² Similarly, when commercial and industrial sources collect and channel urban runoff, the collected water and the pollutants it contains are considered point source pollution.⁴³

As the EPA has noted, “[h]istorically, overlaps and ambiguity have existed between programs designed to control urban nonpoint sources and programs designed to control urban point sources. For example, runoff that originates as a nonpoint source may ultimately be channelized and become a point source.”⁴⁴ Both kinds of urban runoff are problems for southern California coastal waters.⁴⁵ “The City of Santa Monica, California, for ex-

sources and normally is associated with agricultural, silvicultural and urban runoff, runoff from construction activities, etcetera. In practical terms, non-point source pollution does not result from a discharge at a specific single location, but generally results from land runoff, precipitation, atmospheric deposition, or percolation.”

Id. (quoting Susan E. Schell, *The Uncertain Future of Clean Water Act Agricultural Pollution Exemptions*, 31 *Land & Water L. Rev.* 113, 113 n.3 (1996)).

⁴² *Env'tl. Def. Ctr., Inc. v. EPA*, 344 F.3d 832, 841 (9th Cir. 2003); *see also* Daryl G. Ward, *The Uncertainty Surrounding Grazing and Section 401 of the Clean Water Act; Predicting the Outcome of Oregon Natural Desert Association v. Dombeck*, 13 *BYU J. PUB. L.* 391, 399 (1999) (“Runoff is normally considered a nonpoint source pollution, but once it has been collected and discharged from a discrete point, like a storm drain system, it becomes a point source.”); Jonathan Schneeweiss, *Watershed Protection Strategies: A Case Study of the New York City Watershed in Light of the 1996 Amendments to the Safe Drinking Water Act*, 8 *VILL. ENVTL. L. J.* 77, 102 n.117 (1997) (“Runoff from diffuse sources which would otherwise be non-point sources become point sources . . . when they are conveyed into a manmade pipe, ditch or conduit.”); Robert D. Fentress, *Nonpoint Source Pollution, Groundwater, and the 1987 Water Quality Act: Section 208 Revisited?*, 19 *ENVTL. L.* 807, 812 n.17 (1989) (“When urban runoff, construction site runoff, and runoff associated with industrial activities, resource extraction, certain feedlots and waste disposal units is collected and discharged from a discrete conveyance such as a storm sewer, the discharge becomes a point source.” (citing National Pollution Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 53 *Fed. Reg.* 49,416, 49,417 (1988) (to be codified at 40 *C.F.R.* pts. 122–24, 504))).

⁴³ *See* Fentress, *supra* note 42, at 812 n.17.

⁴⁴ EPA, *Polluted Runoff: Overlap Between this Management Measure Guidance for Control of Coastal Nonpoint Sources and Storm Water Permit Requirements for Point Sources*, <http://www.epa.gov/OWOW/NPS/MMGI/Chapter4/ch4-1.html> (last visited Mar. 2, 2006) [hereinafter EPA, *Polluted Runoff*]; *see also* National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 *Fed. Reg.* 47,990, 47,991 (Nov. 16, 1990) (noting that “urban runoff was considered to be a diffuse source or nonpoint source pollution. From a legal standpoint, however, most urban runoff is discharged through conveyances such as separate storm sewers or other conveyances which are point sources under the CWA. These discharges are subject to the NPDES program.”).

⁴⁵ Noble, *supra* note 10, at 28.

Non-point runoff concerns are exacerbated in southern California because its rivers are highly modified stormwater conveyance systems that are independent of the sewage treatment systems, so urban runoff flows unimpeded to the ocean. When storm events occur, runoff plumes can become large oceanographic features that extend for many kilometers Moreover, southern California has an arid environment with a short rainy season and long dry periods when the rivers provide minimal runoff. Thus, bacteria and other con-

ample, has over 2000 catch basins and 64 storm drain lines running to 5 outfalls that empty directly into the Santa Monica Bay and the Pacific Ocean.”⁴⁶

B. Nonpoint Source Pollution and the Oceans: An Introduction

According to the EPA,

[t]he United States has made tremendous advances in the past 25 years to clean up the aquatic environment by controlling pollution from industries and sewage treatment plants. Unfortunately, we did not do enough to control pollution from diffuse, or nonpoint, sources. Today, nonpoint source (NPS) pollution remains the Nation’s largest source of water quality problems.⁴⁷

This statement holds true for ocean water quality, because “[c]oastal waters are affected by both point and nonpoint sources of pollution, with the latter a significant and, in many cases, dominant form of pollution impacting coastal water bodies.”⁴⁸

Urban runoff is an especially significant source of coastal pollution,⁴⁹ because “urbanization typically results in changes to the physical, chemical, and biological characteristics of the watershed.”⁵⁰ In a detailed six-year study (1977 to 1983), the EPA’s National Urban Runoff Program (NURP) conducted an “extensive survey of stormwater pollutants from a total of 2300 storms in 28 major metropolitan areas.”⁵¹ In its final NURP report, the EPA concluded that:

there are both existing and potential pollutant problems with urban storm water runoff. NURP found significant instances of high levels of heavy metals (especially copper, lead and zinc) in urban runoff. Freshwater water quality standards (chronic) were exceeded for lead (94% of all samples), copper (82%), zinc (77%) and cadmium (48%).

taminants accumulate on land between storms, enhancing runoff quality concerns compared to temperate areas where rainfall is more frequent.

Id.

⁴⁶ Roland Wall, *Urban Stormwater: A Hidden Problem*, <http://www.acnatsci.org/education/kye/hi/kye82001.html> (last visited Mar. 2, 2006).

⁴⁷ EPA, EPA841-F-96-004A, THE NATION’S LARGEST WATER QUALITY PROBLEM, Pointer No. 1, <http://www.epa.gov/owow/nps/facts/point1.htm> (last visited Apr. 1, 2006) [hereinafter EPA, NATION’S LARGEST].

⁴⁸ EPA, *Coastal Nonpoint Sources*, <http://www.epa.gov/owow/oceans/treasure/pg5.html> (last visited Apr. 1, 2006) (adapted from EPA, EPA/842/B-96/001, TREASURED WATERS 5 (June 1996)).

⁴⁹ EPA, EPA841-F-96-004E, PROTECTING COASTAL WATERS FROM NONPOINT SOURCE POLLUTION, Pointer No. 5, <http://www.epa.gov/owow/nps/facts/point5.htm> (last visited Apr. 1, 2006); see also Roland Wall, *supra* note 46 (noting that urban runoff may be responsible for “over 25% of problems with estuaries” (citing EPA, EPA841-S-00-001, THE QUALITY OF OUR NATION’S WATERS (1998))).

⁵⁰ EPA, *Polluted Runoff*, *supra* note 44, at F.1.

⁵¹ Roland Wall, *supra* note 46 (citing EPA, RESULTS OF THE NATIONAL URBAN RUNOFF PROGRAM: VOLUME 1—FINAL REPORT (1983)).

Nationwide, BOD loadings from runoff were estimated as comparable to that from secondary POTWs [publicly owned treatment works], while TSS [total suspended solids] loadings were estimated to be a factor of 10 higher than loadings from POTWs. Fecal coliform levels also indicated significant impacts from urban storm runoff, especially from runoff into lakes and shellfish harvesting areas.⁵²

As the NURP report indicated, urban runoff picks up and carries with it a number of kinds of pollutants that impair ocean water quality, including: sediment, which can decrease light penetration and smother coastal ecosystems such as coral reefs; nutrients, which can cause plankton blooms, known as harmful algal blooms, and ultimately lead to decreased dissolved oxygen levels; oxygen-demanding substances, such as decaying organic matter, which also lead to decreases in dissolved oxygen levels; pathogens and disease-causing organisms, which lead to beach closures; road salts (in areas of the country with snow), which can result in toxic concentrations of chlorine; hydrocarbons from oil products, which can kill marine organisms; heavy metals such as copper, lead, chromium, and zinc, which are often toxic; and other toxic pollutants.⁵³ On the West Coast, polluted urban runoff has been implicated in commercial shellfish closures in Puget Sound, Washington and linked to toxic pollution in the southern part of San Francisco Bay.⁵⁴ In addition, urban runoff can cause temperature changes and disruptions to natural salinity levels in coastal waters and estuaries, interfering with natural ecosystem function.⁵⁵

C. Coastal Nonpoint Source Urban Runoff Pollution and the CZMA

1. Introduction to the CZMA

Congress originally enacted the CZMA in 1972 in recognition of the fact that:

The increasing and competing demands upon the lands and waters of our coastal zone occasioned by population growth and economic development, including requirements for industry, commerce, residential development, recreation, extraction of mineral resources and fossil fuels, transportation and navigation, waste disposal, and harvesting of fish, shellfish, and other living marine resources, have resulted in the loss of living marine resources, wildlife, nutrient-rich areas, permanent and adverse changes to ecological systems, decreasing open space

⁵² National Pollutant Discharge Elimination System Permit Regulations, 49 Fed. Reg. 37,998, 38,103 (Sept. 26, 1984) [hereinafter EPA, NPDES Permit Regulations].

⁵³ *Id.*; see also CAL. COASTAL COMM'N, *supra* note 1 (listing the same pollutants).

⁵⁴ EPA, *Polluted Runoff*, *supra* note 44, at F.2.a.

⁵⁵ *Id.* at F.2.b.

for public use, and shoreline erosion.⁵⁶

The “coastal zone,” for purposes of this Act, is “the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder), strongly influenced by each other and in proximity to the shorelines of the several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches.”⁵⁷ For most states, the “coastal zone” extends to the three-mile limit of state jurisdiction established through the Submerged Lands Act,⁵⁸ which is also roughly equivalent to the three-mile “territorial sea” that states can regulate as part of their “navigable waters” under the Clean Water Act.⁵⁹

In 1990, Congress enacted the Coastal Zone Act Reauthorization Amendments (CZARA)⁶⁰ to amend the federal CZMA to address coastal nonpoint source pollution, including urban runoff. Indeed, Congress specifically recognized in these amendments that “[n]onpoint source pollution is increasingly recognized as a significant factor in coastal water degradation” and that “[i]n urban areas, stormwater and combined sewer overflow are linked to major coastal problems.”⁶¹ Since CZARA, the CZMA has been the most important federal law for addressing nonpoint source urban runoff in the coastal zone, despite earlier provisions in the Clean Water Act to address nonpoint source pollution.⁶²

⁵⁶ Coastal Zone Management Act of 1972, Pub. L. No. 92-583, § 302(c), 86 Stat. 1280 (codified at 16 U.S.C. § 1451(c) (2000)).

⁵⁷ Coastal Zone Management Act, 16 U.S.C. § 1453(1) (2000). In more detail, the zone extends:

seaward to the outer limit of State title and ownership under the Submerged Lands Act (43 U.S.C. §§ 1301 et seq.), the Act of March 2, 1917, (48 U.S.C. § 749), the Covenant to Establish a Commonwealth of the Northern Mariana Islands in Political Union with the United States of America, as approved by the Act of March 24, 1976 (48 U.S.C. § 1681), or section 1 of the Act of November 20, 1963 (48 U.S.C. § 1705), as applicable. The zone extends inland from the shorelines only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters, and to control those geographical areas which are likely to be affected by or vulnerable to sea level rise. Excluded from the coastal zone are lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government, its officers or agents.

Id.

⁵⁸ *Id.* (referencing the Submerged Lands Act, 43 U.S.C. §§ 1301–1356a (2000)).

⁵⁹ See Clean Water Act §§ 301(a) (prohibiting the “discharge of any pollutants”), 502(12) (defining “discharge of a pollutant” to include additions of pollutants into the navigable waters), 502(7) (defining “navigable waters” to include the territorial sea), 502(8) (defining “territorial sea” to be the first three miles of ocean waters), 33 U.S.C. §§ 1311(a), 1362(12), (7), (8); see also discussion *infra* Part III.B. The Applicability of the Clean Water Act to Coastal Water Quality.

⁶⁰ Pub. L. No. 101-508, § 6217, 104 Stat. (1990) (codified as amended at 16 U.S.C. § 1455b (2000)).

⁶¹ Pub. L. No. 101-508, § 6202(a)(5), 104 Stat. 1388, 1388–300 (1990).

⁶² See EPA, *Guidance for Control of Coastal Nonpoint Sources and Storm Water*

Under CZARA, the EPA and the National Oceanic and Atmospheric Administration (NOAA) had 18 months from the amendments' effective date (November 5, 1990) to prepare final guidance for states regarding nonpoint source pollution control in the coastal zone.⁶³ Coastal states then had two and one-half years to prepare and submit coastal nonpoint source control programs for approval by these agencies.⁶⁴ States were supposed to coordinate these nonpoint source control programs both with their existing CZMA programs and with their Clean Water Act section 319 nonpoint source management programs.⁶⁵

To be approved, state coastal nonpoint source control programs had to implement management measures to control coastal nonpoint source pollution in conformity with the EPA/NOAA guidance.⁶⁶ "Management measures" are defined as:

economically achievable measures for the control of the addition of pollutants from existing and new categories and classes of nonpoint sources of pollution, which reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives.⁶⁷

Thus, implementation of these management measures should have achieved fairly stringent controls on nonpoint sources of coastal water pollution.

In addition, the CZARA programs had to meet seven other statutory criteria, including implementation of any additional management measures applicable to various land uses that were necessary to ensure that the coastal zone meets the applicable water quality standards.⁶⁸ States that failed to submit approvable programs would lose an increasing percentage of both their federal coastal zone management assistance under the CZMA and their water pollution control assistance funds under the

Permit Requirements for Point Sources, <http://www.epa.gov/OWOW/NPS/MMGI/Chapter4/ch4-1.html> (last visited Apr. 1, 2006) (noting that the CZMA nonpoint source management measures apply when the Clean Water Act's NPDES permit program does not); EPA, Office of Wetlands, Oceans, and Watersheds, EPA841-F-96-004E, *supra* note 49 (emphasizing the importance of the 1990 amendments to the CZMA); Nat'l Ocean Serv., Office of Ocean and Coastal Res. Mgmt., *Coastal Nonpoint Pollution Control Program*, <http://www.ocrm.nos.noaa.gov/czm/6217/> (last visited Apr. 1, 2006) (noting that prior programs for addressing nonpoint source pollution were to be wrapped into the CZMA management programs in order to "more effectively manage nonpoint source pollution in coastal areas.").

⁶³ Coastal Zone Act Reauthorization Amendments § 6217(g)(3)(B), 16 U.S.C. § 1455b(g)(3)(B) (2000) [hereinafter "CZARA"].

⁶⁴ CZARA § 6217(a)(1), 16 U.S.C. § 1455b(a)(1) (2000).

⁶⁵ CZARA § 6217(a)(2), 16 U.S.C. § 1455b(a)(2) (2000).

⁶⁶ CZARA § 6217(b), 16 U.S.C. § 1455b(b) (2000).

⁶⁷ CZARA § 6217(g)(5), 16 U.S.C. § 1455b(g)(5) (2000).

⁶⁸ CZARA § 6217(b)(3), 16 U.S.C. § 1455b(b)(3) (2000).

Clean Water Act.⁶⁹

Conversely, states that submitted approvable programs would be eligible to request federal grants to develop their coastal nonpoint source control programs.⁷⁰ Once states had their coastal nonpoint source management programs approved, they were supposed to implement those programs through amendments to the existing state coastal zone management plans under the CZMA and/or amendments to the state nonpoint source management program created pursuant to section 319 of the Clean Water Act.⁷¹

Thirty states and five territories are located along coastlines, and therefore are eligible to participate in the CZMA programs.⁷² Of those, thirty-three states and territories have fully approved coastal zone management plans⁷³ and hence are subject to the CZARA nonpoint source control program requirement. By January 2006, twelve of these coastal states, including California, and four of the territories had fully approved coastal nonpoint source control programs in place.⁷⁴ The other seventeen coastal states and territories subject to CZARA's nonpoint source requirements had received conditional approval, with full approval pending.⁷⁵

2. Nonpoint Source Urban Runoff Management Measures Under the CZMA

Management of nonpoint source urban runoff is a challenge for water quality managers, "requir[ing] that a number of objectives be pursued simultaneously."⁷⁶ These challenges only multiply in light of the increasing numbers of coastal residents and increasing urbanization of coastal communities.⁷⁷ "Protection of water quality in urbanized areas is difficult because of a range of factors," including "diverse pollutant loadings, large runoff volumes, limited areas suitable for surface water runoff treatment

⁶⁹ CZARA § 6217(c)(3)-(4), 16 U.S.C. § 1455b(c)(3)-(4) (2000).

⁷⁰ CZARA § 6217(f), 16 U.S.C. § 1455b(f) (2000).

⁷¹ CZARA § 6217(c)(2), 16 U.S.C. § 1455b(c)(2) (2000).

⁷² Nat'l Ocean Serv., Office of Ocean and Coastal Res. Mgmt., *Coastal Zone Management Program*, <http://www.ocrm.nos.noaa.gov/czm/national.html> (last visited Apr. 1, 2006).

⁷³ *Id.* Indiana's coastal zone management program is in development, while Illinois' is inactive.

⁷⁴ Nat'l Ocean Serv., *Program Approval Findings*, <http://www.ocrm.nos.noaa.gov/czm/6217/findings.html> (last visited Mar. 16, 2006).

⁷⁵ *Id.*

⁷⁶ EPA, *Management Measures for Urban Areas, I. Introduction*, *supra* note 27.

⁷⁷ *Id.* ("Urbanization first occurred in coastal areas and this historical trend continues. Approximately 80 percent of the Nation's population lives in coastal areas. The negative impacts of urbanization on coastal and estuarine waters has been well documented in a number of sources, including the Nationwide Urban Runoff Program (NURP) and the States .305(b) and .319 reports [pursuant to the Clean Water Act].").

systems, high implementation costs associated with structural controls, and the destruction or absence of buffer zones that can filter pollutants and prevent the destabilization of streambanks and shorelines.”⁷⁸

In general, controlling “nonpoint source pollution requires the use of two primary strategies: the prevention of pollutant loadings and the treatment of unavoidable loadings.”⁷⁹ For CZMA purposes, the EPA advocates a “watershed approach” for addressing urban runoff. Under the watershed approach, urban runoff is controlled by focusing on “pollution prevention or source reduction practices.”⁸⁰ Specifically, the EPA has noted that “[t]he major opportunities to control NPS loadings [in urban runoff] occur during the following three stages of development: the siting and design phase, the construction phase, and the postdevelopment phase.”⁸¹

In coastal areas such as southern California that were already highly urbanized by 1990, the postdevelopment management measures are often the most important. According to the EPA’s guidance, these management measures have three goals: (1) to “[r]educe surface water pollution loadings from areas where development has already occurred[;]” (2) to “[l]imit surface water runoff volumes in order to minimize sediment loadings resulting from the erosion of streambanks and other natural conveyance systems; and” (3) to “[p]reserve, enhance, or establish buffers that provide water quality benefits along waterbodies and other tributaries.”⁸²

Some of the “nonstructural” management measures that the EPA recommends, such as stabilization of shorelines, stream banks, and channels or restoration and protection of wetlands, help to control the detrimental effects of urban runoff⁸³ without changing its legal status as nonpoint source pollution. However, the EPA admits that preservation and restoration of buffers and other natural controls may not be possible in all areas. “Where existing development precludes the use of effective nonstructural controls, structural practices may be the only suitable option to

⁷⁸ EPA, *Management Measures for Urban Areas, IV. Existing Development, A. Existing Development Management*, <http://www.epa.gov/OWOW/NPS/MMGI/Chapter4/ch4-4.html> (last visited Apr. 1, 2006).

⁷⁹ EPA, *Management Measures for Urban Areas, I. Introduction. F. Background. 3. Opportunities*, <http://www.epa.gov/OWOW/NPS/MMGI/Chapter4/ch4-1.html> (last visited Apr. 1, 2006).

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² EPA, *Management Measures for Urban Areas, IV. Existing Development, A. Existing Development Management*, *supra* note 78.

⁸³ *Id.*

decrease the NPS pollution loads generated from developed areas,” such as “the construction of new surface water runoff treatment structures and the retrofit of existing surface water runoff management systems.”⁸⁴ Thus, many of the recommended control measures under the CZMA for nonpoint source urban runoff involve the collection and treatment of that runoff—a process that, through the phase-in of the Clean Water Act’s stormwater permit requirements, eventually subjects this urban stormwater to the Clean Water Act’s controls for point source pollution.⁸⁵

California implements a Nonpoint Source (NPS) Pollution Control Program,⁸⁶ which it originally enacted pursuant to section 319 of the Clean Water Act.⁸⁷ As Congress intended in CZARA, however, “[i]n lieu of developing a separate NPS program for the coastal zone, California’s NPS Pollution Control Program was updated in 2000 to address the requirements of both the CWA section 319 and CZARA section 6217 on a state-wide basis.”⁸⁸

The California Coastal Commission provides management measure guidance for urban runoff not subject to the Clean Water Act—currently, only uncollected urban runoff and runoff in municipal separate storm sewers (MS4s) from small municipalities (less than 100,000 people) that do not qualify as “urban areas.”⁸⁹ Specifically, the Commission has established “[t]he model urban runoff program, or MURP, [which] is a ‘how-to’ guide for addressing polluted urban runoff.”⁹⁰ The Commission views urban runoff “as an environmental problem that affects every urban community in California,” because “[p]olluted runoff threatens the water quality of our oceans and streams and degrades our groundwater supplies.”⁹¹ Its MURP advocates “‘best management practices’ or BMPs—practical ways to initiate a polluted runoff management program without heavy-handed regulatory

⁸⁴ *Id.*

⁸⁵ See *infra* Part III.C.2.d. The Stormwater NPDES Permit Program.

⁸⁶ CAL. COASTAL COMM’N, *supra* note 1.

⁸⁷ *Id.* (noting that California’s NPS control program “details how the state will promote the implementation of management measures and BMPs to control and prevent polluted runoff, as required by Section 319 of the federal Clean Water Act,” referring to 33 U.S.C. § 1329).

⁸⁸ *Id.* at 1-4. The Commission, the California Water Resources Control Board (CWRCB), and the nine Regional Water Quality Control Boards (RWQCBs) were the lead agencies in upgrading the program. *Id.* The CWRCB and the RWQCBs administer the Clean Water Act NPDES permit program in California. *Id.*

⁸⁹ EPA, OFFICE OF WATER, EPA 833-F-00-002, STORMWATER PHASE II FINAL RULE: SMALL MS4 STORMWATER PROGRAM OVERVIEW 1 (Dec. 2005), available at <http://www.epa.gov/npdes/pubs/fact2-0.pdf>.

⁹⁰ CAL. COASTAL COMM’N, *supra* note 1.

⁹¹ *Id.* (listing the same pollutants).

requirements.”⁹² However, “[t]he minimum program elements recommended by the MURP are the ‘minimum control measures’ required in the NPDES Phase II [stormwater] regulations”—namely, “[p]ublic education and outreach[,] [p]ublic involvement and participation[,] [i]llicit discharge detection and elimination[,] [p]ollution prevention and good housekeeping in municipal operations[,] [c]onstruction site urban runoff control[, and] [p]ost-construction runoff management in new development and redevelopment.”⁹³

3. The CZMA’s Federal Consistency Requirement and Urban Runoff

In addition to providing financial incentives to states to develop coastal zone management programs, the CZMA’s primary incentive for states is the Act’s federal consistency provisions, which require that “[e]ach Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs.”⁹⁴ When states incorporate their CZARA coastal nonpoint source control programs into their existing CZMA coastal management programs, the nonpoint source requirements become subject to the CZMA’s federal consistency requirements.⁹⁵ Moreover, because the nonpoint source management measures must be enforceable, federal agency activities must comply with them.

Consistency determinations regarding coastal stormwater have already been the subject of CZMA litigation.⁹⁶ Moreover, California historically has insisted that federal agencies comply with the consistency requirement: the California coast was the subject of one-third of the forty-five reported CZMA consistency decisions in the federal courts.⁹⁷ Thus, to the extent that federal

⁹² *Id.* The Commission has emphasized that “BMPs are common sense methods for controlling, preventing, reducing, or removing pollutants in urban runoff. Street sweeping, for example, is an effective BMP.” *Id.* at 1-6.

⁹³ *Id.* at 1-9.

⁹⁴ CZMA § 307(c)(1)(A), 16 U.S.C. § 1456(c)(1)(A) (2000).

⁹⁵ CZMA § 307(a), 16 U.S.C. § 1456(a) (2000) (“In carrying out his functions and responsibilities under this Act, the Secretary shall consult with, cooperate with, and, to the maximum extent practicable, coordinate his activities with other interested Federal agencies.”).

⁹⁶ *See, e.g.*, *Knaust v. City of Kingston*, 978 F. Supp. 86 (N.D. N.Y. 1997).

⁹⁷ *Sec’y of the Interior v. California*, 464 U.S. 312 (1984); *Amber Res. Co. v. United States*, 68 Fed. Cl. 535 (2005); *City of Sausalito v. O’Neill*, 386 F.3d 1186 (9th Cir. 2004); *California v. Watt*, 712 F.2d 584 (D.C. Cir. 1983); *California v. Watt*, 683 F.2d 1253 (9th Cir. 1982); *Am. Petroleum Inst. v. Knecht*, 609 F.2d 1306 (9th Cir. 1979); *City of Sausalito v. O’Neill*, 211 F. Supp.2d 1175 (N.D. Cal. 2002); *Cal. Coastal Comm’n v. United States*, 5 F. Supp.2d 1106 (S.D. Cal. 1998); *Sierra Club v. Marsh*, 692 F. Supp. 1210 (S.D. Cal.

agency activities contribute urban runoff to the California coast, such as through various military and energy facilities or national parks, it is likely that California will use the consistency requirement to ensure that its CZMA nonpoint source requirements are met.

III. CHANGING NONPOINT SOURCE URBAN RUNOFF INTO POINT SOURCE URBAN RUNOFF: THE CLEAN WATER ACT AND ITS STORMWATER PERMITTING REGIME

A. Introduction to the Clean Water Act

Congress enacted the contemporary version of the Clean Water Act through the Federal Water Pollution Control Act (FWPCA) Amendments of 1972,⁹⁸ which set out “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”⁹⁹ Specifically, the 1972 amendments established “the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985”¹⁰⁰ and “that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983”¹⁰¹ (the so-called “fishable/swimmable” goal).¹⁰² The 1972 amendments pursued these goals by transforming the FWPCA’s previous state-focused approach to water quality regulation, which was based almost entirely on ambient water quality standards, into a federal permitting scheme based primarily on end-of-the-pipe, technology-based effluent limitations for individual dischargers.¹⁰³

B. The Applicability of the Clean Water Act to Coastal Water Quality

In addition to emphasizing the “point source” limitation, the

1988); *Cal. Coastal Comm’n v. Mack*, 693 F. Supp. 821 (N.D. Cal. 1988); *Granite Rock Co. v. Cal. Coastal Comm’n*, 590 F. Supp. 1361 (N.D. Cal. 1984); *California v. Watt*, 520 F. Supp. 1359 (C.D. Cal. 1981); *S. Pac. Transp. Co. v. Cal. Coastal Comm’n*, 520 F. Supp. 800 (N.D. Cal. 1981); *County of San Francisco v. United States*, 443 F. Supp. 1116 (N.D. Cal. 1977).

⁹⁸ Pub. L. 92-500, 86 Stat. 816 (Oct. 18, 1972).

⁹⁹ Clean Water Act § 101(a), 33 U.S.C. § 1251(a) (2000).

¹⁰⁰ Clean Water Act § 101(a)(1), 33 U.S.C. § 1251(a)(1) (2000).

¹⁰¹ Clean Water Act § 101(a)(2), 33 U.S.C. § 1251(a)(2) (2000).

¹⁰² EPA, *Water Quality*, <http://www.epa.gov/history/topics/25year/WATER.PDF> (last visited Mar. 11, 2006).

¹⁰³ For a complete history of the evolution of the Federal Water Pollution Control Act into the contemporary Clean Water Act, see ROBIN KUNDIS CRAIG, *THE CLEAN WATER ACT AND THE CONSTITUTION: LEGAL STRUCTURE AND THE PUBLIC’S RIGHT TO A CLEAN AND HEALTHY ENVIRONMENT* 9–37 (2004).

Clean Water Act's definition of "discharge of a pollutant" makes it clear that the Act applies to at least three categories of waters: the "navigable waters," the "contiguous zone," and the "ocean."¹⁰⁴ The Act's definitions of these three terms effectively segment the waters of the coastal zone and the ocean.

1. "Navigable Waters"

The Act's "navigable waters" are "the waters of the United States, including the territorial seas."¹⁰⁵ The territorial seas, in turn, are "the belt of the seas measured from the line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters, and extending seaward a distance of three miles."¹⁰⁶ Therefore, as a practical matter, the Clean Water Act's "navigable waters" designate all of the waters that are generally subject to state jurisdiction, including both the inland waters (lakes, rivers, streams, and some wetlands) and, at least roughly, the offshore coastal waters that Congress gave to states through the Submerged Lands Act, which generally allows states to control the waters three miles off their coastlines.¹⁰⁷

The definition of "navigable waters" has become controversial regarding intrastate and apparently isolated wetlands, both statutorily and constitutionally.¹⁰⁸ However, the federal government's broad Commerce Clause authority over the oceans and all waters subject to the ebb and flow of the tide has left the Clean Water Act's extension to the coastal marine waters relatively uncontested.¹⁰⁹

¹⁰⁴ See Clean Water Act § 502(12), 33 U.S.C. § 1362(12) (2000) (defining "discharge of a pollutant" to include both "any addition of any pollutant to *navigable waters* from any point source" and "any addition of any pollutant to *the waters of the contiguous zone or the ocean* from any point source other than a vessel or other floating craft" (emphasis added)).

¹⁰⁵ Clean Water Act § 502(7), 33 U.S.C. § 1362(7) (2000).

¹⁰⁶ Clean Water Act § 502(8), 33 U.S.C. § 1362(8) (2000).

¹⁰⁷ Submerged Lands Act, 43 U.S.C.A. §§ 1301–1356 (West 2005). However, it is worth noting that the Submerged Lands Act allows states to claim more than three miles' jurisdiction offshore, and some states have succeeded in making such claims. When such conflicts arise, the Clean Water Act's three-mile designation for the "territorial sea" controls for Clean Water Act purposes. *Natural Res. Def. Council, Inc. v. EPA*, 863 F.2d 1420, 1434–36 (9th Cir. 1988) (holding that the Act's definition of "territorial sea" controlled despite Florida's claim of jurisdiction over three marine leagues (approximately 10.3 miles) into the Gulf of Mexico).

¹⁰⁸ See generally, e.g., *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 457 (1985) (delineating the federal agencies' jurisdiction over wetlands adjacent to more traditionally "navigable" waters); *Solid Waste Agency of N. Cook County v. United States Army Corps of Eng'rs*, 531 U.S. 159, 170–71 (2001) (refusing to decide the Commerce Clause limits of the Clean Water Act but implying that the Act cannot extend to isolated, intrastate wetlands).

¹⁰⁹ See, e.g., *United States v. Locke*, 529 U.S. 89, 99 (2000) (emphasizing the strength of the federal government's interest in interstate commerce in the oceans); *United States v. California*, 332 U.S. 19, 36 (1947) (recognizing the United States' "paramount rights in

2. "Contiguous Zone"

One of the more potentially ambiguous ocean zones under the Clean Water Act is the "contiguous zone," which the Act defines as "the entire zone established or to be established by the United States under article 24 of the Convention of the Territorial Sea and the Contiguous Zone."¹¹⁰ This definition references one of the four Conventions created through the 1958 United Nations Conference on the Law of the Sea (UNCLOS I), which allowed ratifying nations to claim a contiguous zone beyond their territorial seas and extending twelve nautical miles out to sea.¹¹¹ While international developments quickly rendered the 1958 zones obsolete for most purposes,¹¹² they remain in place for the Clean Water Act because Congress has never amended these statutory definitions. Thus, the "contiguous zone" for the Clean Water Act most logically still refers to the zone from three to twelve nautical miles out to sea.¹¹³

3. "Ocean"

The Clean Water Act defines "ocean" to be "any portion of the high seas beyond the contiguous zone."¹¹⁴ Obviously, the United States cannot regulate all of the world's high seas. Instead, in concert with international law, the United States asserts jurisdiction over a 200-nautical-mile-wide exclusive economic zone

and power over" the ocean and coastal zone).

¹¹⁰ Clean Water Act § 502(9), 33 U.S.C. § 1362(9) (2000).

¹¹¹ Convention on the Territorial Sea and the Contiguous Zone, art. 24(2), Apr. 29, 1958, 15 U.S.T. 1606, 1612-13, 516 U.N.T.S. 205, available at http://untreaty.un.org/ilc/summaries/8_1.htm ("The contiguous zone may not extend beyond twelve miles from the baseline from which the breadth of the territorial sea is measured."); see also U.N. Div. for Ocean Affairs and the Law of the Sea, *The United Nations Convention on the Law of the Sea (A Historical Perspective)* (2006), http://www.un.org/Depts/los/convention_agreements/convention_historical_perspective.htm (describing the 1958 United Nations Conference on the Law of the Sea and the four Conventions created at the conference).

¹¹² Internationally, by 1973, a year after Congress transformed the prior Federal Water Pollution Control Act into what we now think of as the Clean Water Act, the Third United Nations Conference on the Law of the Sea began work on the third United Nations Convention on the Law of the Sea (UNCLOS III), which opened for signature in 1982 and became effective in 1994. JOSEPH J. KALO, *ET AL.*, COASTAL AND OCEAN LAW: CASES AND MATERIALS 333, 337 (West 1999). Under this convention, ratifying nations could claim a twelve nautical-mile-wide territorial sea and a twenty-four nautical-mile-wide contiguous zone. *Id.* at 341. Domestically, in 1988, the United States claimed a twelve nautical-mile-wide territorial sea and, in 1999, claimed a contiguous zone extending from twelve nautical miles to twenty-four nautical miles out to sea. Proclamation No. 5928, 54 Fed. Reg. 777 (Jan. 9, 1989); Proclamation No. 7219, 64 Fed. Reg. 48,701 (Sept. 8, 1999).

¹¹³ See *Natural Res. Def. Council, Inc. v. EPA*, 656 F.2d 768, 778 & n.6 (D.C. Cir. 1981) (explicitly defining the Act's "contiguous zone" as extending to twelve miles); see also 40 C.F.R. § 220.1(a)(3)(ii) (defining "contiguous zone" as extending beyond the territorial sea out to twelve miles for purposes of ocean dumping). Case law on this point is limited, given the relative unimportance to the "contiguous zone" to the Act's regulatory requirements.

¹¹⁴ Clean Water Act § 502(10), 33 U.S.C. § 1362(10) (2000).

(EEZ)¹¹⁵ and has claimed a 200-nautical-mile-wide exclusive fishing zone since at least 1976.¹¹⁶ Thus, while the Clean Water Act is not precise about the extent of its reach into the oceans, the most logical construction is that federal jurisdiction over point source discharges currently extends 200 nautical miles out to sea.

4. Regulatory Significance of the “Contiguous Zone” and the “Ocean”

As a practical matter, the Clean Water Act’s distinction between the “contiguous zone” and the “ocean” is largely irrelevant, because almost all of the Act’s provisions that apply to one of these zones will apply to the other as well. Instead, the critical regulatory line is three nautical miles out to sea, because the Act’s “territorial sea” is part of the “navigable waters” that the Act regulates most comprehensively, while the “contiguous zone” and the “ocean” are not.¹¹⁷ In particular, the distinction between the “territorial sea” and the rest of the “ocean” can become critical for determining: (1) what Clean Water Act permit programs can apply to a discharge; (2) which governmental entity can issue the permit; and (3) what exceptions are available.

C. The Clean Water Act’s Two Permit Programs

1. The Section 404 “Dredge and Fill” Permit Program

The Clean Water Act’s more limited permit program is the section 404 permit program. Under this program, the Secretary of the Army, acting through the U.S. Army Corps of Engineers,¹¹⁸ received the initial authority to “issue permits . . . for the discharge of dredged or fill material into the navigable waters at specified disposal sites.”¹¹⁹ Section 404 allows states and Tribes to acquire “dredge and fill” permitting authority,¹²⁰ but to date only two states, Michigan and New Jersey, have done so.¹²¹ Ei-

¹¹⁵ Proclamation No. 5030, 48 Fed. Reg. 10,605 (Mar. 14, 1983). The 1982 UNCLOS III allows ratifying nations to claim such an EEZ. KALO, *ET AL.*, *supra* note 112, at 341. However, the United States has not yet ratified this Convention and hence claims its EEZ on the basis of customary international law.

¹¹⁶ See Pub. L. No. 94-265, § 101, 90 Stat. 331 (1976) (establishing this zone as part of the enactment of the Fishery Conservation and Management Act of 1976).

¹¹⁷ See, e.g., *Natural Res. Def. Council, Inc. v. EPA*, 863 F.2d 1420, 1434–36 (9th Cir. 1988) (holding that the three-mile line of the territorial sea is the critical line for section 401 certifications); *Pac. Legal Found. v. Costle*, 586 F.2d 650, 655–56 (9th Cir. 1978) (holding that beyond the three-mile limit of the territorial sea, only the EPA can issue NPDES permits for discharges into the ocean).

¹¹⁸ Clean Water Act §§ 404(a), (d), 33 U.S.C. §§ 1344(a), (d) (2000).

¹¹⁹ Clean Water Act § 404(a), 33 U.S.C. § 1344(a) (2000).

¹²⁰ Clean Water Act §§ 404(g)-(h), 33 U.S.C. §§ 1344(g)-(h) (2000).

¹²¹ EPA, *State or Tribal Assumption of the Section 404 Permit Program*, <http://www.>

ther way, the U.S. Environmental Protection Agency (EPA) oversees the section 404 permitting program: it issued the Section 404(b)(1) Guidelines,¹²² which emphasize that “dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern”¹²³ and it can veto any particular section 404 permit or proposed discharge.¹²⁴

Because the section 404 permit program applies only to “discharge[s] of dredged or fill material *into the navigable waters*,”¹²⁵ the section 404 program’s applicability to the sea is confined to the territorial sea. As a result, the section 404 permit program does not apply more than three nautical miles out to sea.¹²⁶ However, the Army Corps *does* regulate ocean dumping more than three miles out to sea through the Ocean Dumping Act.¹²⁷

The section 404 permit program is of limited value to regulating urban runoff, however, because that program is also limited to discharges of dredged or fill material.¹²⁸ According to the Army Corps’ regulations, the “discharge of dredged material” is “addition of dredged material into, including redeposit of dredged material other than incidental fallback within, the waters of the United States.”¹²⁹ “Dredged material,” in turn, is “material that is excavated or dredged from waters of the United States.”¹³⁰ The “discharge of fill material” is “the addition of fill material into waters of the United States,”¹³¹ with “fill material” being:

material placed in waters of the United States where the material has the effect of:

- (i) Replacing any portion of a water of the United States with dry land; or
- (ii) Changing the bottom elevation of any portion of a water of the

epa.gov/owow/wetlands/facts/fact23.html (last visited Apr. 1, 2006).

¹²² Clean Water Act § 404(b)(1), 33 U.S.C. § 1344(b)(1) (2000).

¹²³ 40 C.F.R. § 230.1(c) (2004).

¹²⁴ Clean Water Act § 404(c), 33 U.S.C. § 1344(c) (2000).

¹²⁵ Clean Water Act § 404(a), 33 U.S.C. § 1344(a) (2000) (emphasis added).

¹²⁶ Clean Water Act § 502(7), 33 U.S.C. § 1362(7) (2000) (defining “navigable waters”); 33 C.F.R. § 328.4(a) (2004).

¹²⁷ 33 U.S.C. § 1411(b) (2000); *see also* Clean Water Act § 502(8) (defining territorial sea); 40 C.F.R. § 230.2(b) (2004) (Regulation of discharges of dredged and fill material into the ocean is in fact more complex than this simple dichotomy would suggest, however, because the Army Corps has determined that discharges of dredged material, but not discharges of fill material, *into the territorial sea* are also regulated pursuant to the Ocean Dumping Act.).

¹²⁸ Clean Water Act § 404(a), 33 U.S.C. § 1344(a) (2000).

¹²⁹ 33 C.F.R. § 323.2(d)(1) (2004) (emphasis removed).

¹³⁰ *Id.* § 323.2(c) (emphasis removed).

¹³¹ *Id.* § 323.2(f) (emphasis removed).

United States.¹³²

Because urban runoff, even when channeled and controlled, does not constitute an addition of dredged material or an intentional attempt to fill coastal waters, the section 404 program does not apply.

2. The Clean Water Act's National Pollutant Discharge Elimination System (NPDES) Permit Program

Given the section 404 permit program's many limitations, the Clean Water Act's NPDES permit program governs most point source discharges of pollutants into the nation's waters, including urban stormwater point source discharges.¹³³ Under this program, the Administrator of the EPA received the initial authority to "issue a permit *for the discharge of any pollutant*, or combination of pollutants, notwithstanding section 1311(a) of this title, upon condition that such discharge will meet" a list of applicable requirements.¹³⁴ Section 402's incorporation of "discharge of a pollutant" extends the NPDES program to the full oceanic range of the Act's jurisdiction.¹³⁵

Section 402 of the Act, which governs the NPDES permit program, allows states to assume NPDES permitting authority.¹³⁶ Most states have assumed NPDES permitting authority,¹³⁷ subject to the EPA's oversight.¹³⁸ Thus, states now issue most NPDES permits. However, states lack authority to issue NPDES permit to point sources that discharge pollutants more than three miles out to sea.¹³⁹ Thus, the EPA still issues the NPDES permit for any such discharge, regardless of the coastal state's delegated authority under the Clean Water Act.

¹³² *Id.* § 323.2(e).

¹³³ See Clean Water Act § 402, 33 U.S.C.A. § 1342 (West 2005).

¹³⁴ 33 U.S.C. § 1342(a)(1) (2000) (emphasis added); see also Clean Water Act § 402(a)(1) (referencing the Clean Water Act section corresponding to section 1311(a) of the U.S.C., 301(a)).

¹³⁵ *Id.*; see also Clean Water Act § 502(12), 33 U.S.C. § 1362(12) (2000) (defining "discharge of a pollutant" to include all ocean waters).

¹³⁶ Clean Water Act § 402(b), 33 U.S.C. § 1342(b) (2000).

¹³⁷ See EPA, *National Pollutant Discharge Elimination System (NPDES): State Program Status*, <http://cfpub.epa.gov/npdes/statestats.cfm> (listing status of NPDES programs by state) (last visited Apr. 1, 2006).

¹³⁸ Clean Water Act §§ 402(b), (d), (i), 33 U.S.C. §§ 1342(b), (d), (i) (2000).

¹³⁹ Clean Water Act § 402(a)(5), 33 U.S.C. § 1342(b) (2000) (authorizing State NPDES permits for discharges into navigable waters within the State's jurisdiction); see also *Natural Res. Def. Council v. EPA*, 863 F.2d 1420, 1435 (9th Cir. 1988) (holding that the state NPDES permit authority only included navigable waters, which includes "only those waters *landward* from the outer boundary of the territorial seas"); *Pac. Legal Found. v. Costle*, 586 F.2d 650, 655-56 (9th Cir. 1978) (holding that state NPDES permit authority did not extend to discharges past the three-mile territorial sea), *rev'd on other grounds*, 445 U.S. 198 (1980).

The actual terms of an NPDES permit are based on many kinds of discharge requirements. Moreover, many of these permit terms apply differently to discharges into the sea¹⁴⁰ than they do to discharges into inland fresh waters.

a. Effluent Limitations

Of the Clean Water Act's many requirements for point source discharges, the most important are the technology-based effluent limitations, which are set on the basis of the relevant industrial category or subcategory and the type of pollutant discharged¹⁴¹ and then incorporated into individual NPDES permits. According to the Act, an "effluent limitation" is "any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance."¹⁴² Therefore, most effluent limitations are numerical standards dictating the allowable concentrations of specific pollutants at the "end of the pipe"—that is, as effluent enters waters subject to the Act's jurisdiction.

Section 301 of the Clean Water Act emphasizes that technology-based effluent limitations "shall be applied to all point sources of discharge of pollutants."¹⁴³ By incorporating the phrase "discharge of pollutants," section 301 extends the technology-based effluent limitation requirement to the territorial sea, the contiguous zone, and the ocean. However, some requirements do change three miles out to sea, when the "territorial sea" becomes the "contiguous zone" and the "ocean." For example, section 301 specifically prohibits the discharge of "any radiological, chemical, or biological warfare agent, any high-level radioactive waste, or any medical waste."¹⁴⁴ However, this absolute prohibition applies only to discharges into the *navigable waters*.¹⁴⁵ Therefore, this prohibition does not extend beyond the three-nautical-mile limit of the Act's territorial sea.

¹⁴⁰ See, e.g., Clean Water Act § 403, 33 U.S.C. § 1343 (2000) (ocean discharge criteria). Section 403 establishes special requirements for discharges into the ocean regions defined in the Clean Water Act—the territorial sea, the contiguous zone, and the ocean. Robin Kundis Craig & Sarah Miller, *Ocean Discharge Criteria and Marine Protected Areas: Ocean Water Quality Protection Under the Clean Water Act*, 29 B.C. ENVTL. AFF. L. REV. 1, 19–23 (2001). "All NPDES permits for discharges into the territorial sea, the contiguous zone, and the ocean must comply with these guidelines." *Id.* at 19–20 (citing 33 U.S.C. § 1343(a) (2000)); see also discussion *infra* Part III.C.2.b. The Section 403 Ocean Discharge Criteria.

¹⁴¹ See Clean Water Act § 301(b), 33 U.S.C. § 1311(b) (2000).

¹⁴² Clean Water Act § 502(11), 33 U.S.C. § 1362(11) (2000).

¹⁴³ Clean Water Act § 301(e), 33 U.S.C. § 1311(e) (2000).

¹⁴⁴ Clean Water Act § 301(f), 33 U.S.C. § 1311(f) (2000).

¹⁴⁵ *Id.*

The Act also allows for variances from some kinds of effluent limitations for discharges into the ocean. In general, the EPA sets technology-based effluent limitations for point source categories that can affect marine waters in the same way that it sets effluent limitations for all other categories of industrial polluters. Some of the most obvious examples are the technology-based effluent limitations that apply to the various categories of seafood processors and to offshore oil and gas producers.¹⁴⁶ However, and despite some courts' recognition that the Clean Water Act especially protects the oceanic receiving waters,¹⁴⁷ two provisions in section 301 allow the EPA to modify the normal effluent limitations for discharges into the sea.

First, section 301(m) of the Act allows the EPA, with the relevant state's concurrence, to modify the normal discharge requirements relating to biological oxygen demand and pH for industrial discharges of pollutants "into deep waters of the territorial seas."¹⁴⁸ Allowance of such modifications depends largely on a cost-benefit analysis.¹⁴⁹ The modified effluent limitations for a successful applicant must "be sufficient to implement the applicable State water quality standards, to assure the protection of public water supplies and protection and propagation of a balanced, indigenous population of shellfish, fish, fauna, wildlife, and other aquatic organisms, and to allow recreational activities in and on the water."¹⁵⁰ In addition, the EPA Administrator must terminate any modified permit "if the effluent . . . is contributing to a decline in ambient water quality of the receiving waters."¹⁵¹

Second, and more importantly, section 301(h) allows the EPA to modify the standard secondary-treatment-based effluent limi-

¹⁴⁶ 40 C.F.R. § 408 (effluent limitations for seafood processors); 40 C.F.R. §§ 435.12 to 435.14 (effluent limitations for offshore oil and gas operations); *see generally* Natural Res. Def. Council, Inc. v. EPA, 863 F.2d 1420 (9th Cir. 1988) (deciding a challenge to the toxic effluent limitations for oil and gas operations outside of the territorial sea); Am. Petroleum Inst. v. EPA, 858 F.2d 261 (5th Cir. 1988) (same); Ass'n of Pac. Fisheries v. EPA, 615 F.2d 794 (9th Cir. 1980) (challenging BPT- and BAT-based effluent limitations for seafood processors).

¹⁴⁷ *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1041–44 (D.C. Cir. 1978).

¹⁴⁸ Clean Water Act § 301(m)(1), 33 U.S.C. § 1311(m)(1) (2000).

¹⁴⁹ Clean Water Act §§ 301(m)(1)(B), (I), 33 U.S.C. §§ 1311(m)(1)(B), (I) (2000). In addition, the applicant must show that it qualifies for the right kind of NPDES permit, that it will engage in monitoring, that the modified requirements will not impose additional requirements on any other point or nonpoint source, that it will not increase the volume of its discharge, that the receiving waters have a strong tidal influence and other characteristics that will dilute the effluent, that the applicant will spend money on research and development of water pollution control technology, and that its exemption will not create a precedent for other dischargers. Clean Water Act §§ 301(m)(1)(A), (C)-(H), 33 U.S.C. §§ 1311(m)(1)(A), (C)-(H) (2000).

¹⁵⁰ Clean Water Act § 301(m)(2), 33 U.S.C. § 1311(m)(2) (2000).

¹⁵¹ Clean Water Act § 301(m)(4), 33 U.S.C. § 1311(m)(4) (2000).

tations for publicly owned treatment works (POTWs, or sewage treatment plants) that discharge into marine waters.¹⁵² In order to take advantage of the modified effluent limitations, the POTW must demonstrate to the Administrator that its discharge meets nine statutory requirements.¹⁵³ In addition, no NPDES permit issued under this provision can allow a POTW to discharge sewage sludge into the marine waters, and the receiving marine or estuarine waters must already enjoy fairly decent water quality before the EPA can approve modification of the standard secondary-treatment-based effluent limitations.¹⁵⁴

The EPA issued its final 301(h) regulations in August 1996.¹⁵⁵ It received 208 applications for waivers of the secondary treatment requirements, eighty-seven of which were either withdrawn or became ineligible and seventy-six of which were denied.¹⁵⁶ Thus, as of 2003, “36 communities have waivers from EPA allowing them to operate at less than secondary treatment

¹⁵² Clean Water Act § 301(h), 33 U.S.C. § 1311(h) (2000). For purposes of this provision, “the discharge of any pollutant into marine waters” means:

a discharge into deep waters of the territorial sea or the waters of the contiguous zone, or into saline estuarine waters where there is strong tidal movement and other hydrological and geological characteristics which the Administrator determines necessary to allow compliance with [water quality requirements and the Act’s “fishable/swimmable” goal].

Id. Section 30(h) is thus one of the few provisions of the Clean Water Act that effectively distinguishes between the contiguous zone and the ocean: modifications are expressly allowed for discharges into the territorial sea and contiguous zone, but implicitly *not* for discharges into the ocean.

¹⁵³ *Id.*

¹⁵⁴ *Id.* Specifically:

In order for a permit to be issued under this subsection for the discharge of a pollutant into marine waters, such marine waters must exhibit characteristics assuring that water providing dilution does not contain significant amounts of previously discharged effluent from such treatment works. No permit issued under this subsection shall authorize the discharge of any pollutant into saline estuarine waters which at the time of application do not support a balanced indigenous population of shellfish, fish and wildlife, or allow recreation in and on the waters or which exhibit ambient water quality below applicable water quality standards adopted for the protection of public water supplies, shellfish, fish and wildlife or recreational activities or such other standards necessary to assure support and protection of such uses. The prohibition contained in the preceding sentence shall apply without regard to the presence or absence of a causal relationship between such characteristics and the applicant’s current or proposed discharge.

Id. For a discussion of the section 301(h) exemption, see generally *Natural Res. Def. Council, Inc. v. EPA*, 656 F.2d 768 (D.C. Cir. 1981).

¹⁵⁵ See *Modification of Secondary Treatment Requirements for Discharges into Marine Waters*, 69 Fed. Reg. 45,832, 45,832-33 (Aug. 29, 1996). The EPA’s regulations for effluent limitation modifications under this provision are found at 40 C.F.R. Part 125, Subpart G, comprising 40 C.F.R. §§ 125.56 through 125.68 and an appendix.

¹⁵⁶ EPA, Office of Water, *Amendments to Regulations Issued Pursuant to the Clean Water Act Section 301(h) Permit Program*, <http://www.epa.gov/owow/oceans/discharges/301h.html> (last visited Apr. 1, 2006).

levels without harming the marine environment,”¹⁵⁷ while an additional nine communities are revising their applications to apply again for a waiver that was previously denied.¹⁵⁸

The majority of 301(h) waivers recipients are small POTWs that discharge less than 5 million gallons per day (MGD), although the flows from these small POTWs represent only 4 percent of the 620 MGD of wastewater under the 301(h) program. Less than half of the 45 applicants/permittees are located within the continental United States in four states (California, Maine, Massachusetts, and New Hampshire). Beyond the continental United States, there are 9 applicants in Alaska, 2 in Hawaii, 6 in Puerto Rico, and 8 in U.S. territorial islands in the Pacific and Atlantic Oceans.¹⁵⁹

Given the limited number of applications granted and the small size of the POTWs involved, one would anticipate that the section 301(h) modification procedure has not had a significant effect on ocean water quality.

Nevertheless, the section 301(h) waiver has proven controversial in California, where three coastal communities—Goleta, Morro Bay, and Orange County—make use of that waiver for their sewage discharges.¹⁶⁰ Orange County is one of the largest section 301(h) waiver recipients and “dumps approximately 240 million gallons per day of partially treated wastewater 4 miles offshore of Huntington Beach.”¹⁶¹ Goleta treats only 4.8 million gallons of sewage per day but dumps that waste only one mile offshore.¹⁶² Morro Bay discharges sewage “just over a half-mile offshore” and allegedly has a “negligible effect on the ocean.”¹⁶³

¹⁵⁷ EPA, Office of Water, *Ocean Discharge: Point Source Discharge from Sewage Treatment Plants*, <http://www.epa.gov/owow/oceans/treasure/pg8.html> (last visited Apr. 1, 2006) (adapted from EPA, TREASURED WATERS, *supra* note 48, at 8).

¹⁵⁸ EPA, Office of Water, *Amendments to Regulations Issued Pursuant to the Clean Water Act Section 301(h) Program*, *supra* note 156.

¹⁵⁹ *Id.*

¹⁶⁰ EPA, Office of Water, *Current 301(h) Waiver Recipients and 301(h) Applications Pending Final Decision*, <http://www.epa.gov/owow/oceans/discharges/301list.html> (last visited Mar. 18, 2006). POTWs in San Diego and San Luis Obispo also apparently operate at less than full secondary treatment, although they do not appear on the EPA’s official section 301(h) waiver list. See *Victory in California: Orange County Sanitation District Persuaded to Vote Down Sewage Waiver*, MAKING WAVES, Aug. 2002 at 4, available at http://www.surfrider.org/makingwaves/makingwaves18%2D4/MW_18-4.pdf (listing these two cities as operating under section 301(h) waivers); Sierra Club, *The Great Coastal Places Campaign: Order Issued to Upgrade Sewage Treatment* (July 2002), <http://www.sierraclub.org/ca/coasts/victories/goleta.asp> (last visited Mar. 18, 2006) (discussing San Diego’s refusal to upgrade its sewage treatment facilities).

¹⁶¹ *Victory in California*, *supra* note 160; Sierra Club, *The Great Coastal Places Campaign*, *supra* note 160 (noting that Orange County sends 240 million gallons of sewage a day 4.5 miles offshore of Huntington Beach).

¹⁶² Sierra Club, *The Great Coastal Places Campaign*, *supra* note 160.

¹⁶³ Lindsay Christians, *Sewer Plant Upgrade Under Consideration: Morro Bay, Cayucos Weigh a Plan to Triple-treat Sewage, a Move Supported by the State and Environmentalists to Clean Discharge into the Sea*, SAN LUIS OBISPO TRIBUNE, June 29, 2004, at B1, B2.

Public interest organizations such as the Sierra Club and Surfrider have been protesting these waivers for over a decade, and it appears that all three communities will be upgrading their sewage treatment plants in the near future.¹⁶⁴

b. The Section 403 Ocean Discharge Criteria

While water quality standards may not affect all point source discharges into the sea, point sources that “discharge into the territorial sea, the waters of the contiguous zone, or the oceans” must comply with the EPA-set ocean discharge criteria as part of their NPDES permit requirements,¹⁶⁵ including the stormwater permit requirements. As the EPA has noted, the ocean discharge criteria “provide a level of protection in addition to the technology- or water quality-based requirements applicable to discharges into inland waters and are intended to protect the marine environment.”¹⁶⁶

The section 403(c)(1) guidelines “determine[e] the degradation of waters of the territorial seas, the contiguous zone and the oceans.”¹⁶⁷ In establishing these guidelines, the EPA weighed seven statutory factors while examining how certain amounts of disposal would affect the ocean waters.¹⁶⁸

Congress included the ocean discharge criteria requirements in the 1972 enactment of the Clean Water Act, but their promulgation was not smooth. In 1973, the “EPA promulgated combined regulations implementing section 102(a) of the Marine Protection, Research, and Sanctuaries Act and section 403(c) of the CWA. The primary focus of these regulations was on the ocean disposal of waste material . . . by dumping from moving ves-

¹⁶⁴ See Sierra Club, *The Great Coastal Places Campaign*, *supra* note 160; *Victory in California*, *supra* note 160; Notice of Lodging of Consent Decree Under the Clean Water Act, 69 Fed. Reg. 68,979, 68,979–80 (Nov. 26, 2004) (reporting that a consent decree among the United States, the California Regional Water Quality Control Board, and the Orange County Sanitation District requires Orange County to construct secondary treatment facilities); CAL. REG. L. WATER RES. CONTROL BD., REGION 3, DRAFT WASTE DISCHARGE REQUIREMENTS FOR GOLETA SANITARY DISTRICT WASTEWATER TREATMENT FACILITY 1-2 (Nov. 19, 2004), *available at* <http://www.swrcb.ca.gov/rwqcb3/Board/Agendas/111904/ItemReports/Item6/documents/Item6attach1wdr.pdf> (discussing the history of Goleta’s section 301(h) waiver and the state’s most recent denial of certification); Christians, *supra* note 163 (reporting that Morro Bay is planning to upgrade to tertiary treatment); CAL. WATER RES. CONTROL BD., WORKSHOP—OFFICE OF CHIEF COUNSEL: SEPT 30, 2003: ITEM 6 (draft dated Sept. 15, 2003), *available at* <http://www.swrcb.ca.gov/agendas/2003/september/0930-06.doc> (proposing denial of certification of Goleta’s section 301(h) waiver).

¹⁶⁵ Clean Water Act § 403, 33 U.S.C. § 1343 (2000).

¹⁶⁶ EPA, Office of Wetlands, Oceans, and Watersheds, *Ocean Discharge Criteria*, <http://www.epa.gov/owow/oceans/regulatory/oceandischcriteria.html> (last visited Mar. 18, 2006).

¹⁶⁷ Clean Water Act § 403(c)(1), 33 U.S.C. § 1343(c)(1) (2000).

¹⁶⁸ Clean Water Act § 403(c)(1), 33 U.S.C. § 1343(c)(1) (2000).

sels.”¹⁶⁹ These regulations, however, proved “unworkable” as ocean discharge criteria, and the EPA withdrew them.¹⁷⁰ In 1979, the Pacific Legal Foundation sued the EPA to force the agency to promulgate new ocean discharge criteria, and the court ordered such promulgation.¹⁷¹ In response, the EPA published the existing ocean discharge criteria on October 3, 1980,¹⁷² and has not amended the criteria since.

Under the EPA’s section 403 regulations, applicants for NPDES permits who propose to discharge into coastal or ocean waters must submit complete chemical, biochemical, and ecological analyses of their proposed discharges,¹⁷³ including an “[a]nalysis of the location where pollutants are sought to be discharged, including the biological community and the physical description of the discharge facility” and an “[e]valuation of available alternatives to the discharge.”¹⁷⁴ Based on these analyses, the EPA then determines whether the discharge will result in an “unreasonable degradation of the marine environment.”¹⁷⁵ The EPA assesses “unreasonable degradation of the marine environment” on the basis of ten factors.¹⁷⁶ However, if a pollutant discharge complies with the applicable state water quality standards, the EPA will presume no unreasonable degradation of the marine environment “for any specific pollutants or conditions specified . . . in the standard.”¹⁷⁷

If the EPA determines that the proposed discharge, either as proposed or with regulatory conditions, will not unreasonably degrade the marine environment, the NPDES permit may issue.¹⁷⁸ Conversely, if the discharge will unreasonably degrade the marine environment despite all possible conditions that could be imposed, the NPDES permit application must be denied.¹⁷⁹

¹⁶⁹ Ocean Discharge Criteria, 45 Fed. Reg. 65,942, (Oct. 3, 1980) (codified at 40 C.F.R. pt. 125).

¹⁷⁰ *Id.*

¹⁷¹ *Id.*; Pac. Legal Found. v. Costle, 586 F.2d 650, 655–56 (9th Cir. 1978).

¹⁷² Ocean Discharge Criteria, 40 C.F.R. §§ 125.120–.124 (2001).

¹⁷³ *Id.* § 125.124.

¹⁷⁴ *Id.*

¹⁷⁵ *Id.* §§ 125.123(a), (b), (c). “Unreasonable degradation” includes:

(1) Significant adverse changes in ecosystem diversity, productivity and stability of the biological community within the area of discharge and surrounding biological communities, (2) Threat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms, or (3) Loss of esthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge.

Id. § 125.121(e).

¹⁷⁶ *Id.* § 125.122(a).

¹⁷⁷ *Id.* § 125.122(b).

¹⁷⁸ *Id.* § 125.123(a).

¹⁷⁹ *Id.* § 125.123(b).

Because section 403 applies to discharges into “territorial seas,” which are part of the “navigable waters,” ocean discharge criteria also apply to state-issued NPDES permits.¹⁸⁰ The EPA, however, may not waive its review of state-issued NPDES permits for discharges into the territorial sea as it can for other state-issued NPDES permits.¹⁸¹ Moreover, no NPDES permit for discharges into the territorial sea, the contiguous zone, or the ocean can be issued “where insufficient information exists on any proposed discharge to make a reasonable judgment on any of the guidelines.”¹⁸² Thus, assured compliance with the ocean discharge criteria is an absolute prerequisite to permitting point source discharges into any part of the ocean. According to the EPA,

[c]urrently, there are 265 NPDES discharge permits subject to the Ocean Discharge Criteria. Of the 265 permits, 154 (or 58%) were issued to POTWs, 22 (or 8%) were to industrial facilities or activities that discharge conventional pollutants, 61 (or 23%) were to industrial facilities or activities including storm water discharges that discharge toxic pollutants, and 28 (or 11%) were to electric utilities.¹⁸³

c. Other NPDES Permit Requirements

Several other requirements also can dictate the terms of NPDES permits. New sources that fall within industrial categories listed in the Act or specified by the EPA¹⁸⁴ must comply with any applicable new source performance standards (NSPS), “which reflect the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology [BADT], processes, operating methods, or other alternatives, including,

¹⁸⁰ Clean Water Act § 403(b), 33 U.S.C. § 1343(c) (2000).

¹⁸¹ Clean Water Act § 403(b), 33 U.S.C. § 1343(b) (2000) (referencing Clean Water Act § 402(d), 33 U.S.C. § 1342(d) (2000)); 40 C.F.R. § 123.24(d)(1) (2005).

¹⁸² Clean Water Act § 403(c)(2), 33 U.S.C. § 1343(c)(2) (2000); 40 C.F.R. § 122.4(h) (2005).

¹⁸³ EPA, Office of Wetlands, Oceans, and Watersheds, *Ocean Discharge Criteria*, *supra* note 166.

¹⁸⁴ Clean Water Act § 306(b), 33 U.S.C. § 1316(b) (2000). Congress dictated that the EPA set NSPS for:

pulp and paper mills; paperboard, builders paper and board mills; meat product and rendering processing; dairy product processing; grain mills; canned and preserved fruits and vegetables processing; canned and preserved seafood processing; sugar processing; textile mills; cement manufacturing; feedlots; electroplating; organic chemicals manufacturing; inorganic chemicals manufacturing; plastic and synthetic materials manufacturing; soap and detergent manufacturing; fertilizer manufacturing; petroleum refining; iron and steel manufacturing; nonferrous metals manufacturing; phosphate manufacturing; steam electric powerplants; ferroalloy manufacturing; leather tanning and finishing; glass and asbestos manufacturing; rubber processing; and timber products processing.

Clean Water Act § 306(b)(1)(A), 33 U.S.C. § 1316(b)(1)(A) (2000).

where practicable, a standard permitting no discharge of pollutants.”¹⁸⁵ Section 307 allows the EPA Administrator to set, for particular industrial categories or classes of dischargers, toxic effluent standards for the toxic pollutants that are more stringent than the BAT-based toxic effluent limitations, up to and including a complete prohibition on the discharge.¹⁸⁶ All dischargers with NPDES permits are also subject to inspection, monitoring, recordkeeping, and reporting requirements.¹⁸⁷ However, none of these other statutory requirements differ for discharges into the coastal waters or the ocean.

d. The Stormwater NPDES Permit Program

As the EPA has noted repeatedly, the United States and the states have done a much better job of reducing water pollution from point sources than from nonpoint sources.¹⁸⁸ Thus, any mechanism that converts nonpoint source pollution into point source pollution is likely to improve the regulation of the sources involved and the quality of the waters that they affect.

In the Water Quality Act of 1987, Congress amended the Clean Water Act to subject urban stormwater discharges from industrial facilities and municipal stormwater systems to the Act’s NPDES permit requirement.¹⁸⁹ The basic objectives of the amendments were to: (1) clarify what kinds of stormwater discharges were point source discharges subject to the NPDES permitting requirement and what kinds were not; and (2) progressively require industrial and municipal facilities to obtain NPDES permits for their stormwater discharges.¹⁹⁰ In coastal states especially, because of the EPA’s and various states’ rec-

¹⁸⁵ Clean Water Act § 306(a)(1), 33 U.S.C. § 1316(a)(1) (2000). The EPA’s NSPS are found at 40 C.F.R. § 401.12 (2005).

¹⁸⁶ Clean Water Act § 307(a)(2), 33 U.S.C. § 1317(a)(2) (2000). In addition, “[a]ny effluent standard promulgated under this section shall be at that level which the Administrator determines provides an ample margin of safety.” Clean Water Act § 307(a)(4), 33 U.S.C. § 1317(a)(4) (2000). It is also worth noting in this context that the Act itself makes it “unlawful to discharge any radiological, chemical, or biological warfare agent, any high-level radioactive waste, or any medical waste, into the navigable waters.” Clean Water Act § 301(f), 33 U.S.C. § 1311(f) (2000).

¹⁸⁷ Clean Water Act § 308, 33 U.S.C. § 1318 (2000).

¹⁸⁸ See EPA, NATION’S LARGEST, *supra* note 47 (pointing out that, despite the tremendous advances in controlling point source pollution, the lack of focus on controlling nonpoint source pollution has resulted in nonpoint source pollution being the Nation’s largest source of water quality problems.); EPA, NATIONAL WATER QUALITY INVENTORY 2000 REPORT ES-1 (2000), *available at* <http://www.epa.gov/305b/2000report/execsum.pdf> (reporting that nonpoint source pollution is the “leading source of impairment” of our nation’s waters); EPA, NATIONAL WATER QUALITY INVENTORY 1998 REPORT ES-1 to 2 (1998), *available at* <http://www.epa.gov/305b/98report/execsumm.pdf> (reporting the same).

¹⁸⁹ Pub. L. No. 100-4, § 405, 101 Stat. 7, 69 (1987), *codified at* 33 U.S.C. § 1342(p) (2000).

¹⁹⁰ *Id.*

ommended management measures for nonpoint source urban runoff, the 1987 stormwater permit amendments are having the effect of converting nonpoint source urban runoff into point source urban runoff subject to the Clean Water Act's NPDES permit requirements.¹⁹¹

1. Stormwater Permitting Prior to 1987

Congress has been aware of stormwater pollution issues—and the expense of preventing such pollution—since at least the 1972 amendments that overhauled the FWPCA into the modern Clean Water Act.¹⁹² Nevertheless, the federal government's commitment to controlling stormwater discharges has varied. For example, in 1977, the Senate voted to eliminate federal grants for stormwater collection facilities, reasoning that:

The cost of controlling stormwater is substantial even after consideration of other options such as land use controls which may be more cost-effective in some situations. The Federal share for stormwater projects is beyond the reach of the limitations of the Federal budget. It is, furthermore, a cost for which water quality benefits have not been sufficiently evaluated, particularly since stormwater discharges occur on an episodic basis during which water use is minimal. Because of these factors, the committee believes it is in the public interest to eliminate stormwater discharges from eligibility for grants until a better assessment can be made of the benefits and of noncapital intensive solutions for stormwater control projects.¹⁹³

The EPA also has a long and checkered history of attempting

¹⁹¹ See, e.g., Memorandum from Charles Sutfin, Director, Assessment & Watershed Prot. Div., EPA and John King, Acting Chief, Coastal Programs Div., Office of Ocean & Coastal Res. Mgmt., NOAA Ocean Serv. to State Water Div. Dirs. and EPA Reg'l Water Div. Dirs., *available at* http://www.ocrm.nos.noaa.gov/pdf/NPDES_CZARA_Policy_Memo.pdf (last visited Mar. 18, 2006) (clarifying that activities now regulated under the Phase II Clean Water Act stormwater regulations are no longer regulated under the CZMA's coastal nonpoint source programs); see also CAL. COASTAL COMM'N, *supra* note 1 (emphasizing that "it is important to realize that new federal and state regulatory requirements will soon address urban runoff in local communities. Indeed, the U.S. Environmental Protection Agency has already placed such requirements on municipalities with populations greater than 100,000.").

¹⁹² See, e.g., S. REP. NO. 93-630 (1973), *reprinted in* 1973 U.S.C.C.A.N. 3367. In response to the EPA's 1973 survey of the states, the Report noted:

[c]osts reported in [the combined sewer overflow] category for facilities to reduce pollution from combined sewer overflows also reflected only a portion of the total expenditures which could have been justified nationally under the survey guidelines if more cities had completed the required studies. EPA estimates, from the new studies available to date, that costs for facilities to reduce by 50–80% of the major pollutant concentrations in combined sewer overflows throughout the country would cost from \$40 to \$80 billion—and would roughly double the reported costs for all six categories. No fewer than 10 States have reported that they would have projects for correction of stormwater overflows from combined sewers on their priority list for fiscal year 1975 involving a substantial share of their allocation.

¹⁹³ S. REP. NO. 95-370, at 39 (1977), *reprinted in* 1977 U.S.C.C.A.N. 4326, 4364.

to deal with stormwater under the NPDES program. For example, in 1973, in its first stormwater regulations, the EPA “exempted certain sources, among them storm water runoff discharges uncontaminated by industrial or commercial activity, from the requirement to obtain an NPDES permit,” reasoning that “although these discharges fell within the definition of point source, they were ill-suited for inclusion in the NPDES permit program and better dealt with through non-point source controls” and “that to issue permits to the tremendous number of storm water sources would be administratively unworkable within the framework of the NPDES permit program.”¹⁹⁴ However, the U.S. District Court for the District of Columbia and the U.S. Court of Appeals for the D.C. Circuit overturned these regulations, concluding that the EPA had no authority to exempt acknowledged point sources from the NPDES permit requirement.¹⁹⁵

In response to this litigation, “[o]n March 18, 1976, . . . [the] EPA published final storm water regulations which required NPDES permits for all storm water discharges, other than rural runoff, which the Agency contended was better considered non-point sources.”¹⁹⁶ These regulations established two categories of stormwater discharges that were subject to the NPDES permit requirement.¹⁹⁷

First, a “separate storm sewer” is defined as a conveyance or system of conveyances primarily used for collecting and conveying storm water runoff which is located in an urbanized area as designated by the Bureau of the Census or which is designated by the Director on a case-by-case basis as a “separate storm sewer.” Second, a conveyance which discharges storm water runoff contaminated by contact with wastes, raw materials, or pollutant-contaminated soil from areas used for industrial or commercial activities are not considered “separate storm sewers,” but are nonetheless considered point sources which must obtain [an] NPDES permit. [However, a] conveyance or system of conveyances operated primarily for the purpose of collecting and conveying storm water runoff which does not fit within either of the above described categories is not considered a point source and need not obtain an NPDES permit.¹⁹⁸

These regulations were also challenged in court, and, as part of the settlement of that litigation, the EPA again reconsidered its stormwater rules, publishing new final regulations in 1984.¹⁹⁹

¹⁹⁴ EPA, NPDES Permit Regulations, *supra* note 52, at 38,010.

¹⁹⁵ *Natural Res. Def. Council, Inc. v. Train*, 396 F. Supp. 1393, 1396–97 (D.D.C. 1975), *aff’d sub nom* *Natural Res. Def. Council, Inc. v. Costle*, 568 F.2d 1369 (D.C. Cir. 1977).

¹⁹⁶ EPA, NPDES Permit Regulations, *supra* note 52, at 38,010.

¹⁹⁷ *Id.*

¹⁹⁸ *Id.* at 38,011.

¹⁹⁹ *Id.* at 37,998–99.

The 1984 rules were more detailed in their classification of point and nonpoint source stormwater, emphasizing the importance of regulating urban stormwater under the NPDES program. Specifically, “[t]he final rule classifies as a point source any storm water discharge which is located in an urbanized area, discharges from land or facilities used for industrial or commercial activities, or is designated by the Director as a point source.”²⁰⁰ Nevertheless, the EPA’s ambivalence regarding the point source/nonpoint source distinction remained. For example, the EPA emphasized that it “recognizes that in many cases these discharges may be better controlled as non-point sources,” but, “as several commenters pointed out, [the] EPA may not exclude discharges without some basis.”²⁰¹ In addition, the 1984 regulation

retains the classification of rural runoff as non-point sources. The Agency is convinced that most rural runoff cannot be effectively regulated by NPDES permits. In those cases where it can be, the regulations specifically classify the discharges as point sources (such as animal feedlots) or the Director has the authority to individually designate a discharge as a storm water point source. This is also consistent with Congressional intent that agricultural runoff be uniformly regulated through non-point source controls. This is indicated by the 1977 Clean Water Act amendments which exempted irrigation return flows from the point source definition.²⁰² The D.C. Circuit also overturned these regulations.²⁰³

As a result of the constant litigation over the EPA’s stormwater regulations, the applicability of the Clean Water Act’s NPDES permit requirement to urban runoff and other forms of stormwater pollution remained largely a matter for the courts until the 1987 amendments.²⁰⁴ For example, in response to the EPA’s many versions of the stormwater regulations, the federal courts generally questioned the EPA’s authority to *require* industry to collect and treat stormwater, converting it to point source pollution,²⁰⁵ while simultaneously acknowledging the EPA’s authority—and duty—to regulate discharges of stormwater that

²⁰⁰ *Id.* at 38,013.

²⁰¹ *Id.*

²⁰² *Id.*

²⁰³ *Natural Res. Def. Council, Inc. v. EPA*, 22 F.3d 1125 (D.C. Cir. 1987).

²⁰⁴ *Water Quality Act of 1987*, Pub. L. No. 100-4, § 405, 101 Stat. 7, 69 (1987).

²⁰⁵ *See, e.g., Kennecott Copper Corp. v. EPA*, 612 F.2d 1232, 1243 (10th Cir. 1979) (noting that the EPA lacked authority to require mining companies to collect nonpoint source storm runoff); *Appalachian Power Co. v. Train*, 545 F.2d 1351, 1373–74 (4th Cir. 1976) (holding that the EPA cannot regulate suspended solids in rainfall runoff from construction sites or ash piles when such runoff is nonpoint source pollution, despite contact with human-generated wastes); *Am. Petroleum Inst. v. EPA*, 540 F.2d 1023, 1035 (10th Cir. 1976) (holding that the EPA had no statutory authority to require refineries to collect and treat stormwater runoff at their facilities); *Hooker Chemicals & Plastics Corp. v. Train*, 537 F.2d 620, 638–39 (2d Cir. 1976) (holding that the EPA cannot regulate rainwater runoff contaminated by chemical dust at phosphorus production facilities).

regulated entities voluntarily collected and channeled.²⁰⁶

2. The 1987 Stormwater Permit Amendments

In the Water Quality Act of 1987, Congress amended the Clean Water Act specifically to address the stormwater permitting issue.²⁰⁷ The amendments began by announcing a general moratorium on all NPDES permitting for stormwater discharges until October 1, 1992.²⁰⁸ The Act then provided five exceptions to the moratorium, including: stormwater discharges for which NPDES permits had already been issued; “discharge[s] associated with industrial activity”; “discharge[s] from a municipal separate storm sewer system serving a population of 250,000 or more”; “discharge[s] from a municipal separate storm sewer system serving a population of 100,000 or more but less than 250,000”; and “discharge[s] for which the Administrator or the State, as the case may be, determines that the stormwater discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.”²⁰⁹

Industrial stormwater discharges were subject to all of the relevant NPDES requirements,²¹⁰ while municipalities had to “include a requirement to effectively prohibit non-stormwater discharges into the storm sewers” and “require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as

²⁰⁶ See, e.g., *United States v. Frezzo Bros.*, 642 F.2d 59, 61–62 (3d. Cir. 1981) (holding that discharges of compost runoff were “not an agricultural point source” that required a permit); *Sierra Club v. Abston Const. Co., Inc.*, 620 F.2d 41, 44–45 (5th Cir. 1980) (holding that rainfall collected and channeled by miners was point source pollution subject to regulation if there was human effort in the collection); *Kennecott Copper Corp. v. EPA*, 612 F.2d 1232, 1242–43 (10th Cir. 1979) (holding that the EPA could regulate stormwater point source discharges if the mining companies collected the stormwater); *United States v. Earth Sciences, Inc.*, 599 F.2d 368, 373 (10th Cir. 1979) (holding that the EPA could regulate point source activities in agriculture, silviculture, and mining); *Marathon Oil Co. v. EPA*, 564 F.2d 1253, 1274–75 (9th Cir. 1977) (holding that collected stormwater runoff was part of the discharge regulated through an oil platform’s NPDES permit); *Natural Res. Def. Council, Inc. v. Costle*, 568 F.2d 1369, 1379 (D.C. Cir. 1977) (holding that the EPA must require NPDES permits for stormwater point sources); *O’Leary v. Moyer’s Landfill, Inc.*, 523 F. Supp. 642, 655 (E.D. Pa. 1981) (“Notwithstanding that it may result from such natural phenomena as rainfall and gravity, the surface run-off of contaminated waters, once channeled or collected, constitutes discharge by a point source.”); *United States v. Oxford Royal Mushroom Prods., Inc.*, 487 F. Supp. 852, 854 (E.D. Pa. 1980) (noting that while “uncollected surface runoff may, but does not necessarily, constitute discharge from a point source,” the overspraying of waste water onto fields that then caused the runoff was a point source discharge).

²⁰⁷ Water Quality Act of 1987, Pub. L. No. 100-4, § 405, 101 Stat. 7, 69 (1987).

²⁰⁸ *Id.*, as codified at 33 U.S.C. § 1341(p)(1) (1988).

²⁰⁹ *Id.*, as codified at 33 U.S.C. § 1342(p)(2)(A)-(E) (1988).

²¹⁰ *Id.* as codified at 33 U.S.C. § 1342(p)(3)(A) (1988).

the Administrator or the State determines appropriate for the control of such pollutants.”²¹¹ However, Congress progressively phased in permitting of all moratorium-exempt stormwater discharges, starting with the largest municipalities and industrial discharges, “in order to provide a sufficient period of time to develop and implement methods for managing and controlling discharges from municipal storm sewers.”²¹² Under these timetables, the EPA had two years to issue permit regulations for industrial dischargers and large municipal separate storm water systems (MS4s)—those facilities serving populations of 250,000 or more.²¹³ These dischargers did not have to apply for NPDES permits until February 4, 1990, with such permits to issue by February 4, 1991, and compliance achieved within three years of issuance.²¹⁴ For medium MS4s—those facilities serving populations of 100,000 to 250,000—the EPA had to issue stormwater permit regulations by February 4, 1991.²¹⁵ The relevant municipalities then had to apply for permits by February 4, 1992, with permits to issue by February 4, 1993, and compliance achieved within three years of issuance.²¹⁶ Congress also required the EPA to complete a study of stormwater discharges by October 1, 1988, and to submit its final report on that study to Congress one year later.²¹⁷ “After October 1, 1992, the permit requirements of the Clean Water Act are restored for municipal separate storm sewer systems serving a population of fewer than 100,000 persons.”²¹⁸

Notably, it is also clear from the Water Quality Act of 1987 that Congress understood the connection between urban runoff and ocean water quality. Specifically, the 1987 amendments created both the National Estuary Program and the marine estuary fund reservation.²¹⁹ The marine estuary reservation fund made funds available to states for water quality projects,

two-thirds [of which] shall be available to address water quality problems of marine bays and estuaries subject to lower levels of water quality due to the impacts of discharges from combined storm water

²¹¹ *Id.*, as codified at 33 U.S.C. § 1342(p)(3)(B)(ii), (iii) (1988).

²¹² *Section-by-Section Analysis: Hearing on Water Quality Act of 1987*, 100th Cong. 131 (1987) (statement of Hon. James J. Howard, Chairman of the House Committee on Public Works and Transportation).

²¹³ Water Quality Act of 1987, Pub. L. No. 100-4, § 405, 101 Stat. 7 (1987), as codified at 33 U.S.C. § 1341(p)(4)(A) (1988).

²¹⁴ *Id.*

²¹⁵ *Id.*, as codified at 33 U.S.C. § 1342(p)(4)(B).

²¹⁶ *Id.*

²¹⁷ *Id.*, codified at 33 U.S.C. § 1342(p)(5) (1988).

²¹⁸ *Section-by-Section Analysis*, *supra* note 212.

²¹⁹ Pub. L. No. 100-4, §§ 210, 317, 101 Stat. 7, 21, 61 (1987), *codified as* 33 U.S.C. §§ 1285(l), 1330.

and sanitary sewer overflows from adjacent urban complexes, and one-third [of which] shall be available for the implementation of section 1330 of this title, relating to the national estuary program.²²⁰

Thus, unlike the stormwater permits, the marine estuary fund specifically addressed *combined* sewer and stormwater systems and the overflows that often result when precipitation and runoff overwhelms such systems, dumping raw or partially treated sewage into the receiving waters.²²¹

Through the national estuary program, in turn, Congress sought to protect estuaries of significance from all kinds of pollution sources, including both forms of urban runoff.²²² Once an estuary is selected for inclusion in the program,²²³ the EPA holds a management conference in order to assess the overall water quality trends within the estuary, to “develop the relationship between the in-place loads and point and nonpoint loadings of pollutants to the estuarine zone and the potential uses of the zone, water quality, and natural resources,” and to

develop a comprehensive conservation and management plan that recommends priority corrective actions and compliance schedules addressing point and nonpoint sources of pollution to restore and maintain the chemical, physical, and biological integrity of the estuary, including restoration and maintenance of water quality, a balanced indigenous population of shellfish, fish and wildlife, and recreational

²²⁰ 33 U.S.C. § 1285(l)(2) (2000); *see also* Clean Water Act § 205(l)(2) (referencing section 320 of the Act, which corresponds to U.S.C. title 1330).

²²¹ The NPDES permit program now also addresses combined sewer overflows (CSOs). Clean Water Act § 402(q), 33 U.S.C. § 1342(q) (2000). CSOs have been the subject of a number of Clean Water Act cases. *See, e.g.,* *Nw. Env'tl. Advocates v. City of Portland*, 56 F.3d 979, 983 (9th Cir. 1995) (holding that the City's NPDES permit covered its CSO events); *Natural Res. Def. Council, Inc. v. EPA*, 790 F.2d 289, 307–08 (3d Cir. 1986) (holding that the EPA could not ignore CSO events when calculating the amount of toxic waste that POTWs can remove from effluent); *Montgomery Env'tl. Coal. v. Costle*, 646 F.2d 568 (D.C. Cir. 1980) (generally discussing a dispute regarding whether the CSO discharge outfalls were part of a POTW); *Illinois v. City of Milwaukee*, 599 F.2d 151, 171–72 (7th Cir. 1979) (holding that the Clean Water Act's prohibition of “discharges of pollutants” implicitly prohibited CSOs); *Upper Chattahoochee Riverkeeper Fund v. City of Atlanta*, 98 F. Supp. 2d 1380, 1384–86 (N.D. Ga. 2000) (holding that a dry weather CSO event violated the Clean Water Act).

²²² An “estuary,” for purposes of this program, is “all or part of the mouth of a river or stream or other body of water having unimpaired natural connection with the open sea and within which the sea water is measurably diluted with fresh water derived from land drainage.” Clean Water Act § 104(n)(3), 33 U.S.C. § 1254(n)(3) (2000) (as referenced by Clean Water Act § 320(k), 33 U.S.C. § 1330(k) (2000)).

²²³ State governors nominate estuaries within their borders to the EPA to be considered “an estuary of national significance,” Clean Water Act § 320(a)(1), 33 U.S.C. § 1330(a)(1) (2000), or the EPA can select any estuary for inclusion in the program if that estuary “requires the control of point and nonpoint sources of pollution to supplement existing controls of pollution in more than one State.” Clean Water Act § 320(a)(2)(A), 33 U.S.C. § 1330(a)(2)(A) (2000). Congress itself included a list of 17 estuaries to which the EPA was to give “priority consideration.” Clean Water Act § 320(a)(2)(B), 33 U.S.C. § 1330(a)(2)(B) (2000).

activities in the estuary, and assure that the designated uses of the estuary are protected.²²⁴

Once the EPA approves the management plan,²²⁵ grants are available to state, interstate, and regional agencies, and to “other public or nonprofit private agencies, institutions, organizations, and individuals” to implement the plan, up to fifty percent of the annual aggregate costs.²²⁶

The national estuary program thus provides states and the EPA with a mechanism for comprehensively addressing estuarine water quality, including both point and nonpoint forms of urban runoff. Currently, the National Estuary Program covers twenty-eight estuaries, concentrated on the west, Gulf, and northeast coasts of the United States.²²⁷ In addition, the Clean Water Act explicitly mandates similar management for Chesapeake Bay.²²⁸

California is home to three of the six National Estuaries on the west coast—San Francisco Bay, Morro Bay, and Santa Monica Bay.²²⁹ These three estuaries illustrate the often close connection between urban runoff and coastal water quality protections. Urban runoff and urban discharges are a priority issue for the Morro Bay National Estuary,²³⁰ and “one of the main goals” of the Santa Monica Bay National Estuary Program is “to address public concerns regarding potential health risks . . . [of] storm drain runoff contain[ing] pathogens and viruses.”²³¹

3. Implementation of Stormwater Permitting after 1987

On November 16, 1990, the EPA published its Phase I

²²⁴ Clean Water Act §§ 320(b)(1)-(4), 33 U.S.C. §§ 1330(b)(1)-(4) (2000).

²²⁵ See Clean Water Act § 320(f)(1), 33 U.S.C. § 1330(f)(1) (2000). Links to the current management plans are available at EPA, Office of Wetlands, Oceans, and Watersheds, *Comprehensive Conservation and Management Plans*, <http://www.epa.gov/owow/estuaries/ccmp/index.htm> (last visited Apr. 1, 2006).

²²⁶ Clean Water Act § 320(g), 33 U.S.C. § 1330(g) (2000).

²²⁷ EPA, Office of Wetlands, Oceans, and Watersheds, *Which Estuaries are in the NEP?*, <http://www.epa.gov/owow/estuaries/find.htm> (last visited Apr. 1, 2006).

²²⁸ See Clean Water Act § 117, 33 U.S.C. § 1267 (2000). The home page for the Chesapeake Bay Program is located at <http://www.chesapeakebay.net/> (last visited Mar. 20, 2006).

²²⁹ See EPA, Office of Wetlands, Oceans, and Watersheds, *Programs on the West Coast*, <http://www.epa.gov/owow/estuaries/programs/pac.htm> (last visited Apr. 1, 2006).

²³⁰ See generally EPA, Office of Wetlands, Oceans, and Watersheds, *Morro Bay*, <http://www.epa.gov/owow/estuaries/programs/morro.htm> (last visited Apr. 1, 2006).

²³¹ EPA, Office of Wetlands, Oceans, and Watersheds, *Santa Monica Bay*, <http://www.epa.gov/owow/estuaries/programs/smb.htm> (last visited Apr. 1, 2006). The problem of urban runoff is more oblique in San Francisco Bay, one of the first National Estuaries, but human population growth in the cities surrounding the Bay is clearly a problem for the estuary. EPA, Office of Wetlands, Oceans, and Watersheds, *San Francisco Estuary: San Francisco Estuary Project*, <http://www.epa.gov/owow/estuaries/programs/sfe.htm> (last visited Apr. 1, 2006).

stormwater permitting rules,²³² almost two years late for large MS4s and the eleven categories of industrial activity that the rules addressed but on time for medium MS4s, which the rules also addressed.²³³ Under the Phase I rules, over 100,000 industrial facilities and about 850 municipalities received NPDES stormwater permits.²³⁴

As noted, Congress originally envisioned the moratorium for other stormwater discharges ending on October 1, 1992.²³⁵ However, as that deadline approached, both Congress and the EPA sought extensions in order to cope with the enormous task of addressing all other stormwater discharges. In 1991, Congress allowed the EPA generally to extend municipal permit application deadlines for municipalities' industrial discharges.²³⁶ In 1992, Congress extended the original October 1, 1992, deadline to October 1, 1994.²³⁷ As the House Report explained:

For a variety of reasons, the section 402(p) regulatory program has taken longer to establish and implement than Congress envisioned. As numerous public officials and water quality experts have testified, most states and EPA are not ready to establish permitting programs for phase II discharges.

Hearings throughout the 102d Congress by the Subcommittee on Water Resources, including an April 25, 1991 hearing specifically on stormwater regulations, have highlighted EPA's and the states' need for more time to develop reasonable, workable approaches to stormwater discharges. EPA and others are particularly concerned about the scope and complexity of the phase II program. By some estimates, a phase II program could include tens of thousands of currently unregulated municipalities and a million or more currently unregulated facilities (such as certain industrial and commercial facilities). EPA and the states simply will not be in a position to regulate phase II discharges by October 1, 1992.²³⁸

The EPA began its Phase II stormwater permit regulations in 1995,²³⁹ but the final Phase II stormwater regulations did not

²³² National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharge, *supra* note 44.

²³³ See EPA, Office of Water, *Phases of the NPDES Stormwater Program*, <http://cfpub.epa.gov/npdes/stormwater/swphases.cfm> (last visited Apr. 1, 2006).

²³⁴ EPA, OFFICE OF WATER, EPA 833-R-96-008, OVERVIEW OF THE STORM WATER PROGRAM 1, 4 (1996), available at <http://www.epa.gov/npdes/pubs/owm0195.pdf> (last visited Apr. 1, 2006).

²³⁵ Claudia Copeland, Stormwater Permits: Status of EPA's Regulatory Program 1, 4 (2005), available at <http://www.ncseonline.org/nle/crsreports/05aug/97-290.pdf>.

²³⁶ Intermodal Surface Transportation Efficiency Act of 1991, Pub. L. No. 102-240, § 1068, 105 Stat. 1914, 2007-08 (1991) (codified as amended at 33 U.S.C. § 1342(b)(1) (2000)).

²³⁷ Water Resources Development Act of 1992, Pub. L. No. 102-580, § 364(1), 106 Stat. 4797, 4862 (1992) (codified as amended at 33 U.S.C. § 1342(p) (2000)).

²³⁸ H.R. REP. NO. 102-921 at 2 (1992).

²³⁹ Amendment to Requirements for National Pollutant Discharge Elimination Sys-

appear until 1999.²⁴⁰ These regulations “automatically cover[ed] on a nationwide basis all small MS4s located in ‘urbanized areas’ (UAs) . . . and on a case-by-case basis those small MS4s located outside of UAs that the NPDES permitting authority designates.”²⁴¹ The regulations also extend the stormwater permitting program to construction activities that disturb one to five acres of land.²⁴² The regulations impose three general requirements on covered small MS4s, which those MS4s generally achieve through the application of best management practices (BMPs): (1) “[r]educe the discharge of pollutants to the ‘maximum extent practicable’ (MEP)”; (2) “[p]rotect water quality”; and (3) “[s]atisfy the appropriate water quality requirements of the Clean Water Act.”²⁴³

As is true of most NPDES permits, states now issue most of the stormwater NPDES permits. During Phase I, for example, California issued two types of stormwater permits: “[m]unicipal permits for separate storm sewer systems located in urban areas with populations of 100,000 or more,” and state-wide general permits for ten categories of industrial activities and for construction projects that impacted five acres or more.²⁴⁴

IV. PROTECTING OCEAN WATER QUALITY THROUGH STORMWATER NPDES PERMITS

None of the EPA’s regulatory pronouncements for the stormwater permit program contain any special provisions for stormwater discharges into the marine waters, although the EPA did note in 1990 that, regarding sources of impairment “for estuaries, 28% [of pollutants came] from separate storm sewers and 27% from land disposal; and for coastal areas, 20% from separate storm sewers and 29% from land disposal.”²⁴⁵ Nevertheless, the advantage that the Clean Water Act provides over the CZMA in protecting ocean water quality is the many enforceable mecha-

tem (NPDES) Permits for Storm Water Discharge Under Section 402(p)(6) of the Clean Water Act, 60 Fed. Reg. 40,230 (Aug. 7, 1995) (codified as amended at 40 C.F.R. pts. 122, 124).

²⁴⁰ Phase II Stormwater Regulations, *supra* note 239.

²⁴¹ EPA, OFFICE OF WATER, EPA 833-F-00-002, STORM WATER PHASE II FINAL RULE: SMALL MS4 STORMWATER PROGRAM OVERVIEW, *supra* note 89, at 1.

²⁴² EPA, Office of Water, *Phases of the NPDES Stormwater Program*, *supra* note 233.

²⁴³ EPA, OFFICE OF WATER, EPA 833-F-00-002, STORM WATER PHASE II FINAL RULE: SMALL MS4 STORMWATER PROGRAM OVERVIEW, *supra* note 89, at 1.

²⁴⁴ CAL. REG’L WATER QUALITY CONTROL BD.: LOS ANGELES REGION (4), WATER QUALITY CONTROL PLAN: LOS ANGELES REGION: BASIN PLAN FOR THE COASTAL WATERSHEDS OF LOS ANGELES AND VENTURA COUNTIES, 4-22 (1995), *available at* http://www.epa.gov/ost/standards/wqslibrary/ca/ca_9_los_angeles.pdf [hereinafter LOS ANGELES BASIN PLAN].

²⁴⁵ National Pollutant Discharge Elimination System Permit Application Regulations for Stormwater Discharges, *supra* note 44, at 47,991.

nisms that the Clean Water Act provides to ensure that the most basic standards for ocean water quality are met. For example, like sewage treatment plants discharging into the ocean, urban stormwater discharges subject to the Clean Water Act's NPDES permit requirement must comply with the section 403 ocean discharge criteria when those discharges occurs directly into the territorial sea or the ocean.²⁴⁶ Currently, ten stormwater discharges must comply with the ocean discharge criteria.²⁴⁷

More importantly, urban stormwater discharges governed by the NPDES permit program are also subject to all of the Act's provisions that connect point source discharge requirements to the attainment of ocean water quality standards.²⁴⁸ These provisions can result in more stringent discharge limitations than the standard effluent limitations and ocean discharge criteria would otherwise require.²⁴⁹

A. Section 303 Water Quality Standards

1. Clean Water Act Water Quality Standard Requirements

Despite the technology-based effluent limitations, the Clean Water Act also requires an NPDES permit to include "any more stringent limitation" that is "required to implement any applicable water quality standard established pursuant to this chapter."²⁵⁰ Under section 303, the states retain their pre-1972 authority to set water quality standards for the waters within their borders. According to the current Act, a

water quality standard shall consist of the designated uses of the navigable waters involved and water quality criteria for such waters based upon such uses. Such standards shall be such as to protect the public health or welfare, enhance the quality of water and serve the purposes of this Act. Such standards shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation.²⁵¹

²⁴⁶ EPA, Office of Wetlands, Oceans, and Watersheds, *Ocean Discharge Criteria*, *supra* note 166.

²⁴⁷ EPA, Office of Wetlands, Oceans, and Watersheds, *Ocean Regulatory Programs: Table 1. Types of NPDES Permitted Ocean Dischargers*, <http://www.epa.gov/owow/oceans/regulatory/criteriatable1.html> (last visited Apr. 1, 2006).

²⁴⁸ See EPA, Office of Wetlands, Oceans, and Watersheds, *Ocean Discharge Criteria*, *supra* note 166.

²⁴⁹ See discussion *infra* Part IV.B-D.

²⁵⁰ 33 U.S.C. § 1311(b)(1)(C) (2000); see also Clean Water Act § 301(b)(1)(C) (using the word "Act" instead of chapter).

²⁵¹ Clean Water Act § 303(c)(2)(A); see also 33 U.S.C. § 1313(c)(2)(A) (2000) (using the term "chapter" in place of "Act").

Thus, the state water quality standards establish the ambient water quality goals that the regulation of discharges into any particular body of water is supposed to achieve. The standards also specify the uses that the state wants the body of water to be able to support, and the water quality criteria specifying the levels of water quality necessary to support those designated uses. In addition, as part of its water quality standards program, the state must adopt an antidegradation policy to limit its ability to degrade the existing condition of its waters.²⁵²

The EPA reviews the submitted standards for consistency with the Act and is charged with promulgating water quality standards for the state if the state will not correct its own standards.²⁵³ However, most states, including California, have enacted their own water quality standards.²⁵⁴

2. The 2000 Pathogen Water Quality Standards Requirement

The Clean Water Act makes clear that the section 303 water quality standards should define the ambient water quality goals for the first three miles of marine waters—that is, the territorial sea.²⁵⁵ Both the states and the EPA Administrator have a general duty to prepare water quality standards for the “navigable waters,” which include the territorial sea.²⁵⁶ Moreover, in 2000, Congress emphasized the role of water quality standards in the territorial sea by amending section 303 to address the problem of disease-causing organisms—some of the causes of beach closures—in coastal waters used for recreation.²⁵⁷ Under these new requirements, the EPA had to establish water quality criteria for

²⁵² 40 C.F.R. § 131.12 (2004).

²⁵³ Clean Water Act § 303(a)(3)(C), 33 U.S.C. § 1313(a)(3)(C) (2000) (“If the Administrator determines that any such standards are not consistent with the applicable requirements of this Act . . . he shall . . . notify the State and specify the changes to meet such requirements.”).

²⁵⁴ See, e.g., EPA, Office of Water, *Repository of Documents: California*, <http://www.epa.gov/ost/standards/wqslibrary/ca/ca.html> (last visited Apr. 1, 2006) (providing access to California’s water quality documents, including its various collections of water quality standards).

²⁵⁵ See Clean Water Act §§ 303 (c)(2)(A), (c)(4), 33 U.S.C. § 1313(c)(2)(A), (c)(4) (2000) (requiring water quality standards to consist of criteria for “navigable waters”); Clean Water Act §§ 301(a) (prohibiting the “discharge of any pollutants”), 502(12) (defining “discharge of a pollutant” to include additions of pollutants into the navigable waters), 502(7) (defining “navigable waters” to include the territorial sea), 502(8) (defining “territorial sea” to be the first three miles of ocean waters), 33 U.S.C. §§ 1311(a), 1362 (12), (7), (8) (2000).

²⁵⁶ Clean Water Act §§ 303(c)(2)(A), (c)(4), 33 U.S.C. § 1313(c)(2)(A), (c)(4) (2000); see also 40 C.F.R. § 131.40 (2004) (promulgating water quality standards for Puerto Rico’s territorial seas).

²⁵⁷ Beaches Environmental Assessment and Coastal Health Act of 2000, Pub. L. No. 106-284, § 2, 114 Stat. 870 (2000) (codified as Clean Water Act § 303(i), 33 U.S.C. § 1313(i) (2000)).

various ocean-borne pathogens and pathogen indicators, and coastal states then had to adopt water quality criteria and water quality standards for those disease-causing organisms.²⁵⁸ The EPA must set such water quality standards for any coastal state that fails to do so.²⁵⁹

The new pathogen water quality standards requirement applies to “coastal recreation waters,” which are the Great Lakes and any “marine coastal waters (including coastal estuaries)” for which the state’s designated uses include “swimming, bathing, surfing, or similar water contact activities.”²⁶⁰ Thus, application of this requirement depends on the state’s designation of uses for its coastal waters. However, given the widespread use of southern California beaches for recreation, and given the relationship between urban runoff and coastal pathogen contamination, these new coastal recreational water quality standards are particularly important for addressing urban runoff problems in southern California.

3. California’s Ocean Water Quality Standards

Wastewater discharges into the ocean are a significant part of California’s NPDES permit program. In 1988, for example, there were approximately 8,500 point source dischargers in California, over one-third (roughly 2,900) of which discharged into the ocean.²⁶¹ Moreover, “[b]y volume, most of the waste discharge is to the ocean from the cities of San Diego and Los Angeles, Los Angeles County Sanitation District, Orange County Sanitation District, the city of San Francisco, and numerous other cities and special districts along the coast.”²⁶²

In recognizing the significance of ocean discharges, the California Water Resources Control Board (CWRCB) promulgated water quality standards for California’s oceans in its Ocean Plan.²⁶³ The CWRCB originally adopted such standards in

²⁵⁸ Clean Water Act § 303(i)(1)(A), 33 U.S.C. § 1313(i)(1)(A) (2000).

²⁵⁹ *Id.*; see also 40 C.F.R. § 131.41 (2004) (providing for the establishment of bacteriological criteria for noncompliant states).

²⁶⁰ Clean Water Act § 502(21)(A), 33 U.S.C. § 1362(21)(A) (2000).

²⁶¹ William R. Atwater & James Markle, Symposium, *Overview of California Water Rights and Water Quality Law*, 19 PAC. L.J. 957, 1001 (1988).

²⁶² *Id.*

²⁶³ CAL. EPA, STATE WATER RES. CONTROL BD., WATER QUALITY CONTROL PLAN: OCEAN WATERS OF CALIFORNIA: CALIFORNIA OCEAN PLAN (2001), available at http://www.epa.gov/ost/standards/wqslibrary/ca/ca_9_wqcp_waters.pdf. “Ocean waters,” for purposes of this Plan, “are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. [However,] [i]f a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.” *Id.* at 25. The CWRCB has enacted a separate plan that establishes water quality standards for estuaries and

1972²⁶⁴ and has amended them six times since, most recently in 2001.²⁶⁵ The entire Ocean Plan applies to point source discharges to the ocean, while the beneficial uses, water quality objectives, and program of implementation apply to nonpoint sources.²⁶⁶

California's Ocean Plan states that:

The beneficial uses of ocean waters of the State that shall be protected include industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designed Areas of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish migration; fish spawning and shellfish harvesting.²⁶⁷

The water quality objectives, in turn, are designed "to ensure the reasonable protection of beneficial uses and the prevention of nuisance."²⁶⁸ The bacterial water quality objectives, for example, establish average total coliform limits of 1,000 organisms per 100 milliliters of water, not to exceed 10,000 organisms per 100 milliliters in any sample.²⁶⁹ Fecal coliform, however, is limited to an average of 200 organisms per 100 milliliters based on at least five samples taken over thirty days, with less than ten percent of all samples in any sixty-day period exceeding 400 organisms per 100 milliliters.²⁷⁰ However, in shellfish harvesting waters, only seventy organisms per 100 milliliters are allowed.²⁷¹ Other water quality objectives address physical characteristics such as solids and sediments; chemical characteristics such as dissolved oxygen, pH, organics, nutrients, and toxics, with separate toxic standards for protection of marine life, protection of human health from noncarcinogens, and protection of human health from carcinogens; and biological characteristics, such as a prohibition on the degradation of marine communities and on bioaccumulation of organic materials.²⁷² In addition, "[w]aste management systems that discharge to the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community," and the discharge must be located to ensure that "[m]aximum protection is provided to the marine environment."²⁷³ Finally, "[w]aste shall

enclosed bays.

²⁶⁴ *Id.* at Resolution No. 2000-108, ¶ 1.

²⁶⁵ *Id.*

²⁶⁶ *Id.* at 1, § C. Applicability, ¶ 1.

²⁶⁷ *Id.* at 3 (internal citations omitted).

²⁶⁸ *Id.* at 4 (internal citations omitted).

²⁶⁹ *Id.* (internal citations omitted).

²⁷⁰ *Id.*

²⁷¹ *Id.* at 5.

²⁷² *Id.* at 5-9.

²⁷³ *Id.* at 10.

not be discharged to areas designated as being of special biological significance.”²⁷⁴

B. Connecting Ocean Water Quality Standards to Urban Runoff Stormwater Permits #1: Federal Consistency and Section 401 Certifications

Section 401 of the Clean Water Act is stronger than the CZMA’s federal consistency requirement and essentially allows states to veto or condition federally authorized projects that cause point source discharges into the state’s waters. Specifically, under section 401(a)(1),

[a]ny applicant for a Federal license or permit to conduct any activity . . . which may result in any discharge into the *navigable waters*, shall provide the licensing or permitting agency with a certification from the State in which the discharge originates or will originate . . . that any such discharge will comply [with the Act’s requirements].²⁷⁵

The federal agencies cannot issue the permit if the state denies the certification,²⁷⁶ and states can condition the certification on conformity with specific requirements designed to ensure compliance with the Act,²⁷⁷ including both the water quality criteria and the designated uses in the relevant state water quality standards.²⁷⁸ In coastal waters, therefore, section 401 becomes one means by which states can ensure that their coastal water quality standards are met.

By its terms, the section 401 certification requirement applies only to discharges into the navigable waters.²⁷⁹ In the ocean, therefore, this requirement is limited to federally permitted discharges into the territorial sea.²⁸⁰ In California, this requirement has been most significant with respect to the EPA-issued section 301(h) waivers for sewage discharges into the ocean.²⁸¹

²⁷⁴ *Id.* at 19. The CWRCB has designated 34 ASBSs. *Id.* at 38–39. Discharges that could affect these areas “shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.” *Id.* at 19.

²⁷⁵ Clean Water Act § 401(a)(1), 33 U.S.C. § 1341(a)(1) (2000) (emphasis added).

²⁷⁶ *Id.*

²⁷⁷ Clean Water Act § 401(d), 33 U.S.C. § 1341(d) (2000).

²⁷⁸ *See, e.g.*, PUD No. 1 of Jefferson County v. Wash. Dept. of Ecology, 511 U.S. 700 (1994).

²⁷⁹ Clean Water Act § 401(a)(1), 33 U.S.C. § 1341(a)(1) (2000).

²⁸⁰ *See, e.g.*, Natural Res. Def. Council, Inc. v. EPA, 863 F.2d 1420, 1434–36 (9th Cir. 1988).

²⁸¹ *See supra* Part III.C.2.a. Effluent Limitations and accompanying footnotes.

C. Connecting Ocean Water Quality Standards to Urban Runoff
Stormwater Permits #2: Section 302 Water-Quality-Based
Effluent Limitations

In a typical NPDES permit, technology-based effluent limitations dictate the majority of the discharge requirements for point sources.²⁸² However, if the discharge

would interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water . . . ²⁸³

the NPDES permit must include more stringent water-quality-related effluent limitations to ensure that these uses are protected.

The section 302 water-quality-based effluent limitations apply only when point source discharges interfere with the water quality of the *navigable waters*.²⁸⁴ Therefore, the section 302 requirement applies to point source discharges into inland waters and the territorial sea, but *not* to discharges into the contiguous zone or the ocean more than three miles out to sea.

Nevertheless, coverage of the territorial sea is sufficient to protect much of the quality of coastal waters. For example, California must adjust the effluent limitations and other requirements in any stormwater NPDES permit to ensure that its ocean water quality standards are being met, a requirement that can become particularly important when stormwater discharges are associated with pathogens and public health risks.

D. Connecting Ocean Water Quality Standards to Urban Runoff
Stormwater Permits #3: Coastal Water Quality Standards
and TMDLs

The Act's primary mechanism for connecting water quality standards and NPDES permit requirements is the TMDL requirement.²⁸⁵ Under section 303 of the Act, "[e]ach State shall identify those waters within its boundaries for which the [technology-based] effluent limitations . . . are not stringent enough to implement any water quality standard applicable to such waters" and then rank those waters in order of priority, "tak[ing] into ac-

²⁸² Clean Water Act § 302(a), 33 U.S.C. § 1312(a) (2000).

²⁸³ *Id.*

²⁸⁴ *Id.*

²⁸⁵ See Clean Water Act §§ 303(d)(1)(A)–(C), 33 U.S.C. §§ 1313(d)(1)(A)–(C) (2000).

count the severity of the pollution and the uses to be made of such waters.”²⁸⁶ The state then sets TMDLs for specific pollutants for each water on the list, “at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.”²⁸⁷ The TMDL represents the total amount of a given pollutant that can be added to the water body in a set unit of time without violating the applicable water quality standard.

Under Section 303, permitting agencies must modify the effluent limitations included in Clean Water Act NPDES permits to implement the established TMDL.²⁸⁸ Moreover, until the water body attains its water quality standards, effluent limitations based on the TMDL

may be revised only if (i) the cumulative effect of all such revised effluent limitations based on such total maximum daily load or waste load allocation will assure the attainment of such water quality standard, or (ii) the designated use which is not being attained is removed in accordance with regulations established under this section.²⁸⁹

V. CONCLUSION: BRINGING IT ALL TOGETHER IN SANTA MONICA BAY

Santa Monica Bay provides an excellent example of how the various Clean Water Act programs can come together to address coastal water pollution from urban runoff. Under California’s system of water quality management, the Los Angeles Regional Water Quality Control Board (Region 4) implements water quality requirements for Santa Monica Bay, which “dominates a large portion of the Region’s open coastal waters.”²⁹⁰ In terms of beneficial uses, “these coastal waters provide habitat for marine life and are used extensively for recreation, boating, shipping, and commercial and sport fishing.”²⁹¹ In addition, as noted, the Santa Monica Bay estuary is of such national significance that it was designed a National Estuary in 1988, one year after Congress enacted the National Estuary Program.²⁹²

However, urban stormwater is and has been a major water

²⁸⁶ Clean Water Act § 303(d)(1)(A), 33 U.S.C. § 1313(d)(1)(A) (2000).

²⁸⁷ Clean Water Act § 303(d)(1)(C), 33 U.S.C. § 1313(d)(1)(C) (2000).

²⁸⁸ See Clean Water Act § 303(d), 33 U.S.C. § 1313(d) (2000).

²⁸⁹ Clean Water Act § 313(d)(4)(A), 33 U.S.C. § 1313(d)(4)(A) (2000).

²⁹⁰ LOS ANGELES BASIN PLAN, *supra* note 244, at 1-21.

²⁹¹ *Id.* at 2-4.

²⁹² EPA, Office of Wetlands, Oceans, and Watersheds, *Santa Monica Bay*, *supra* note 231.

quality problem for Santa Monica Bay. The entire region is impacted by “[m]unicipal and industrial wastewater discharges” and “[n]onpoint source runoff (urban and agricultural runoff in particular).”²⁹³ “More than 1,000 miles of storm drains beneath the streets of Los Angeles collect runoff from city streets, eventually dumping this flow into streams and coastal waters.”²⁹⁴ Similarly, “[t]he City of Santa Monica, California . . . has over 2000 catch basins and 64 storm drain lines running to 5 outfalls that empty directly into the Santa Monica Bay and the Pacific Ocean.”²⁹⁵ Urban runoff problems have been so significant for so long in this region that in 1990, Los Angeles County applied for and received an “early” stormwater permit, which covered several cities in the County and provided that they would come into compliance with the NPDES permit requirements in three phases over three years.²⁹⁶ In addition, when a health study in 1995 confirmed that pathogens coming from storm drain runoff were still impairing water quality in the Bay and posing health risks to swimmers,²⁹⁷ the Santa Monica Bay Restoration Project (SMBRP) “initiated one of the first stormwater runoff permit programs in the nation in order to reduce the amount of pollution entering the bay.”²⁹⁸ With the promulgation of the Phase II stormwater permit regulations, “all stormwater runoff to [Santa Monica Bay] beaches is regulated as a point source.”²⁹⁹ In other words, all urban runoff that can impair Santa Monica Bay is now subject to the Clean Water Act’s broader water quality requirements as well as to the NPDES permitting requirements.

Compliance with the Los Angeles County and other stormwater NPDES permits required the covered cities to enact stormwater management programs. As one example, the City of Santa Monica sought to address urban runoff into the Bay through a variety of mechanisms. To address a broad range of activities that produce and pollute urban runoff, it enacted its Storm Water Ordinance,³⁰⁰ which imposes general good house-

²⁹³ LOS ANGELES BASIN PLAN, *supra* note 244, at 1-22.

²⁹⁴ *Id.* at 4-40.

²⁹⁵ Roland Wall, *supra* note 46 (citing EPA, OFFICE OF WATER, RESULTS OF THE NATIONAL URBAN RUNOFF PROGRAM: VOLUME 1—FINAL REPORT (1983)).

²⁹⁶ LOS ANGELES BASIN PLAN, *supra* note 244, at 4-22.

²⁹⁷ EPA, Office of Wetlands, Oceans, and Watersheds, *Santa Monica Bay*, *supra* note 231.

²⁹⁸ *Id.*

²⁹⁹ CAL. REG’L WATER QUALITY CONTROL BD., LOS ANGELES REGION, RESOLUTION NO. 2002-022, ATTACHMENT A (Dec. 12, 2002), available at http://www.epa.gov/ost/standards/wqslibrary/ca/ca_9_reg4bactimp.pdf.

³⁰⁰ SANTA MONICA, CA., MUNICIPAL CODE OF ORDINANCES §§ 7.10.010 - 7.10.090 (1992). The ordinance makes clear that it fulfills Santa Monica’s obligations as a co-permittee on the NPDES permit. *Id.* § 7.10.010(c).

keeping requirements on a variety of activities,³⁰¹ urban runoff reduction requirements for new development,³⁰² and urban runoff requirements for construction sites.³⁰³ The City enforces these requirements through notices, penalties of up to \$100.00 per day of violation, and injunctions.³⁰⁴ Santa Monica also addresses city-controlled urban runoff through a variety of means. For example, stormwater runoff at the city's bus washing facility "and the surrounding parking lot drains into two large sub-surface infiltration basins, removing stormwater pollutants and recharging groundwater."³⁰⁵ The City has installed permeable pavement in some areas of the city, and "[i]nfiltration pits, porous concrete, bioswales, and French drains were also installed on City property to reduce runoff."³⁰⁶ In addition, in April 1999, the City and Los Angeles began building the Santa Monica Urban Runoff Recycling Facility (SMURRF), which was completed in December 2000. The facility can divert approximately 500,000 gallons per day from the storm sewers of Los Angeles and Santa Monica for treatment to remove pollutants, with the treated water becoming available for re-use.³⁰⁷

Nevertheless, such stormwater permitting and urban runoff control measures have not been sufficient to ensure that waters of Santa Monica Bay meet the applicable water quality standards, especially the pathogen water quality standards and especially during storms. For example, "[d]uring rain events, SMURRF is inoperable and stormwater runoff is discharged to Santa Monica Bay."³⁰⁸

As a result, restoration and protection of the Bay's water quality is now shifting to the Clean Water Act's other water quality protection mechanisms.

Many of the beaches along Santa Monica Bay were listed on California's 1998 section 303(d) list, due to impairments for coliform or for beach closures associated with bacteria generally. The beaches appeared on the 303(d) list because the elevated bacteria and beach clo-

³⁰¹ *Id.* § 7.10.040.

³⁰² *Id.* § 7.10.060.

³⁰³ *Id.* § 7.10.070.

³⁰⁴ *Id.* §§ 7.10.050(a)(1), (a)(2).

³⁰⁵ EPA, Office of Water, *Stormwater Case Studies Search Results: Urban Runoff BMPs for Municipal Facilities, Santa Monica, California*, http://cfpub.epa.gov/npdes/stormwater/casestudies_specific.cfm?case_id=2&CFI (last visited Apr. 1, 2006).

³⁰⁶ *Id.*

³⁰⁷ *Id.* According to the EPA, SMURRF "treats an average of 350,000 gallons per day of dry-weather urban runoff for reuse in Santa Monica. Approximately 50% of the dry weather flows originate in the City of Los Angeles, which is an equal partner in this project." EPA, Office of Water, *Stormwater Case Studies Search Results: Urban Runoff BMPs for Municipal Facilities, Santa Monica, California*, *supra* note 305.

³⁰⁸ *Id.*

asures prevented full support of the beaches' designated use for water contact recreation (REC-1).³⁰⁹

Litigation followed the 1998 303(d) list, resulting in a March 1999 consent decree that required TMDLs for the entire Los Angeles region within thirteen years and a bacteria TMDL for Santa Monica Bay by March 2002.³¹⁰

The Regional Water Quality Control Board for the Los Angeles Region issued its bacteria TMDL for Santa Monica Bay on December 12, 2002, covering forty-four beaches.³¹¹ "The Regional Board's goal in establishing the . . . TMDL is to reduce the risk of illness associated with swimming in marine waters contaminated with bacteria."³¹² Specifically, the TMDL seeks to ensure "that the risk of illness to the public from swimming at Santa Monica Bay beaches generally will be no greater than 19 illnesses per 1,000 swimmers, which is defined by the US EPA as an 'acceptable health risk' in marine recreational waters."³¹³

The Los Angeles Region will implement the Santa Monica Bay wet weather bacteria TMDL over ten years.³¹⁴ It identifies stormwater as the primary source of the bacteria.³¹⁵ Each POTW covered by the TMDL has received a waste load allocation of zero days of exceedance of the bacteria standards, and, because there are no nonpoint source urban runoff problems, the load allocation is also zero days of exceedance.³¹⁶ As a result, compliance with the TMDL will be achieved primarily by adjusting the requirements of the stormwater NPDES permits governing urban runoff from the surrounding cities.³¹⁷

Santa Monica Bay has thus benefited from the evolution of the Clean Water Act's applicability to ocean water quality. Improvement of the Bay's water quality has evolved from basic sewage treatment regulation³¹⁸ through standard NPDES per-

³⁰⁹ CAL. REG'L WATER QUALITY CONTROL BD., LOS ANGELES REGION, RESOLUTION NO. 2002-022, *supra* note 299, at ¶ 4.

³¹⁰ *Id.* at ¶ 5.

³¹¹ *Id.* at ¶ 8.

³¹² *Id.* at ¶ 10.

³¹³ *Id.* (internal citation omitted).

³¹⁴ *Id.* at ¶ 16.

³¹⁵ *Id.* Attachment A, at 4.

³¹⁶ *Id.* Attachment A, at 5-6.

³¹⁷ *Id.* Attachment A, at 6.

³¹⁸ See *California v. City of Los Angeles*, 189 P.2d 489, 491 (Cal. App. 1948) (noting that it was widely known by contaminating cities and their sanitation departments that contamination of the beaches surrounding Santa Monica Bay by sewage from Los Angeles was occurring, and requiring the Los Angeles sewage treatment facilities to get a permit); *California v. City of Los Angeles*, 325 P.2d 639, 642 (Cal. App. 1958) ("The facts alleged in the first cause of action [in which plaintiffs seek an injunction to stop Los Angeles from polluting Santa Monica Bay's waters], if true, disclose the existence of a public nuisance of the most serious character, endangering the health and comfort of the inhabitants of

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mitting to stormwater permitting of urban runoff and TMDLs. One hopes that by implementing the TMDL, urban runoff permitting will finally result in achieving the Clean Water Act's primary goal: attaining California's ocean water quality standards while at the same time protecting public health.

What do Snowmobiles, Mercury Emissions, Greenhouse Gases and Runoff Have in Common?: The Controversy over “Junk Science”

*Professor Linda A. Malone**

This week, the State Board of Education in Kansas is continuing its hearings on how evolution should be taught in public schools. In other news, besides the evolution debate in Kansas, eight players from the Chicago White Sox were accused of throwing the World Series, flappers everywhere are getting their knickers off by sitting on flagpoles, and the stock market crashed. And that's this week's installment of “Things I Thought Already Happened in the 1920's.”¹

In a world in which less and less seems certain and stable, science has been viewed as an objective measure of certainty, reassuring in its impartiality and precision. The bedrock assurance of that legitimacy, however, has been now called into question. The determinations of legitimate scientists are maligned with personal attacks and assertions of an underlying political agenda. These attacks are facilitated by revelations that scientists are not immune to the pressures of celebrity status and funding demands, even to the point of falsifying results. Non-scientists are called upon to review and revise scientific evaluations. Positions with little or no underlying scientific consensus are trumpeted as the “scientific” basis for politically-driven positions. The very question of what constitutes “science” has become an issue for school boards and the courts.

Has science become so politicized that regulation is dictated by desired political outcomes and not legally mandated considerations of public health and safety? Changes in regulatory poli-

* Marshall-Wythe Foundation Professor of Law and Director, Human Rights and National Security Law Program, William and Mary Law School. B.A., Vassar College; J.D., Duke University Law School; LL.M., University of Illinois College of Law. Professor Malone is the author of Chapter 4, *Ocean and Coastal Pollution from Land-Based Sources* in Appendix 6 the U.S. COMMISSION ON OCEAN POLICY, AND OCEAN BLUEPRINT FOR THE 21ST-CENTURY: FINAL REPORT OF THE U.S. OCEAN COMMISSION ON OCEAN POLICY (2004) and co-author of Appendix 6, *Review of U.S. Ocean and Coastal Law: The Evolution of Ocean Government over Three Decades*. The views expressed are her own.

¹ Dennis Miller, 2005: *Laugh Lines*, N.Y. TIMES, Dec. 25, 2005, § 4, at 2.

cies and requirements between administrations are not unusual, but ordinarily these changes are differences in degree of regulation based on scientific variances within a generally accepted range of scientific conclusions. Recently, however, regulatory reversals have been just that: complete reversals based on scientific determinations that flatly contradict conclusions reached only a few years, or even months, earlier within the same agency. For example, as discussed below, one federal judge, frustrated with the yo-yoing federal policy on snowmobiles in Yellowstone National Park, chided the agency for claiming a change in scientific basis without justification.² Environmental advocates are challenging the EPA's relaxed position on controlling mercury air emissions for totally ignoring a Harvard study on point released just weeks after the EPA's change in regulatory approach, and provided in draft form to the agency precisely for its consideration in relation to the mercury standards.³ The *New York Times* broke a story that a non-scientist in the Bush administration made critical revisions to an EPA document on global warming, minimizing the impacts and significance of increases in global temperatures.⁴ The problem of controlling nonpoint source pollution has not escaped some of these troublesome developments, as the thirty-year lack of mandatory controls is premised on the "infeasibility" of imposing those controls on the primary source of pollution preventing nationwide attainment of water quality standards.⁵

When is science "junk science" and simply a pretext for a predetermined political agenda? How and when can courts reject "science" offered by agencies to justify their decisions, or for that matter, by school boards to revise their scientific curriculum? How can "junk science" be detected, when the very determination of what constitutes "science" is being questioned? What does this controversy over science portend for the future of controlling nonpoint source pollution?

I. THE GENESIS OF THE CONTROVERSY

The Bush Administration's specific policies in the scientific realm, though unaccepted by many, are not as controversial as the allegations of a deliberate, systematic misuse of science to serve a political agenda. "Junk science" is generally recognized as the use of purported scientific research, not conducted by sci-

² See discussion *infra* Part II. A CAUTIONARY TALE OF SNOWMOBILES, MERCURY EMISSIONS, AND GREENHOUSE GASES.

³ *Id.*

⁴ *Id.*

⁵ *Id.*

entific persons or substantiated by generally accepted scientific methodologies, for political purposes; suppressing legitimate studies; changing data in scientific studies without scientific justifications; and in extreme cases, discrediting scientists who do not tote the party line.

When psychologist William R. Miller was interviewed for a position in the National Drug Abuse Advisory Panel, he was asked whether he voted for Bush.⁶ Miller replied in the negative and he was later denied the appointment.⁷ The White House, of course, claims there were other reasons for the denial.⁸ In another case, EPA ombudsman Robert Martin resigned after his investigation of the air quality following the attacks on 9/11 revealed startling health concerns that the EPA and the administration had ignored.⁹ Before Martin resigned, the ombudsman's office was closed and padlocked and all of Martin's files were confiscated.¹⁰

In February 2004, the Union of Concerned Scientists issued a report criticizing the Bush administration's use of science for a political agenda.¹¹ The report asserted that the administration's political agenda had undermined “the traditionally objective, nonpartisan mechanisms through which the government uses scientific knowledge in forming and implementing public policy.”¹² A petition accompanied the report and was signed by more than sixty prominent scientists, including twenty Nobel laureates.¹³ The petition as of February 2006 had gathered more than 8,000 signatures.¹⁴ In 2004, Scientists and Engineers for Change organized lectures aimed at showing the scientific community's opposition to Bush's candidacy for a second term.¹⁵ In June 2004, the ACLU released a report entitled “Science under Siege” exploring the restrictions put on access to equipment and free movement of foreign scientists.¹⁶

In June 2005, Senator Richard Durbin introduced the Restore Scientific Integrity in Federal Research and Policymaking

⁶ CHRIS MOONEY, *THE REPUBLICAN WAR ON SCIENCE* 237–38 (2005).

⁷ *Id.*

⁸ *Id.* at 238.

⁹ ROBERT F. KENNEDY, *CRIMES AGAINST NATURE: HOW GEORGE W. BUSH AND HIS CORPORATE PALS ARE PLUNDERING THE COUNTRY AND HIJACKING OUR DEMOCRACY* 79–80 (2005).

¹⁰ *Id.*

¹¹ Daniel Smith, *Political Science*, N.Y. TIMES, Sept. 4, 2005, at 38.

¹² *Id.* (internal citation omitted).

¹³ *Id.*

¹⁴ Karen Tumulty & Mark Thompson, *The Political Science Test*, TIME, Feb. 13, 2006, at 37.

¹⁵ Smith, *supra* note 11.

¹⁶ *Id.* at 39.

bill.¹⁷ The bill aims to stop government censorship and alteration of scientific data, and has garnered such co-sponsors as Senator Hillary Rodham Clinton and Senator Harry Reid.¹⁸ However, since the introduction of the bill, no further action has been taken toward its approval. Despite the minimal likelihood of the bill being passed, its proposal indicates how strong the perception has become that the Bush administration is “anti-science.” No one addressing the current controversy is so naive as to assume that manipulation of scientific data has never been done to serve a political purpose—it is more the extent (or correctly or incorrectly the general perception of the extent) to which it is occurring in the current administration. To some extent, this perception may be largely the result of two areas, global warming and stem-cell research, in which a strong consensus in the scientific community has been largely rejected as unconvincing by the administration.

Personal attacks on scientists or educators for their views on either end of the political spectrum, of course, are never an acceptable or legitimate method of policymaking and public discourse. Such attacks do regrettably occur, and neo-conservative advocates are no less immune than liberal advocates. In a November 10, 2005 story on National Public Radio, science professors who accept the validity of intelligent design as a scientific theory expressed their own concerns about suffering retaliation from their scientific colleagues and institutions.¹⁹ Dr. Richard Sternberg described how colleagues at the Smithsonian accused him of fraud and otherwise sought to discredit him personally when he merely published in a Smithsonian peer-reviewed, scientific journal an article by Stephen Meyer, a proponent of intelligent design (a theory Sternberg himself does not share).²⁰ Personal attacks and retaliation, however, are not at the core of the controversy or the focus of this article. Rather, the question is whether the somewhat sacred, public reverence for the impartiality of science and its determinations can no longer be maintained, because science itself has become so extensively and routinely politicized that objectivity can no longer be assumed. These questions concerning the politics of science could not come at a worse time for science itself, as it coincides with the highly publicized incident of a South Korean scientist not merely masaging the results of his cloning work, but engaging in outright

¹⁷ *Id.* at 38.

¹⁸ *Id.*

¹⁹ *All Things Considered: Profile: Intelligent design and academic freedom* (NPR radio broadcast Nov. 10, 2005).

²⁰ *Id.*

falsification of his research results.²¹

The question remains whether the purported politicization of science is something new, or just, to co-opt the old saying, “politics (and science) as usual.” In Chris Mooney’s book, *The Republican War on Science*,²² the answer is that there is indeed something different happening to the role of science and scientists in policymaking and regulation. The author takes great pains in his acknowledgments to point out that he is not a scientist, but a journalist with a background for reporting on science, who prides himself on evaluating “where scientists think the weight of evidence lies, without presuming to critically evaluate the science. . . .”²³ In his epilogue, he warns that science politicization succeeds because it confuses policymakers and the public with thinking that a scientific “controversy” exists where it does not, or that widely discredited scientific claims have more credence in the scientific community than they do.²⁴ According to Mooney, what makes this situation different and, thus, more alarming is a deliberate, conservative disregard for legitimate, peer-reviewed and replicated science in favor of ideologically motivated “pseudoscience” (although he still acknowledges that “science abuse” is not exclusively limited to conservative agendas). In particular, he notes that the journalistic obsession with balance lends itself to such pseudoscience, by giving credibility to any counter position rather than appear one-sided.²⁵ Demarcation between good and junk science may in most circumstances not be as difficult as it first appears, when it is apparent that money or religion, for example, are a stronger motivation for a position than any remotely scientific determinations.

II. A CAUTIONARY TALE OF SNOWMOBILES, MERCURY EMISSIONS, AND GREENHOUSE GASES

It is certainly not unusual for different administrations to differ as to the degree of environmental controls necessary to regulate a pollutant, and for an intervening change in administration therefore to result in a change in regulation. Between the Clinton and Bush administrations, however, there have been several high-profile regulatory reversals in which the very need for regulation or the fundamental method of regulation

²¹ Lawrence K. Altman & William J. Broad, *Global Trend: More Science, More Fraud*, N.Y. TIMES, Dec. 20, 2005, at F1; see also Nicholas Wade & Choe Sang-Hun, *Human Cloning Was All Faked, Koreans Report*, N.Y. TIMES, Jan. 10, 2006, at A1.

²² MOONEY, *supra* note 6.

²³ *Id.* at vii.

²⁴ *Id.* at 252.

²⁵ *Id.* at 252–54.

have been subject to reversal.

The very first of these reversals took place in the heated controversy over snowmobiles in Yellowstone National Park.

A. The Snowmobile Flip-Flop

Use of snowmobiles has been permitted in Yellowstone National Park since 1963.²⁶ In 2001, the Clinton administration proposed a rule that would phase-out use of snowmobiles in Yellowstone.²⁷ By 1968, the use of snowmobiles had increased to a level that mandated the Park Service to impose a “winter-only” policy on their use.²⁸ Since 1971, the Park Service has been grooming trails to improve safety for the burgeoning number of snowmobiles reflective of the growth in number of winter visitors to Yellowstone to 140,000 by 1993.²⁹

An environmental impact statement prepared in 2001 as part of a settlement between environmental advocates and the Park Service concluded that snowmbiles created problems of poor air quality,³⁰ disruption of wildlife feeding patterns,³¹ and noise elevation.³² Based on the environmental impact statement’s (EIS) conclusions, the Park Service proposed a regulation adopting the EIS’s environmentally preferred alternative calling for a complete phase-out of snowmobile use within two seasons in favor of multipassenger snowcoach use.³³ The regulation became final the day after George W. Bush assumed office, but was immediately stayed pending review by the Bush administration.³⁴ Inevitably, the International Snowmobile Manufacturers Association filed suit to challenge the 2001 EIS

²⁶ Jason Rapp, *Snowmobiling and National Park Management: To Conserve for Future Generations or Provide for Public Enjoyment?*, 17 TUL. ENVTL L.J. 301, 305 (2004).

²⁷ *Id.* at 317.

²⁸ Joanna M. Hooper, *Blowing Snow: The National Park Service’s Disregard for Science, Law, and Public Opinion in Regulating Snowmobiling in Yellowstone National Park*, 34 ENVTL. L. REP. 10975 (2004).

²⁹ Rapp, *supra* note 26, at 305; *see also* Hooper, *supra* note 28, at 10975. Today, in Yellowstone, there are over 180 miles of groomed trails and on days of high use, as many as 1,700 snowmobiles enter the park. *Id.*

³⁰ Snowmobiles produce 68% of the park’s annual carbon monoxide and 90% of the park’s annual hydrocarbon emissions. Carbon monoxide levels in some areas of the park are higher than the levels in Los Angeles and in 2002, the Park service actually issued workers in high snowmobile areas their own respirators. Hooper, *supra* note 28, at 10975.

³¹ This has specifically affected four species that are protected by the Endangered Species Act and live in Yellowstone: grizzly bears, gray wolves, bald eagles, and lynxes. *Id.* at 10976.

³² The level of noise from snowmobiles has grown so loud that during the 2003–2004 winter season park employees were fitted with special devices to protect against hearing loss. *Id.*

³³ *Id.*

³⁴ *Id.*

regulation.³⁵ As part of this settlement, the Park Service agreed to prepare a supplemental EIS “consider[ing] data on new snowmobile technologies.”³⁶

The supplemental 2003 EIS did not find any of the 2001 EIS to be erroneous and even noted that the so-called new snowmobile technology it said it would consider had in fact been evaluated when the Park Service had prepared the 2001 EIS.³⁷ Nevertheless, despite no apparent changes in the findings or conclusions between the 2001 and 2003 EISs, the Park Service decided to adopt a regulation “which provided for increased numbers of snowmobiles, while imposing best available technology (BAT) standards designed to reduce harmful emissions, and requiring that 80% of entering snowmobiles be accompanied by guides.”³⁸

Within five days of the finalization of the 2003 rule allowing snowmobiles, Judge Emmet G. Sullivan of the D.C. District Court vacated the regulation and reinstated the 2001 regulation.³⁹ Judge Sullivan did not simply hold that the regulatory reversal regarding the use of snowmobiles in Yellowstone was arbitrary and capricious. He reprimanded the Park Service, finding that there was no evidence in the record of a reasoned explanation for the reversal and that the supplemental environmental impact statement was “completely politically driven and result[-]oriented.”⁴⁰ The judge denied motions to stay his order reinstating the 2001 rule and, in response to claims that such immediate reinstatement of the 2001 rule “would cause irreparable economic and emotional harm to the local Yellowstone communities relying on snowmobile business and to snowmobilers with already established vacation plans,”⁴¹ the judge implied that the Park Service had deliberately waited to publish the 2003 rule until the winter season at Yellowstone opened, and “that ‘any economic or emotional harm to snowmobilers with vacation plans falls squarely on the [Park Service’s] shoulders.’”⁴²

Discontent with the judgment of the distant D.C. District Court, the state of Wyoming asked Judge Clarence Brimmer, of the Wyoming Federal District Court, to reopen the case that originally resulted in the writing of the supplemental EIS,

³⁵ Int’l Snowmobile Mfrs. Ass’n v. Norton, 340 F. Supp. 2d 1249 (D. Wyo. 2004).

³⁶ Hooper, *supra* note 28, at 10977.

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*; Fund for Animals v. Norton, 294 F. Supp. 2d 92 (D.D.C. 2003).

⁴⁰ Hooper, *supra* note 28, at 10978; *Fund for Animals*, 294 F. Supp. 2d at 108 n.11.

⁴¹ Hooper, *supra* note 28, at 10978.

⁴² *Id.* (citing *Fund for Animals*, 294 F. Supp. 2d at 116).

International Snowmobile Manufacturers Association v. Norton.⁴³ Judge Brimmer enjoined enforcement of the 2001 rule which Judge Sullivan had reinstated, holding that the harm of the 2001 rule to industry and the economy outweighed the harm of the 2003 rule to the environment.⁴⁴ On February 11, 2004, confronted with conflicting district court rulings despite no change in the underlying factual record, the Park Service put in place temporary snowmobile usage rules that permitted 798 snowmobiles in the park each day and, of the 798, required that 297 of them make use of the BAT standards to reduce noise and pollution.⁴⁵ The temporary rules also required that all snowmobilers be accompanied by a guide.⁴⁶

The battle over snowmobiles continues, with the Bush administration calling for Congressional intervention and additional studies.⁴⁷ In June 2004, the House of Representatives voted 224 to 198 to allow snowmobiles into Yellowstone,⁴⁸ and in August of that same year, the Park Service proposed temporary rules for snowmobile use in Yellowstone, which cap the number of snowmobiles permitted in the park each day at 720.⁴⁹ In addition to requiring that snowmobilers must be accompanied by a guide, all snowmobiles must make use of the BAT standards to reduce noise and pollution.⁵⁰ These temporary rules will remain in place for three years, at which time permanent rules will be put in place.⁵¹ The Department of the Interior is considering a modification of the requirement that all snowmobilers be with a guide,⁵² despite the fact that that requirement was a part of both the 2001 Rule and the 2003 Rule.

Negotiations over permanent rules have resulted in public disagreements between the National Park Service and the Bush administration. In August 2005, senior employees of the National Park Service rejected policy revisions affecting the use of snowmobiles in Yellowstone.⁵³ The revisions were proposed by Paul Hoffman, of the Interior Department, and would have,

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ *Snowmobile Deceit*, N.Y. TIMES, Aug. 26, 2005.

⁴⁸ Juliet Eilperin, *House Votes to Allow Snowmobiles in Parks; Bush Administration Hails Decision*, WASH. POST, June 18, 2004 at A27.

⁴⁹ Michael Janofsky, *U.S. would allow 720 Snowmobiles Daily at Yellowstone*, N.Y. TIMES, Aug. 20, 2004 at A14 [hereinafter *720 Snowmobiles*].

⁵⁰ Felicity Barringer, *Secretary Tours Yellowstone on Snowmobile*, N.Y. TIMES, Feb. 17, 2005, at A18 [hereinafter *Secretary Tours Yellowstone on Snowmobile*].

⁵¹ *720 Snowmobiles*, *supra* note 49.

⁵² *Secretary Tours Yellowstone on Snowmobile*, *supra* note 50.

⁵³ See Felicity Barringer, *Top Official Urged Change in How Parks Are Managed*, N.Y. TIMES, Aug. 26, 2005 at A10.

among other things, further eased the regulations regarding snowmobile usage in Yellowstone and other national parks.⁵⁴ Rather than approve these revisions, the Park Service employees decided to draft a less permissible version of the changes proposed.⁵⁵ Meanwhile, the snowmobiles have ploughed on through the National Park.

B. Changing Climate Change

From the beginning of the Bush administration, the international community has been critical of the administration's refusal to participate in the Kyoto Protocol on greenhouse gas emissions or to otherwise agree to binding reductions in greenhouse gas emissions.⁵⁶ The international debate took a decidedly domestic turn in the scientific realm when a front page article in the June 8, 2005 *New York Times* reported that a Bush official, formerly a lobbyist for the American Petroleum Institute and with no scientific training, had edited an EPA document to minimize the document's linkage between greenhouse gases and global warming.⁵⁷ Philip A. Cooney, chief of staff for the White House Council on Environmental Quality, “removed or adjusted descriptions of climate research that government scientists and their supervisors, including some senior Bush administration officials, had already approved.”⁵⁸ The documents were obtained from the Government Accountability Project, a non-profit organization which provides legal assistance to government whistle-blowers.⁵⁹ The organization was representing a senior associate in the office that coordinates global warming climate research, Rick S. Piltz, who resigned from the office in March 2005.⁶⁰ Although it is not unusual for administration officials to “vet” government reports, critics said that scientific content should be reviewed by scientists.⁶¹ In a memorandum written by Mr. Piltz, he stated his objections as follows:

Each administration has a policy position on climate change . . . but I

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ See Andrew C. Revkin, *Bush Aide Edited Climate Reports: Ex-Lobbyist Softened Greenhouse Gas Links*, N.Y. TIMES, June 8, 2005, at A1, A15.

⁵⁷ *Id.*

⁵⁸ *Id.* at A1.

⁵⁹ *Id.* at A15.

⁶⁰ *Id.*

⁶¹ *Id.* One example is the 2003 “Strategic Plan for the United States Climate Change Science Program,” requested by President Bush in 2001 and reviewed in 2003 by an expert panel established by the National Academy of Sciences. “The scientists largely endorsed the administration's research plan, but they warned that the administration's procedures for vetting reports on climate could result in excessive political interference with science.” *Id.*

have not seen a situation like the one that has developed under this administration during the past four years, in which politicization by the White House has fed back directly into the science program in such a way as to undermine the credibility and integrity of the program.⁶²

Democratic Senators, on June 9 and June 29, 2005, asked James Mahoney, director of the U.S. Climate Change Science Program at the Department of Commerce's National Oceanic and Atmospheric Administration, to retract two reports on climate change altered by Cooney pending an investigation of whether Cooney had violated two laws on falsification of information.⁶³ On June 10, 2005, Cooney had resigned his White House position to take a position with ExxonMobil.⁶⁴ Any possibility that his resignation might bring an end to the debate over the altered reports ended in the aftermath of Hurricane Katrina, as congressional representatives debated whether global warming did or did not have anything to do with changes in the nature of and severity of storms,⁶⁵ and studies continued to suggest that global warming is already causing climate disruption with present consequences.⁶⁶

C. Federal Regulation of Mercury Emissions from Power Plants

Mercury is a neurotoxic pollutant that contaminates the air, water, and land. When combined with water, mercury becomes methyl-mercury, a toxin that contaminates fish and makes them unsafe for consumption.⁶⁷ In 2004, the EPA and the Federal Drug Administration (FDA) issued a cautionary warning, advising women of childbearing age and young children to consume no more than six to twelve ounces of canned tuna per week, due to

⁶² *Id.* (internal citation omitted). "For example, a sentence in the October 2002 draft of 'Our Changing Planet' originally read, 'Many scientific observations indicate that the Earth is undergoing a period of relatively rapid change.' In a neat, compact hand, Mr. Cooney modified the sentence to read, 'Many scientific observations point to the conclusion that the Earth may be undergoing a period of relatively rapid change.'" *Id.*

⁶³ *Senators Seek Retraction of Science Reports, Probe of Whether White House Acted Illegally*, 36 ENV'T. REP. 1393 (July 8, 2005). The focus was on two laws: 18 U.S.C. § 1505, providing that "any person who 'corruptly . . . influences, obstructs, or impedes' an agency's work that is required by Congress 'shall be fined . . . or imprisoned not more than five years, or both,'" and 18 U.S.C. § 1001, providing that "no person, in this case, in the executive branch can 'knowingly and willfully' make or use 'any false writing or document knowing the same to contain any materially false, fictitious, or fraudulent statement or entry.'" *Id.*

⁶⁴ *Id.*

⁶⁵ *Domenici Says Regulation a "Daunting Task," Rejects Linking Global Warming, Hurricanes*, 36 ENV'T. REP. 1947 (Sept. 23, 2005).

⁶⁶ *Effect of Global Warming on Rivers Cited; Reduced Snowpacks Could Cut Water Supply*, 36 ENV'T. REP. 1949 (Sept. 23, 2005).

⁶⁷ *A Hazard to Our Health*, WASH. POST, Sept. 11, 2005, at B8.

concerns regarding mercury-tainted tuna fish,⁶⁸ and by the summer of 2005, twenty-one percent of consumers said that they were "extremely concerned" about the levels of mercury found in fish.⁶⁹ Land animals have also been contaminated by mercury, according to a study in March, 2005 which documented "elevated" mercury levels in the blood of New England wildlife.⁷⁰

"Mercury pollution from man-made sources, such as power plants, reduces the IQs of between 300,000 and 600,000 American children each year and will cost the United States an estimated \$8.7 billion in lost earnings annually."⁷¹ It also causes illness in humans, with symptoms including heart and lung disease.⁷² Power plants have been identified as "the largest single source of mercury emissions in the country, accounting for more than 90,000 pounds of airborne mercury a year, about a third of the total output."⁷³

In 2000, the EPA under the Clinton administration determined that regulation of mercury emissions as a hazardous air pollutant was required by the Clean Air Act, with "emissions limits based on maximum achievable control technology (MACT), defined by the Clean Air Act as the average of the best-performing 12 percent of sources."⁷⁴ This plan, with emissions limits to go into effect in 2009, would have reduced mercury emissions by ninety percent.⁷⁵ In 2001, the Bush administration rescinded the decision to regulate mercury emissions from power plants as a hazardous air pollutant in order to create separate, less demanding regulations for mercury emissions.⁷⁶ In March, 2005, the EPA released the Clean Air Mercury Rule to set caps on mercury emissions at approximately 500 power plants having a total of nearly 1,300 generating units.⁷⁷ The rule would cap the production of mercury emissions at thirty-eight tons by 2010, and at fifteen tons by 2018, amounting to an overall reduction in mercury

⁶⁸ Melanie Warner, *With Sales Plummeting, Tuna Strikes Back*, N.Y. TIMES, Aug. 19, 2005, at C3.

⁶⁹ *Id.*

⁷⁰ *Study Finds 'Elevated' Mercury Levels in Songbirds, Other Wildlife in Northeast*, 36 ENV'T REP. 465 (Mar. 11, 2005).

⁷¹ *Mercury Pollution from Industrial Sources Costs \$8.7 Billion Annually, Study Says*, 36 ENV'T REP. 416 (Mar. 4, 2005).

⁷² *A Hazard to Our Health*, *supra* note 67, at B8.

⁷³ Michael Janofsky, *Some in Senate Seek to Change Mercury Rule*, N.Y. TIMES, Sept. 9, 2005, at A14 [hereinafter *Mercury Rule*].

⁷⁴ *EPA Announces First-Ever Regulation to Limit Power Plant Mercury Emissions*, 36 ENV'T REP. 525 (Mar. 18, 2005).

⁷⁵ *Mercury Rule*, *supra* note 73.

⁷⁶ *Id.*

⁷⁷ *EPA Announces First-Ever Regulation to Limit Power Plant Mercury Emissions*, *supra* note 74.

emissions of seventy percent.⁷⁸ Included in this plan is a cap and trading system that allows a plant to exceed permissible levels of mercury emissions if it buys credits from plants whose mercury emissions fall below regulatory limits.⁷⁹

The EPA and Bush administration have highlighted that this program marks the first time that power plant mercury emissions have been regulated by the federal government,⁸⁰ although it rescinded a more demanding standard that would have otherwise been the first such time power plant mercury emissions had been regulated.⁸¹ Opponents of the rule contend that the new EPA rule not only does not do enough to reduce mercury emissions, but is also illegal under the Clean Air Act as the Act requires that hazardous pollutants for which certain findings have been made *must* be regulated as hazardous air pollutants under the MACT standard.⁸² Opponents have also voiced fears regarding the rule's cap and trading program, citing concerns that the program will allow the largest polluters to continue exceeding regulated mercury level limits, because they will be able to buy their way out of violations.⁸³ Inevitably, opponents of the Clean Air Mercury Rule sued the EPA to prevent the rule from taking effect.⁸⁴ At least one of these suits resulted in the D.C. Circuit's denial of a motion to stay implementation of the rule.⁸⁵ Environmental advocates have been supported in their position by two national groups of state and local air quality regulators who share their concerns that the new federal standards are insufficiently protective.⁸⁶

⁷⁸ *Id.* at 525.

⁷⁹ *For the Record*, WASH. POST, September 18, 2005, at T13; see also *EPA Inspector General Outlines Achievements Over Past Six Months in Report to Congress*, 36 ENV'T REP. 1354 (July 1, 2005).

⁸⁰ *EPA Announces First-Ever Regulation to Limit Power Plant Mercury Emissions*, *supra* note 74; see also *Senate Rejects Call on E.P.A. to Toughen Emission Rule*, N.Y. TIMES, Sept. 14, 2005, at A16.

⁸¹ *Mercury Rule*, *supra* note 73.

⁸² See, e.g., *States Ask EPA to Reconsider Mercury Rule Allowing Power Plants to Avoid Controls*, 36 ENV'T REP. 1117 (June 3, 2005); *Five Environmental Groups Sue to Halt Trading Rule for Mercury Emissions*, 36 ENV'T REP. 1446 (July 15, 2005); *Groups Seek Stay of Mercury Rule Allowing Coal-Fired Plants to Avoid Emission Controls*, 36 ENV'T REP. 1445 (July 15, 2005); *Senators Seek Floor Vote on Resolution to Overturn EPA's Power Plant Mercury Rule*, 36 ENV'T REP. 1502 (July 22, 2005); Michael Janofsky, *Senate Rejects Call on E.P.A. to Toughen Emission Rule*, N.Y. TIMES, Sept. 14, 2005, at A16; *Mercury Rule*, *supra* note 73.

⁸³ *Five Environmental Groups Sue to Halt Trading Rule for Mercury Emissions*, *supra* note 82.

⁸⁴ See, e.g., *D.C. Circuit Denies Organizations' Motion to Stay EPA Rules for Controlling Mercury*, 36 ENV'T REP. 1654 (Aug. 12, 2005); *Five Environmental Groups Sue to Halt Trading Rule for Mercury Emissions*, *supra* note 82.

⁸⁵ *D.C. Circuit Denies Organizations' Motion to Stay EPA Rules for Controlling Mercury*, *supra* note 84.

⁸⁶ Michael Janofsky, *Groups Propose Alternative to E.P.A. Rules on Mercury*, N.Y.

Various proponents of the rule have hailed it as the best means of regulating mercury emissions, noting that a similar program effectively reduced the occurrence of acid rain.⁸⁷ Representatives of the power plant industry have said that, because the technology needed to reduce mercury emissions to the original Clean Air Act standards is not yet widely commercially available, this rule represents the best available and most economical solution.⁸⁸

On September 13, 2005, the Senate invoked a rarely used act, the Congressional Review Act, to call for a floor vote in an attempt to repeal the Clean Air Mercury Rule.⁸⁹ The repeal of the rule was defeated by a narrow margin, with fifty-one senators voting to maintain the rule in its current form, and forty-seven senators voting to repeal the rule and rewrite it.⁹⁰ Barring any future amendments, the rule will remain in place and will go into effect as originally written.

D. What Is Science Anyway?

Since the mid-1960's, non-scientists, lawyers, judges and policymakers have struggled to educate themselves about scientific theories and methodologies in order to better assess the legal basis of environmental decision-making.⁹¹ Despite whatever progress has been made in this regard, none of them could have been fully prepared for the current controversy over what constitutes "science" and what is instead "religion." A federal district court judge in Pennsylvania, however, found himself with the task of doing exactly that in an adversarial court proceeding in which a group of Dover, Pennsylvania parents sued the local school board to block its decision to include intelligent design in the high school biology curriculum. Judge John E. Jones III first heard of the case on the radio driving home from the courthouse in December, 2004.⁹² The next morning, he found that he had been as-

TIMES, Nov. 14, 2005, at A17.

⁸⁷ *Mercury Rule*, *supra* note 73.

⁸⁸ See, e.g., *Groups Propose Alternative to E.P.A. Rules on Mercury*, *supra* note 86; *Five Environmental Groups Sue to Halt Trading Rule for Mercury Emissions*, *supra* note 82; see also *EPA Inspector General Outlines Achievements Over Past Six Months in Report to Congress*, 36 ENV'T REP. 1354 (July 1, 2005); *Groups Seek Stay of Mercury Rule Allowing Coal-Fired Plants to Avoid Emission Controls*, *supra* note 82.

⁸⁹ See *Mercury Rule*, *supra* note 73; see also *Senate Rejects Call on E.P.A. to Toughen Emission Rule*, *supra* note 82; *Senate Decides to Vote on Rejection of Mercury-Emission Rules*, N.Y. TIMES, Sept. 13, 2005, at A18; *For the Record*, . . . , *supra* note 79.

⁹⁰ *Senate Rejects Call on E.P.A. to Toughen Emission Rule*, *supra* note 82.

⁹¹ See generally Carol M. Rose, *Environmental Law Grows Up (More or Less), and What Science Can Do to Help*, 9 LEWIS & CLARK L. REV. 273 (2005).

⁹² Laurie Goodstein, *Evolution Trial in Hands of Willing Judge*, N.Y. TIMES, Dec. 18, 2005, at 41 [hereinafter *Evolution Trial*].

signed the case.⁹³

The case was generated by the school board's decision to require the reading of a four-paragraph statement that evolutionary theory has problems and gaps in its formulation and that intelligent design is an alternative theory worthy of consideration, referring to an intelligent design textbook.⁹⁴ It was a carefully orchestrated conflict. For several years, the Thomas More Law Center, a non-profit law firm founded by two self-proclaimed conservative Catholics, had looked for a school board willing to require the teaching of intelligent design from that same textbook in anticipation of a high profile, high stakes trial.⁹⁵ The Dover school board agreed to require intelligent design, despite the advice of the board's attorney that opponents would have a strong case based on the board's public record of advocating "putting religion back in the schools."⁹⁶ The parents' attorneys presented evidence that the board's purpose was religious.⁹⁷ In his closing argument, their attorney accused the board of lying when Board members testified they had not made religious statements at board meetings and when they said they did not know fifty copies of the controversial textbook had been purchased with money from a church collection through the father of a school board member.⁹⁸

For six weeks, the Republican Bush appointee to the bench presided over a trial in which the central question was whether the theory that living organisms are so complex that a higher intelligence designed them was an unconstitutional imposition of religious teaching or constitutionally acceptable education in science.⁹⁹ A biochemist testified as an expert witness that intelligent design was not the same as creationism, but disagreed with

⁹³ *Id.*

⁹⁴ Laurie Goodstein, *Witness Defends Broad Definition of Science*, N.Y. TIMES, Oct. 19, 2005, at A15 [hereinafter *Witness Defends*].

⁹⁵ Laurie Goodstein, *In Intelligent Design Case, A Cause in Search of a Lawsuit*, N.Y. TIMES, Nov. 4, 2005, at A16. Thomas Monaghan, a former executive of Domino's Pizza, is one of the founders, and former baseball commissioner Bowie Kuhn is the chairman. *Id.*

⁹⁶ *Id.*

⁹⁷ Laurie Goodstein, *Closing Arguments Made in Trial on Intelligent Design*, N.Y. TIMES, Nov. 5, 2005, at A10 [hereinafter *Closing Arguments*].

⁹⁸ *Id.*

⁹⁹ Laurie Goodstein, *Issuing Rebuke, Judge Rejects Teaching of Intelligent Design*, N.Y. TIMES, Dec. 21, 2005, at A1 [hereinafter *Issuing Rebuke*]. The statement essentially said four things: 1) The Pennsylvania Academic Standards require that Darwin's theory of evolution be taught; 2) Darwin's theory is only a theory and filled with many gaps; 3) Intelligent design is another theory of the origin of life that can be learned about in a book entitled *Of Pandas and People*; 4) Students should keep an open mind and the school leaves discussions of the origins of life up to students and their families. *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 700, 708–09 (M.D. Pa. 2005); Neela Banerjee, *An Alternative to Evolution Splits a Pennsylvania Town*, N.Y. TIMES, Jan. 16, 2005, at 18.

some of the many definitions of intelligent design.¹⁰⁰ In the end, the strategy of the intelligent design advocates may have been poorly selected, as accumulating testimony of religious motivations caused speculation as to not how the case would be decided, but how broadly it would be written against the defendants.¹⁰¹

On December 20, 2005, the United States Court for the Middle District of Pennsylvania handed down its 139-page decision in *Kitzmiller v. Dover Area School District*, holding in the first such case that the intelligent design policy of the Dover School Board violated the Establishment Clause of the First Amendment of the United States Constitution.¹⁰²

Plaintiffs had filed suit challenging “the ID Policy”¹⁰³ as unconstitutional under the First Amendment and the Constitution of Pennsylvania. The court applied two tests to determine constitutional validity. The first test was the endorsement test, which prohibits government from conveying a message that a particular religion or religious belief is “favored or preferred.”¹⁰⁴ The court looked at four factors to determine whether the ID Policy constituted an endorsement of a religious belief. First, the court examined whether an objective observer would know that the intelligent design and teaching about gaps in evolutionary theory are in fact strategies to endorse a creationist religious theory of the origins of life.¹⁰⁵ The court found that intelligent design is essentially the creationist theory reworded, and a reasonable observer would realize that intelligent design uses the exact same arguments about the origins of life as creationism.¹⁰⁶ Second, the court examined whether an objective student would view the disclaimer as to evolutionary theory as an official endorsement of religion.¹⁰⁷ The court found that an objective student would find that the disclaimer wrongly singled out the theory of evolution, presented an alternative religious message masquerading as science, and directed students either to read the intelligent design text or seek religious instruction elsewhere.¹⁰⁸ The court found

¹⁰⁰ *Witness Defends*, *supra* note 94.

¹⁰¹ *Closing Arguments*, *supra* note 97 *passim*.

¹⁰² *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp.2d 700, 709 (M.D. Pa. Dec. 20, 2005); Laurie Goodstein, *Schools Nationwide Study Impact of Evolution Ruling*, N.Y. TIMES, Dec. 22, 2005, at A20.

¹⁰³ Both the resolution of the Dover School Board and the press release sought to inform students of the gaps in Darwin’s theory and required teachers to read the statement described above. The resolution and press release together became known as the ID Policy. *Kitzmiller*, 400 F. Supp. 2d at 709.

¹⁰⁴ *Id.* at 714.

¹⁰⁵ *Id.* at 714–23.

¹⁰⁶ *Id.* at 22; *see also Issuing Rebuke*, *supra* note 99.

¹⁰⁷ *Kitzmiller*, 400 F. Supp. 2d at 723–29.

¹⁰⁸ *Id.*

these factors were enough to determine that an objective student would see the disclaimer as an official endorsement of religion.¹⁰⁹ The third factor was whether an objective citizen of Dover would think the disclaimer was an endorsement of religion.¹¹⁰ Given the abundance of letters to the local newspapers and the community's collective perception that the ID policy disclaimer was religious, the court concluded that an objective citizen of Dover would find the disclaimer was an endorsement of religion.¹¹¹ Fourth, the court discussed whether intelligent design could be considered science.¹¹² The court found that intelligent design is not science because it is based on the non-scientific premise of supernatural causation and because intelligent design's attacks on evolution have been disproved by scientific research.¹¹³ Intelligent design has not been accepted by the scientific community, supported by peer-reviewed research, or supported by research and testing of its own.¹¹⁴

Once the court determined that the ID Policy was an endorsement of a particular religious view, the court turned to the *Lemon* test, which tests whether a government message violates the Establishment Clause of the First Amendment.¹¹⁵ The court examined three factors: 1) whether the message has a secular purpose; 2) whether the primary effect of the message is to advance religion; and 3) whether the message excessively entangles government and religion.¹¹⁶ The court determined that the discussions in a series of meetings held by the school board expressed a desire to infuse religion into Dover schools and, in particular, biology classes.¹¹⁷ As to a secular purpose, the Dover School Board argued that it instituted the ID Policy in order to improve scientific education; however, very few board members actually knew what intelligent design was when they voted in favor of the resolution.¹¹⁸ The court found the Board's stated purpose as an unconvincing pretext for what was actually a religious message.¹¹⁹ The court also reiterated that because intelligent design is not a science, its only effect is to promote an inherently re-

¹⁰⁹ *Id.* at 724.

¹¹⁰ *Id.* at 729–35.

¹¹¹ *Id.* at 734.

¹¹² *Id.* at 735–46.

¹¹³ *Id.* at 735.

¹¹⁴ *Id.*; see also Laurie Goodstein, *Intelligent Design Might be Meeting its Maker*, N.Y. TIMES, Dec. 4, 2005, at 1, 4.

¹¹⁵ *Kitzmiller*, 400 F. Supp. 2d at 746.

¹¹⁶ *Id.*; see also *Edwards v. Aguillard*, 482 U.S. 578 (1987) (holding that teaching “scientific creationism” in a public school is a violation of the Establishment Clause).

¹¹⁷ *Kitzmiller*, 400 F. Supp. 2d at 748–760.

¹¹⁸ *Id.* at 758–59.

¹¹⁹ *Id.* at 763.

ligious message.¹²⁰

The court issued a declaratory judgment in favor of the plaintiffs and permanently enjoined the Dover School Board from pursuing the ID policy.¹²¹

Legal arguments aside, Judge Jones rebuked the members of the school board for a decision of "breathtaking inanity" which "dragged" the community into "this legal maelstrom with its resulting utter waste of monetary and personal resources."¹²² The voters had already said as much, voting in November to replace the eight board members supporting intelligent design with a slate of Democrats who did not and who promised to abide by whatever the judge decided.¹²³ Unhappy advocates of intelligent design, including the defendants' lawyers, having prompted litigation over what constitutes scientific theory, ironically proclaimed that no judge was qualified to determine what was or was not science.¹²⁴

Judge Jones' sweeping decision, however, will not necessarily put an end to efforts to include intelligent design in some reincarnation from surfacing in school science curricula. The same day that the Dover board was reconstituted and a week after the Dover trial hearings concluded, the Kansas School Board of Education adopted new science standards for state-wide science testing for kindergarten through high school that required criticism of evolutionary theory as a controversial theory and changed the definition of science so as not to limit it to natural explanations, without mentioning "intelligent design."¹²⁵ Instead, the Kansas

¹²⁰ *Id.* at 764.

¹²¹ *Id.* at 766.

¹²² *Id.* at 765; *see also Issuing Rebuke*, *supra* note 99.

¹²³ *Issuing Rebuke*, *supra* note 99 at A21.

¹²⁴ *Id.*

¹²⁵ Jodi Wilgoren, *Kansas Board Approves Challenges to Evolution*, N.Y. TIMES, Nov. 9, 2005, at A14; KAN. STATE BD. OF EDUC., KANSAS SCIENCE EDUCATION STANDARDS, Nov. 8, 2005, at vi; *see also* Dennis Overbye, *Philosophers Notwithstanding, Kansas School Board Redefines Science*, N.Y. TIMES, Nov. 15, 2005, at F3 (emphasis added):

Evolution and Its Discontents

The Kansas Board of Education adopted new science standards last week that include required criticism of evolution. Some of the additions are below, paired with the mainstream understanding of evolutionary biology.

Kenneth Chang

SOME ADDITIONS TO KANSAS
SCIENCE STANDARDS

RESPONSE OF MAINSTREAM
SCIENTISTS

Biological evolution postulates an *unguided natural process* that has no *discernible direction or goal*.

"Unguided" is "a very slippery word," said Glenn Branch, deputy director of the National Center for Science Education. Scientific explanations of all natural processes, from hurricanes to supernovas, are all *"unguided."*

The view that living things in all the major kingdoms are modified descendants of a common ancestor (described in the pattern of a branching tree) has been challenged in recently by such things as: *Discrepancies in the molecular evidence* (e.g., differences in relatedness inferred from sequence studies of different proteins) previously thought to support that view.

The family tree relationships of some of the early life forms remain unclear. But fossil and biological evidence argues that *all life today descends from the earliest organisms*. Not surprisingly, *new methods* like comparison of proteins or genes have generated family trees that differ somewhat from those deduced from fossils. But those differences *have not fundamentally changed scientists' view of evolution* or common descent.

Whether microevolution (change within a species) can be extrapolated to explain macroevolutionary changes (such as new complex organs or body plans and new *biochemical systems which appear irreducibly complex*) is controversial.

Most biologists do not make the distinction between microevolution and macroevolution; the larger changes are simply the accumulation of small changes. Most also say that the issue is not controversial and that there is *much experimental evidence* to indicate that such changes have occurred.

The term *"irreducibly complex"* is used by Michael Behe, a professor of biology at Lehigh University who is one of the main proponents of intelligent design, but *is not used by other biologists*.

Some of the scientific criticisms include: *A lack of empirical evidence* for a "primordial soup" or a chemically hospitable pre-biotic atmosphere; *The lack of adequate natural explanations for the genetic code*, the sequences of genetic information necessary to specify life, the biochemical machinery needed to translate genetic information into functional biosystems, and the formation of protocells; and *The sudden rather than gradual emergence* of organisms near the time that the Earth first became habitable.

The issue of how life originated is different from that of evolution. Current ideas on the origin of life are incomplete and no consensus has yet emerged. Most scientists find that this means more research is needed, not that it is impossible for a theory to emerge.

School Board defined science as "a systematic method of continuing investigation that uses observation, hypothesis testing, measurement, experimentation, logical argument and theory building to lead to more adequate explanations of natural phenomena."¹²⁶ Before the tests were even adopted, the National Academy of Sciences and National Science Teachers Association said they would withdraw from the Board permission to use their copyrighted materials.¹²⁷

If the core essence of science is testability, how can the supernatural or intuitive be tested and either proven or disproven? Despite the calls of the lawyers for the Dover defendants for scientists to come forward to prove intelligent design, there has apparently been little academic interest in the pursuit of such research.¹²⁸ With efforts in two dozen states to introduce such changes to the curriculum,¹²⁹ it remains to be seen which will be a greater deterrent—the broad sweep of a district court decision, the results of the Dover school board election rejecting intelligent design board advocates, or the \$1 million of plaintiff's legal fees the Dover school district must pay.¹³⁰ As one commentator wryly noted, in the United States at a time when only forty percent of Americans believe in evolution, only thirteen percent know what a molecule is, twenty percent think the sun goes around the earth, and fifty percent think man lived at the same time as dinosaurs, at best what could be taught in any school is "mediocre design."¹³¹

III. THE POLITICAL RUNOFF FOR NONPOINT SOURCE POLLUTION

Nonpoint source pollution is an international problem that cuts across geographic and political boundaries. The lack of political leadership in the United States to address globally shared environmental problems was highlighted on February 16, 2005, when the Kyoto Protocol took effect. The United States Commission on Ocean Policy, after an exhaustive four-year review of ocean and coastal laws and policy, showed promise of a new direction with its emphasis on the need for an ecosystem-based management approach, coordinated at the national level with in-

¹²⁶ Overbye, *supra* note 125. The old definition of science reads, "science is the human activity of seeking natural explanations for what we observe in the world around us." *Id.*

¹²⁷ Jodi Wilgoren, *Kansas Fight On Evolution Escalates*, N.Y. TIMES, Oct. 28, 2005, at A11.

¹²⁸ See *Intelligent Design Might Be Meeting Its Maker*, *supra* note 114.

¹²⁹ *Schools Nationwide Study Impact of Evolution Ruling*, *supra* note 102.

¹³⁰ *Id.* See also *Issuing Rebuke*, *supra* note 99 at A21.

¹³¹ Nicholas D. Kristof, *The Hubris of the Humanities*, N.Y. TIMES, Dec. 6, 2005, at A27.

ternational cooperation.¹³² The recommendations for curbing nonpoint source pollution, however, were timid and lackluster. The President's response to the congressional report was even more disappointing: appointment of another committee to review the Ocean Commission's recommendations.¹³³

Although Admiral Watkins, Chairman of the Ocean Commission, told the Senate Commerce, Science and Transportation Committee in April 2004 that climate change related to "every single topic" in the final U.S. Ocean Commission report,¹³⁴ there is no recommendation in the report to ratify the Kyoto Protocol or to even impose measures to control greenhouse gas emissions. This glaring omission in the report underscores the political difficulty that the United States is having in effectively addressing a number of environmental problems, despite being one of the most affluent and stable countries in the world.

A. Background

In response to the increasing degradation of water quality in the nation's waterways and oceans, in 2000, the United States Congress mandated the first comprehensive review of ocean policy in over thirty years. The first such review resulted in the 1969 Stratton Commission report, and led to the establishment of a legal and regulatory framework for ocean policy.¹³⁵ Since then, the growing coastal population and ad hoc governmental approach to environmental problems compelled Congress to create the United States Commission on Ocean Policy (Commission) to make recommendations for a coordinated and comprehensive national ocean policy.¹³⁶ After several delays,¹³⁷ it was released in

¹³² Susan Bruninga, *Broad Federal Plan Needed to Address Pollution, Overuse of Seas, Commission Says*, 35 ENV'T. REP. 887 (Apr. 23, 2004) [hereinafter *Broad Federal Plan*].

¹³³ See Kenneth R. Weiss, *The Nation; Bush Establishes Committee to Set Policy on Oceans; The Cabinet-level body will deal with priorities including conservation, fishing and pollution*, L.A. TIMES, Dec. 18, 2004, at A20.

¹³⁴ Susan Bruninga, *Senators Open to New Federal Policy Idea but Question Funding, Governance Structure*, 35 ENV'T. REP. 948 (Apr. 30, 2004).

¹³⁵ See *Broad Federal Plan*, *supra* note 132. For the original 1969 Stratton Commission report, *Our Nation and The Sea*, see COMM'N ON MARINE SCIENCE, ENGINEERING AND RESOURCES, OUR NATION AND THE SEA: A PLAN FOR NATIONAL ACTION (1969), available at <http://www.lib.noaa.gov/edocs/stratton/title.html>.

¹³⁶ See *Broad Federal Plan*, *supra* note 132; Oceans Act of 2000, Pub. L. No. 106-256, 114 Stat. 644 (2001), amended by Pub. L. No. 107-206, 116 Stat. 833 (2003), Pub. L. No. 107-372, 116 Stat. 3096 (2003), available at <http://www.oceancommission.gov/documents/oceanact.pdf>.

¹³⁷ Because the members of the Commission were appointed in July 2001, the original statutory deadline for the final report was January 2003, and later was amended to June 2003. See § 3(f)(1), 114 Stat. 644, 647 (2001); § 3(f)(1), 116 Stat. 833 (2003); Oceans Act of 2000, 114 Stat. 644, 647 3(f)(1) (2001); 116 Stat. 833 § 203 (2003); S. Rep. No. 108-407, at 2 (2004).

September 2004.¹³⁸ The report is a result of multiple regional public meetings held by the Commission with input from various federal and state governments, industry, interest groups, the academic community, the international community, and interested citizens.¹³⁹ Notably, in November 2001, just as the Commission was beginning its public meetings, it unanimously passed a one-sentence resolution¹⁴⁰ urging the United States to accede immediately to the United Nations Convention on the Law of the Sea.¹⁴¹

The Commission's overall recommendation was to move quickly toward an ecosystem-based management approach to water quality. Achieving this goal required the creation of a National Ocean Council (NOC), composed of all cabinet secretaries and directors of federal agencies with ocean and coastal responsibilities, to advise the President regarding the national coordination of ocean policies.¹⁴² The President must also receive advice from non-federal interest groups such as state governments, tribes, local agencies, private sector and non-governmental agencies, in the form of a Council of Advisors.¹⁴³ Naturally, an ecosystem-based approach crosses political and geographical boundaries; thus, with the assistance of the NOC, the creation of voluntary regional ocean councils to “complement and support” efforts, not supplant other agency authority, is recommended to address the unique problems associated with coastal ocean waters and the respective watershed draining into it.¹⁴⁴

¹³⁸ U.S. COMM'N ON OCEAN POLICY, AN OCEAN BLUEPRINT FOR THE 21ST CENTURY: FINAL REPORT OF THE U.S. COMMISSION ON OCEAN POLICY (2004), *available at* http://www.oceancommission.gov/documents/full_color_rpt/000_ocean_full_report.pdf [hereinafter FINAL REPORT]; MARJORIE ANN BROWNE, FOREIGN AFFAIRS, DEFENSE, AND TRADE DIVISION, CRS ISSUE BRIEF FOR CONGRESS: THE LAW OF THE SEA CONVENTION AND U.S. POLICY, Feb. 10, 2005, at CRS-1.

¹³⁹ U.S. COMM'N ON OCEAN POLICY, REPORT DEVELOPMENT TIMELINE AS OF SEPTEMBER 27, 2004 (2004), *available at* http://www.oceancommission.gov/calendar/timelinea9_27_04.pdf; U.S. COMM'N ON OCEAN POLICY, Comments by Regional Meetings, *available at* <http://www.oceancommission.gov/publiccomment/mtgcomments.html> (last visited May 3, 2006).

¹⁴⁰ U.S. COMM'N ON OCEAN POLICY, UNITED NATIONS LAW OF THE SEA CONVENTION RESOLUTION (2001), *at* http://www.oceancommission.gov/documents/los_resolution.pdf.

¹⁴¹ 1982 United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397, *available at* http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm.

¹⁴² FINAL REPORT, *supra* note 138, at 79.

¹⁴³ *Id.* at 81. The Commission noted that its recommendations for establishing the National Ocean Council and the Presidential Council of Advisors on Ocean Policy are consistent with international trends, specifically the 2002 World Summit on Sustainable Development, which called for better coordination of environmental policy at the national level. In response, several nations have already established stronger national coordination of ocean and coastal policies. *Id.* at 79.

¹⁴⁴ *Id.* A watershed is a geographic area where water flows on its way to a larger water body, such as a river, estuary, lake, or ocean. *See id.* at 154.

The Commission recommended three stages for calibrating federal agencies and programs to end the ad hoc approach of the last thirty years and move toward an ecosystem-based management approach.¹⁴⁵ First, the United States National Oceanic and Atmospheric Administration (NOAA) must be strengthened to become the lead federal agency on ocean policy.¹⁴⁶ Second, the half-dozen or so federal, area-based, coastal programs should be consolidated under NOAA.¹⁴⁷ The two main nonpoint source pollution programs under the Coastal Zone Act Reauthorization Amendments (CZARA) and section 319 of the Clean Water Act (CWA) should be strengthened based on recommendations from the NOC.¹⁴⁸

B. The Scope of the Problem

The most significant threat to water quality in oceans and estuaries from land-based sources is the growing development of coastal areas and the accompanying increase in runoff, airborne pollutants, and toxic contamination. Nonpoint source pollution is addressed in a coastal setting primarily in the nonpoint source provisions of the 1972 CWA as amended and the Coastal Pollution Program¹⁴⁹ established by the 1990 CZARA.¹⁵⁰ There are also a number of state, territorial, tribal and local programs that address the problem. These include legislation surrounding agricultural waste, the proper discharge of pesticides, and toxic chemicals.

Runoff pollution remains difficult to control because it is a classic transboundary problem with pollution traveling all the way from streamheads to coastal waters. There is a growing need to address the multiple sources of land-based runoff and airborne pollutants to impose substantive, enforced controls to reduce their pollution of the marine environment. The federal emphasis in controlling nonpoint source pollution, and to a lesser extent in coastal zone management, has been on mandatory procedure and planning at the state level rather than setting or achieving substantive goals or criteria. Federal regulation of air-

¹⁴⁵ *Id.* at 109–10. “At last count, more than 55 congressional committees and subcommittees . . . oversee some 20 federal agencies and permanent commissions in implementing at least 140 federal ocean-related statutes.” *Id.* at 55.

¹⁴⁶ *See id.* at 108–12.

¹⁴⁷ *Id.* at 156.

¹⁴⁸ *Id.* at 218–20. The original recommendation was for the consolidation of these two NPS pollution programs, but the Commission changed it so that consolidation would be an option considered by the National Ocean Council. *See* U.S. COMMISSION ON OCEAN POLICY, PRELIMINARY REPORT: GOVERNOR’S DRAFT (2004) at 168, *available at* http://www.oceancommission.gov/documents/prelimreport/00_complete_prelim_report.pdf.

¹⁴⁹ FINAL REPORT, *supra* note 138, at 214.

¹⁵⁰ *Id.*

borne pollutants has been focused on their impact on air quality with evolving consideration of their impact on water quality.¹⁵¹

Despite this multitude of programs, overall water quality appears to be deteriorating. The latest *National Water Quality Inventory* concludes that fourteen percent of ocean shoreline miles are impaired mostly from bacteria and low oxygen and seventy-eight percent of the ninety-two percent of Great Lakes shoreline assessed are impaired largely from pollutants found in fish tissue that exceed standards to protect human health.¹⁵² Mercury contamination is the leading cause of impairment in lakes and estuaries, causing forty-nine states to issue 2,618 fish advisories in 2001.¹⁵³ States have only assessed nineteen percent of their rivers and streams, and found that thirty-nine percent violated water quality standards.¹⁵⁴ The states assessed forty-three percent of their lakes and thirty-six percent of their estuaries; of these, forty-five percent of lakes and fifty-one percent of estuaries did not meet their designated uses.¹⁵⁵ The lack of comprehensive monitoring by the states only underscores the difficulties in identifying causes and, in particular, sources of pollution in impaired waters.

In February 2004, the EPA rated the overall national coastal condition as being between "fair" and "poor."¹⁵⁶ Coastal water quality and the rate at which pollutants are accumulating in the tissues of marine organisms was generally considered "fair" overall.¹⁵⁷ Coastal habitats however were rated "poor."¹⁵⁸ The overall score for the benthic index and sediment quality for coastal waters was between "fair" and "poor."¹⁵⁹ The leading stressors on receiving waters are metals, pesticides, oxygen-depleting substances, toxic chemicals, PCBs, and dissolved solids.¹⁶⁰ The primary sources of these pollutants are municipal point sources, urban runoff or storm sewers, atmospheric deposition, industrial discharges, and agriculture.¹⁶¹

Coastal water quality will only degrade further with increasing development. While coastal counties comprise only seventeen

¹⁵¹ For a more detailed analysis of these problems, see FINAL REPORT, *supra* note 138.

¹⁵² EPA, 2000 NATIONAL WATER QUALITY INVENTORY (2000), *available at* <http://www.epa.gov/305b/2000report> (last visited Mar. 17, 2006).

¹⁵³ *Id.*

¹⁵⁴ *Id.*

¹⁵⁵ *Id.*

¹⁵⁶ EPA, DRAFT NATIONAL COASTAL CONDITION REPORT II ES-5 (2005), *available at* <http://www.epa.gov/owow/oceans/nccr/2005/downloads.html> (last visited Mar. 17, 2006).

¹⁵⁷ *Id.*

¹⁵⁸ *Id.*

¹⁵⁹ *Id.*

¹⁶⁰ *Id.*

¹⁶¹ *See generally* DRAFT NATIONAL COASTAL CONDITION REPORT II, *supra* note 156.

percent of total land area, more than half the population of the United States lives in coastal counties.¹⁶² It is expected that the coastal population will increase from 139 million people in 1998 to 165 million people by the year 2015 (an approximate twenty percent increase in total coastal population).¹⁶³

With respect to the Coastal Zone Management Act (CZMA), the Commission recommended the CZMA program be strengthened “developing strong, specific, measurable goals and performance standards” which reflect an ecosystem-based management approach.¹⁶⁴ Specifically, mechanisms to effectively manage growth should be included, and geographic boundaries expanded to include coastal watersheds (not just the coastal ocean waters).¹⁶⁵ Federal funding should be considerably increased and additional incentives provided for states who meet set national goals.¹⁶⁶ Finally, a “fallback mechanism is needed to ensure that national goals are realized when a state does not adequately participate or perform.”¹⁶⁷

Proposed solutions for controlling nonpoint source pollution generally were far more contentious. The United States has made tremendous advances in the past twenty-five years to clean up the aquatic environment by controlling pollution from industrial point sources and sewage treatment plants, but unfortunately less progress has been made in controlling pollution from diffuse, or nonpoint, sources. In addition to the total maximum daily load (TMDL) program, during the last ten years a number of programs are beginning to address nonpoint source pollution. At the federal level, recent nonpoint source pollution control measures include the nonpoint source provisions established by section 319 of the 1987 CWA Amendments,¹⁶⁸ and the Coastal Nonpoint Pollution Program established by the 1990 CZARA.¹⁶⁹ Other recent federal programs, as well as numerous state, territorial, tribal and local programs also tackle nonpoint source pollution problems. These programs, however, do not impose in most instances any mandatory, enforceable requirements on nonpoint sources and no mandatory controls are imposed at the

¹⁶² DANA BEACH, COASTAL SPRAWL: THE EFFECTS OF URBAN DESIGN ON AQUATIC ECOSYSTEMS IN THE UNITED STATES 1 (2002), available at http://www.pewtrusts.org/pdf/env_pew_oceans_sprawl.pdf (last visited Apr. 1, 2006).

¹⁶³ *Id.* at 1–2.

¹⁶⁴ FINAL REPORT, *supra* note 138, at 154.

¹⁶⁵ *Id.*

¹⁶⁶ *Id.* The report issued prior to the final report actually recommended federal funding be “considerably increased,” but the final report deleted this language. See U.S. COMMISSION ON OCEAN POLICY, PRELIMINARY REPORT: GOVERNOR’S DRAFT (2004), at 111.

¹⁶⁷ FINAL REPORT, *supra* note 138, at 154.

¹⁶⁸ *Id.* at 214.

¹⁶⁹ *Id.*

federal level by the CWA.

Today, nonpoint source pollution remains the nation’s largest source of water quality problems. It is the main reason that approximately forty percent of our surveyed rivers, lakes, and estuaries are not clean enough to meet basic uses such as fishing and swimming.¹⁷⁰ The latest *National Water Quality Inventory* indicates that agriculture is the leading contributor to water quality impairments, degrading forty-eight percent of the impaired river miles and forty-one percent of the impaired lake acreage surveyed by states, territories, and tribes.¹⁷¹ Although POTWs (point sources) are the leading contributor to water quality impairments in estuaries at thirty-seven percent, runoff from urban areas is close behind, accounting for thirty-two percent of water quality impairments to surveyed estuaries (areas near the coast where seawater mixes with freshwater).¹⁷²

The most common nonpoint source pollutants are sediments and nutrients from agricultural lands, animal feeding operations, construction operations, urban runoff, and other areas of disturbance. Other common nonpoint source pollutants include pesticides, pathogens (bacteria and viruses), toxic chemicals, and heavy metals. A recent National Academy of Sciences report indicates oil runoff into coastal waters from streets, parking lots, and industrial sources should be treated on the same threat level as nutrients, pesticides, and mercury.¹⁷³ Beach closures, destroyed habitat, unsafe drinking water, fish kills, and many other severe environmental and human health problems result from nonpoint source pollutants. The pollutants also ruin the beauty of healthy, clean water habitats. Each year the United States spends millions of dollars to restore and protect the areas damaged by nonpoint source pollutants.¹⁷⁴

One of the most notorious examples of impairment due to nitrogen runoff is the “dead zone” in the Gulf of Mexico, where excess nitrogen, primarily from agricultural runoff, causes extensive algal growth off the mouth of the Mississippi river, triggering a hypoxic zone of 7,000 square miles recurring every spring and summer.¹⁷⁵ The Gulf of Mexico Hypoxia Action Plan,

¹⁷⁰ 2000 NATIONAL WATER QUALITY INVENTORY, *supra* note 152, at ES-3.

¹⁷¹ *Id.* at 15, 22.

¹⁷² *Id.* at 30–31.

¹⁷³ See generally NAT’L RESEARCH COUNCIL OF THE NAT’L ACADS., COMM. ON OIL IN THE SEA, OIL IN THE SEA III: INPUTS, FATES, AND EFFECTS *passim* (2003).

¹⁷⁴ *Id.*

¹⁷⁵ Donald A. Goolsby & William A. Battaglin, U.S. GEOLOGICAL SURVEY KAN. WATER SCI. CTR., *Nitrogen in the Mississippi Basin—Estimating Sources and Predicting Flux to the Gulf of Mexico* (Dec. 2000), <http://ks.water.usgs.gov/Kansas/pubs/fact-sheets/fs.135-00.html>; see also Nancy N. Rabalais et al., *Hypoxia in the Gulf of Mexico*, 30 J. ENVTL.

developed by federal and state officials, concludes that about eighty-nine percent of the nitrate load to the Gulf is from non-point sources.¹⁷⁶

1. Nonpoint Pollution Control Programs Under CWA & CZARA

There are two main federal programs aimed at nonpoint source pollution control: section 319 of the CWA and section 6217 of the CZARA.¹⁷⁷ Congress enacted a watershed-based nonpoint source pollution control program under section 319 of the 1987 CWA Amendments.¹⁷⁸ First, states had to prepare an assessment of navigable waters where the control of nonpoint source pollution was necessary to meet water quality standards, and identify the significant sources of nonpoint pollution of these waters.¹⁷⁹ States also had to identify control measures.¹⁸⁰ Second, states prepared a management program that set out the best management practices (BMPs) necessary to remedy the problems.¹⁸¹ The EPA had to approve both steps, but could only adopt a state assessment as opposed to a management report if it disapproved of a state program.¹⁸² Significantly, section 319 did not require that states actually mandate or enforce the BMPs or any other mandatory controls in their management programs. Although there is extensive literature and experience with BMPs, there are no minimum BMP guidelines at the federal level comparable to the technology-based effluent limitations set by the EPA for point sources. Although the EPA could complete nonpoint source assessments for noncomplying states under section 319(a),¹⁸³ it lacked the authority to develop and implement adequate control plans and measures if a state fails to do so. Moreover, section 319(h)(7) required that section 319 funds not be used for assistance to persons except for demonstration projects.¹⁸⁴ The EPA's only recourse was to withhold grant funds, but Congress's inadequate funding for section 319 grants, and the negligible consequences to the states for failure to adhere to section 319, resulted in the failure of section 319 to significantly

QUALITY 320 (2001); NAT'L RESEARCH COUNCIL, COMM'N ON GEOSCIENCES, ENVT., AND RES., CLEAN COASTAL WATERS: UNDERSTANDING AND REDUCING THE EFFECTS OF NUTRIENT POLLUTION (2000).

¹⁷⁶ Goolsby & Battaglin, *supra* note 175, at 4.

¹⁷⁷ Clean Water Act § 319, 33 U.S.C. § 1329 (2000); Coastal Zone Act Reauthorization Amendments of 1990, Pub. L. No. 101-508, 104 Stat. 6201 (1990).

¹⁷⁸ Clean Water Act § 319(b)(4), 33 U.S.C. § 1329(b)(4) (2000).

¹⁷⁹ Clean Water Act § 319(a), 33 U.S.C. § 1329(a) (2000).

¹⁸⁰ Clean Water Act § 319(a)(1)(D), 33 U.S.C. § 1329(a)(1)(D) (2000).

¹⁸¹ Clean Water Act § 319(b)(2)(A), 33 U.S.C. § 1329(b)(2)(A) (2000).

¹⁸² Clean Water Act § 319(d), 33 U.S.C. § 1329(d) (2000).

¹⁸³ Clean Water Act § 319(a), 33 U.S.C. § 1329(a) (2000).

¹⁸⁴ Clean Water Act § 319(h)(7), 33 U.S.C. § 1329(h)(7) (2000).

reduce nonpoint source pollution. In short, under section 319, the EPA lacked both the regulatory authority and the funding to impose any effective controls on nonpoint source pollution.

In 1990, Congress updated the CZMA through the CZARA in an attempt to solve the problems surrounding nonpoint source pollution programs.¹⁸⁵ CZARA section 6217 requires states with approved coastal zone management programs to develop management programs to curb nonpoint source pollution in coastal waters that conform to EPA guidelines, including enforceable BMPs.¹⁸⁶ In these programs, the coastal state identifies land uses that contribute to the degradation of coastal areas, identifies critical coastal areas, and implements BMPs.¹⁸⁷ A major difference between the CWA and CZARA is that under CZARA section 6217, if a state fails to submit or implement its plan, EPA and NOAA can withhold CWA and CZMA funding.¹⁸⁸

The Commission made several recommendations regarding section 319 of the CWA and section 6217 of the CZARA. First, it noted that withholding funding only exacerbates nonpoint source pollution in the failing state, and instead recommended amending the CWA, CZARA, and other federal laws so the EPA and NOAA would be able to withhold “federal funds for programs that contribute to degradation of water quality, such as federal highway construction, . . . [and] agricultural subsidy programs.”¹⁸⁹ Withholding funding should only occur when a state “chronically fails to make meaningful progress toward controlling nonpoint [source pollution],” considering the possibility that a state’s failure is due to inland state pollution flowing into the coastal state.¹⁹⁰ In this manner the federal government continues to promote water quality standards. Second, the Commission found federal funding to the states insufficient to achieve the goals of CZARA, limiting the Act’s effectiveness.¹⁹¹

The Commission recommended that the NOC should consider options to strengthen CZARA’s section 6217 program and CWA’s section 319 program, including possible consolidation.¹⁹² The Commission also recommended that national nonpoint pollution reduction goals for all impaired coastal watersheds should be set by the NOC.¹⁹³

¹⁸⁵ FINAL REPORT, *supra* note 138, at 214.

¹⁸⁶ *Id.*

¹⁸⁷ *See id.*

¹⁸⁸ *Id.* at 218.

¹⁸⁹ *Id.* at 219.

¹⁹⁰ *Id.*

¹⁹¹ *Id.* at 218.

¹⁹² *Id.*

¹⁹³ *Id.*

2. TMDL Program

Section 303(d) of the CWA establishes the TMDL process to provide for more stringent water quality-based controls when technology-based controls are inadequate to achieve state water quality standards.¹⁹⁴ Although implementing section 303(d) has proven difficult since its enactment in 1972, the TMDL process has provided valuable monitoring information of pollution in water bodies, allowing greater public awareness and leading to technically sound and legally defensible decisions for attaining and maintaining water quality standards. The controversy stems from the fact that the TMDL process provides a mechanism for potentially regulating point *and* nonpoint pollution sources.

Section 303(d) requires states to ensure that their waters meet state water quality standards.

A water quality standard consists of four basic elements:

- (1) designated uses of the water body (e.g., recreation, water supply, aquatic life, agriculture),
- (2) water quality criteria to protect designated uses (numeric pollutant concentrations and narrative requirements),
- (3) an antidegradation policy to maintain and protect existing uses and high quality waters, and
- (4) general policies addressing implementation issues (e.g., low flows, variances, mixing zones).¹⁹⁵

A TMDL establishes the maximum allowable loadings of a pollutant, from all sources, for a water body and thereby provides the basis for states to establish water quality-based controls. These controls should provide the pollution reduction necessary for a water body to meet water quality standards, but mechanisms for establishing and enforcing TMDLs have proven ineffective so far.

Not until 1985 did an actual TMDL program exist. The EPA was busy establishing point source standards and forcing states to set standards for all state waters that adequately protected existing water qualities and uses.¹⁹⁶ In the struggle to achieve these goals, the EPA sidelined the TMDL program, delaying the identification of pollutants to be included in the program and try-

¹⁹⁴ See OLIVER A. HOUCK, *THE CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY, AND IMPLEMENTATION* 5, 49 (1999).

¹⁹⁵ EPA, *Water Quality Standards: Basic Information*, <http://www.epa.gov/ost/standards/about/> (last visited Apr. 9, 2006). For general information regarding state water quality standards, see EPA, *Water Quality Standards Database*, <http://www.epa.gov/wqsdatabase> (last visited Apr. 9, 2006).

¹⁹⁶ HOUCK, *supra* note 194, at 49.

ing to loosely achieve its goals through a basin planning initiative.¹⁹⁷ Although a court order finally forced the EPA to identify the TMDL pollutants,¹⁹⁸ states essentially ignored their obligation to submit TMDLs.¹⁹⁹ Following a series of citizen suits in the 1980s, courts ruled the continued non-submission of TMDLs by a state eventually becomes the submission of no TMDLs, thus requiring EPA to step in and promulgate acceptable TMDLs on the state's behalf.²⁰⁰ Further litigation made it clear that EPA approval of inadequate TMDL submissions by states was not acceptable and triggered the necessity for the EPA to either work with the state to reach a more acceptable solution or to step in with its own TMDL list.²⁰¹

In the light of the nationwide TMDL litigation, the EPA began taking a more aggressive approach to revise the program. In November 1996, the EPA released a draft *TMDL Program Implementation Strategy*,²⁰² which recognized the importance of TMDL allocations in the watershed approach, extended the frequency of reporting obligations, combined report categories, and established many EPA resources for assistance in TMDL development.²⁰³ Further review by a diverse committee established under the Federal Advisory Committee Act (FACA) achieved agreement on a number of difficult issues but failed to achieve

¹⁹⁷ *Id.* at 50.

¹⁹⁸ *Bd. of County Comm'rs v. Costle*, No. 78-0572, slip op. (D.D.C. June 20, 1978), cited in *Total Maximum Daily Loads Under Clean Water Act*, 43 Fed. Reg. 42,303 (Sept. 20, 1978).

¹⁹⁹ HOUCK, *supra* note 194, at 51.

²⁰⁰ The rulings established the doctrine of "constructive submission." *Scott v. City of Hammond*, 530 F. Supp. 288, 290 (N.D. Ill. 1981) ("Section 303(d)(2) limits EPA's authority in this area to . . . promulgation after disapproval of such submission. . . . Clearly the Act provides no basis for a suit against EPA for its 'failure' to promulgate TMDLs in the absence of [a state proposal].") (emphasis in original), *aff'd in part, rev'd in part*, 741 F.2d 992, 996-97 (7th Cir. 1984) ("We disagree with the conclusion of the district court. We believe that, if a state fails over a long period of time to submit proposed TMDL's [sic], this prolonged failure may amount to the 'constructive submission' by that state of no TMDL's [sic]. . . . If the EPA disapproves, it then presumably would be under a mandatory duty to issue its own TMDL's [sic]."); see also *Alaska Ctr. for the Env't v. Reilly*, 762 F. Supp. 1422, 1429 (W.D. Wash. 1991) ("The court therefore finds that the State of Alaska has effectively created a 'constructing submission' of no TMDLs . . ."), *injunctive relief granted*, 796 F. Supp. 1374 (W.D. Wash. 1992), *aff'd sub nom.* *Alaska Ctr. for the Env't v. Browner*, 20 F.3d 981 (9th Cir. 1994).

²⁰¹ See, e.g., *Idaho Sportsmen's Coal. v. Browner*, 951 F. Supp. 962 (W.D. Wash. 1996); *Sierra Club v. Hankinson*, 939 F. Supp. 865 (N.D. Ga. 1996); *Nat'l Wildlife Fed. v. Adamkus*, 1991 WL 47374 (N.D. Ill. 1991); *Sierra Club v. Browner*, 843 F. Supp. 1304 (D. Minn. 1993); see also Dianne K. Conway, *TMDL Litigation: So Now What?*, 17 VA. ENVTL. L.J. 83, 95 (1997); Michael M. Wenig, *How "Total" Are "Total Maximum Daily Loads"?—Legal Issues Regarding the Scope of Watershed-Based Pollution Control Under the Clean Water Act*, 12 TUL. ENVTL. L.J. 87, 109 n.103 (1998).

²⁰² EPA, DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY (1996), available at <http://www.epa.gov/owow/tmdl/strathp.pdf>.

²⁰³ *Id.*

agreement on whether the TMDL process should be used to address nonpoint source pollution.²⁰⁴

At about the same time Congress involved itself in the issue, the House Transportation Committee's Subcommittee on Water Resources and the Environment held hearings on the TMDL program and the proposed regulatory changes.²⁰⁵ As a result of these hearings, Congress instructed the General Accounting Office (GAO) to address certain issues, primarily "whether states had sufficient data to develop TMDLs and to estimate the economic impact of the revised regulations."²⁰⁶ The GAO expressed substantial concerns on both issues, emphasizing uncertainties both in the available data and in the EPA's economic analysis of the proposed regulations.²⁰⁷

Despite this negative input from Congress, the EPA promulgated its revised TMDL rule in July 2000 and specifically included nonpoint sources of pollution.²⁰⁸ States must schedule the establishment of TMDLs within 10 years of July 10, 2000, or the due date on the first list on which the water body appeared, although this schedule may be extended for five years if the original deadline cannot be met despite expeditious action.²⁰⁹ Moreover, this regulation requires that all impaired water bodies, even those for which TMDLs are not yet required, be placed on a four-part list and prioritized.²¹⁰ States are further required to provide an implementation plan and a "reasonable assurance" that TMDL wasteloads and load allocations will be met.²¹¹

Legal and political challenges resulted from the revised TMDL regulation, especially the inclusion of nonpoint sources

²⁰⁴ Oliver A. Houck, *TMDLs III: A New Framework for the Clean Water Act's Ambient Standards Program*, 28 ENVTL. L. REP. 10415, 10422 (1998).

²⁰⁵ Barclay Rogers & Anne Hazlett, *TMDLs: Are They Dead Letters?*, AGRIC. L. UPDATE., Aug. 2001, at 4.

²⁰⁶ *Id.*

²⁰⁷ In March 2000, the GAO issued its first report highlighting a substantial lack of data available to determine which water bodies were impaired and to set appropriate TMDLs. U.S. GEN. ACCOUNTING OFFICE, GAO/RCED-00-54, WATER QUALITY: KEY EPA AND STATE DECISIONS LIMITED BY INCONSISTENT AND INCOMPLETE DATA (2000). A July 2000 letter from the GAO and its attached second report also questioned the reasonableness of EPA's economic analysis of the proposed regulations. U.S. GEN. ACCOUNTING OFFICE, REVIEW OF TWO PROPOSED REGULATIONS REGARDING WATER QUALITY MANAGEMENT (2000), in Letter from Peter F. Guerrero, Director, U.S. Gen. Accounting Office, Env'tl. Prot. Issues, to Hon. Bud Shuster, Chairman, Comm. on Transp. and Infrastructure (June 21, 2000).

²⁰⁸ Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation, 65 Fed. Reg. 43,586, 43,588 (July 13, 2000).

²⁰⁹ *Id.* at 43,591.

²¹⁰ *Id.* at 43,590.

²¹¹ *Id.* at 43,591.

and the revisions to the TMDL schedule.²¹² The American Farm Bureau Federation, concerned about the implications of the inclusion of nonpoint sources in the TMDL program, immediately filed a petition to challenge the new regulation.²¹³ Other special interest groups have followed suit.²¹⁴ Interested parties have also managed to persuade Congress not only to prohibit the EPA from using any money from fiscal years 2000 or 2001 to fund the changes,²¹⁵ but also to require that the EPA hire the National Academy of Sciences (NAS) to analyze the TMDL program and the new regulation.²¹⁶ The NAS committee determined that there is enough scientific information available to begin the TMDL program because any uncertainty could easily be compensated for in the process of fulfilling the program's goals, although it emphasized that uncertainty should not be allowed to form the basis for unreasonable expectations.²¹⁷ The committee also made a number of recommendations that it felt would improve the TMDL program and expedite the achievement of its goals, such as designating appropriate uses before development of the TMDL list, more periodic assessments of TMDL plans, and inclusion of more pollutants affecting water quality.²¹⁸ It stated, somewhat wryly, that success should be strictly predicated upon whether a water body can support its designated use so as to ensure that states do not lose sight of the ultimate goal.²¹⁹

In response to these reactions, the EPA postponed the effective date of the final TMDL regulation for 18 months, from October 1, 2001, to March 1, 2003.²²⁰ The deadline for the submission of states' lists of impaired waters was extended from April 1, 2002, to October 1, 2002, with the extension to permit reconsideration of certain aspects of the revisions in light of the reactions to the revised rule and the NAS report.²²¹ In 2002, the EPA an-

²¹² Rogers & Hazlett, *supra* note 205, at 5.

²¹³ Am. Farm Bureau Fed'n v. Browner, No. 00-1320 (D.C. Cir. 2000).

²¹⁴ See Susan Bruninga, *Nine Petitions Filed in Major Fight Over Final Rule Revising TMDL Program*, 31 ENV'T REP. 2618 (Dec. 15, 2000).

²¹⁵ Military Construction Appropriations Act, Pub. L. No. 106-246, 114 Stat. 511, 567 (2000).

²¹⁶ Department of Veteran Affairs, Housing and Urban Development, and Independent Agencies Act, Pub. L. No. 106-377, 114 Stat. 1441, 1441A-3 (2000).

²¹⁷ COMM. TO ASSESS THE SCIENTIFIC BASIS OF THE TOTAL MAXIMUM DAILY LOAD APPROACH TO WATER POLLUTION REDUCTION, ET AL., ASSESSING THE TMDL APPROACH TO WATER QUALITY MANAGEMENT 4 (2001).

²¹⁸ *Id.*

²¹⁹ *Id.* at 3.

²²⁰ See Delay of Effective Date of Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulations; and Revision of the Date for State Submission of the 2002 List of Impaired Waters, 66 Fed. Reg. 41,817 (Aug. 9, 2001).

²²¹ See *id.* at 41,818. Farm groups and industry generally supported the postpone-

nounced development of a “water pollutant trading system” (generally for phosphorous and nitrogen nutrients) to be incorporated into the TMDL program, but it has proven more difficult than air pollutant trading because water pollutant trading must occur within the same water body for the same pollutant.²²² While the pollutant trading policy is a voluntary, incentive-based approach, the EPA remains hopeful that it will, through proper alignment with the CWA and implementing regulations, enable greater efficiency in the protection and restoration of impaired water bodies.²²³ The Commission encouraged use of such incentive-based approaches.²²⁴

Thirty years in the making, an adequate and effective TMDL program has never seemed farther from implementation. Consent decrees resulting from forty legal challenges in thirty-eight states have ordered states to finish preparing TMDLs in anywhere from one to twenty years.²²⁵ The TMDLs that have been provided to the EPA tend to avoid controlling nonpoint source pollution, do not calculate their share of the allocation load, or both. States in some cases also failed to submit inventories of

ment, with farm groups still objecting to the regulation of nonpoint source pollution as a federal presumption of local land use policy, whereas environmental groups did not support the delay. See Susan Bruninga, *Environmental Advocates Oppose Delay in TMDL Rule; Industry, Ag Groups Supportive*, 32 ENV'T REP. 1829 (Sept. 21, 2001). The Federal Water Quality Coalition filed one of about a dozen petitions for review of the July 2000 rule. *Am. Farm Bureau Fed'n v. Browner*, No. 00-1320, (D.C. Cir. 2000). The EPA subsequently circulated a draft report on the total estimated costs of the TMDL program, which reported that the costs to industry to implement the TMDL program could range from under \$1 billion to \$4.3 billion annually. EPA, EPA 841-D-01-003, *THE NATIONAL COSTS OF THE TOTAL MAXIMUM DAILY LOAD PROGRAM* (Draft Report 2001), available at <http://www.epa.gov/owow/tmdl/coststudy/coststudy.pdf> (last visited Mar. 5, 2006).

²²² 33 ENV'T REP. S-19 (Jan. 25, 2002). But see Sonya Dewan, Note, *Emissions Trading: A Cost-Effective Approach to Reducing Nonpoint Source Pollution*, 15 FORDHAM ENV'T L. J. 233 (2004). On May 15, 2002, EPA proposed the water quality trading policy for comment. Water Quality Trading Policy; Proposed Policy, 67 Fed. Reg. 34,709 (May 15, 2002). Various federal agencies, including the EPA, the U.S. Department of the Interior, the U.S. Department of Agriculture, and the U.S. Department of Commerce have agreed upon a final comprehensive science-based approach to watershed delineation and assessment on federal lands. See Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management, 65 Fed. Reg. 62,566 (Oct. 18, 2000). Factors affecting wetlands will be considered when determining the best management practices and priorities for both land and water uses. The agencies' watershed goals will involve minimizing adverse water quality impacts from management programs, minimizing the impairment of current and future uses, and restoring watersheds that do not reach water quality standards. *Id.*

²²³ For the proposed rule, see Water Quality Trading Policy; Proposed Policy, 67 Fed. Reg. 34,709 (May 15, 2002). The EPA issued its final notice on January 13, 2003. Water Quality Trading Policy; Issuance of Final Policy, 68 Fed. Reg. 1608 (Jan. 13, 2003). A water pollutant trading system has been in place since the 1990s for primarily POTWs (i.e., point source to point source), but also in the Great Lakes and Long Island Sound areas.

²²⁴ FINAL REPORT, *supra* note 138, at 210.

²²⁵ *After Years of Slow Progress, TMDL Program Picks Up Speed as Result of Consent Decrees*, 33 ENV'T REP. 2423 (Nov. 18, 2002).

impaired waters, rank them, promulgate TMDLs, and incorporate them into controls.²²⁶ On March 19, 2003, the EPA formally withdrew the July 2000 Total Maximum Daily Load rule.²²⁷ Until a revised TMDL program is put into effect, the current TMDL program, promulgated in 1985 and amended last in 1992, remains in effect.²²⁸

The issue of the EPA's authority to regulate nonpoint source pollution through TMDLs and section 303(d) was litigated in court. The Ninth Circuit recently affirmed the EPA's authority to establish TMDLs even for water bodies impaired *solely* by nonpoint source pollution.²²⁹ A California state agency issued a permit for timber harvesting to plaintiff-landowners with serious restrictions designed to reduce soil erosion into a nearby river. The EPA stated the river was in violation of state water quality standards and imposed TMDLs when the state missed the deadline to establish its own TMDLs. Plaintiffs argued the permit restrictions were due to EPA's TMDL standard because the state feared losing federal funding, and brought suit under the Administrative Procedure Act challenging the EPA's interpretation that the CWA allowed the EPA to establish TMDLs on rivers polluted solely by nonpoint source pollution.²³⁰

The Ninth Circuit noted that section 303 requires states to create EPA-approved water quality standards or to have the EPA impose standards upon them and did not draw any distinction among navigable waters or their pollutants.²³¹ Furthermore, the mandatory planning process of section 303 required the EPA to address nonpoint as well as point sources in approving or deter-

²²⁶ Linda A. Malone, *The Myths and Truths that Threaten the TMDL Program*, 32 ENV'TL. L. REP. 11133, 11135 (2002).

²²⁷ Withdrawal of Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation, 68 Fed. Reg. 13,608 (Mar. 19, 2003) (*to be codified at* 40 C.F.R. pts. 9, 122–24, 130); *see also* Press Release, EPA, Final Withdrawal of 2000 TMDL Rule Takes Effect; Existing Rules Make Progress Cleaning Up Impaired Waters (Mar. 13, 2003), *available at* <http://yosemite1.epa.gov/opa/admpress.nsf/0/601385d1f25da12485256ce800824d38?OpenDocument> (last visited June 26, 2006).

²²⁸ Withdrawal of Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation, *supra* note 227.

²²⁹ *Pronsolino v. Nastri*, 291 F.3d 1123 (9th Cir. 2000), *cert. denied*, 539 U.S. 926 (2003); *Pronsolino v. Marcus*, 91 F. Supp. 2d 1337, 1356 (N.D. Cal. 2000); David K. Bowles, *EPA May Impose TMDLs for Substandard Rivers Impaired Solely by Nonpoint Sources*, ABA SPECIAL COMM'N ON AGRIC. MGMT. NEWSL. 15 (June 2000); Susan Brunning, *Court Rules TMDL Program Can Apply to River Polluted by Nonpoint Sources*, 31 ENV'T REP. 639 (Apr. 7, 2000).

²³⁰ *Marcus*, 91 F. Supp. 2d. at 1338–39.

²³¹ *Nastri*, 291 F.3d at 1127.

mining TMDLs, in order to ensure the adequate implementation of water quality standards for all navigable waters.²³² The court deferred to the EPA's interpretation of the 1985 regulations without relying on the provisions of the delayed final rule.²³³

Every environmental initiative of the past thirty years has had to grapple with scientific uncertainty, allocation of enforcement authority, inconsistencies in monitoring, and variances in state and federal approaches. The ultimate goal of the 1972 CWA remains the achievement of fishable and swimmable waters, yet there are no mandatory controls imposed at the federal level on nonpoint source pollution or sanctions for states who fail to meet their own water quality standards. Critics contend that nonpoint source pollution is not more varied, site-specific, or more technologically difficult to control than point source pollution.²³⁴

The controversy over the TMDL program has to be viewed against the backdrop of the problem of nonpoint source pollution, particularly from large-scale agriculture, and the history at the federal level of funding state and local programs which ordinarily do not impose mandatory requirements. As the GAO report concluded, many of the states' criticisms of the TMDL program stem not from scientific uncertainty but from the lack of states' consistency in defining designated uses and various data utilized to evaluate impairment.²³⁵ EPA guidelines can partially remedy the lack of consensus among states, but some states have vehemently objected to the possibility of EPA requiring TMDLs with respect to a water body not within the states' designated use. Section 303(d) is regrettably silent on precisely how and when TMDL implementation should occur. The rather scant 1972 legislative history of state support of water quality standards is sufficient to demonstrate that the states feared the prospect of "federal land use" and fought to retain control by maintaining supervision of nonpoint source pollution.²³⁶ Land use is, how-

²³² *Id.* at 1132.

²³³ *Id.* at 1131 n.8.

²³⁴ HOUCK, *supra* note 194, at 87. For an ambitious article demonstrating how the TMDL program could remedy nonpoint source pollution, see Paula J. Lebowitz, *Land Use, Land Abuse, and Land Re-Use: A Framework for the Implementation of TMDL's for Nonpoint Source Polluted Water Bodies*, 19 PACE ENVTL. L. REV. 97 (2001); see also Oliver A. Houck, *The Clean Water Act TMDL Program V: AfterShock and Prelude*, 32 ENVTL. L. REP. 10385 (Apr. 2002).

²³⁵ See *supra* note 207.

²³⁶ See generally Senate Public Works Subcommittee Hearings on Water Pollution Control Legislation (1971) (testimony of EPA); Senate Public Works Subcommittee Hearings on Water Pollution Control Legislation (1971) (testimony of CEQ, Army and EPA); House Public Works Committee Hearings on Water Pollution Control Legislation (1971) (testimony of EPA, Treasury, CEQ, HEW, HUD, FmHA and Coast Guard); House Public Works Committee Hearings on Water Pollution Control Legislation (1971) (testimony of

ever, determined at the federal level, in a number of ways through a variety of federal programs, most notably the CZMA.²³⁷ Imposing some degree of mandatory controls, by assessing nonpoint sources' share of the load allocation and requiring some minimal level of control on those sources *only for impaired waters*, is one reasonable, moderate option in water quality improvement.

The focus now is clearly on regulation of nonpoint source pollution, but significantly the Commission failed to recommend further enforcement of the TMDL program. The Commission concluded “improv[ing] coastal water quality will require significant reductions in nonpoint sources” of pollution,²³⁸ the “majority” of which comes from agricultural and stormwater runoff.²³⁹ EPA has issued guidelines from a “watershed perspective” for managing agricultural nonpoint source pollution.²⁴⁰ The voluntary guidelines cover all phases of runoff management from planning and development to program evaluation, and include both structural and nonstructural management practices that local and state agencies, landowners, developers, conservation groups, and other interested parties can use. Nonstructural practices include urban planning and zoning, minimizing paved surfaces, pollution reduction and recycling technique and preservation of wetlands and other natural drainage systems. Guidance on structural practices pertains to storm water and wastewater treatment systems and run off controls, such as silt fencing, retention ponds, and creased vegetation. The Commission recommendations echo the efforts of EPA, but fail to mention the TMDL program in its proposals. However, the Commission did call for the NOC to establish national nonpoint pollution reduction “goals” for all impaired waters.²⁴¹

C. The Politics of Reform

There is wide agreement that the last thirty years of environmental regulation have been successful in implementing technology-based controls on point source pollution, but the need now is for enforceable water quality standards regulating both point and nonpoint source pollution. The lack of enforcement

CEQ, CEA and EPA).

²³⁷ See generally LINDA A. MALONE, ENVIRONMENTAL REGULATION OF LAND USE (2002).

²³⁸ FINAL REPORT, *supra* note 138, at 212.

²³⁹ *Id.* at 215.

²⁴⁰ See Nonpoint Source Program and Grants Guidelines for States and Territories, 68 Fed. Reg. 60,653 (Oct. 23, 2003), available at <http://www.epa.gov/owow/nps> (last visited Apr. 9, 2006).

²⁴¹ FINAL REPORT, *supra* note 138, at 79–80.

mechanisms and water quality monitoring information, as well as a lack of political will and federal funding, has hampered efforts. A recent report by the Pew Ocean Commission presaged many of the Commission's findings as to the need for stronger controls. Specific to nonpoint source pollution, the Pew Ocean Commission recommended effective implementation of the TMDL program: "States should determine the total maximum daily load (TMDL) of pollutants that a water body can accept and still attain water quality standards. The states should then implement meaningful plans for achieving the point and nonpoint source pollution reductions indicated by TMDLs."²⁴²

Congress established the Ocean Commission because of major changes since the 1969 Stratton Commission Report: the large migration of people to coastal areas; the increase of federal and state regulations which often duplicated efforts and produced confusing and sometimes contradictory results; the increased use of the marine environment leading to depletion of resources and degradation of habitats; the increased complexity of environmental threats; and the potential for economic and scientific opportunities using modern technology.²⁴³ Congress mandated the Commission to review these issues and specify policy recommendations.²⁴⁴

After two initial public meetings in September and November of 2001, where congressional members and various administrators testified, the Commission unanimously passed a resolution²⁴⁵ urging the United States to immediately accede to the United Nations Convention on the Law of the Sea.²⁴⁶ The Commission then held nine regional meetings across the country from January through September 2002, hearing testimony from various federal and state governments, industry representatives, interest groups, the academic community, the international community, and interested citizens.²⁴⁷ On September 24, 2002, the Commission released its Mid-Term Report, summarizing the in-

²⁴² PEW OCEANS COMM'N, AMERICA'S LIVING OCEANS: CHARTING A COURSE FOR SEA CHANGE 57-58 (2004), *available at* http://www.pewtrusts.com/pdf/env_pew_oceans_final_report.pdf.

²⁴³ S. REP. NO. 106-301, at 2-5 (2000) (Comm. on Commerce, Science, and Transportation), *available at* http://www.oceancommission.gov/commission/Senate_Report.pdf.

²⁴⁴ *Id.* at 5.

²⁴⁵ U.S. COMM'N ON OCEAN POLICY RESOLUTION, UNITED NATIONS LAW OF THE SEA CONVENTION RESOLUTION (2001), *available at* http://www.oceancommission.gov/documents/los_resolution.pdf.

²⁴⁶ United Nations Convention on the Law of the Sea (UNCLOS), Dec. 10, 1982, 1833 U.N.T.S. 397 (entered into force Nov. 16, 1994), *available at* http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm.

²⁴⁷ U.S. COMM'N ON OCEAN POLICY, REPORT DEVELOPMENT TIMELINE AS OF APRIL 5, 2004 (2004), *available at* http://www.oceancommission.gov/calendar/timeline4_5_04.pdf.

formation gathered.²⁴⁸ Four public deliberation meetings were held in Washington, D.C., from October 2002 to April 2003 to further discuss possible policy recommendations.²⁴⁹ It was also during this time that the date to submit the Commission’s final report to Congress and the President was extended from the spring of 2003²⁵⁰ to June 2003²⁵¹ to early fall of 2003.²⁵² Over the course of the Commission’s fifteen public meetings, 440 individuals testified, including ocean scientists and researchers, environmental organizations, industry officials, citizens, and government officials.²⁵³ The Commission also received nearly 200 public comments from a similar cross-section of interests.²⁵⁴ In June 2003, the Commission released a draft Table of Contents for the forthcoming final report.²⁵⁵ During the second half of 2003 and beginning of 2004, the Commission drafted its report, releasing the Preliminary Report in April 2004 for public comment,²⁵⁶ particularly from governors of coastal states, whose comments must be included in the final report to Congress and the President.²⁵⁷ As a result, the public comment period deadline was extended from May 21, 2004 to June 4, 2004.²⁵⁸

Although the Commission’s delayed, final findings on the need to control nonpoint source pollution are very forceful, the recommendations are much less so. The recommendations merely direct the yet to be established NOC to set a national goal of reducing nonpoint pollution in impaired coastal watersheds,

²⁴⁸ U.S. COMM’N ON OCEAN POLICY, DEVELOPING A NATIONAL OCEAN POLICY: MID-TERM REPORT (2002), *available at* http://www.oceancommission.gov/documents/midterm_report/ReportCovREV10_01_02.pdf.

²⁴⁹ U.S. COMM’N ON OCEAN POLICY, *supra* note 247.

²⁵⁰ Press Release, U.S. Comm’n on Ocean Policy, Final Report to Congress and President Due in Spring 2003 (Jan. 10, 2002), *available at* http://www.oceancommission.gov/newsnotices/jan10_chasmtg.html.

²⁵¹ *See* U.S. COMM’N ON OCEAN POLICY, *supra* note 247, at 1.

²⁵² Press Release, U.S. Comm’n on Ocean Policy, U.S. Commission on Ocean Policy Sets Framework for New National Ocean Policy: Table of Contents Document Outlines Major Areas of Interest (June 2, 2003), http://oceancommission.gov/newsnotices/jun2_03.html.

²⁵³ *Id.*

²⁵⁴ U.S. COMM’N ON OCEAN POLICY, PUBLIC COMMENT ARCHIVE (public comments received through March 2004), *available at* <http://oceancommission.gov/publiccomment/welcome.html> (last visited Apr. 9, 2006).

²⁵⁵ U.S. COMM’N ON OCEAN POLICY, WORKING TABLE OF CONTENTS—DRAFT FINAL REPORT (2003), *available at* http://oceancommission.gov/documents/working_toc6_26_03.pdf.

²⁵⁶ Press Release, U.S. Comm’n on Ocean Policy, U.S. Commission on Ocean Policy To Release *Preliminary Report* April 20—Historic Report to be Reviewed By Governors and Stakeholders (Mar. 10, 2004), http://oceancommission.gov/newsnotices/mar10_04.html.

²⁵⁷ Oceans Act of 2000, Pub. L. No. 106-256, § 3(g)(2), 114 Stat. 644, 648 (2001), *amended by* Pub. L. No. 107-206, 116 Stat. 833 (2003), Pub. L. No. 107-372, 116 Stat. 3096 (2003).

²⁵⁸ Press Release, U.S. Comm’n on Ocean Policy, U.S. Commission on Ocean Policy Extends Comment Deadline to June 4, 2004 (May 14, 2004), http://oceancommission.gov/newsnotices/may14_04.html.

and to set specific, measurable objectives to meet water quality standards.²⁵⁹ Its only directive to Congress is Recommendation 14-10, which states that Congress should authorize “federal agencies to establish enforceable management measures for non-point sources of pollution and impose financial disincentives related to programs that result in water quality degradation if a state persistently fails to make meaningful progress toward meeting water quality standards on its own.”²⁶⁰ Significantly, this recommendation does not direct Congress or the EPA to *set* mandatory management measures, but only to authorize federal action if a state does not “make meaningful progress” toward meeting water quality standards.²⁶¹ This standard for federal intervention is essentially meaningless, given the vagueness of “meaningful progress” and that it need only be “progress” toward meeting general water quality standards rather than any required best management practices.²⁶²

What then does the Report say as to setting some actual management measures for nonpoint pollution and who is to set them? On both levels, the Report’s recommendation is phrased in such a way as to ensure ineffectiveness. Recommendation 14-11 directs states and local governments to revise their codes and ordinances “to require land use planning and decision making to carefully consider” the impacts of development on water quality.²⁶³ In other words, after finding that nonpoint pollution from land-based activities is the most serious threat to coastal and ocean water quality, what does the Report recommend? That a yet-to-be established Council with no enforcement authority set objectives for meeting state water quality standards, whatever they might be, and that state and local governments make sure they “consider” the impacts of development on water quality, consideration they are already required to give under the Clean Water Act.²⁶⁴ What if development continues to be authorized despite clearly detrimental impacts on water quality? Unlike the Pew Report, the preliminary Ocean Commission Report only calls for federal intervention if a state is not making “meaningful progress” toward meeting water quality standards, an ambiguous term which could allow for decades of unrestrained water quality impairment before federal intervention would be necessary.²⁶⁵

This discrepancy between the forcefulness of the findings

²⁵⁹ FINAL REPORT, *supra* note 138, at 218.

²⁶⁰ *Id.* at 220.

²⁶¹ *Id.*

²⁶² *See id.*

²⁶³ *Id.* at 221.

²⁶⁴ *See id.*

²⁶⁵ *See id.* at 220.

and the tentativeness of the recommendations did not go unnoticed in the initial reactions of U.S. Senators from two Senate Committees, the Senate Commerce, Science, and Transportation Committee and the Senate Appropriations Committee, when presented with the preliminary Report.²⁶⁶ Senator Fritz Hollings of South Carolina was the most outspoken in this regard.²⁶⁷ He questioned the efficacy of an ocean council as opposed to a department that would have more direct access to the President.²⁶⁸ He told James Watkins, who presented the Report, that he agreed with just about everything in the report, but added, “[y]ou’re passionate in your answers but tentative and almost a sissy in your recommendations.”²⁶⁹ Watkins agreed with Senator Hollings that the goals would not be met without a strong commitment to them by the President.²⁷⁰

Watkins also told the Senate Commerce Committee that climate change relates to “every single topic in the report” and that the “climate change issue alone is powerful enough to drive the recommendations all by itself.”²⁷¹ The recommendations for international policy, however, say nothing about the U.S.’s failure to ratify the Kyoto Protocol or any other measures to control greenhouse gases. Chapter 29, “Advancing International Ocean Science and Policy,” contains a chart which indicates that the United States has not ratified the Kyoto Protocol, the Protocol to the London Convention, Annexes IV (sewage) or VI (air emissions) to the International Convention for the Prevention of Pollution from Ships, the Convention on Biological Diversity, the Convention on Migratory Species of Wild Animals, or the Cartagena Protocol on Biosafety.²⁷² Yet the only recommendation with respect to any of these treaties is Recommendation 29-2, which states that “The National Ocean Council should coordinate an expedited review and analysis of the ocean-related components of the United Nations Convention on Biological Diversity and recommend to the U.S. Department of State whether, from an ocean perspective, ratification of this treaty would be beneficial to U.S. interests.”²⁷³ With respect to international efforts to control nonpoint source pollution, favorable mention is made of the U.S.’s involvement in UNEP’s fourteen regional seas pro-

²⁶⁶ See Susan Bruninga, *Senators Open to New Federal Policy Idea But Question Funding, Governance Structure*, 35 ENV’T REP. 948–49 (Apr. 30, 2004).

²⁶⁷ See *id.* at 948.

²⁶⁸ See *id.*

²⁶⁹ *Id.*

²⁷⁰ *Id.*

²⁷¹ *Id.* at 949.

²⁷² FINAL REPORT, *supra* note 138, at 446–48.

²⁷³ *Id.* at 448.

grams as part of the 1995 Global Program of Action for the Protection of the Marine Environment from Land-Based Sources (GPA)²⁷⁴ and UNEP's 2002 Hilltop to Oceans Initiative,²⁷⁵ and the June 3, 2003 G-8 statement declaring their intention to implement a global action plan for sustainable ocean development.²⁷⁶ The only recommendation, however, which relates to these deficiencies and potential corrective actions is Recommendation 29-8: "The United States should increase its efforts to enhance long-term ocean science and management capacity in other nations through funding, education and training, technical assistance, and sharing best practices, management techniques, and lessons learned."²⁷⁷

The prospects for meaningful implementation of even the relatively timid recommendations of the Ocean Commission are bleak. Generally, the Report lays the most important burdens of implementation on the yet to be created Ocean Council for improvement at the federal level, and on the reluctant and financially strapped state and local governments for the remainder. With respect to control of nonpoint source pollution specifically, states and local governments are given a vague, unenforceable recommendation to make progress toward undefined goals, instead of recommending that Congress require compliance with TMDLs or mandate use of BMPs with sanctions (or withdrawal of funding) for failure to comply, or recommending withdrawal of federal subsidies that directly encourage coastal development. As of mid-2004, only one-fifth of concentrated animal feedlots (CAFOs) were in compliance with the 2003 requirements, yet the Report says nothing about how to ensure that CAFOs comply with the regulatory limitations.²⁷⁸

The very creation of the Ocean Council has already prompted divergent criticism. In a public hearing on the preliminary Report on July 28, 2004, the last hearing before issuance of the Final Report, one of the most contentious issues was this creation of another level of bureaucracy, with some environmental NGOs, like Senator Hollings in the hearings, saying that the Council was too weak an instrument for change at the federal level, and state representatives insisting on more state influence and that regional ocean councils be established. What timid control measures that were recommended by the Report to control non-point pollution were questioned by the very state representatives

²⁷⁴ *Id.* at 455.

²⁷⁵ *Id.*

²⁷⁶ *Id.* at 443.

²⁷⁷ *Id.* at 455.

²⁷⁸ *See generally* FINAL REPORT, *supra* note 138.

charged with their oversight and implementation. Most states opposed the establishment of any form of disincentive or penalty as a mechanism for ensuring implementation of and compliance with federal program requirements. As a public summary of the state comments noted:

Most recognize nonpoint source pollution as a major problem facing the nation; however, there is not a consensus regarding the recommendation to merge the Coastal Zone Management Act Section 6217 program into the Clean Water Act Section 319 nonpoint program. In addition, most strongly disagree with the use of disincentives or penalties to facilitate the implementation of nonpoint programs.²⁷⁹

This longstanding unwillingness on the part of states to require and enforce BMPs in land use is precisely why the most serious deficiency of the Report in this regard is its failure to mandate imposition of such requirements at the federal level.²⁸⁰

At the international level, even the state representatives indicated that too little attention was given in the Report to climate change and its effect on coastal resources and communities.

No mention is made of the U.S.'s failure to ratify the Kyoto Protocol other than its inclusion in a chart. The Report's recommendations that the U. S. ratify the Law of the Sea Convention and Annex VI merely reflect ongoing processes already headed in that direction. The clear need for the U.S. to ratify the Biodiversity Convention to preserve marine resources results only in another directive to the Ocean Council to review the need for its ratification.

At the Senate hearings, James Watkins agreed with Senator Hollings that what was most necessary to national and international ocean policy was a commitment by the President to see that reform is effectuated.²⁸¹ The President was given ninety days to respond to the Final Ocean Report, which expired on December 20, 2004.²⁸² Instead of recommending action, on December 17, 2004, the President appointed yet another committee to review the recommendations of the U.S. Ocean Commission.²⁸³ On the forefront of issues to be addressed was expanding the use of fishing quotas and seeking ratification of the United Nations

²⁷⁹ U.S. COMM'N ON OCEAN POLICY, SUMMARY OF GOVERNOR AND TRIBAL LEADER COMMENTS ON THE U.S. COMMISSION ON OCEAN POLICY'S PRELIMINARY REPORT (July 22, 2004), available at http://www.oceancommission.gov/newsnotices/summary_govcomments.pdf.

²⁸⁰ See generally MALONE, *supra* note 237.

²⁸¹ See Testimony of Adm. James Watkins, USN (Ret.) before the Senate Committee on Commerce, Science, and Transportation, Sept. 21, 2004, http://commerce.senate.gov/hearings/testimony.cfm?id=1316&wit_id=3292.

²⁸² See Oceans Act of 2000 § 3(i), Pub. L. No. 106-256 (2000).

²⁸³ Exec. Order No. 13366, 69 Fed. Reg. 76,591 (Dec. 17, 2004), available at <http://edocket.access.gpo.gov/2004/pdf/04-28079.pdf>.

Convention on the Law of the Sea. Conspicuously absent from the plan was any evaluation or decisions for control of nonpoint source pollution.

D. Conclusion

The environmental naiveté of the 1970's when civil society expected that all waters in the United States would be fishable and swimmable by 1985—is long past. As a society we have recognized that environmental problems are complex and challenging whether we have perfect information, imperfect information, or no information at all. When legislating or regulating to address these problems, there are essentially two steps. First, there must be an assessment of the environmental problem and of what is necessary to remedy it. However difficult this first determination might be, the next determination is even more so: what is the balance to be struck between the environmental values to be served by the proposed remedy, and all the other conflicting social values which will be compromised by the remedy? The second step is a policy matter, but the first, fundamental step is essentially a scientific determination. The second determination will be flawed at its core if the first assessment is not done with the best available, reliable, unfettered scientific information which can be obtained.

Nowhere is this need for unpoliticized, scientifically verified information more apparent than with nonpoint source pollution. For over thirty-five years, reduction of nonpoint source pollution has been unachievable. Is it the fault of politics, or the failure of current controls to achieve the anticipated reductions, or the infeasibility of controls on such pollution? Science should be able to tell us if it is the second or third of these reasons. If it is not either, then the answer is politics, and the question is starkly posed. As a society are we willing to do what it takes to reduce nonpoint source pollution, or are we willing to accept lesser water quality as the trade-off for not imposing the necessary measures?

That question is a nationally significant discourse that needs to take place at every level of government and society. To date, it has not because opponents of nonpoint source pollution controls for economic reasons couch their arguments in political reasons, in the guise of infeasibility or ineffectiveness of control methods. Perhaps they are right, but we do not know. We cannot know because the science we need so badly to tell us what can be done and how is simply not available, and the prospects for it becoming available are not bright.

As this article was being finalized, the highest ranking cli-

mate scientist at NASA charged the Bush administration with trying to stop him from calling for prompt reductions in greenhouse gases to curb global warming.²⁸⁴ A week later, NASA’s administrator issued a strongly worded statement to the agency’s employees asserting that “[i]t is not the job of public-affairs officers to alter, filter or adjust engineering or scientific material produced by NASA’s technical staff.”²⁸⁵

On February 3, 2006, the chair of the U.S. Commission on Ocean Policy and the chair of the PEW Oceans Commissions joined forces to criticize the Bush administration and Congress for inadequate funding and action on the recommendations made by the presidential panel which formulated the U.S. Ocean Action Plan to implement the Commissions’ recommendations a year ago.²⁸⁶ The joint commission’s “report card” on implementation gave a “D-plus” for ocean policy reform, and an “F” for failure to ratify the U.N. Convention on the Law of the Sea.²⁸⁷ Any suggestion of favoritism to certain outcomes in scientific research in the executive branch is more of a threat to the legitimacy of science when funding for scientific research is dwindling as it has been. When funding is scarce, and politically driven outcomes preferred, the danger of junk science being not only overly recognized but overly funded is increased as scientists compete for scarce governmental grants or turn to private grants from organizations with purely political agendas. Coupled with the current administration’s acceptance of the all-powerful, unitary executive theory of governance, the chilling effect is magnified on scientific study which does not serve the political purposes of the administration.

Whatever reforms may be necessary for the validation of scientific studies, science is valuable and respected precisely because it answers the questions of “how” with a modicum of political objectivity, before we must ask ourselves the political question of “whether or not.” Respect and support for science in environmental determinations is not a new form of naiveté—

²⁸⁴ Andrew C. Revkin, *Climate Expert Says NASA Tried to Silence Him*, N.Y. TIMES, Jan. 29, 2006, at A1.

²⁸⁵ Andrew C. Revkin, *NASA Chief Backs Agency Openness*, N.Y. TIMES, Feb. 4, 2006, at A1. On January 27, 2006, the Center for Health and the Global Environment of Harvard University sponsored a briefing for Congress on “how science works.” As Republican Sherwood Boehlert, head of the House Science Committee, remarked, “everyone boasts that they are for science-based policy until the scientific consensus leads to an unwelcome conclusion, and then they plan to go to Plan B.” Cornelia Dean, *Where Science and Public Policy Intersect, Researchers Offer a Short Lesson on Basics*, N.Y. TIMES, Jan. 31, 2006, at F3.

²⁸⁶ Amena H. Sard & Patricia Ware, *White House, Congress Get Mixed Marks for Ocean Policy from Joint Commission*, 37 ENV’T REP. 303 (Feb. 10, 2006).

²⁸⁷ *Id.*

scientists are subject to the same pressures to achieve and produce as any professional. The difference is that their field is defined by its very objectivity and susceptibility to methods of objective verification which do not depend on leaps of faith, or pre-desired, politically motivated outcomes. Is it possible to reduce nonpoint source pollution with land use controls? If so, which controls would provide the most reduction for the least economic cost? If those two questions were posed to a scientist, a lawyer, an entrepreneur, an environmental advocate, and a politician, whose opinion would you trust to be the most honest, objective assessment?

Our society and others desperately need the answers to these two questions, and we need them answered with science. De-legitimization of science undermines not only science, but the legitimacy of the administrative, legal and policy processes as well.

Runoff and Reality: Externalities, Economics, and Traceability Issues in Urban Runoff Regulation

*Donald J. Kochan**

I. INTRODUCTION

If you sneeze, have you polluted? If you smoke in public, have you polluted? If you wash your car in your driveway, have you polluted? If you fertilize your lawn, have you polluted? If you pull out the chainsaw and take down a tree, have you polluted? If you run a business that uses chemicals on land-based resources, like a coal processing facility, have you polluted? What are your legal responsibilities if you take any of these actions? Do you know, have you considered it, and do you care? All of the above activities can cause trans-boundary effects—that is, effects beyond yourself or beyond your property—and much of the harm that these activities can cause is not immediately apparent. It is easy to ignore the incidental effects of our actions, yet regulators are increasingly placing a focus on such consequences when deciding whether and how to formulate rules for the control of pollution.

The idea of runoff is not intuitive to individuals or businesses, but knowledge of legal liabilities for actions that create externalities through runoff is increasingly important. As our understanding of water quality and sources of pollution becomes more sophisticated, cognizance of the implications of the effects of that car wash or coal wash becomes far more important for the analysis of legal compliance and legal responsibility.

The answer to all the questions posed above, and similar ones, is—“perhaps.” The conclusion rests on containment of possible pollutants, internalization of the costs of activities, the

* Assistant Professor of Law, Chapman University School of Law. J.D. 1998, Cornell Law School; B.A. 1995, Western Michigan University. Former Visiting Assistant Professor of Law, George Mason University School of Law, 2002–2003; Olin Research Fellow, University of Virginia School of Law, 2003–2004. I thank my research assistants Amanda Collopy and Miles Brandon Fuller for their assistance in preparation for portions of this article.

harms that actions cause, and the appropriate legal controls and remedies if, indeed, those actions harm others. The other primary issue is whether, even if harm is caused, whether individuals or government can ever figure out the source of the pollution. Whether there is or should be legal responsibility for such pollution lies at the heart of the urban runoff debate. The possibility that personal or business actions will create externalities, including eventual runoff that carries “leftovers” into water bodies, is a highlight of recent regulatory discussion on pollution control.

The alley behind my former Washington, D.C. condominium had a problem. Food waste, grease, and undoubtedly contaminated water from next door, a small-business restaurant, poured down the sloping alley into local sewage drains every night. The restaurant management released this greasy waste with, I suspect, no recognition of the consequences or the potential illegality. I often wondered whether these owners knew the legal requirements, whether they had a permit to dump kitchen waste, and whether they knew the consequences of this runoff. I also wondered about the pervasiveness of such practices throughout similar businesses. I believe that state and federal regulators wonder as well, which explains the increased promulgation of regulations and increased monitoring and enforcement of runoff.

A solution to controlling the imposition of negative externalities has long eluded regulators and private enforcers. My restaurant neighbor when I lived in downtown Washington, D.C., nightly spewed its garbage into a descending alley—it was runoff that ended up in sewers, streets, and sidewalks. Now this is an activity that is replicated—intentionally or unintentionally—throughout commercial activities. I highly doubt the Environmental Protection Agency (EPA) ever visited my restaurant neighbor. But the EPA and others are nonetheless concerned. If the restaurant example is not concrete evidence of a problem, consider instead the building of a home and the wood chips and chemicals seeping into a stream. Consider the processing of coal that may let some waste slide into a lake. Consider the cutting down of trees and whether the wood chips or gasoline that ends up in a nearby water body should be considered “pollution.” This paper will examine: (1) whether existing authorities (like the Clean Water Act) are capable of providing regulation of urban runoff; (2) whether, in light of economic controls, regulating these activities is necessary; (3) a summary of recent runoff litigation; and (4) what is next, or what should be next. Although each of these questions forms the background inquiry, the primary emphasis of this article is on externalities, traceability, collective action, and free rider problems that motivate regulation in this

area.

Part I of this article provides a general background of Clean Water Act (CWA) regulations and concerns related to runoff. Part II discusses the concept of externalities—how runoff allows for the imposition of costs on others and leads to a lack of internalization of costs on the individuals or companies generating the original substances that end up causing harm. Part III discusses the regulatory atmosphere as a result of the difficulty of tracing the sources of runoff and therefore assigning liability. Part IV explores the necessity of regulation in light of these economic realities, questions whether efficiency demands broad regulation to preclude or assess liability for runoff, and assesses whether responsibility can be efficiently allocated, or whether it is inefficient to try. Regulation may be necessary, but economic realities must be made part of the analysis in developing such regulation.

Rather than critique or suggest particular regulatory approaches, this article remains largely agnostic and focuses on discussing the complexities and difficulties that must be taken into consideration as regulations develop and are applied in this area. This article attempts to identify the metrics, economics, and realities that must underlie runoff regulation. The ultimate conclusion is that economics must be taken into account and may, at times, warrant governmental regulation; however, there should never be a presumption of government intervention, but, instead, an enlightened analysis of economic realities before any such regulation is imposed.

II. BACKGROUND

“Environmental protection was not a distinct field of law before 1970. Since that time, it has become a growth industry and has enjoyed widespread political support . . .”¹ One of the major governmental initiatives among 1970s legislation was clean water. Compared to other governmental initiatives, the history of clean water legislation may seem short, but the passage and application of the CWA has a nearly thirty-five year history with ever-evolving focuses of concern.² Runoff is one of regulators’ most recent priorities.

¹ RICHARD A. EPSTEIN, *SIMPLE RULES FOR A COMPLEX WORLD* 275 (1995).

² For a fairly comprehensive summary of the CWA and its amendments, see Kenneth M. Murchison, *Learning From More Than Five-and-a-Half Decades of Federal Water Pollution Control Legislation: Twenty Lessons for the Future*, 32 B.C. ENVTL. AFF. L. REV. 527, 528–81 (2005); Shawn J. Johnson, Note, *It All Comes Out in the Wash: Sierra Club v. Meiburg: Nonpoint Source Pollution Continues Unabated as the Eleventh Circuit Refuses to Permit Implementation of Total Maximum Daily Loads Through Citizen Suits*, 57 ARK. L. REV. 349, 359–65 (2004).

As Reed Benson notes, “[w]ater pollution has been a major environmental issue in the United States for more than three decades, and polls indicate that the public remains very concerned about the contamination of America’s rivers, streams, and lakes.”³ The concern may be rational or irrational, but it is a present concern.⁴ Thus, the formulation of legal rules regarding water pollution—private or public—must receive serious examination.⁵

The issue of runoff extends far beyond restaurant grease flushing down a sewer. Many industries are affected—development materials, mining waste, agricultural and animal byproducts, pesticides, fertilizers, sawdust, oils, household chemicals, and many other substances can be washed into water streams.⁶ Once these types of substances are on the ground, rain or other means can make them “run off,” which is then released into watersheds. Several sections of the CWA have implications for runoff.⁷

The CWA was intended “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”⁸ At the same time, it recognizes that federal standards are not meant to overwhelm historically recognized state controls over their own waters.⁹ How states and the federal government create controls, and how they allocate responsibilities, over water quality lies at the heart of the debate over the runoff issue.¹⁰ After all,

³ Reed D. Benson, *Pollution Without Solution: Flow Impairment Problems Under Clean Water Act Section 303*, 24 STAN. ENVTL. L.J. 199, 200 (2005).

⁴ See EPA, What is Nonpoint Source (NPS) Pollution? Questions and Answers, <http://www.epa.gov/owow/nps/qa.html> (last visited Apr. 8, 2006) [hereinafter EPA, Questions and Answers].

⁵ See generally Benson, *supra* note 3 (scrutinizing the Clean Water Act and discussing how its proper implementation could better achieve the Act’s stated goals).

⁶ EPA, Questions and Answers, *supra* note 4.

⁷ See *Pronsolino v. Nastri*, 291 F.3d 1123, 1125–29 (9th Cir. 2002) (providing a brief summary of the relevant provisions of the CWA). Other recent symposia have also addressed some of these issues. See Symposium, *The Clean Water Act at Thirty: Progress, Problems, Potential*, 55 ALA. L. REV. 537 (2004); Symposium, *The Clean Water Act Turns 30: Celebrating Its Past, Predicting Its Future*, 33 ENVTL. L. 27 (2003).

⁸ Clean Water Act § 101(a); 33 U.S.C. § 1251(a) (2000).

⁹ See, e.g., Clean Water Act § 101(b); 33 U.S.C. § 1251(b) (2000) (acknowledging “the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution”). For a discussion of the general economics of federalism concerns, see RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 695–96 (5th ed. 1998).

¹⁰ Consider, for example, these comments from Murchison, describing federal versus state land use controls:

In the United States, pollution from nonpoint sources presents the most obvious example of this resistance to effective water pollution control. In part, the exclusion of nonpoint sources arises from the difficulty of controlling pollution that enters water bodies from diffuse rather than discrete sources, but the philosophical basis runs much deeper. United States environmental law has always backed away from direct federal control of land use, and land use con-

when we are dealing with water, a transient, moving, and often uncontained resource, boundaries are difficult to define.¹¹

The CWA has been fairly successful in its initial focus on controlling direct dumping of pollutants into waterways. However, as the nation moves forward, attention has increasingly turned to focus on the effects of runoff on overall water quality.¹² We are beyond the formative years of water quality regulation, but perhaps not in relation to runoff.¹³ In recent years, much more focus has been placed on the regulatory control of runoff. It is, in part, a regulatory success that the prioritization of governmental efforts can now explore less direct contributions to poor water quality, like runoff.¹⁴ As a result of this prioritization, the major issues are now: the whether, the how, the means, and the necessity of regulation. This article argues that each of these issues should be decided after considering an analysis of economic

trols are the basis for effective control of water pollution from nonpoint sources. Nowhere is this aversion to federal land use regulation more ingrained than with respect to agricultural pollution.

Murchison, *supra* note 2, at 581.

¹¹ See Richard J. Lazarus, *Judging Environmental Law*, 18 TUL. ENVTL. L.J. 201, 206–07 (2004). As Lazarus explains:

Activities in one part of the country can affect environmental quality in locations tens, if not hundreds or thousands, of miles away. In the natural environment, cause and effect are also spread out over long periods of time. Actions taken today can have environmental impacts that last for centuries and, in some instances, do not even have any perceptible impact for decades. The upshot is both tremendous scientific uncertainty in cause and effect and an inherent lack of equivalency between who pays the costs of environmental protection and who enjoys the benefits of that protection. Environmental legal rules invariably regulate activities at one location and/or at one time in order to avoid harms or confer benefits on persons or environmental amenities at another place or time.

Id. (footnote omitted). See also *id.* at 207 (describing the “tension with the physical nature of the problem, which does not so neatly follow state borders and which naturally pits downstream and downwind states and localities against upstream and upwind states and localities”).

¹² Sonya Dewan, Note, *Emissions Trading: A Cost-Effective Approach to Reducing Nonpoint Source Pollution*, 15 FORDHAM ENVTL. L. REV. 233, 237 (2004) (“The desire to regulate nonpoint source pollution is relatively new . . .”); see also Murchison, *supra* note 2, at 527 (“In the United States, federal water pollution control legislation has evolved significantly over the last five-and-a-half decades. Since 1948, the federal government has assumed an increasingly dominant role in efforts to control the pollution of surface waters.”).

¹³ See Lazarus, *supra* note 11 at 212 (“We have largely failed to impose effective controls on nonpoint sources of pollution, especially of water pollution, which threaten to overwhelm the environmental progress achieved by controls imposed on point source industrial dischargers of pollution into the nation’s waters.”); see also Oliver A. Houck, *TMDLs: The Resurrection of Water Quality Standards-Based Regulation Under the Clean Water Act*, 27 ENVTL. L. REP. 10329 (1997); Oliver A. Houck, *The Clean Water Act TMDL Program V: Aftershock and Prelude*, 32 ENVTL. L. REP. 10385 (2002); Murchison, *supra* note 2, at 587 (“[P]ollution from nonpoint sources constitutes an ever greater portion of the remaining pollution . . .”).

¹⁴ See Murchison, *supra* note 2, at 527.

realities.¹⁵

Enacted in 1972, the CWA functions primarily by prohibiting any “discharge” of pollutants to waters of the United States from a “point source” without a permit.¹⁶ A “point source” is “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel . . . from which pollutants are or may be discharged.”¹⁷ The National Pollutant Discharge Elimination System (NPDES), established in CWA section 402, provides a system for the permitting of any discharge of pollutants from a point source.¹⁸ The NPDES is a federal program, but it may be, and most often is, administered by States that have enacted laws deemed equivalent to those existing in the federal system.¹⁹ Diffuse runoff, such as rain water that is not channeled through a “point source,” is considered nonpoint source pollution and is generally not subject to federal regulation.²⁰

Where storm water is channeled, such as by municipal storm water drains, the resulting point source discharge is subject to CWA regulation. One very common type of storm water discharge is from municipal storm sewer systems, which collect runoff from wide areas, channel it, and ultimately discharge it to a waterbody through a “point source.” Virtually any other type of land use activity can also be a source of storm water discharge, if runoff from the area becomes channelized or otherwise discharged through a point source to waters of the United States.²¹

During the 1970s and 1980s, it became apparent that the sheer diversity and number of “storm water discharges” made them ill-suited for regulation under the original NPDES system.²² Thus, in the Water Quality Act of 1987, Congress amended the CWA in part to establish a new scheme to regulate storm water discharges under CWA section 402(p).²³ The storm

¹⁵ See POSNER, *supra* note 9, at 3–4 (“[E]conomics is the science of rational choice a world—our world—in which resources are limited in relation to human wants.”).

¹⁶ Clean Water Act §§ 301, 402(a); 33 U.S.C. §§ 1311, 1342(a) (2000).

¹⁷ Clean Water Act § 502(14); 33 U.S.C. § 1362(14) (2000).

¹⁸ Clean Water Act § 402; 33 U.S.C. § 1342 (2000).

¹⁹ Clean Water Act § 402(b), 33 U.S.C. § 1342(b) (2000); *see also* EPA, National Pollutant Discharge Elimination System (NPDES): State Program Status, <http://cfpub.epa.gov/npdes/statestats.cfm> (listing status of NPDES programs by state) (last visited May 15, 2006).

²⁰ *See Oregon Natural Desert Ass’n v. Dombeck*, 172 F.3d 1092, 1093–95 (9th Cir. 1998).

²¹ *See, e.g., American Mining Congress v. U.S. Envtl. Prot. Agency*, 965 F.2d 759, 762 (9th Cir. 1992) (upholding EPA regulation of storm water discharges from abandoned mines).

²² *See* 133 CONG. REC. 1,264 (1987).

²³ Clean Water Act § 402(p); 33 U.S.C. § 1342(p) (2000); *see also* EPA, *National Pollution Discharge Elimination System Permit Application Regulations for Storm Water Discharges*, 55 Fed. Reg. 47,990 (Nov. 16, 1990).

water program is the one of greatest significance for “runoff” issues, although other parts of the CWA admittedly play a role. There is a debate dealing with the identification of runoff that is “channeled” through a “point” like a sewage system and runoff that simply contributes pollution to a water body—and how to regulate each given available statutory authority.²⁴ The EPA has adopted various techniques to deal with regulating both.

Therefore, the subject of this journal issue and its related symposium—runoff—is often described as “non-point source” pollution and regulated generally under the auspices thereof.²⁵ There is a need to determine how water bodies can be protected from trans-boundary pollution from non-discrete sources.²⁶ The purpose of this article is to stress that none of the available regulatory options can be accomplished or analyzed efficiently without a basic recognition of the economic realities involved.

According to the United States Environmental Protection Agency, “[s]tates report that nonpoint source pollution is the leading remaining cause of water quality problems.”²⁷ Nonpoint source pollution involves substances that end up in the water stream, but not as a result of straight out-of-the-pipe dumping known as “point source” pollution.²⁸ Although debatable, some

²⁴ For a judicial analysis of competing arguments, see *Pronsolino v. Nastri*, 291 F.3d 1123, 1126 (9th Cir. 2002).

²⁵ “Nonpoint sources of pollution are non-discrete sources; sediment run-off from timber harvesting, for example . . .” *Id.*; see also Thomas K. Ruppert, *Water Quality Trading and Agricultural Nonpoint Source Pollution: An Analysis of the Effectiveness and Fairness of EPA’s Policy on Water Quality Trading*, 15 VILL. ENVTL. L.J. 1, 33 (2004) (“Runoff from agriculture now constitutes one of our most serious water quality problems.”).

²⁶ See, e.g., Lazarus, *supra* note 11, at 212.

²⁷ EPA, Questions and Answers, *supra* note 4; see also Erin Tobin, *Pronsolino v. Nastri: Are TMDLS for Nonpoint Sources the Key to Controlling the “Unregulated” Half of Water Pollution?*, 33 ENVTL. L. 807 (2003):

Without dispute, nonpoint source pollution is the nation’s leading water quality problem, contributing to nearly half of the water quality impairment nationwide. Nonpoint source pollution commonly refers to polluted runoff from diffuse sources such as agricultural activities, timber harvest, urban development, and grazing.

Id. at 808 (footnote omitted). See also Dewan, *supra* note 12, at 233 (“A significant amount of U.S. water pollution originates from nonpoint sources . . .”); Benson, *supra* note 3, at 225 (“[A]gricultural runoff constitutes the biggest remaining source of water pollution problems in the nation. . . . [H]uman-caused flow alterations represent a significant and commonly overlooked form of nonpoint source pollution under the CWA.”); See also generally Drew L. Kershen, *Agricultural Water Pollution: From Point to Nonpoint and Beyond*, 9 NAT. RESOURCES & ENV’T 3, 3–5 (1995).

²⁸ A point source is “any discernible, confined and discrete conveyance” having a particular “point” at which pollutant levels can be measured. Clean Water Act § 502(14); 33 U.S.C. § 1362(14) (2000). See also *Sierra Club v. Meiburg*, 296 F.3d 1021, 1024–25 (11th Cir. 2002); Ruppert, *supra* note 24, at 26 (footnotes omitted) (“After initial passage of the CWA in 1972, attention was focused on point sources of pollution. Point sources (PSs) are usually associated with a pipe that discharges wastewater into streams, lakes,

think that nonpoint source pollution is the critical issue for water quality today. For example, Robert Adler argues:

By now, it is beyond dispute that polluted runoff and erosion from farms, grazing lands, logging, mining, and other intensive land uses (so-called nonpoint source pollution) is the most significant remaining source of pollution in rural waters, and that contaminated urban (stormwater) runoff is similarly responsible for a significant percentage of ongoing urban and suburban water pollution. It is equally clear that those sources of pollution have escaped the type of more rigorous controls to which point sources are subjected, and that existing "solutions" to the problem are not working.²⁹

or rivers. The National Pollutant Elimination Discharge System (NPDES), which regulates the granting of permits under the CWA, represents this focus on PSs."). For a discussion of the distinction between point and nonpoint sources, see Carol M. Rose, *Environmental Law Grows Up (More or Less), and What Science Can Do to Help*, 9 LEWIS & CLARK L. REV. 273, 279 (2005). Rose explains that the first wave of water quality control focused on point source pollution and a new wave relates to nonpoint sources:

The First Wave approaches to environmental law clearly had some success, adding needed muscle to the exercise of setting quality-based goals. Without that muscle, little would have happened for the usual tragedy-of-the-commons reasons: even industries that wished to take environmentally friendly measures might not have done so, fearing that competitors would take the cheaper route of doing nothing, evading discovery, and ultimately gaining a competitive advantage. . . . [T]here was a certain logic to another aspect of the First Wave's controls, that is, concentrating controls at the end of the pipe. The end of the pipe, or "point source" as it was called, was the place where pollution control performance could be measured easily.

Id. Rose continues to describe the facts that point sources were a natural starting point for water quality control, but claims that nonpoint sources may be a major culprit that deserves attention:

Another "flexibility" complaint focused on the end-of-the-pipe methodology of early ["behavior based" or] BB regulation. . . . The trouble was that pollution from the point sources was easier to measure and hence to regulate, but in fact the less tractable nonpoint sources might be a bigger source of troubles. This issue has been especially noticeable in water pollution, where controls on point sources left more or less untouched the serious pollution from construction, agriculture, and city streets' runoff—all "nonpoint" sources that are hard to measure and monitor. Nonpoint sources are small and inconvenient to regulate, but they not only add up, they can also interact in various deadly forms.

Id. at 280.

²⁹ Robert W. Adler, *Fresh Water—Toward a Sustainable Future*, 32 ENVTL. L. REP. 10167, 10184 (2002). See also Oliver A. Houck, *TMDLs, Are We There Yet?: The Long Road Toward Water Quality-Based Regulation Under the Clean Water Act*, 27 ENVTL. L. REP. 10391, 10399 (1997) (footnote omitted) ("It is no secret to any observer of the Clean Water Act that the primary reason for this mushrooming [nonpoint source pollution] problem is the fact that while other sources have been abated through required controls and their enforcement, no comparable controls or enforcement have been applied to agriculture, silviculture, and the rest of the nonpoint world."); Victor B. Flatt, *Spare the Rod and Spoil the Law: Why the Clean Water Act Has Never Grown Up*, 55 ALA. L. REV. 595, 597–99 (2004) (blaming nonpoint sources for continuing pollution problems); Ruppert, *supra* note 25, at 3 ("As significant water quality improvements resulted from the NPDES program and PS pollution reductions, it became clear that non-point source (NPS) pollution contributes greatly to remaining water quality problems. It eventually became evident that PS reductions alone would not suffice to clean up waterways and that the challenges presented by NPSs needed to be addressed.").

Adler identifies the sensitivities regarding runoff that have been used to justify recent regulatory efforts.

There is certainly a heightened sensitivity among regulators and environmental interest groups over the potential impact of nonpoint source pollution.³⁰ Although it is difficult to fully discern what is “pollution” in nonpoint source pollution, the EPA defines it as the following:

Nonpoint source (NPS) pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water. These pollutants include:

- Excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas;
- Oil, grease, and toxic chemicals from urban runoff and energy production;
- Sediment from improperly managed construction sites, crop and forest lands, and eroding streambanks;
- Salt from irrigation practices and acid drainage from abandoned mines;
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems;

Atmospheric deposition and hydromodification are also sources of nonpoint source pollution.³¹

As a result, determining the origin of certain pollutants becomes very difficult—if they cannot be traced to a certain dumping pipe because the substances simply runoff from a nonpoint source, it becomes far more difficult to identify the origin of contaminants.³² This article explores these difficulties.

The EPA has explained the importance, significance, and issue of urban runoff as follows:

The National Water Quality Inventory: 2000 Report to Congress identified urban runoff as one of the leading sources of water quality impairment in surface waters. Urban sources can also contaminate ground water. . . .

³⁰ EPA, *Nonpoint Source Program and Grants Guidelines for States and Territories*, 68 Fed. Reg. 60,653 (Oct. 23, 2003).

³¹ EPA, Questions and Answers, *supra* note 4.

³² “Nonpoint source pollution, including the potential for groundwater contamination, is not easily addressed by the means which are employed for controlling pollutants from point sources.” Martha L. Noble & J.W. Looney, *The Emerging Legal Framework for Animal Agricultural Waste Management in Arkansas*, 47 ARK L. REV. 159, 177–78 (1994).

People and their actions are the most significant sources and causes of urban runoff and pollution.³³

The EPA continues to define the most substantial areas of urban runoff concern:

Uncontrolled or treated runoff from the urban environment and from construction activities can run off the landscape into surface waters. This runoff can include such pollutants as sediments, pathogens, fertilizers/nutrients, hydrocarbons, and metals. Pavement and compacted areas, roofs, and reduced tree canopy and open space increase runoff volumes that rapidly flow into our waters. This increase in volume and velocity of runoff often causes stream bank erosion, channel incision and sediment deposition in stream channels. In addition, runoff from these developed areas can increase stream temperatures that along with the increase in flow rate and pollutant loads negatively affect water quality and aquatic life.

Other common sources of urban pollution include improperly sited, designed and maintained onsite wastewater treatment (septic) systems, pet wastes, lawn and garden fertilizers and pesticides, household chemicals that are improperly disposed of, automobile fluids, road deicing/anti-icing chemicals, and vehicle emissions.³⁴

In addition to and in conjunction with federal regulation, most states have implemented plans to control for the contribution of runoff and non-point source pollution to water quality, but it is a still developing area of environmental law.³⁵ The complex-

³³ EPA, National Management Measures to Control Nonpoint Source Pollution from Urban Areas, <http://www.epa.gov/owow/nps/urbanmm/#01> (last visited Apr. 11, 2006) [hereinafter EPA, National Management Measures], EPA-841-B-05-004, NATIONAL MANAGEMENT MEASURES TO CONTROL NONPOINT SOURCE POLLUTION FROM URBAN AREAS (2005), available at http://www.epa.gov/owow/nps/urbanmm/pdf/urban_guidance.pdf. For a discussion of regulatory guidance on best management practices (BMPs) to control and prevent urban runoff, see EPA, OFFICE OF WATER, EPA-841-B-00-007, TECHNIQUES FOR TRACKING, EVALUATING, AND REPORTING THE IMPLEMENTATION OF NONPOINT SOURCE CONTROL MEASURES: III URBAN (2001), available at <http://www.epa.gov/owow/nps/urban.pdf>. Other informative materials on EPA's response to nonpoint source issues include: *Env'tl. Def. Ctr., v. U.S. Env'tl. Prot. Agency*, 319 F.3d 398 (9th Cir. 2003); *City of Abilene v. U.S. Env'tl. Prot. Agency*, 325 F.3d 657, 664 (5th Cir. 2003); OLIVER A. HOUCK, THE CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY, AND IMPLEMENTATION 50-51 (2d ed. 2002); Linda A. Malone, *The Myths and Truths That Ended the 2000 TMDL Program*, 20 PACE ENVTL. L. REV. 63, 63-64 (2002); James R. May, *The Rise and Repose of Assimilation-Based Water Quality, Part I: TMDL Litigation*, 34 ENVTL. L. REP. 10247 (2004); Thomas G. Echikson & Gregory P. Lauro, *When It Rains It Pours: Past, Present, and Future Regulation of Wet Weather Discharges*, 34 ENVTL. L. REP. 10150 (2004); Edwin A. Skoch, II, *Regulation of Storm Water Discharges Under the Clean Water Act*, 23 ENVTL. L. 1087, 1087-94 (1993); David Striffling, *Sanitary Sewer Overflows: Past, Present, and Future Regulation*, 87 MARQ. L. REV. 225, 230-32 (2003); Laurel A. David, *The EPA's Combined Sewer Overflow Abatement Methods: Do They Comply with the Clean Water Act*, 35 URB. LAW. 533, 541-44 (2003); Douglas R. Williams, *When Voluntary, Incentive-Based Controls Fail: Structuring a Regulatory Response to Agricultural Nonpoint Source Water Pollution*, 9 WASH. U. J.L. & POL'Y 21 (2002).

³⁴ EPA, National Management Measures, *supra* note 33.

³⁵ See generally ENVTL. LAW INST., ALMANAC OF ENFORCEABLE STATE LAWS TO CONTROL NONPOINT SOURCE WATER POLLUTION (1998).

ity of this process of regulation, however, is high.³⁶ Although there is a perceived need to add further regulatory controls, the EPA has recognized that “the nation is experiencing increasingly positive results in terms of both on-the-ground action and actual water quality improvements.”³⁷ The overall issue of regulation of runoff and nonpoint sources requires continuing analysis and must take into account both positive and negative environmental and economic consequences of regulation.³⁸

III. RUNOFF AND CONTROL OF EXTERNALITIES

Effective control of externalities is a fundamental basis of property law.³⁹ Pollution control necessarily involves issues of property law.⁴⁰ Property law continuously struggles to find an efficient allocation of liabilities for the harms one owner’s actions may impose on others.⁴¹

Harold Demsetz describes this concept well when he explains that “[a] primary function of property rights is that of guiding incentives to achieve a greater internalization of externalities.”⁴² When property rights and boundaries are ill-defined, it becomes difficult to control depletion of resources and to control pollution.⁴³ As a result, there are always tensions between pri-

³⁶ See generally Robert W. Adler, *Controlling Nonpoint Source Water Pollution: Is Help on the Way (From the Courts or EPA)?*, 31 ENVTL. L. REP. 10270 (2001).

³⁷ EPA, Nonpoint Source Program and Grants Guidelines for States and Territories, 68 Fed. Reg. 60,653, 60,654 (Oct. 23, 2003).

³⁸ For an economic justification for regulation in this area, see EPA, OFFICE OF WETLANDS, OCEANS AND WATERSHEDS, EPA-841-S-95-002, ECONOMIC BENEFITS OF RUNOFF CONTROLS (1995), available at <http://www.epa.gov/owow/nps/runoff.html>.

³⁹ Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 348 (1967); see also Henry E. Smith, *Exclusion Versus Governance: Two Strategies for Delineating Property Rights*, 31 J. LEGAL STUD. S453, S486 (2002) (“A number of patterns in property rights can be explained as variation along the methods of delineation, reflecting their respective costs and benefits.”); JESSE DUKEMINIER & JAMES E. KRIER, PROPERTY 48 (5th ed. 2002) (“‘Externality,’ Demsetz says, ‘is an ambiguous concept.’ It is also an important one that you will be confronting more than occasionally [in the study of property law].”).

⁴⁰ Dukeminier & Krier, *supra* note 39, at 55 (“Pollution and other environmental problems have important relationships to property . . .”). For a valuable discussion of property law, including its interaction with governmental regulation, see generally Herbert Hovenkamp & Sheldon F. Kurtz, *The Law of Property: An Introductory Survey* (5th ed. 2001).

⁴¹ See POSNER, *supra* note 9, at 36 (discussing the impacts of externalities and noting that “legal protection of property rights creates incentives to exploit resources efficiently.”).

⁴² Demsetz, *supra* note 39, at 348. See also generally Fred S. McChesney, *What’d I Say?: Coase, Demsetz and the Unending Externality Debate* (Northwestern University School of Law, Law & Economics Research Paper Series, Research Paper No. 04-01), available at <http://papers.ssrn.com/abstract=491182>.

⁴³ See generally Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968); James M. Buchanan & Young J. Yoon, *Symmetric Tragedies: Commons and Anticommons*, 43 J.L. & ECON. 1 (2000); Henry E. Smith, *Semicommon Property Rights and Scattering in the Open Fields*, 29 J. LEGAL STUD. 131 (2000); HENRY N. BUTLER &

vate/market-based land use controls and public land use controls to solve such externality issues, depending on economic values and the appropriate role for government.⁴⁴ “The practical problem is one of extension and elaboration of the private rights of action into the public sphere.”⁴⁵ Judicial land use controls like trespass and nuisance were the starting point,⁴⁶ but increasingly governmental regulation has been viewed as necessary for effectively controlling externalities based on the theory that individuals subject themselves to the government’s jurisdiction and the government has a responsibility to control against the imposition of harms.⁴⁷

Externalities are the imposition of costs or benefits on another as a result of one’s use of his property.⁴⁸ As the Council on Environmental Quality explained, part of environmental regulation is based on controlling such external costs when they cannot be controlled by the market:

Our price system fails to take into account the environmental damage that the polluter inflicts on others. Economists call these damages . . .

CHRISTOPHER R. DRAHOZAL, *ECONOMIC ANALYSIS FOR LAWYERS* 21–24 (2d ed. 2006).

⁴⁴ See Demsetz, *supra* note 39, at 350 (“Some communities will have less well-developed private ownership systems and more highly developed state ownership systems.” see also Armen A. Alchian & Harold Demsetz, *The Property Right Paradigm*, 33 J. ECON. HIST. 16, 22 (1973) (“The social consequences of the identity of right owners also can have allocative effects. At the more obvious level, government and private owners, respectively, will respond in greater degree to political and market incentives, and this can be expected to yield differing resource uses.”); Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1, 9 (1960) (“[T]here is no reason why, on occasion, such governmental administrative regulation should not lead to an improvement in economic efficiency. This would seem particularly likely when, as is normally the case with the smoke nuisance, a large number of people are involved and in which therefore the costs of handling the problem through the market or the firm may be high.”); see generally Fred McChesney, *Government as Definer of Property Rights*, in *PROPERTY RIGHTS: COOPERATION, CONFLICT, AND LAW* 227 (Terry L. Anderson & Fred S. McChesney eds. 2003).

⁴⁵ EPSTEIN, *supra* note 1, at 280.

⁴⁶ For an analysis of the historical developments in trespass and nuisance, see H. Marlow Green, Note, *Common Law, Property Rights and the Environment: A Comparative Analysis of Historical Developments in the United States and England and a Model for the Future*, 30 CORNELL INT’L L.J. 541, 544–45 (1997). On the possible limitations of tort law to control externalities, see BUTLER & DRAHOZAL, *supra* note 43, at 122.

⁴⁷ “[I]t would be a direct contradiction for any one to enter into society with others for the securing and regulating of property, and yet to suppose his land . . . should be exempt from the jurisdiction of that government to which he himself, and the property of the land, is a subject.” John A. Humbach, *Evolving Thresholds of Nuisance and the Takings Clause*, 18 COLUM. J. ENVTL. L. 1, 6 n.25 (1993) (quoting 2 JOHN LOCKE, *TWO TREATISES OF CIVIL GOVERNMENT* ch. 3, 178 (Everyman’s Library 1991) (1690)).

⁴⁸ As Demsetz explains:

It is important to note that property rights convey the right to benefit or harm oneself or others. . . . [P]roperty rights specify how persons may be benefited or harmed, and, therefore, who must pay whom to modify the actions taken by persons. The recognition of this leads easily to the close relationship between property rights and externalities.

Demsetz, *supra* note 39, at 347.

“external social costs.” They reflect the ability of one entity, e.g., a company, to use water or air as a free resource for waste disposal, while others pay the cost in contaminated air or water. If there were a way to make the price structure shoulder these external costs—taxing the firm for the amount of discharge, for instance—then the price for the goods and services produced would reflect those costs. Failing this, goods whose production spawns pollution are greatly underpriced because the purchaser does not pay for pollution abatement that would prevent environmental damage. Not only does this failure encourage pollution but it warps the price structure.⁴⁹

Thus, external costs are a possible justification for governmental control of pollution, including runoff—bypassing or rejecting a market approach.⁵⁰

There are both negative and positive externalities associated with individual actions that play into the framework and formation of legal rules and priorities.⁵¹ When costs are imposed on another, there are negative externalities.⁵² Runoff is generally placed in this category. With negative externalities, one uses his property and internalizes the benefits or profit of the use, but does not internalize all negative consequences of that use.⁵³ When benefits are captured by another, there are positive externalities.⁵⁴ One uses his property and internalizes most benefits, but the use actually brings profits to another outside the system of exchange. Given these realities, the externality issue involves the analysis of property uses and whether both costs and benefits are internalized and how doctrines or regulations should develop as a result.⁵⁵

Robert Cutting and Lawrence Cahoon describe pollution as

⁴⁹ THE FIRST ANNUAL REPORT OF THE COUNCIL ON ENVIRONMENTAL QUALITY, at 12 (1970).

⁵⁰ “Most pollution policy . . . is not approached from a property rights perspective, where compensation and liability provide incentives for control; rather, public policy accepts pollution as a public bad that is the government’s responsibility.” TERRY L. ANDERSON & DONALD R. LEAL, *FREE MARKET ENVIRONMENTALISM* 136 (1991).

⁵¹ BUTLER & DRAHOZAL, *supra* note 43, at 176–86.

⁵² *Id.* at 175 (“Pollution and similar problems occur when people do not bear all of the costs of their actions.”). *See also id.* at 20, 121–22, 175–218, 336–40.

⁵³ *See, e.g.,* Demsetz, *supra* note 39, at 348 (“‘Internalizing’ such effects refers to a process, usually a change in property rights, that enables these effects to bear (in greater degree) on all interacting persons.”).

⁵⁴ *See* BUTLER & DRAHOZAL, *supra* note 43, at 184–86.

⁵⁵ As Dukeminier and Krier explain:

Externalities exist whenever some person, say *X*, makes a decision about how to use resources without taking full account of the effects of the decision. *X* ignores some of the effects—some of the costs or benefits that would result from a certain activity, for example—because they fall on others. They are “external” to *X*, hence the label *externalities*. As a consequence of externalities, resources tend to be misused or “misallocated,” which is to say used in one way when another would make society as a whole better off.

DUKEMINIER & KRIER, *supra* note 39, at 48. *See also id.* at 55, 745, 859, 951.

involving generators and receptors—persons who generate pollutants and persons who receive negative externalities from such generation.⁵⁶ They explain this issue of controlling trans-boundary effects:

The political institutions and the Property Rights Movement since the Industrial Revolution have honed in on the rights within private property boundaries (the “generators”), to the exclusion of the rights of those outside those boundaries (the “receptors”). This has created a classic, “can’t see the forest for the trees” scenario, and we suggest that the field of vision ought to be broadened to include: 1) the rights of all receptors (landowners and lawful occupiers, public or private) to be free of the effects of pollution (“externalities”), and 2) the responsibility of all generators of environmental alteration to safeguard those rights. To paraphrase George Carlin: “You should keep your stuff in your space.” Any alteration of nature must (in addition to any other onsite regulations) be contained within the three-dimensional construct of the property boundaries. This methodology directly internalizes all potential off-site effects of any action. The burden should be on the generator to identify, and to contain or mitigate, all trans-boundary effects.⁵⁷

The question becomes whether the generators have responsibilities to the unwilling receptors (individuals or society as a whole) for any harms imposed.⁵⁸ It is a question of preserving efficiency by identifying the types of legal controls that can lead to the internalization of harms from one’s use of property.⁵⁹ The cynical view is that, absent legal controls, property owners will impose costs on other owners and society. As Carol Rose claims, “[l]andowners become accustomed to regarding their land as their property, but they simultaneously regard the adjacent air, water, and wildlife as goods that are free for the taking”⁶⁰ James Huffman describes this concept of internalization as follows:

The efficiency theory assumes that market participants bear the full costs of their activities. When those costs are “externalized” to third parties, there is a market failure in the sense that one of the assumed conditions of an efficient market is missing. In such cases, regulations may be designed to internalize the full costs to the decision maker.⁶¹

⁵⁶ Robert H. Cutting & Lawrence B. Cahoon, *Thinking Outside the Box: Property Rights as a Key to Environmental Protection*, 22 PACE ENVTL. L. REV. 55, 58–59 (2005).

⁵⁷ *Id.* (footnote omitted).

⁵⁸ *Id.*

⁵⁹ For classic instructive cases on externality controls, public and private, see: *Prah v. Maretti*, 321 N.W.2d 182 (Wis. 1982); *Boomer v. Atlantic Cement Co.*, 257 N.E.2d 870 (N.Y. 1970); *Spur Industries, Inc. v. Del E. Webb Dev. Co.*, 494 P.2d 700 (Ariz. 1972).

⁶⁰ Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 MINN. L. REV. 129, 137 (1998).

⁶¹ James L. Huffman, *The Public Interest in Private Property Rights*, 50 OKLA. L. REV. 377, 380 n.11 (1997). See also William Simmons & Robert H. Cutting, Jr., *A Many*

Because runoff has the capability of causing pollutants on one's land to become transient, internalization of costs or containment become important issues in the formulation of legal rules, responsibilities, and liabilities.

The problems associated with runoff largely involve the imposition of negative externalities—one uses his property and resources in a manner that spills costs onto other discrete property owners or society as a whole in their interest of clean waters.⁶² Just like stray soot, stray smells, stray animals, or other things that cross and transcend boundaries, runoff creates risks that negative effects will be imposed on another.⁶³ One could even think about it like second-hand smoke,⁶⁴ or the steam or sparks from a passing train.⁶⁵

Demsetz offers the following example to generally explain this externality problem:

The short-hand description for [the externality issue] is that private costs (or benefits), which do influence a resource owner, are not equivalent to the total of social costs (or benefits) associated with the

Layered Wonder: Nonvehicular Air Pollution Control Law in California, 26 HASTINGS L.J. 109, 113 (1974); J.H. DALES, POLLUTION, PROPERTY & PRICES 7–8 (1968); Erik T. Verhoef, *Externalities*, in HANDBOOK OF ENVIRONMENTAL AND RESOURCE ECONOMICS 197–214 (Jeroen C.J.M. van den Bergh ed., 1999).

⁶² See, e.g., Demsetz, *supra* note 39, at 348 (“Some costs and benefits are not taken into account by users of resources whenever externalities exist, but allowing transactions increases the degree to which internalization takes place.”).

⁶³ Consider, for example, Coase's discussion of the “straying cattle which destroy crops growing on neighboring land.” Coase, *supra* note 44, at 2.

⁶⁴ Margaret M. Blair, *The Economics of Post September-11 Financial Aid to Airlines*, 36 IND. L. REV. 367, 371 (2003).

⁶⁵ Consider Halsbury's description of the “spark” externality from trains and the associated risk as analogous to the movement of materials by water runoff:

If railway undertakers use steam engines on their railway without express statutory authority to do so they are absolutely liable for fires caused by sparks from engines. However, railway undertakers generally have statutory powers to use steam engines and therefore, if an engine incorporates up-to-date precautions against the escape of sparks and is used without negligence, they will not be liable at common law for damage resulting from that escape.

The fact that sparks from an engine caused a fire appears to raise a presumption that the undertakers were negligent, but it is always a question of fact whether, on the evidence, they were guilty of negligence in the construction or the use of the engine or in some other way in relation to the fire. In the design and construction of a steam engine, the undertakers are bound to use all the available devices (for instance spark arresters) to avoid doing harm having regard to the likelihood of the danger and the cost and convenience of the remedy, but there is no negligence if the undertakers refuse to use an apparatus the efficiency of which is open to doubt.

Although there may be negligence in the design, construction or working of the engine, an undertaker may be liable for damage done by fire caused by sparks if, by leaving inflammable material close to the line, its negligence caused the damage.

39(1) HALSBURY'S LAWS OF ENGLAND 18–19 (4th ed. 1998) (under the heading “Sparks from engines”).

way an owner uses his resources. An example . . . concerns the use of soft coal by a steelmaker. The soft coal produces soot. The soot descends on a neighboring laundry, making it more difficult for the laundry to clean its customers' clothes, but this cost is not faced by the owner of the steel mill when he decides to use soft coal to fuel the steelmaking process.⁶⁶

Just as soot, in this example, can fly through the air and affect another business or the general quality of the air consumed by the public, pollutants can be washed away by water into particular or publicly shared water resources.

In property law, furthermore, the concept of *sic utere tuo ut alienum non laedas* dominates, where individuals may use their property as they wish so long as they internalize the costs of their actions, and respect their neighbors by not imposing negative externalities.⁶⁷ Runoff involves the imposition of foreign costs upon others. Thus, the extraterritorial and trans-boundary nature of runoff has been used, on this basic principle, to justify private and public land use controls and judicial remedies for the imposition of such harms from such runoff—*i.e.*, the party is responsible if their pollutants end up somewhere else. One reason for legal intervention is that this party, whether by his own actions or the forces of nature, has imposed a cost on another.⁶⁸ Secondly, private and public regulation assume that the owner at the point of origin is the least cost avoider of the harms that may result from runoff and, therefore, should have liability if things stray and should also have responsibility to contain pollutants.⁶⁹

⁶⁶ Harold Demsetz, *Ownership and the Externality Problem*, in PROPERTY RIGHTS: COOPERATION, CONFLICT, AND LAW 282, 283 (Terry L. Anderson & Fred S. McChesney eds. 2003). See also Harold Demsetz, *Toward a Theory of Property Rights II: The Competition Between Private and Collective Ownership*, 31 J. LEGAL STUD. S653, S665 (2002) ("Externality-type problems remain an important consideration . . .").

⁶⁷ See, *e.g.*, *Munn v. Illinois*, 94 U.S. 113, 145 (1876) ("The doctrine that each one must so use his own as not to injure his neighbor—*sic utere tuo ut alienum non laedas*—is the rule by which every member of society must possess and enjoy his property . . .").

⁶⁸ As Butler and Drahozal describe:

Externalities exist when the actions of one party affect the utility or production possibilities of another party outside the exchange relationship. Externalities can prevent a free market from being efficient. If a firm emits pollution into the air, it can adversely affect the welfare of the firm's surrounding neighbors. If the firm does not bear these costs, it is likely to select an inefficient level of pollution (that is, to overpollute). In choosing how much to invest in pollution control equipment, the firm will consider only its private costs and benefits. A socially-efficient investment would also consider the costs and benefits imposed on the neighbors.

BUTLER & DRAHOZAL, *supra* note 43, at 25–26.

⁶⁹ Ruppert explains:

Externalization of agriculture's pollution costs leads not only to distributional concerns, but also to efficiency concerns. Conventional economic analysis makes farming practices that externalize costs to the environment look more efficient than those practices that reduce impacts on the environment.

Basically, runoff involves the migration of pollutants—and the imposition of costs on others when one’s actions do not fully internalize the costs of pollutants carried by stormwater from one property to another. “Pollution is the most obvious example of an externality.”⁷⁰ The challenge is to determine: (1) what constitutes a “pollutant”; (2) what culpability we should place on individuals for natural migration of such “pollutants”; (3) what responsibilities should we place on individuals for preventing such migration, or liability once it occurs; and (4) what method of control is appropriate, primarily whether private or public regulatory controls are optimal and appropriate. Thus, a fundamental economic consideration is this allocation of controls and liabilities in light of these four issues. Speaking in relation to private remedies, Ronald Coase aptly describes this formational legal issue, equally applicable to private or public, judicial or legislative, controls:

What has to be decided is whether the gain from preventing the harm is greater than the loss which would be suffered elsewhere as a result of stopping the action which produces the harm. In a world in which there are costs of rearranging the rights established by the legal system, the courts, in cases relating to nuisance, are, in effect, making a decision on the economic problem and determining how resources are to be employed.⁷¹

Discussing the relative benefits of private versus governmental controls, Coase continues: “[C]orrective government action . . . is not necessarily unwise. But there is a real danger that extensive government intervention in the economic system may lead to the protection of those responsible for harmful effects being carried too far.”⁷²

It is argued that “corrective” governmental regulation exists to address market failures⁷³—when people cannot negotiate to

Accounting for externalized costs and inputting them into the analysis allows conservation-type farming methods to compete economically. . . . While the efficiency of cost internalization dictates that agriculture should shoulder its costs to abate its pollution as we have required of other industries and activities, policy regarding agriculture and the environment should, at a minimum, not be structured in a way that promotes environmental harm. . . .

Ruppert, *supra* note 25, at 25–27.

⁷⁰ BUTLER & DRAHOZAL, *supra* note 43, at 122.

⁷¹ Coase, *supra* note 44, at 11.

⁷² *Id.*

⁷³ See, e.g., Stephen E. Draper, *The Unintended Consequences of Tradable Property Rights to Water*, 20 NAT. RESOURCES & ENV’T 49, 51 (2005) (“The externalities that result in the failure of tradable property rights to water are significant. Transaction costs can severely distort the economic efficiency of private water allocation markets.”); see also Coase, *supra* note 44, at 9 (“The government is, in a sense, a super-firm (but of a very special kind) since it is able to influence the use of factors of production by administrative decision.”).

preclude, or compensate for, or incentivize individuals to take precautionary measures to avoid the imposition of harms on others, or create effective and efficient liability and compensation schemes when externalities are imposed.⁷⁴ All of these issues rear their head when runoff is involved.

From an economics perspective, controlling runoff or other externalities that society defines as harmful requires an analysis of whether the market, common law concepts of nuisance or trespass, or governmental regulation is the most effective way to correct externalities:

Economic theory suggests that the correction of non-trivial externalities can be approached in a number of different ways. In general, these can be categorized as defining property rights and allowing bargaining, taxing negative externalities and subsidizing positive externalities, or establishing regulatory controls.⁷⁵

Although Coase recognizes the potential for market failures that require government intervention in controlling externalities, he also provides a valuable caution about government efficiency:

It is clear that the government has powers which might enable it to get some things done at a lower cost than could a private organization (or at any rate one without special governmental powers). But the governmental administrative machine is not itself costless. It can, in fact, on occasion be extremely costly. Furthermore, there is no reason to suppose that the restrictive and zoning regulations, made by a fallible administration subject to political pressures and operating without any competitive check, will necessarily always be those which increase the efficiency with which the economic system operates. Furthermore, such general regulations which must apply to a wide variety of cases will be enforced in some cases in which they are clearly inappropriate. From these considerations it follows that direct governmental regulation will not necessarily give better results than leaving the problem to be solved by the market or the firm.⁷⁶

Coase continues by hedging that regulation may at times contribute to economic efficiency:

But equally there is no reason why, on occasion, such governmental administrative regulation should not lead to an improvement in economic efficiency. This would seem particularly likely when, as is normally the case with the smoke nuisance, a large number of people are involved and in which therefore the costs of handling the problem

⁷⁴ Smith, *supra* note 39, at 462 ("One initial take on the evolution of property rights is to focus on the costs and benefits of defining and enforcing them. Demsetz proposed that property rights are devices to internalize externalities and will develop when the gains of internalization outweigh its costs.").

⁷⁵ BUTLER & DRAHOZAL, *supra* note 43, at 186.

⁷⁶ Coase, *supra* note 44, at 9.

through the market or the firm may be high.⁷⁷

As Coase suggests, when faced with issues like runoff, there is a delicate balance between the efficiency of government versus private regulation for the control of externalities.⁷⁸

Again, economics should play a role in formulating control strategies for runoff. Market difficulties might sometimes justify regulation, but it should not be presumed that resorting to coercive regulation is the optimal solution. “It would be unwise for a society simply to ban all activities with (costly) external effects or to make all those engaging in them pay for the effects.”⁷⁹ We must recognize that negative externalities occur as a result of runoff, but need not immediately jump to an assumption that governmental regulation is necessary for or capable of solving the harms that may be caused from such runoff.

IV. RUNOFF AND TRACEABILITY

When deciding between public, private, or no appropriate means of regulating runoff and other land use controls,⁸⁰ traceability is a primary issue. To assign private or regulatory liabilities, one must be able to “trace” the origin of pollutants that contribute to the degradation of a water body.⁸¹ When traceability is difficult, it is often assumed that markets and common law remedies will fail to control externalities.⁸² Determining the origin of sediment or other pollution that has “run off” from “somewhere” is very difficult.

Markets and the common law work best when foreign sources of pollution are identifiable and traceable—a harmed individual knows who to blame. “Unlike point source pollution, nonpoint source pollution does not emanate from ‘discrete conveyance[s].’”⁸³ In the absence of traceability, two conflicting pri-

⁷⁷ *Id.*

⁷⁸ *Id.*

⁷⁹ DUKEMINIER & KRIER, *supra* note 39, at 52; *see also id.* at 52 n.27 (“The term [externality] can quite understandably, but also quite misleadingly, be taken to suggest that the best response to external costs is always to ban or otherwise control the activities seen to give rise to them.”).

⁸⁰ *See id.* at 745.

⁸¹ Tanya L. Forsheit, *International Emissions Trading: Equity Issues in the Search for Market-Based Solutions to Global Environmental Degradation*, 18 U. PA. J. INT’L ECON. L. 689, 719 (1997) (discussing pollution and the difficulties of tracing the sources of harms); Christina Marie Frankino, Note, *The Ninth Circuit’s Decision in Oregon Natural Desert Association v. Dombeck: “Discharging” Responsibility for Water Pollution on Federal Lands*, 10 VILL. ENVTL. L.J. 431, 484 n.95 (1999) (discussing traceability problems from cattle grazing).

⁸² *See* BUTLER & DRAHOZAL, *supra* note 43, at 25–26 (discussing how the Coase Theorem describes a market remedy when externalities can be identified).

⁸³ Tobin, *supra* note 27, at 811.

many choices remain for legal controls and regulators: (1) identify the problem as a market failure and create a system to regulate all potential sources or contributors; or (2) recognize the inabilities to trace such pollutants, and retreat to a point where legal controls are inappropriate, unjust, or inefficient because general controls may ensnare individuals without culpability in the costs of a generally applicable regulatory system. The debate involves command and control mechanisms versus market based mechanisms for controlling pollution.

If we know that a polluted water body has been contaminated from multiple sources, runoff and otherwise, allocating liabilities is complicated by these traceability problems. Once a polluted water body is identified, the ability to pin-point who or what contributed to the degraded nature of the water body is “exceedingly difficult,” as one author explains:

[T]here are still some feasibility problems that hinder the process [of nonpoint source pollution controls]. For example, identifying nonpoint sources is exceedingly difficult. The source of pollutants carried by water runoff is often nearly impossible to determine even with the help of the best scientists.⁸⁴

This identification problem makes allocation of liability—private or public—also exceedingly complex, including when the government sets up programs or standards to attempt to do so.⁸⁵ Such feasibility problems raise both problems of possible under-regulation, or, more likely, over-regulation to compensate for the lack of information once the government has decided such pollution is a problem worthy of combating. Once a “better safe than sorry” approach emerges as a regulatory ethic, undoubtedly minor or non-contributors to pollution will become ensnared in costly regulation. With that reality, the issue of regulatory error is particularly acute in areas like runoff where contributions and traceability are difficult to identify or measure.

A primary difficulty with runoff regulation, therefore, is that multiple sources mix together, making a targeted liability analysis difficult. Not only do different nonpoint sources blend together, but all of those sources also mix together in a water body with pollutants from point sources, making traceability and allocation a very difficult regulatory task, at least if one is attempting to efficiently and fairly impose controls.

Even the most ardent free market environmentalists admit

⁸⁴ Johnson, *supra* note 2, at 370 (emphasis added).

⁸⁵ *Id.* at 369–70 (explaining that “[i]n *Meiburg*, the Eleventh Circuit seemingly incorporated what has been the argument against nonpoint source TMDLs for many years: nonpoint source TMDLs are expensive and difficult to measure,” but critiquing the argument that nonpoint source pollution sources cannot be identified and measured).

that market-based controls for water pollution are difficult because of the problems with contributory identification and traceability:

In terms of applying a market solution to environmental problems, few areas are more troublesome than water pollution. Because polluters are often difficult to identify and because rights to clean water are not vested in individuals or clearly specified organizations, the costs of garbage disposal into streams, lakes, or oceans can be easily passed on to others. Under these circumstances, a free market solution to water pollution seems elusive.⁸⁶

The difficulties of tracing responsible parties—or at least their level of responsibility—might justify using governmental regulation. Yet, one must ask whether the government itself can any more efficiently allocate liabilities than the market can when these traceability problems exist.⁸⁷ Perhaps, the best the government can do is engage in anticipatory or estimated liability for runoff pollution and create a regulatory system, although such a speculative enterprise (speculative precisely because for many contributions no one can know from where or whence they come) undoubtedly leads to over-regulation if that is the adopted regulatory philosophy.

With the diffuse nature of runoff, it becomes a policy choice in deciding whether the market or traditional doctrines of nuisance and trespass can handle these problems, or whether controlling actual or potential runoff contributions justify governmental intervention because of these traceability problems. All of this requires, of course, a reasoned judgment on what “sources” constitute “problems” and a decision on whether government regulators have the capacity, capability, or comprehension to make such determinations. Without confidence in traceability, there cannot be confidence in causation and liability, including allocation between potential contributors.

Three major economic problems arising from traceability problems affect the control of runoff: (1) collective action problems; (2) free rider problems; and (3) information costs.

One must be cognizant of collective action problems whenever deciding whether private individuals are capable of forming private solutions to pollution control.⁸⁸ Especially with problems

⁸⁶ ANDERSON & LEAL, *supra* note 50, at 138–39.

⁸⁷ See Terry L. Anderson, *Markets and the Environment: Friends or Foes?*, 55 CASE W. RES. L. REV. 81, 83 (2004) (challenging a presumption of government regulation as the solution to externality problems).

⁸⁸ See, e.g., Demsetz, *supra* note 39, at 357 (“[T]he cost of their getting together may be enough to discourage effective market bargaining. The negotiating problem is compounded even more if the [pollution] comes not from a single smoke stack but from an in-

like runoff, these traceability concerns create an assumption that problems are sufficiently dispersed that no single, harmed, rational economic individual will have a sufficient incentive to access market or judicial control options to prevent runoff or seek damages. Additionally, no individual will have an incentive to go it alone, or be the first to blame another for harm because everyone else effected can free-ride off of their efforts. "Many individuals may be affected by the pollution, but each suffers only a small amount of damage."⁸⁹ The transaction costs to combat such pollution simply may be too high to justify private enforcement or negotiation options.⁹⁰ Whether it is an entire community's detriment or a discrete individual's, this traceability problem outprices some from using market or other private-based remedies. This statement does not necessarily advocate coercive regulation but must, at the very least, be recognized as a legitimate concern and cause for discussion about solutions.⁹¹ In the process of evaluation, the capacity of government regulation to fill the void, which inherently involves the inefficiencies of government and the control of influential groups—from industry and environmental interests—should be a factor.⁹²

Multiple contributors, difficulty in identifying sources, and difficulty in allocating responsibility for runoff pollution illustrate the complexities in creating market or judicial land use control solutions. Persons affected or societal effects in general can

dustrial district. In such cases, it may be too costly to internalize effects through the marketplace.").

⁸⁹ ANDERSON & LEAL, *supra* note 50, at 139.

⁹⁰ For a discussion of the difficulties regarding information costs, see BUTLER & DRAHOZAL, *supra* note 43, at 120–21.

⁹¹ Anderson and Leal concede that the unique nature of water pollution and identification and traceability issues "may" justify regulation, but such regulation must be approached cautiously:

[I]f the polluter is easily identifiable or if the damage is concentrated on a single individual or a small group, then there is an incentive to arrive at an optimal level of pollution. When these conditions are lacking, a regulatory solution may be called upon. Then the problem becomes one of choosing an optimal level of pollution in the political arena.

ANDERSON & LEAL, *supra* note 50, at 140.

⁹² Anderson and Leal explain the collective action problem, along with the potential pitfalls of a governmental regulatory solution:

Because the costs of bringing together those who use a marine environment are often high enough to prevent joint action against polluters, a case can be made for some regulatory authority . . . to control the level of pollution. Of course, one of the problems with government control is that special interests that engage in waste disposal are just as likely—or perhaps even more likely, if they are well organized—to influence the agency as are those who suffer damages. The capture of regulatory policies by polluters is not surprising when we realize that the costs of control are concentrated on the polluter but the benefits are diffused across the population.

Id. at 139–40.

be recognized; however, substantial costs must be expended to trace sources, leading to the lack of incentives to control runoff in the marketplace. The diffuse nature of the pollution creates these collective action problems and often discourages private enforcement against harms.

As Terry Anderson and Donald Leal explain:

[W]hen marine pollution emanates from multiple sources, separating out pollutants and tracing them to their sources can be very costly. When irrigation water carrying fertilizer and pesticides is sent downstream by a river that feeds into an estuary, for example, the problem of identifying the source becomes very costly. The damages may be obvious, but liability for them will be much less apparent.⁹³

Policymakers should take into account these market difficulties, but also recognize that they are not a sole justification for regulation.

V. REGULATORY EFFICIENCY IN LIGHT OF EXTERNALITY AND TRACEABILITY PROBLEMS

Runoff, stormwater, and other sources of nonpoint source pollution have been a major focus in the contemporary development of water quality regulation. As the EPA has proclaimed, “[n]onpoint source pollution continues to be, and is increasingly recognized by the public as, the largest remaining source of water quality impairments in the nation.”⁹⁴ This EPA conclusion is debatable, but so long as regulatory controls move forward based on this assumption, they should certainly be tempered by economic realities, not only as to impacts, but also as to regulatory capabilities and capacities when faced with such complexities.

As Henry Butler and Christopher Drahozal note, “[t]he existence of externalities is not, by itself, justification for government intervention to correct the externality.”⁹⁵ Alternatives must be considered, with full acknowledgement that market failures may indeed require governmental intervention through regulation if a runoff problem can be proved.⁹⁶ Placing responsibilities on property owners is often argued to be justified because they may be the least cost avoider.⁹⁷

⁹³ *Id.* at 140.

⁹⁴ EPA, *Nonpoint Source Program and Grants Guidelines for States and Territories*, 68 Fed. Reg. 60,653, 60,653 (Oct. 23, 2003).

⁹⁵ BUTLER & DRAHOZAL, *supra* note 43, at 186. *See also* Richard B. Stewart, *Controlling Environmental Risks Through Economic Incentives*, 13 COLUM. J. ENVTL. L. 153, 154 (1988) (arguing that long term pollution controls cannot be dependant on command and control systems of governmental regulation).

⁹⁶ BUTLER & DRAHOZAL, *supra* note 43, at 121–22, 186.

⁹⁷ EPSTEIN, *supra* note 1, at 279 (“The legal system thus assumes that generally the polluter has the greater ease of adjustment and control and sets its initial baseline in fa-

One alternative to regulation is the purely transactional and free market approach. This avenue again has problems due to externality and traceability problems, including related collective action, free-rider, and informational cost obstacles. As Anderson and Leal explain, pollution control from a market approach requires the ability to mechanize the property rights system to control pollution when there are efficiencies involved in the identification of liabilities:

A truly free market approach to pollution control would require polluters and recipients of the discharge to bargain over the level of the pollution. . . . Of course, an exchange of property rights or payments for damages both require well-defined and enforced property rights.⁹⁸

Nonetheless, we should not adopt an assumption that regulation is the only or necessarily preferable solution to these difficulties—even in light of the economic realities and obstacles identified in this article. Anderson and Leal continue that property rights and their clear identification might solve some of these problems:

It is useful to reiterate the importance of the evolution of property rights and the common law. As clean water and air become more valuable, entrepreneurs have a greater incentive to define and enforce rights to the resources. If we continue to subsidize the use of these resources and to subsidize the costs of disposal, however, entrepreneurs will not be getting the right signals. . . .

There is no guarantee that property rights will evolve, but we should not stand in the way of environmental entrepreneurs who try to develop them.⁹⁹

When there is a presumption in favor of regulation, society may foreclose more entrepreneurial and innovative marketplace solutions to issues such as runoff.

VI. CONCLUSION

As previously noted, the purpose of this article is not to propose solutions to runoff problems, but to identify some of the appropriate metrics that should play a part in formulating legal rules for runoff controls. We cannot escape the reality that controlling runoff, if desired or necessary for water quality, may require regulation. But, in formulating rules, we must determine whether it is reasonable to expect that we can overcome practical obstacles.

When it comes to perceived or identified environmental ex-

vor of the right of all people to be let alone.”).

⁹⁸ ANDERSON & LEAL, *supra* note 50, at 147.

⁹⁹ *Id.* at 150.

ternalities, there is often a presumption in favor of regulation. There is a presumption of market failure. When we know that externalities may be imposed, concomitantly that costs may not be internalized, there is a reflexive tendency to move toward governmental intervention. However, regulators should not presume that command and control solutions—even in light of such difficulties—will be more effective or more efficient.¹⁰⁰ “The mere fact that pollution causes physical harm does not mean that it necessarily constitutes some legal wrong,”¹⁰¹ and the mere existence of regulatory options to attempt to control potential pollution does not necessarily mean that it should be exercised.

Economic realities can justify coercive regulation *or* non-regulation. The primary purpose of this article is to stress that, when making that choice, economic realities cannot be ignored—in either direction. Property rights and the imposition of governmental regulations exist to advance and reflect human values¹⁰² and societal priorities—true enough. However, the complexities involved in determining legal rules cannot lose sight of the economic consequences and capacities of the legal system to deal with these problems.

¹⁰⁰ Dukeminier and Krier provide a good summary for this article’s thesis and purpose—that economic difficulties for controlling runoff may be difficult, but such difficulties do not create a presumption for government regulation:

Don’t assume that government regulation is a magic solution to resource mismanagement. The government can fail just as the market can, particularly when the costs of regulation would fall on small, intensely interested groups, and the benefits would flow to the public at large and to future generations.

DUKEMINIER & KRIER, *supra* note 39, at 55 n.31.

¹⁰¹ EPSTEIN, *supra* note 1, at 277.

¹⁰² See *State v. Shack*, 277 A.2d. 369, 372 (N.J. 1971).

The Tide is Nigh: Rethinking Urban Flood Management

*Francesca Ortiz**

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Urban flooding is a natural disaster common to all states.¹ Flooding in coastal cities is a particular problem because of the increasing populations and extreme storm activity that can occur in those areas. Two coastal cities in particular—New Orleans,

* Professor of Law, South Texas College of Law; J.D. 1989, Harvard Law School. The author wishes to thank the Chapman Law Review editors for their generous support and assistance in the creation of this article.

¹ A 1998 study showed that the ten states with the greatest amount of federal insurance payouts for repeated property losses due to flooding during the period between 1978 and 1995 were spread across the United States. Those states were: Louisiana, Texas, Missouri, New Jersey, Mississippi, Illinois, California, New York, Oklahoma, and Pennsylvania. NATIONAL WILDLIFE FEDERATION, HIGHER GROUND: A REPORT ON VOLUNTARY PROPERTY BUYOUTS IN THE NATION'S FLOODPLAINS 78 (1998) [hereinafter HIGHER GROUND].

Louisiana and Houston, Texas—rank high on the list of cities that have frequent flooding.² Indeed, during the last five years, both cities suffered their greatest floods to date.³ In 2001, the City of Houston weathered a five-day storm that flooded the downtown area which caused over five billion dollars in damage and took the lives of twenty-two people in Harris County alone.⁴ The damage to New Orleans from Hurricane Katrina in 2005 was even worse.⁵ Breaches in the protective levees surrounding the city resulted in flooding of nearly eighty percent of the city, with the loss of over 1,300 lives and damages estimated at over seventy-five billion dollars.⁶

Gulf Coast flooding is not the only problem. Flooding on the east and west coasts is very common. Northern California and Nevada rang in 2006 with severe flooding caused by five days of rainfall, resulting in mudslides, flooding, evacuations, and power outages.⁷ In 2005, New Jersey, New York and Pennsylvania suf-

² Cf. *id.* at 145 (noting that New Orleans and Houston are the two cities with the greatest repeated flooding losses from 1978 to 1995).

³ Flood Safety, June 6, 2001 Tropical Storm Allison, <http://floodsafety.com/texas/documentaries/j2001/> (last visited Feb. 27, 2006).

⁴ For five days in June 2001, Houston and other parts of Harris County suffered the effects of one of the most severe storms in United States history. Although never reaching hurricane force, Tropical Storm Allison hit Harris County twice, raining in some areas up to ten inches in her first pass and flooding more than eight hundred homes. On her return, Allison poured another twenty-eight inches on the already saturated ground, resulting in flooding to thousands of homes, the downtown area, and the Medical Center. Harris County was declared a disaster area by both Governor Perry and President Bush, as thousands of people were rescued from their homes and stranded cars. Tropical Storm Allison Recovery Project, TSA Overview: What Was Tropical Storm Allison?, http://www.tsarp.org/tsa_over/index.html (last visited Feb. 27, 2006). Twenty-two people in the Harris County area and nineteen others along Allison's storm path lost their lives in the storm. The storm caused over five billion dollars in damages to Harris County alone. Allan Turner, *Houston Meteorologist Helps Residents Keep Safe, Calm During Bad Weather*, HOUSTON CHRONICLE, May 18, 2003.

⁵ Hurricane Katrina was the capstone hurricane of a record-breaking season. The 2005 hurricane season was not only the busiest one on record with twenty-six named storms, but it also broke records for the most hurricanes in a season, the greatest number of major hurricanes (including three reaching category five status), and the most hurricanes making landfall. Robert Roy Britt, *Record Hurricane Season Goes Out with a Bang*, LIVESCIENCE, Nov. 25, 2005, http://www.livescience.com/forcesofnature/051129_hurricane_wrap.html. During the six month season in 2005, there were thirteen hurricanes, seven of which were category three or higher, and four of which made landfall. This was also the first season that the Hurricane Center ran out of names on its regular list and switched to the Greek alphabet for naming storms. *Id.*

⁶ See Matthew L. Wald, *Engineers Say a Key Levee Won't be Set For Months*, N.Y. TIMES, SEPT. 14, 2005, at A22; Elliott C. McLaughlin, No More Hurricane Katrinas, CNN.COM, Apr. 7, 2006, <http://www.cnn.com/2006/WEATHER/04/06/hurricane.names/index.html>; see also Janet McConnaughey, *Hurricane Katrina: Storm Toll Misses Some Deaths*, MIAMI HERALD, Dec. 12, 2005, at A10 (stating that the many deaths that occurred due to evacuation from New Orleans have not been counted in the death toll). Hurricane Katrina, which hit Florida and the central Gulf Coast in August, ranks as one of the costliest and most destructive hurricane in U.S. history. McLaughlin, *supra* note 6.

⁷ Wendy Schultz, *Storms Rock California, Leave Mark on County*, MOUNTAIN DEMOCRAT (Placerville, Ca.), Jan. 4, 2006, at A-1; Justin M. Norton, *Storm Brings Flood-*

ferred flooding that required evacuation of thousands of people and caused significant property damage.⁸ Similarly, Florida was hit with two major hurricanes during 2005—Wilma and Dennis—that resulted in billions of dollars in damages and over forty dead.⁹

The damage to coastal cities from flooding is far greater than in the past because of increased development along the coastline.¹⁰ Although 2005's hurricane season seemed abnormal, it only seemed so because of a natural lull in storm activity over the last thirty-five years.¹¹ However, it has been speculated that the increased severity in storm patterns will continue as part of the normal storm cycle for perhaps at least another decade,¹² resulting in far more destruction and flooding as more people move to coastal cities and towns. Indeed, data suggests that by 2010, half of the United States population will live in coastal areas.¹³

This year alone, insurance and reinsurance losses for just three of the major hurricanes this year (Katrina, Rita, and Wilma) were estimated at \$57.6 billion dollars, an amount more

ing and Mud Slides to California and Blizzard to Rockies, PLAIN DEALER (Cleveland, Oh.), Jan. 2, 2006, at A1. The problems created by the rains resulted in the governors of both California and Nevada calling states of emergency for many of the affected counties. KRON 4, *Nevada Governor Declares Flooding Emergencies; List Grows in California*, <http://www.kron4.com/Global/story.asp?S=4314188&nav=5D7I> (last visited Feb. 15, 2006).

⁸ See Associated Press, *East Coast Flooding Spurs Evacuations*, ST. PETERSBURG TIMES, Apr. 5, 2005, at 2A.

⁹ John Pain, *Frenetic Hurricane Season Ends: Many Records Shattered in '05, and Next Year Might be Bad, Too*, JOURNAL-GAZETTE (Fort Wayne, In.), Nov. 30, 2005, at A10 (noting that Hurricane Dennis caused insured damage of \$1.1 billion and fourteen deaths, and Hurricane Wilma caused \$6.1 billion in insured damage and thirty-five deaths).

¹⁰ As stated, flooding is a nationwide problem and the Midwest has suffered as greatly as coastal areas. For example, the Midwest was troubled with flooding along the Mississippi in 1993 when floodwaters covered more than fifteen million acres of land in nine states and required the evacuation of 54,000 people. Damages from the flood were estimated at fifteen to twenty billion dollars. See Scott Siff & David Mears, *The Mississippi River Basin: A National Treasure, A National Challenge*, 12 TUL. ENVTL. L.J. 293, 297 (1999).

¹¹ John-Thor Dahlburg, *This Storm Cycle Just Getting Warmed Up*, LOS ANGELES TIMES, Dec. 1, 2005, at A18 ("An examination of the last 125 years of hurricane activity along the East and Gulf coasts of the United States shows that tropical cyclone frequency ebbs and flows in 20- to 30- year cycles connected to rising and falling water temperatures in the western Atlantic.").

¹² See Ann O'Neill, *It's a 'New Era' of Hurricanes*, Sept. 23, 2005, <http://www.cnn.com/2005/TECH/science/09/23/hurricane.cycle/index.html>. Heightened activity may also be due to global warming and warmer seas. See Britt, *supra* note 5.

¹³ See EPA, Nonpoint Source Control Branch, EPA 841-F-96-004G, MANAGING URBAN RUNOFF, available at <http://www.epa.gov/owow/nps/facts/point7.htm> (last visited Feb. 20, 2006) [hereinafter EPA, MANAGING URBAN RUNOFF]; see also Martin M. Randall, *Coastal Development Run Amuck: A Policy of Retreat May Be the Only Hope*, 18 J. ENVTL. L. & LITIG. 145, 145 (2003) ("At the end of the twentieth century, more than fifty-three percent of the U.S. population lived in coastal areas comprising only seventeen percent of the nation's land. . . . The population of coastal areas increases by more than 3,600 people each day, and every year more than 800,000 new housing units are constructed.") (footnotes omitted).

than double the annual total for other natural disasters in the United States and one and a half times more than the 2001 terrorist attacks.¹⁴ Depending on the success of flood damage claims and hurricane-related pollution lawsuits, that estimate may be even higher.¹⁵ In light of the tremendous losses suffered this year alone, insurers are seeking alternatives for insuring catastrophes because of ineffective insurance and federal emergency aid.¹⁶ One proposal is a national catastrophe insurance program,¹⁷ an idea that the Florida legislature strongly supports.¹⁸

Insurance solutions alone, however, are not the answer. In fact, many claim that the National Flood Insurance Program (NFIP) is at least partly responsible for increased flood losses because it has, despite its intent, encouraged greater development in floodplains.¹⁹ To decrease losses, greater measures must be taken to strengthen protection against damage losses. Considering the influx of population to coastal communities, and the concomitant growth in development, it is time to review and revise programs related to flood management and control, to prevent the creation of further problems and become more active in controlling floodplain activity. In particular, care must be taken to guide development in order to prevent the increase of flood risks. In this article, I suggest that this development must follow wiser models of development, incorporating techniques that allow for more effective means of flood management. To do so requires

¹⁴ Reuters, *Hurricane Insurance Losses \$57.6 Bln: Advisen*, (Dec. 27, 2005), <http://today.reuters.com/business/newsArticle.aspx?type=bankingfinancial&storyID=nN27325901>. (noting that Advisen projects pre-tax insured losses to be \$40.4 billion for Hurricane Katrina, \$6.4 billion for Hurricane Rita, and \$10.8 billion for Hurricane Wilma). Flood losses generally reach only six billion dollars annually. See *infra* text accompanying note 38.

¹⁵ Reuters, *supra* note 14.

¹⁶ Eileen Alt Powell, *Nation Grapples with Insuring Huge Catastrophes*, CHARLESTON GAZETTE, Nov. 18, 2005, at 2D.

¹⁷ Insurance commissioners from Florida, California, Illinois and New York held a summit in November 2005 to devise a national catastrophe insurance plan. Ernie Csiszar, president and chief executive of the Property Casualty Insurers Association of America trade group has suggested insurance industry alternatives should issue catastrophe bonds or possibly create private catastrophe pools in preparation for a large disaster, but such alternatives would be difficult because they would require a change in tax and accounting rules. At a government level, he suggests state catastrophe funds backed with a federal fund. Press Release, California Department of Insurance, Insurance Regulators to Launch San Francisco Summit Aimed at Developing a National Catastrophe Insurance Program (Nov. 14, 2005), available at <http://www.insurance.ca.gov/0400-news/0100-press-releases/0080-2005/release-104-05.cfm>; see Powell, *supra* note 16, at 2D.

¹⁸ In December 2005, the Florida Legislature issued a House Memorial to President Bush and the United States Congress urging the creation of a plan for national catastrophe insurance. See H.R. OF FLA., A MEMORIAL TO THE CONGRESS OF THE UNITED STATES URGING CONGRESS TO SUPPORT A NATIONAL CATASTROPHE INSURANCE PROGRAM, H.M. 541-00, at 2 (2006).

¹⁹ H. STERLING BURNETT, NAT'L CTR. FOR POL'Y ANALYSIS, PROTECTING THE ENVIRONMENT THROUGH THE OWNERSHIP SOCIETY—PART ONE 13 (Jan. 2006), available at <http://www.ncpa.org/pub/st/st282/st282.pdf>.

close coordination between the jurisdictional bodies that regulate development and the entities empowered with oversight over and authority for funding flood control projects.

Part I of this article begins by discussing the impacts of urbanization and the need for stormwater and flood management. It explains that development has led to the increase in impervious cover, which increases the volume of water that can create flood conditions and decreases water quality because of the contaminants that urban runoff carries. Part II then turns to an analysis of the NFIP, which is the basis for our current flood management policy. It discusses the evolution of the program from its inception, and the legislative changes that have been required as failures in the system have developed. Part II also discusses how the insurance program served as the catalyst for the creation of local flood management policies and how the program has failed to fully realize its potential. Part III suggests that greater local efforts are required to create a more effective flood management system. The article concludes with recommendations for improvement, such as taking a more active role in risk assessment, implementing and maintaining appropriate flood technology that is more ecologically friendly, becoming more aggressive in acquiring repetitive loss properties in flood-prone areas, and establishing wiser patterns of development through the enactment of more stringent floodplain ordinances, the use of Smart Growth initiatives, and the encouragement of low impact development.

I. URBANIZATION AND FLOOD MANAGEMENT

Increased urbanization has led to greater amounts of urban runoff,²⁰ and the loss of floodplains to development has increased the flood losses that can occur as flood waters continue to take their normal course, flooding whatever is in the way. Destruction of floodplains not only reduces filtering abilities, but also diminishes other values of the floodplain as well. As one report put it:

Serving their natural functions, floodplains are vast absorptive reservoirs of floodwaters; they are the Earth's primary filter and dissolver of waterborne contaminants; their coastal marshes and riverine wet-

²⁰ Urban runoff is the mixture of rainwater or snowmelt and the contaminants it picks up as it crosses impervious surfaces in urban areas. See EPA, OFFICE OF RESEARCH AND DEVELOPMENT, EPA-625-R-93-004, HANDBOOK: URBAN RUNOFF POLLUTION PREVENTION AND CONTROL PLANNING 2 (1993), available at <http://www.epa.gov/ORD/NRMRL/pubs/625r93004/625r93004.pdf> [hereinafter EPA, URBAN RUNOFF POLLUTION]; Avi Brisman, *Considerations in Establishing a Stormwater Utility*, 26 S. ILL. U. L.J. 505, 505-06 (2002); Joel B. Eisen, *Toward a Sustainable Urbanism: Lessons from Federal Regulation of Urban Stormwater Runoff*, 48 WASH. U. J. URB. & CONTEMP. L. 1, 12 (1995).

lands provide the creative essentials for countless forms of life; and left to themselves, floodplains and the life they generate offer enjoyment and recreation.²¹

The damage that can result from both urban runoff and floodplain loss is great.

A. Urban Runoff

As more land is reduced to impervious cover,²² the drainage benefits that occur naturally from land are lessened. Rather than percolating into the ground, water is channeled away from its normal course along paved roads, parking lots, roofs and storm sewers, picking up contaminants along the way. These contaminants eventually result in lower water quality as runoff reaches the various receiving water bodies.²³

The problems of urban runoff are several. First, impervious cover and the use of sewer systems increase the volume of water and pollutants because the water fails to evaporate or absorb into the soil before reaching a receiving body.²⁴ Therefore, the volume and velocity of water and the pollutants channeled into water bodies are greater, resulting in an increased risk of stream bank erosion, vegetation damage and stream channel alteration.²⁵ This, in turn, leads to changes in the normal water level between and during storm events, greater sediment content in the water body, and higher water temperatures, all of which can impact fish and other aquatic life.²⁶

Second, the pollution that results from urban runoff is more severe than pollution resulting from non-urban runoff because

²¹ HIGHER GROUND, *supra* note 1, at 11.

²² The amount of impervious cover in a given area depends on its use. Commercial areas may be up to 90% impervious cover. See Marc A. Yaggi, *Impervious Surfaces in the New York City Watershed*, 12 FORDHAM ENVTL. L.J. 489, 499–500 (2001) (noting that coverage in residential areas may range from 25% to 60%, industrial areas may range from 60% to 70%, and commercial areas may range from 80% to 90% (citing GEODIGITAL MAPPING, INC., SIGNIFICANT SOURCES OF URBAN STORM WATER RUNOFF IN UNINCORPORATED AREAS OF THE SOUTH COAST OF SANTA BARBARA COUNTY IDENTIFIED FROM LANDSAT IMAGERY: REPORT TO THE SANTA BARBARA COUNTY WATER AGENCY 2 (2000))).

²³ See *id.* at 496 n.43.

²⁴ See Brisman, *supra* note 20, at 509–11.

²⁵ See *id.* at 509 (noting the direct correlation between the volume and velocity of runoff and the amount of impervious cover in a given area). See also *id.* at 509 n.20 (“On a 1-acre natural meadow, a 1-inch rainstorm normally produces 218 cubic feet of runoff. The same 1-inch storm on a 1-acre paved parking lot would produce 3,450 cubic feet of runoff approximately sixteen times more than the natural meadow.”) (citing PETER H. LEHNER ET AL., STORMWATER STRATEGIES: COMMUNITY RESPONSES TO RUNOFF POLLUTION 30 (1999)); Yaggi, *supra* note 22, at 499 (stating that after development, runoff in residential areas can be up to ten times higher than pre-development conditions and up to eighteen times higher in commercial areas).

²⁶ EPA, MANAGING URBAN RUNOFF, *supra* note 13.

the pollutants found in urbanized areas are more diverse and numerous than those found in undeveloped areas.²⁷ Construction sites, landfills, septic systems, storage tanks, pesticides, herbicides, and petroleum spills all contribute to the contamination of ground and surface water.²⁸ In many older sewer systems, stormwater may reach the receiving water untreated, increasing the potential for pollution.²⁹ Urban runoff, contaminated as it often is, can have significant impacts on water quality, threatening aquatic life and habitat, human drinking water and food supplies.³⁰

B. Flooding

Flooding in urban areas exacerbates the environmental and health risks associated with urban runoff. Unlike during a normal rain event, heavy storm precipitation or storm surge is land-bound for a longer period because of the greater amounts of water at issue, creating water hazards and health risks.³¹ Flooding also creates the risk of contamination of drinking water supplies³² and the development of mold contamination in flooded structures.³³ Indeed, according to the Centers for Disease Control and Prevention, massive mold contamination is an expected result from both Hurricanes Katrina and Rita because many structures remained flooded for weeks after the hurricanes.³⁴ Further, flash floods can cause extreme damage, physical injury

²⁷ Contaminants often found in urban runoff include sediments, nutrients, pathogens, organic enrichment pollutants (e.g., biochemical oxygen demand and dissolved oxygen), trace amounts of toxic metals, organics, salts, and even airborne pollutants from automobile and industrial emissions. EPA, URBAN RUNOFF POLLUTION, *supra* note 20, at 5, tbl.1-2; Eisen, *supra* note 20, at 14–15; Brisman, *supra* note 20, at 505–06.

²⁸ See EPA, URBAN RUNOFF POLLUTION, *supra* note 20, at 5, tbl.1-2; Brisman, *supra* note 20, at 510–11.

²⁹ EPA, MANAGING URBAN RUNOFF, *supra* note 13.

³⁰ EPA, URBAN RUNOFF POLLUTION, *supra* note 20, at 5, tbl.1-2; Brisman, *supra* note 20, at 505–06, 512–14; Eisen, *supra* note 20, at 18–19; Yaggi, *supra* note 22, at 497–98.

³¹ See, e.g., World Health Organization, *Flooding and Communicable Diseases Fact Sheet*, http://www.who.int/hac/techguidance/ems/flood_cds/en/ (last visited Feb. 20, 2006) [hereinafter World Health Organization] (noting that health risks may include water-borne diseases, vector-borne diseases, drowning, as well as risks posed by corpses). But see U.S. Department of Health & Human Services, Centers for Disease Control and Prevention, *After a Hurricane: Key Facts About Infectious Disease*, <http://www.bt.cdc.gov/disasters/hurricanes/keyfactsinfectiousdisease.asp> (last visited Feb. 20, 2006) (noting that widespread outbreak of infectious disease is uncommon in the United States after hurricanes).

³² See World Health Organization, *supra* note 31.

³³ See CENTERS FOR DISEASE CONTROL AND PREVENTION, THE CDC MOLD WORK GROUP, MOLD: PREVENTION STRATEGIES AND POSSIBLE HEALTH EFFECTS IN THE AFTERMATH OF HURRICANES KATRINA AND RITA iv, 1-2 (Oct. 2005), available at <http://www.bt.cdc.gov/disasters/mold/report/>.

³⁴ *Id.* at iv (noting that “as many as 60% to 80% of residential structures in New Orleans sustained severe flood damage”).

and loss of life.³⁵ Flash floods result when an area is subject to severe or multiple thunderstorms. Because the ground becomes saturated quickly, rainwater flows rapidly toward receiving water bodies, creating water hazards along the way. Most flood-related deaths are due to flash floods, mainly because people underestimate the water's power.³⁶

As seen frequently in the news, the aftermath of flooding can be devastating. Losses in human life, property damage, and disruption to the lives and livelihood of those affected are only part of the story. One must also factor in other losses as well—loss of livestock, wildlife and habitat, the funds spent on disaster relief, the impact on insurance costs, as well as the psychological impact on flood and evacuation victims. Analyses show that flood losses have been steadily increasing, with last year's losses topping the charts.³⁷ Before that, however, flood losses had been estimated at approximately six billion dollars annually, a three-fold increase from flood losses in the early part of the twentieth century.³⁸

Increased urbanization plays a large role in these larger losses because of the greater numbers of people who can suffer flood losses and because of the deleterious effects caused by the development needed to house the increased population. However, other factors play a role as well. Changes in climatic conditions have had a greater impact on flooding losses as the hurricane season has become more active.³⁹ Misplaced reliance on flood technology unsuitable for urban needs and continued development in at-risk, flood-prone areas also have increased losses.⁴⁰ Even the federal government has played a role by creating an "entitlement mentality" with disaster aid and by subsidizing reconstruction through the NFIP, thereby enabling repeated flood

³⁵ Flash floods are the second greatest cause of hazard-related deaths, with the first being heat-related injuries. See National Weather Service, Southern Region Headquarters, *Turn Around Don't Drown*, <http://www.srh.noaa.gov/srh/tadd/> (last visited Feb. 20, 2006).

³⁶ National Weather Service, *supra* note 35.

³⁷ National Weather Service Hydrologic Information Center, *Flood Losses: Compilation of Flood Loss Statistics*, http://www.nws.noaa.gov/oh/hic/flood_stats/Flood_loss_time_series.shtml (last visited Feb. 20, 2006); Insurance Journal, *2005 Hurricane Losses to Top \$57 Billion, Advisen Reports*, Dec. 27, 2005, <http://www.insurancejournal.com/news/national/2005/12/27/63514.htm> (noting that 2005 hurricanes constituted the largest "cumulative catastrophe losses . . . on record").

³⁸ Larry Larson & Doug Plasencia, *No Adverse Impact: A New Direction in Floodplain Management Policy*, NATURAL HAZARDS REVIEW, Nov. 2001, at 168 (estimating annual flooding losses during the early 1900's at \$2.2 billion).

³⁹ See Dahlburg, *supra* note 11, at A18; O'Neill, *supra* note 12; see also Larson & Plasencia, *supra* note 38, at 168 ("It has been suggested that we are having more frequent and more severe flooding due to climatic variation.").

⁴⁰ See Larson & Plasencia, *supra* note 38, at 168.

losses.⁴¹ Each of these factors calls for changes in our current flood management programs.

II. NATIONAL FLOOD INSURANCE PROGRAM

Prior to the late 1960's, the U.S. Army Corps of Engineers managed most flood control projects.⁴² As these flood-control works were out-paced by floodplain development, Congress sought other solutions, eventually settling on the NFIP.⁴³ Because of failures in the system, however, the NFIP has arguably served as a subsidy to high-risk growth in the floodplain, creating the need for more stringent floodplain management. To fully appreciate how local governments can improve flood management, it is important to understand how the federal program operates because it was this program that served as the catalyst for local floodplain management.

A. Enactment of the NFIP

The NFIP was established under the Federal Emergency Management Agency (FEMA) in 1968⁴⁴ to respond to the increasing damages caused by floods. The program's goal is not only compensation, but also prevention by only allowing participation in the program by those communities willing to enact floodplain management ordinances that minimize the risk of floods created by new construction.⁴⁵ Effectively, Congress sought to insure those who were most at risk of flooding, but only if incentives were created to discourage others from adding to the problem.

⁴¹ See HIGHER GROUND, *supra* note 1, at 6 ("The availability of federally sponsored flood insurance and the expectation of an entitlement to government relief if disaster occurs encourages floodplain development and repeated rebuilding in high-risk areas each time catastrophe strikes."); Larson & Plasencia, *supra* note 38, at 170–71 (arguing that federal aid leads local governments to believe that flood management is a federal issue).

⁴² For an excellent discussion of the federal approach to flood management prior to the NFIP and the events leading up to adoption of the program, see Oliver A. Houck, *Rising Water: The National Flood Insurance Program and Louisiana*, 60 TUL. L. REV. 61, 64–72 (1985).

⁴³ 42 U.S.C.A §§ 4001–4129 (2003). The National Flood Insurance Program is administered by the Federal Insurance Administration, which is a part of FEMA. FEMA, MANDATORY PURCHASE OF FLOOD INSURANCE GUIDELINES-LEGAL REFERENCES 1-1 (Sept. 1999), <http://www.fema.gov/pdf/nfip/mpapp1.pdf> [hereinafter FEMA-LEGAL REFERENCES]. Prior to March 2003, FEMA was an independent agency. However, enactment of the Homeland Security Act of 2002 transferred FEMA to the Emergency Preparedness and Response Directorate in the Department of Homeland Security. See Homeland Security Act of 2002, Pub. L. No. 107-296, 116 Stat. 2135 (codified in 6 U.S.C.S. §§ 101–557); see also FEMA, About FEMA-FEMA History, <http://www.fema.gov/about/history.shtm> (last visited Feb. 21, 2006).

⁴⁴ See FEMA-LEGAL REFERENCES, *supra* note 43, at 1-1 to 1-2.

⁴⁵ John G. Culhane, *Tort, Compensation, and Two Kinds of Justice*, 55 RUTGERS L. REV. 1027, 1104 (2003) (noting that the NFIP is funded by premiums paid by owners of insured structures).

The initial response to the NFIP was underwhelming. In 1972, there were fewer than 100,000 policyholders and less than 1,200 communities participating in the program.⁴⁶ To compel participation, Congress enacted the Flood Disaster Protection Act of 1973 (FDPA),⁴⁷ which made the availability of federal assistance for construction in flood hazard areas contingent on an individual's purchase of flood insurance.⁴⁸ Unsurprisingly, community response improved as insurance became unavailable to communities that were not a part of the NFIP. By 1974, NFIP participation had increased to almost 6,000 communities; by 1978, to 16,000.⁴⁹ Now, more than 22,000 communities participate in the program.⁵⁰

Although community participation in the NFIP became much more common after enactment of the FDPA, individual homeowner participation decreased as lenders became less vigilant in policing the program's requirements.⁵¹ After flooding in the Midwest revealed substantial problems with the program,⁵² Congress enacted the National Flood Insurance Reform Act of 1994,⁵³ which fines lenders up to \$100,000 per year for failing either to identify structures located in special flood hazard areas or to require flood insurance for such structures.⁵⁴

Congress enacted the Flood Insurance Reform Act of 2004⁵⁵

⁴⁶ Houck, *supra* note 42, at 70.

⁴⁷ Flood Disaster Protection Act of 1973, Pub. L. No. 93-234, 87 Stat. 975 (codified in 42 U.S.C. 4001 *et seq.*); FEMA-LEGAL REFERENCES, *supra* note 43, at 1-2.

⁴⁸ Houck, *supra* note 42, at 70-71 (citing Flood Disaster Protection Act § 102). A 1977 amendment to the Flood Disaster Protection Act resulted in a partial lifting of the ban on federal assistance to non participating communities in response to vocal developers. However, as Professor Houck explains, the amendment weakened the NFIP and guaranteed money for floodplain development in exactly the way that the Flood Disaster Protection Act was not intended to be used. *Id.* at 72 & n.57 (stating that "[d]evelopers argued that they should not be precluded from assistance in developing the floodplains as long as they assumed the risk of subsequent flooding," but noting that "it is not the developers who bear the subsequent flood losses but rather the purchasers of these new homes or businesses").

⁴⁹ *Id.* at 71; *see also* Randall, *supra* note 13, at 150 (noting that policy holders under the NFIP increased from 300,000 to 1.2 million in the first four years after enactment of the Flood Disaster Protection Act).

⁵⁰ Culhane, *supra* note 45, at 1104.

⁵¹ Randall, *supra* note 13, at 150.

⁵² Steven E. Ehlmann, *Conflict at the Confluence: The Struggle Over Federal Flood Plain Management*, 74 N.D. L. REV. 61, 68-69 (1998).

⁵³ National Flood Insurance Reform Act of 1994, Pub. L. No. 103-325, 108 Stat. 2255 (codified as amendments in scattered sections of 42 U.S.C. §§ 4001-4129).

⁵⁴ Randall, *supra* note 13, at 150-51 (citing National Flood Insurance Reform Act § 521, 525). A lender's obligation extends past the creation date of the loan as well. Even if a structure was not located in a special flood hazard area when a loan was created, if a flood map is updated during the loan's lifetime and the structure falls within the area, the lender is obligated to require the borrower to obtain flood insurance. If the borrower fails to do so, the lender must obtain insurance on the borrower's behalf and charge it to the borrower. *Id.* (citing National Flood Insurance Reform Act § 524).

⁵⁵ Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, Pub. L. No.

to deal with additional issues. First, it re-authorized the NFIP through 2008, rather than requiring yearly re-evaluation, to ensure continuous coverage for at least another five years.⁵⁶ Second, it provided appropriations for a pilot program to purchase “repetitive loss” properties, which cause a significant drain on the NFIP.⁵⁷ If an owner refuses an offer of mitigation assistance, the owner’s insurance premiums will increase to 150% of the chargeable rate for the property at the time of the offer, with an additional 150% increase for each future claim over \$1,500, limited only by premium insurance rates as a cap.⁵⁸

Presidential support for floodplain management has also been strong. In addition to the carrot-and-stick approach used by the NFIP for local management, floodplain management was given a boost with two executive orders. The first, Executive Order 11,988, was signed by President Carter in 1977.⁵⁹ Under this order, federal agencies are ordered to “provide leadership and . . . take action to reduce the risk of flood loss, to minimize the impact of floods on human safety[,] health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out [the agency’s] responsibilities”⁶⁰ To implement the Order, agencies are required to establish procedures for considering the impact that their actions might have on floodplains and to establish construction standards for federal projects consistent with the NFIP standards.⁶¹ During the same year, Executive Order 11,990 was signed, which ordered agencies to “take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency’s responsibilities”⁶² This Order included, as one of the considerations for determining whether wetlands would be disturbed by a federal project, the functions that the wetlands performed, including those relating to flood and storm hazards.⁶³ Thus, under these orders, federal agencies are required to do their part to reduce

108-264, 118 Stat. 712 (codified in scattered sections of 42 U.S.C.).

⁵⁶ *See id.* § 101.

⁵⁷ The program covers severe repetitive loss properties, which are defined as those “for which 4 or more separate claims payments have been made . . . each such claim exceeding \$5,000, and with the cumulative amount of such claims payments exceeding \$20,000” *Id.* § 102(a).

⁵⁸ *See id.* § 102(a).

⁵⁹ Exec. Order 11,988, 42 Fed. Reg. 26,951 (May 24, 1977), *amended by* Exec. Order 12,148, 44 Fed. Reg. 43,239 (July 20, 1979).

⁶⁰ *Id.* § 1, 42 Fed. Reg. at 26,951.

⁶¹ *Id.* §§ 1–3, 42 Fed. Reg. at 26,951. The Executive Order urged use of existing mechanisms, such as regulations under the National Environmental Policy Act, for compliance with the order. *See id.* § 2(d), 42 Fed. Reg. at 26,951.

⁶² Exec. Order 11,990, 42 Fed. Reg. 26,961 (May 25, 1977), *amended by* Exec. Order 12,608, 52 Fed. Reg. 34,617 (Sept. 9, 1987).

⁶³ *See id.* § 5(a), 52 Fed. Reg. at 34,617.

flood losses.

B. Community Requirements

The greater burden of floodplain management falls on local communities. Prior to the NFIP, local communities made little effort at floodplain protection. However, creation of the NFIP and subsequent amendments to the program have encouraged floodplain management because federal loans were linked to the requirement to purchase subsidized insurance.⁶⁴ This required communities to participate in the program to ensure the availability of federal funds to the communities' citizenry. To participate in the NFIP, interested communities must adopt "adequate land use and control measures" that will

to the maximum extent feasible . . . (1) constrict the development of land which is exposed to flood damage where appropriate, (2) guide the development of proposed construction away from locations which are threatened by flood hazards, (3) assist in reducing damage caused by floods, and (4) otherwise improve the long-range land management and use of flood-prone areas.⁶⁵

Community standards must, at a minimum, meet federal standards set out in FEMA guidelines.⁶⁶ A particular community's minimum obligation depends on the type of flood risk presented by the community as determined by FEMA, which uses a 100-year flood as its risk standard.⁶⁷ To determine community flood risks, maps are developed that identify the 100-year floodplain, the base flood elevation and special flood hazard areas.⁶⁸ These maps are then used in several ways. Lenders use the information provided to determine flood insurance rates, and communities use the maps to assist in developing floodplain management ordinances.⁶⁹ The maps are also used by community planners, local officials, and even builders and developers in making other land use decisions.⁷⁰

FEMA standards for floodplain management require that

⁶⁴ See FEMA, Federal Insurance and Mitigation Administration, National Flood Insurance Program: Program Description 3-4 (Aug. 1, 2002), *available at* <http://www.fema.gov/doc/library/nfipdescrip.doc> [hereinafter FEMA, NFIP Program Description].

⁶⁵ 42 U.S.C.A. § 4022 (West 2003), 42 U.S.C. § 4102(c) (2000).

⁶⁶ See 44 C.F.R. § 60.3 (2004).

⁶⁷ FEMA, NFIP Program Description, *supra* note 64, at 5, 13.

⁶⁸ The 100-year floodplain is the area that will be inundated by water in the event of a 100-year flood (a "base flood"), that is, a flood that has a "one percent chance of being equalled or exceeded in any given year." Base flood elevation is the estimated height that waters will rise in the event of a base flood and is used to calculate the impact that a 100-year flood will have on the property. 44 C.F.R. § 59.1 (2004).

⁶⁹ See *generally* FEMA, NFIP Program Description, *supra* note 64 (explaining how the maps detail various flood zone types, the construction materials necessary to withstand flood forces, and the likelihood of flooding certain areas, among other things).

⁷⁰ See *id.* at 5-18.

development in special flood hazard areas be properly permitted and reviewed by the community for consistency with its ordinance.⁷¹ Subdivision or other new development proposals require review to determine that the development will be reasonably safe from flooding and that utilities are constructed to minimize flood damage.⁷² The NFIP also requires communities to enact local floodplain ordinances that restrict certain development in the floodplain.⁷³ Basically, the NFIP minimum floodplain management standards require that new, improved or substantially damaged construction be raised above the base flood elevation or dry-floodproofed, depending on the type of structure at issue, and constructed with proper materials.⁷⁴ Construction is only prohibited in floodways designated by the community if the development would cause an increase in flood heights.⁷⁵

C. Failure of the System

Floodplain development has always been a problem. Indeed, even as the U.S. Army Corps of Engineers sought to construct works to protect people from flood hazards, the floodplains continued to fill, mainly at the expense of the federal government. As Professor Houck explains:

[t]he construction approach failed for both physical and psychological reasons. A major difficulty was that federal protective works, however generously funded, simply could not keep pace with the rate that development was encroaching upon the floodplain. A United States Senate committee concluded that after thirty years of federal projects the “average annual flood hazard is now greater than before . . . because people have moved themselves and their property into flood-prone areas faster than flood protection works have been built.” The economics of these projects encouraged just such development. The local community “[got] most of the benefits of the project and [paid] only part of the costs. . . . To the [individual landowner], the Federal flood protection [was often] a windfall.”⁷⁶

Even after initial enactment of the NFIP, floodplain development continued, despite the NFIP’s goal to limit floodplain construc-

⁷¹ The community must also ensure that any development in these areas has received all permits required under state or federal law. *See id.*

⁷² *See id.* at 12–18.

⁷³ *See id.*

⁷⁴ *See id.* at 13 (indicating that “[d]ry floodproofing means that the building must be designed and constructed to be watertight, substantially impermeable to floodwaters”). Other specific design requirements are imposed depending on the flood zone of the structure’s location. *See id.* at 13–14 (identifying standards for A Zones and V Zones).

⁷⁵ *Id.* at 14. (“The floodway generally includes the river channel and adjacent floodplain areas that often contain forests and wetlands This requirement has the effect of limiting development in the most hazardous and environmentally sensitive part of the floodplain.”).

⁷⁶ Houck, *supra* note 42, at 66 (footnotes omitted).

tion, because “development was being encouraged by federal agencies and by the availability of federally insured loans, grants, and guarantees for land acquisition and construction in floodplain areas.”⁷⁷ This construction motivated Congress to shore up the NFIP with the FDPA.

Many now argue that, despite its good intentions, the NFIP serves to subsidize high-risk development in floodplains by providing flood insurance at low cost rather than at true actuarial premiums.⁷⁸ FEMA provided low cost insurance for structures existing prior to the creation of flood maps based on the idea that they were “built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions” and because it was “assumed that flooding, attrition, and floodplain management ordinances would eventually result in the elimination of all ‘pre-FIRM’ [flood insurance rate map] structures from the NFIP portfolio.”⁷⁹ However, this has not been the case, as many structures have been repeatedly flooded and rebuilt, funded by flood insurance. Indeed, a study by the National Wildlife Federation shows that “[n]early one out of every ten repetitive loss homes . . . have had cumulative flood insurance loss claims that exceed the value of the house — in some cases many times over.”⁸⁰ One home in Houston, for example, received over \$806,000 for sixteen flood events occurring over an eighteen-year period, despite the fact that the home was valued at less than \$115,000.⁸¹

Time and again, as failures in the system are discovered, Congress has sought to fix the problem with legislation. Yet not all the problems lie with the NFIP. More action can, and should, be taken at the local level in floodplain management. Indeed, many jurisdictions take a very active role in this process. However, there are areas for improvement, as addressed in Part III.

III. RECOMMENDATIONS

Effective flood management requires accurate risk assessment, properly maintained flood control technology that is appropriate for the area, and carefully controlled development. Of

⁷⁷ *Id.* at 70 (citation omitted). Levee construction has also been blamed for the increase in floodplain development because the federal government provided three-to-one matching funds for structural improvements, an option the communities found very desirable. See HIGHER GROUND, *supra* note 1, at 7.

⁷⁸ See, e.g., HIGHER GROUND, *supra* note 1, at 6; Randall, *supra* note 13, at 151–52.

⁷⁹ Randall, *supra* note 13, at 152 (footnotes omitted).

⁸⁰ HIGHER GROUND, *supra* note 1.

⁸¹ *Id.* Stories such as this one led to enactment of the Insurance Reform Act of 2004. For a discussion of the eighteen properties that suffered eighteen flood events or more, see *id.* at 105–07.

course, one must keep in mind that flood management is merely that—management. Despite the technical controls and improvements that a community might put into place to manage the risks presented by storm events, those controls may be overwhelmed by any particular storm which places too great a burden on them.⁸² The goal of effective flood management is to reduce risks to health and property. In most cases, it is impossible to plan for every possible event. However, communities should assist the federal government in reducing the risks of storm events by taking a more active role in floodplain management.

A. Improved Risk Assessment

As discussed above, flood risks, which are established by floodplain mapping, determine regulation and insurance rates. Until FEMA's recent attempts at map modernization, many of its flood maps were out of date. Indeed, according to the United States Government Accountability Office, nearly seventy percent of the nation's 92,222 flood maps were ten years old at the time of its review.⁸³ Since conditions creating flood hazards are constantly changing, new developments are often not reflected on current maps. Therefore, insurance data is out of sync with actual risk, and attempts at floodplain management are not as effective as they could be.

FEMA has recently sought to modernize its maps and make them more accessible by placing digitized maps on the Internet through its Map Modernization Project.⁸⁴ The project is a five-year plan for updating flood hazard data.⁸⁵ As part of its modernization effort, FEMA has promoted the use of advanced technology, including the use of geographic information systems and remote sensing technology, such as Light Detection and Ranging (LIDAR).⁸⁶ Use of the new technology improves accuracy and re-

⁸² Cf. Houck, *supra* note 42, at 67 ("Even the best of structures 'can confine floods of limited magnitudes, but every so often a really big one will top it' and, once topped, the levee 'tends to aggravate and prolong inundation beyond what it would have been' without it." (citation omitted)).

⁸³ U.S. GOVERNMENT ACCOUNTABILITY OFFICE, GAO 05-894T, FLOOD MAP MODERNIZATION: FEDERAL EMERGENCY MANAGEMENT AGENCY'S IMPLEMENTATION OF A NATIONAL STRATEGY 6 (2005) (statement of William O. Jenkins, Jr., Director of Homeland Security and Justice Issues), *available at* <http://www.gao.gov/new.items/d05894t.pdf> [hereinafter GAO, FLOOD MAP MODERNIZATION].

⁸⁴ *Id.* at 3.

⁸⁵ FEMA, DRAFT FY05-FY09, MULTI-YEAR FLOOD HAZARD IDENTIFICATION PLAN 1:0 INTRODUCTION, 1-1 (June 2005), *available at* http://www.fema.gov/fhm/mh_mhip_ver1_5.shtm.

⁸⁶ GAO, FLOOD MAP MODERNIZATION, *supra* note 83, at 7. LIDAR is a system that allows collection of far more detailed data than in years past by the use of specially equipped aircraft. The aircraft projects millions of laser signals to the ground, data from which is then collected and converted by software into an image of the terrain and all objects on it, including buildings, streets, and waterways. By using the technology, a com-

duces the costs of traditional survey methods by half.⁸⁷

Although FEMA's map modernization project has promise, the agency must still work out problems in the system. For example, in past mapping efforts, FEMA has used a blanket minimum standard that covered all flood maps and supporting data.⁸⁸ To establish mapping priorities and to reduce costs of the modernization project, FEMA instead sought to balance the relative flood risks faced by each community against the effort required to produce reliable flood hazard data by ranking all counties based on several specified factors.⁸⁹ However, the standards required for each flood risk category for analysis and data collection have yet to be promulgated, leading to inconsistency within categories and little guidance for those who have partnered with FEMA to prepare the new maps.⁹⁰

In addition, FEMA's map modernization project relies largely on partnering with local, state, and federal partners to assist with funding and data acquisition.⁹¹ To this end, FEMA has asked various states, territories and certain cooperating technical partners⁹² to prepare business plans showing mapping need assessments.⁹³ The partnering entity then obtains the mapping data and provides it to FEMA. However, FEMA does not account for the impact on smaller communities; these localities

munity can more effectively utilize resources, as it creates a better representation of the topography while being more cost effective than traditional survey methods. Once collected, the data can then be combined with data from waterway surveys to create computer simulations of flood risk areas. The maps created from these models can then be used to update FEMA insurance maps. The Harris County Flood Control District, as part of its Tropical Storm Allison Recovery Project, has partnered with FEMA and is currently using LIDAR to re-map the Harris County floodplains. See Harris County Flood Control District, Learning Center, LiDAR: What is it?, <http://www.hcfd.org/lidar.asp?flash=yes> (last visited Feb. 28, 2006).

⁸⁷ FEMA, DRAFT FY05-FY09, MULTI-YEAR FLOOD HAZARD IDENTIFICATION PLAN 8:0 COST-SAVING PROCESSES, PROCEDURES, AND TOOLS, 1-1 (Nov. 2004), available at http://www.fema.gov/pdf/fhm/mh_ch8.pdf.

⁸⁸ GAO, FLOOD MAP MODERNIZATION, *supra* note 83, at 10-11.

⁸⁹ *Id.* at 10 (noting such factors include population, growth trends, housing units, flood insurance policies and claims, repetitive loss properties and flood disasters).

⁹⁰ See *id.* at 11.

⁹¹ See *id.* at 13-14 (noting that "from fiscal years 2000 to 2002, FEMA used \$70 million of its federal map modernization funding along with state and local funds to develop what FEMA has estimated to be more than \$155 million worth of new mapping data").

⁹² A cooperating technical partner (known as a "CTP") is a community or regional or state agency that partners with FEMA (after meeting certain eligibility requirements) as part of its Flood Hazard Mapping Program. Such agencies may include flood control or watershed management districts, regional planning councils or councils of government, or even regional offices of state agencies. See FEMA, Flood Hazard Mapping, http://www.fema.gov/fhm/ctp_qa1.shtm (last visited Feb. 28, 2006).

⁹³ As of June 2005, fifty-six plans covering forty-nine states had been submitted. See FEMA, DRAFT FY05-FY09, MULTI-YEAR FLOOD HAZARD IDENTIFICATION PLAN 2:0 STAKEHOLDER INPUT 2-2 (June 2005), available at http://www.fema.gov/pdf/fhm/mh_2ver1_5.pdf.

do not have the means, nor the expertise, to develop the flood hazard data. Therefore, FEMA must come up with adequate strategies to overcome these limitations.⁹⁴ Further, the accuracy of the mapping (using LIDAR, for example) is dependent on the quality and experience of the contractor hired to perform the process. Therefore, inconsistency may result in the quality of FEMA maps. Active FEMA oversight is required to ensure the desired outcome of the mapping project.⁹⁵

Local communities can help with more accurate risk assessment by partnering with FEMA to update the flood maps for their areas. Communities with little funds for mapping initiatives can band together with nearby communities or seek state aid to help fund the costs needed for map modernization projects. Creating new and more accessible maps will create several benefits. Community planners, for example, can make more accurate predictions of flood risks and plan accordingly with regard to community development.⁹⁶ By the same token, map modernization may lead to increased participation in the NFIP because of a more accurate identification of properties within the floodplain.⁹⁷ Further, the maps can be used at national, state, and local levels for risk management purposes for multiple hazards (both natural disasters and terrorist scenarios) because of the precise data regarding the location of vulnerable facilities.⁹⁸ Local involvement in the process will help guarantee the success of this program.

B. Improved Flood Control Technology

A major part of flood management lies in choosing the best tools for managing flood risks. In some cases, the best tools involve structural technology that provides protection from urban floodwaters. In other instances, however, non-structural tech-

⁹⁴ GAO, FLOOD MAP MODERNIZATION, *supra* note 83, at 14. The Government Accountability Office suggests, for example, partnering with state agencies with mapping needs in that area (e.g., transportation departments). *See id.*

⁹⁵ *See id.* at 15.

⁹⁶ *See id.* at 8–9.

⁹⁷ *See id.* at 9, 12. FEMA's desire for greater community participation is to give the community a feeling of ownership over the maps and the work that went into it. As FEMA explains:

if a community is involved in and understands the map modernization process, the community is more likely to accept and trust the accuracy of the final, revised maps and is more likely to use the maps' hazard data to mitigate natural and man-made disasters. Conversely, if affected property owners do not understand why their communities are being mapped (or remapped) or why their property is now in a flood zone, the unexpected additional expense of new or increased flood insurance premiums can form the basis of significant community opposition to map modernization activities and lead to formal appeals, litigation, and delays in implementing map changes.

Id. at 12.

⁹⁸ *Id.* at 9.

nology provides a better solution as it can eliminate losses at less cost and less change to the environment.⁹⁹

1. Structural Technology

Urbanization has led to an increase in stormwater problems and an increased need for management. The traditional approach to stormwater management has been drainage— move the water off the land as quickly and as efficiently as possible.¹⁰⁰ This approach has led to the widespread use of storm sewers and the widening and deepening of existing natural channels (channelization) that drain the water to another water body.¹⁰¹ The problem with such use, however, is that the water is often untreated;¹⁰² the pollutants that the stormwater may pick up as it runs across the ground are conveyed to the receiving water body, leading to a reduction in water quality. Therefore, treatment systems may be required in extreme situations, which add costs to a management program.¹⁰³

The levee is another less than satisfactory structural form of flood technology. Levees are used to physically protect an area from rising floodwaters and, although effective in some areas, are not always the best solution. First, levees tend to remove land from the floodplain that could otherwise be used for storage of floodwaters.¹⁰⁴ Therefore, it may be difficult to restrain the water to a more measured flow as it moves towards its ultimate destination. Further, because levees are a physical barrier, they may in some instances block the water's movement, thereby cre-

⁹⁹ See N.C. DIV. OF EMERGENCY MGMT., DESIGN AND CONSTR. GUIDELINES: TOOLS AND TECHNIQUES FOR MITIGATING THE EFFECTS OF NATURAL HAZARDS 6-7 (Oct. 1998), available at http://www.ncem.org/mitigation/Library/Full_Tools_and_Tech.pdf.

¹⁰⁰ EPA, EPA-841-B-00-005, LOW IMPACT DEVELOPMENT (LID): A LITERATURE REVIEW 1 (Oct. 2000), available at <http://www.epa.gov/owow/nps/lid/lid.pdf> [hereinafter EPA, LOW IMPACT DEVELOPMENT].

¹⁰¹ Water flow and capacity can be increased by reducing friction by removing woody vegetation and lining the channel with concrete. Harris County Flood Control District, Flood Damage Reduction Tools, <http://www.hcfd.org/floodtools.html> (last visited Feb. 28, 2006) [hereinafter Harris County Flood Control District, Flood Damage Reduction Tools]; see also Harris County Flood Control District, *Riding the Waves of Change 60 Years of Service*, available at http://www.hcfd.org/downloads/brochures/HCFCD_60YearHistoryBrochure.pdf 6 (last visited Mar. 1, 2006) [hereinafter Harris County Flood Control District, *Riding the Waves*].

¹⁰² See EPA, LOW IMPACT DEVELOPMENT, *supra* note 100, at 12.

¹⁰³ Physical debris can be collected from receiving bodies after the fact to reduce pollution problems with tools such as trash skimmers. See generally LAURA FIFFICK, PORT OF HOUSTON AUTHORITY, MIGHTY TIDY (2003), http://www.aapa-ports.org/programs/hne/Case%20Studies/2003_Case_Studies/Houston%20%20Mighty%20Tidy/Houston%20-%20Mighty%20Tidy%20Application.pdf (discussing the Houston Port Authority's use of the boat skimmer "Mighty Tidy," which not only assists the Port in complying with water quality standards, but also has increased public awareness about floating debris and improved the aesthetics of the area).

¹⁰⁴ See Harris County Flood Control District, Flood Damage Reduction Tools, *supra* note 101.

ating a greater water hazard.¹⁰⁵ However, perhaps of most concern is the possibility of levee failure, which can lead to property destruction and death.¹⁰⁶ In many cases, levees are unsuitable for the needs of urban areas because of the higher level of losses that can result, although they may be entirely suitable for agricultural areas.¹⁰⁷ Therefore, caution should be taken that a community does not place too great a reliance on such a high-risk technology.

Although traditional flood management technology is appropriate in some instances, especially where annual rainfall may be slight, alternative flood management techniques may be appropriate. In areas of greater rainfall, water storage may be a more appropriate option. Prior to the 1980's, for example, channelization was widely used in Houston and Harris County.¹⁰⁸ During the city's development, many bayous were deepened, widened, and straightened.¹⁰⁹ Some portions of the streams were also lined with concrete to improve stream flow.¹¹⁰ As the Harris County Flood Control District explains, "[b]y 1950, [it] had cleared 5,000 acres of land along streams; channelized 1,260 stream miles; acquired 3,470 right-of-way tracts (75 percent of which were donated); and excavated 25 million cubic yards of earth."¹¹¹ Despite these improvements, the downtown area continued to flood, requiring a move to more appropriate types of flood management.

Houston therefore turned to the use of stormwater detention basins and bypass channels in conjunction with channel improvements.¹¹² Stormwater detention basins are designed to

¹⁰⁵ *Id.*

¹⁰⁶ The Association of State Floodplain Managers suggests that levees are "an option of last resort" because they create "situations where the expense of ongoing operation and maintenance costs may, over time, exceed the costs of other mitigation alternatives such as acquisition and relocation or elevation." See *Hurricanes Katrina & Rita: Using Mitigation to Rebuild a Safer Gulf Coast*, (Ass'n of State Floodplain Managers, Madison, Wis.), Sept. 9, 2005, at 4, available at http://www.floods.org/PDF/ASFPM_Hurricane_Katrina_WhitePaper_090905.pdf [hereinafter ASFP, Using Mitigation]; see also *id.* (stating that "the Corps of Engineers staff has been known to say 'there are only two kinds of levees, those that have failed and those that will fail'").

¹⁰⁷ Larson & Plasencia, *supra* note 38, at 168 (noting that levees are suitable for agricultural areas but "fall short of what is needed for high-damage urban settings").

¹⁰⁸ Harris County Flood Control District, *Riding the Waves*, *supra* note 101, at 6, 10.

¹⁰⁹ For example, a six mile portion of Buffalo Bayou, a major bayou that runs through downtown Houston, was straightened to enhance water flow to the Houston Ship Channel. *Id.*

¹¹⁰ *Id.* Up to 25 miles of concrete lining was added to channels in some areas. See *id.* at 10.

¹¹¹ *Id.* at 7.

¹¹² See Harris County Flood Control District, Stormwater Detention: How it Works, <http://www.hcfcd.org/stormwater.asp> (last visited Mar. 1, 2006) [hereinafter Harris County Flood Control District, Stormwater Detention].

temporarily store stormwater overflow from a water channel.¹¹³ Such basins can “be several hundred acres in size” and are often used to mitigate the detrimental impacts of new development.¹¹⁴ During rain events, the detention basin fills. As the water level in the channel drops, the basin empties. Use of the detention basin helps reduce flooding damage by giving the overflow an unpopulated location to sit until rain conditions improve.¹¹⁵ During non-rain conditions, the basin lies empty and can be used for green space or recreational purposes.¹¹⁶ Bypass channels are man-made channels intended to divert excess stormwater from its original channel course.¹¹⁷ Bypass channels are often used in areas where a natural channel might flood an area of great environmental value.¹¹⁸ In such case, the bypass channel diverts the water, lessening the impact on the area, and reconnects the water to the natural channel further downstream.¹¹⁹

Retention basins are another useful management technology. Like detention basins, retention basins are designed for water storage. However, instead of the basin discharging water after or during a storm event, a retention basin holds the water for an indefinite period, often for purposes of aquifer recharge.¹²⁰ Communities that have soil conditions favoring such use may find this technology quite advantageous.

Retention and construction of new wetlands can also be used for flood management. Wetlands help to keep water levels in a river or other channel normal by holding water during storm events and slowly releasing them when channel levels are lower.¹²¹ They improve water quality by serving as a filter, purifying the water by allowing the impurities to settle out.¹²² The reduction of natural wetlands has led to an increase in flooding

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ *See id.*

¹¹⁷ Harris County Flood Control District, Flood Damage Reduction Tools, *supra* note 101.

¹¹⁸ *See id.*

¹¹⁹ *See id.*

¹²⁰ Harris County Flood Control District, Stormwater Detention, *supra* note 112.

¹²¹ *See generally* EPA, OFFICE OF WATER, EPA 843-F-04-011A, WETLANDS OVERVIEW 2 (Dec. 2004), available at <http://www.epa.gov/owow/wetlands/pdf/overview.pdf> (explaining that “[w]hen rivers overflow, wetlands help to absorb and slow floodwaters”).

¹²² Jonathan May, *The Current Status of Clean Water Act Jurisdiction and the Future of Non-Tidal Wetlands Protection: A Call to Protect ‘Isolated Wetlands,’* 12 U. BALT. J. ENVTL. L. 127, 129 (2005) (stating that “[w]etlands . . . can be viewed as the major determinative factor of the country’s water quality, as wetlands not only filter out huge percentages of heavy metals injected into the water, but they can remove almost ninety-five percent of phosphorus, other nutrients, and conventional pollutants from water that eventually leaves [sic] the wetland and seeps into the ground or flows into the nation’s vast network of streams, rivers and bays”).

problems across the United States.¹²³ Indeed, the destruction of wetlands along the Louisiana coast has been blamed, at least in part, for the great losses suffered by New Orleans during Hurricane Katrina, because the levees historically provided protection to the city from hurricanes and storm surges.¹²⁴

Artificial wetlands can be constructed to help mitigate the damages created by loss of natural wetlands. Although compensatory mitigation has been required under the Clean Water Act to account for the destruction of natural wetlands due to development,¹²⁵ such wetlands have often been small, isolated projects with limited impact on flood management.¹²⁶ Mitigation banks, on the other hand, allow developers, utilities, and state and local governments needing mitigation credits to pay a one-time fee to the mitigation bank to satisfy their statutory requirement.¹²⁷ Because the mitigation banks are on a large scale, the benefits to flood management and treatment of stormwater runoff are vastly increased.¹²⁸

The move to more natural forms of flood management signals a shift in philosophy regarding the role that stormwater plays in our society. Rather than viewing stormwater as an enemy that must be quickly dispatched or fought, a community can take a more ecologically friendly approach to the problem by utilizing detention and retention basins, bypass channels, and wetlands protection and creation to a greater extent. Such use also offers the benefits for groundwater recharge and recreational opportunities.¹²⁹ Indeed, green space and play areas can be created in detention basins or hike and bike trails along channels, which will suffer no harm during storm events.

Regardless of the methods used, however, a community must set aside sufficient funds for upkeep and maintenance of the structural technology. Debris that clutters a storm sewer or channel lessens the utility of the structure and increases the po-

¹²³ See David Ropeik, *Floods Raise Scientific Dilemma*, MSNBC, Apr. 25, 2001, <http://msnbc.msn.com/id/3077314/>.

¹²⁴ Dennis Hirsch, Editorial, *Wetlands' Importance Now Made Clear*, ATLANTA J. & CONST., Sept. 12, 2005, at A11.

¹²⁵ See 40 C.F.R. § 230.10(a) (2004); see also EPA, EPA 843-F-03-002, WETLANDS COMPENSATORY MITIGATION, available at http://www.epa.gov/owow/wetlands/pdf/CMitigation_pr.pdf (last visited Mar. 7, 2006).

¹²⁶ See Jonathan Silverstein, *Taking Wetlands to the Bank: The Role of Wetland Mitigation Banking in a Comprehensive Approach to Wetlands Protection*, 22 B.C. ENVTL. AFF. L. REV. 129, 136 (1994).

¹²⁷ See *id.* at 134.

¹²⁸ Harris County Flood Control District, *Green Bayou Wetlands Mitigation Bank*, <http://www.hcfd.org/downloads/brochures/WetlandsMitigationBankBrochure.pdf> 2-3 (last visited Mar. 1, 2006) [hereinafter Harris County Flood Control District, *Green Bayou*].

¹²⁹ See *id.*

tential of the structure being overwhelmed by the storm event.¹³⁰ Therefore, proper maintenance is an essential element of effective flood management.¹³¹

2. Non-Structural Technology

FEMA's Hazard Mitigation Grant Program¹³² provides grants to communities to acquire properties or assist property owners in complying with floodplain ordinances (e.g., elevating homes).¹³³ Under the program, FEMA can provide up to seventy-five percent of funding for property buyouts, with the remaining twenty-five percent covered by state or local funds.¹³⁴ Buyouts are advantageous because it removes an at-risk structure from a flood zone. After the structure is demolished, the community can allow the area to return to its natural condition, thereby lessening the flood risks for others. Even further, for those property owners who remain in the area, aesthetic values (if not economic values) are increased.¹³⁵ Because of the great drain that repetitive loss properties place on federal funds, both in terms of disaster relief and insurance payouts, communities should take a more aggressive role in removing repetitive loss properties from the floodplains. In light of the bite that the Insurance Reform Act of 2004 has created,¹³⁶ communities should form buyout funds so that money will be set aside to meet the twenty-five percent local requirement and increase their ability to remove structures currently located in the floodplain.

C. Controlled Development

1. Floodplain Ordinances

As discussed above, to participate in the NFIP, communities must promulgate ordinances to reduce future flood risks in spe-

¹³⁰ See OHIO DEPT. OF NATURAL RES., OHIO STREAM MANAGEMENT GUIDE: STREAM DEBRIS AND OBSTRUCTION REMOVAL, Guide No. 18 (Nov. 1, 2005), available at http://www.dnr.ohio.gov/water/pubs/fs_st/stfs18.pdf.

¹³¹ PLACER COUNTY, FLOOD CONTROL AND WATER CONSERVATION DISTRICT, STORMWATER MANAGEMENT MANUAL ch. 3 (Sep. 1990), <http://www.placer.ca.gov/works/pwswmm/SWMM2004.pdf>.

¹³² The program was initially established by the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C.A. §§ 5121–5206 (West 2003).

¹³³ FEMA, Hazard Mitigation Grant Program, <http://www.fema.gov/fima/hmgrp/> (last visited Mar. 7, 2006); see also FEMA, Hazard Mitigation Grant Program: Elevating Your Home, (last visited Mar. 7, 2006), <http://www.fema.gov/fima/hmgrp/elevate.shtm>.

¹³⁴ See FEMA, FEMA Property Acquisition Projects (Buyouts), <http://www.fema.gov/fima/hmgrp/buyouts.shtm> (last visited Mar. 1, 2006); Press Release, FEMA, 'Buyouts' Possible, But Funding is Limited, (Oct. 15, 1999) http://www.fema.gov/news/newsrelease_print.fema?id=8868.

¹³⁵ See *id.* (explaining that the buyout advantages include "peace of mind," "fair compensation generally based on the pre-flood market value of your home," and "[a] chance for a new start").

¹³⁶ See *supra* text accompanying notes 55–58.

cial flood hazard areas.¹³⁷ These regulations must be as strict, but may be stricter, than NFIP standards.¹³⁸ To encourage communities to exceed these standards, FEMA has established a voluntary incentive program (known as the Community Rating System) that discounts insurance premium rates of communities that reduce flood losses, facilitate accurate insurance ratings, and educate the public about flood insurance.¹³⁹ Many communities have instituted more stringent standards than those set out by FEMA.¹⁴⁰ However, in light of the many losses suffered in 2005, it would behoove many states and communities to review their flood management regulations to determine whether higher standards are in order. Such standards might include a complete prohibition on construction or reconstruction in high flood-risk areas and requiring land use compatibility with expected hazards.¹⁴¹

Another approach is to adopt the “no adverse impact” standard advocated by the Association of State Floodplain Managers.¹⁴² The idea behind this management approach is that “the action of one property owner does not adversely impact the rights of other property owners, as measured by increased flood peaks, flood stage, flood velocity, and erosion and sedimentation.”¹⁴³ The advantage of taking the “no adverse impact” standard is that it forces communities to consider their own specific needs and prepare management plans accordingly.¹⁴⁴ This, in turn, gives the community a greater sense of ownership in the management plan since it is not a standardized FEMA ordinance.¹⁴⁵ Further, by creating tailored management plans, the “no adverse impact” standard allows the community to make the changes in other regulations (*e.g.*, zoning) required for enforcement of the plan.¹⁴⁶

¹³⁷ FEMA, THE NATIONAL FLOOD INSURANCE PROGRAM, FLOODPLAIN MANAGEMENT 1 (Nov. 2005), *available at* http://www.fema.gov/pdf/press/katrina_after/floodplain_management_fact_sheet.pdf.

¹³⁸ See 44 C.F.R. § 60.3 (2004).

¹³⁹ Premium rates can be reduced by up to 45%. FEMA, National Flood Insurance Program - Community Rating System, <http://www.fema.gov/nfip/crs.shtm> (last visited Mar. 1, 2006).

¹⁴⁰ According to FEMA, 1,028 communities currently receive discounted flood rates under the Community Rating System program. *See id.*

¹⁴¹ See ASFP, Using Mitigation, *supra* note 106, at 3.

¹⁴² See *No Adverse Impact Floodplain Management*, (Ass'n of State Floodplain Managers, Madison, Wis.) (April 29, 2004), *available at* <http://www.floods.org/NoAdverseImpact/whitepaper.asp>. This policy has already been adopted by some communities, such as Lincoln, Nebraska. *See* CITY OF LINCOLN, WATERSHED MANAGEMENT, DRAINAGE CRITERIA MANUAL: CHAPTER 10: FLOOD DESIGN CRITERIA FOR NEW GROWTH AREAS 10-3 (May 10, 2004), *available at* <http://www.ci.lincoln.ne.us/city/pworks/watrshed/flood/standard/>.

¹⁴³ *Id.*

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*

¹⁴⁶ *Id.*

Proper floodplain management also requires enforcement of a community's floodplain ordinance.¹⁴⁷ Violations can lead to a community's probation or even suspension from the NFIP program.¹⁴⁸ Unfortunately, violations are more common than one might think because floodplain administrators are under-trained.¹⁴⁹ For example, common violations noted in Louisiana include: (1) lack of a permitting system for special flood hazard areas, (2) failure to certify elevation of the lowest floor above the base flood elevation, and (3) allowing construction below the base flood elevation.¹⁵⁰ Therefore, communities must invest funds for training of floodplain personnel to ensure proper enforcement.

2. Smart Growth Initiatives and Low Impact Development

Effective flood management requires developmental controls both inside and outside a floodplain. Communities can improve flooding conditions by making wiser development choices. One means for communities to achieve these ends is through implementation of "smart growth."¹⁵¹ Smart growth is a variety of initiatives that seek to allow community growth without creating the negative impacts that have traditionally plagued unfettered development.¹⁵² Popularized in the 1990's, smart growth takes many forms, including:

(1) eliminating state subsidies that promote sprawl; (2) promoting in-fill development; (3) preserving farmland, open space, and areas of environmental and recreational value; and (4) supporting local planning by providing incentives and technical assistance to local governments and encouraging them to enter into regional planning agreements.¹⁵³

Because smart growth philosophy encourages the retention of farmland and open space, and the preservation of the environment, such initiatives can improve flood conditions by reducing the amount of impervious cover.

Land use and regional planning are also important for effec-

¹⁴⁷ See, e.g., LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT, FLOODPLAIN MANAGEMENT REGULATIONS SECTION, FLOODPLAIN MANAGEMENT FACTSHEET 2 (Mar. 2002), available at http://www.dotd.state.la.us/intermodal/division/water/documents/fp_2002march.pdf.

¹⁴⁸ *Id.*

¹⁴⁹ See, e.g., *id.*

¹⁵⁰ See, e.g., *id.*

¹⁵¹ See Oliver A. Pollard III, *Smart Growth: The Promise, Politics, and Potential Pitfalls of Emerging Growth Management Strategies*, 19 VA. ENVTL. L.J. 247, 249 (2000).

¹⁵² *Id.* at 252.

¹⁵³ Ed Bolen et al., *Smart Growth: A Review of Programs State by State*, 8 HASTINGS NW. J. ENVTL. L. & POL'Y 145, 147 (2002). For a discussion of methods that a community can use to encourage compact development, thereby further reducing impervious cover, see Francesca Ortiz, *Biodiversity, the City, and Sprawl*, 82 B.U. L. REV. 145, 177-81 (2002).

tive flood management. Land use planning in the flooding context should take place at a watershed level, involving all communities located within, or that have an impact on, the watershed along with the relevant flood control district. In some cases, this may require greater coordination as some locations contain more watersheds than others. For example, Harris County contains twenty-two watersheds,¹⁵⁴ but there are thirty-five communities and each has its own floodplain administrator.¹⁵⁵ Proper coordination between the communities can lead to improved flood management and more consistency between jurisdictions as it relates to flood ordinances.

Low impact development (LID) is another means to assist in flood management.¹⁵⁶ LID attempts to reduce the impacts of stormwater management, often at a lower cost than traditional means, by using drainage systems that simulate the natural hydrology of an area.¹⁵⁷ The goal of LID “is to reduce runoff volume by infiltrating rainfall water to groundwater, evaporating rain water back to the atmosphere after a storm, and finding beneficial uses for water rather than exporting it as a waste product down storm sewers.”¹⁵⁸

Developers can use simple strategies to help reach this goal.¹⁵⁹ For example, bioretention areas placed in parking lot islands or residential landscaped areas can reduce water volume and filter contaminants from the runoff.¹⁶⁰ Grass swales, a replacement for curbs and gutters, can serve the same purpose.¹⁶¹

¹⁵⁴ Harris County Flood Control District, Harris County’s Watersheds, <http://www.hcfcd.org/watersheds.html> (last visited Mar. 1, 2006).

¹⁵⁵ See Harris County Flood Control District, Contact Information-Floodplain Administrators, http://www.hcfcd.org/contact_floodplain.html (last visited Jan. 9, 2006).

¹⁵⁶ EPA, LOW IMPACT DEVELOPMENT, *supra* note 100, at 1.

¹⁵⁷ *Id.* at 2, 7; NATURAL RESOURCES DEFENSE COUNCIL, STORMWATER STRATEGIES: COMMUNITY RESPONSES TO RUNOFF POLLUTION, ch. 12 LOW IMPACT DEVELOPMENT (May 1999), available at <http://www.nrdc.org/water/pollution/storm/chap12.asp> [hereinafter NRDC, STORMWATER STRATEGIES]; see also Mary Catherine Hager, *Low-Impact Development*, STORMWATER: THE JOURNAL FOR SURFACE WATER QUALITY PROFESSIONALS, Jan.-Feb. 2003, at 18, available at http://www.forester.net/sw_0301_low.html (“[R]esults of completed LID projects indicate that the higher initial landscaping costs of LID might be offset by reductions in the infrastructure and site preparation work associated with conventional approaches. Estimates from pilot projects and case studies suggest that LID projects can be completed at a cost reduction of 25–30% over conventional projects—in decreased site development, stormwater fees, and residential site maintenance.”).

¹⁵⁸ NRDC, STORMWATER STRATEGIES, *supra* note 157 (noting that LID also seeks to “minimize disturbance[,] preserve and recreate natural landscape features[,] reduce effective impervious cover[,] increase hydrologic disconnects[,] increase drainage flow paths[,] enhance off-line storage[,] and] facilitate detention and infiltration opportunities”).

¹⁵⁹ For a more complete discussion of these strategies, see Francesca Ortiz, *Smart Growth and Innovative Design: An Analysis of the New Community*, 34 ENVTL. L. REP. NEWS & ANALYSIS 10001, 10019–10023 (2004).

¹⁶⁰ EPA, LOW IMPACT DEVELOPMENT, *supra* note 100, at 5–7.

¹⁶¹ EPA, Post-Construction Storm Water Management in New Development & Re-development: Eliminating Curbs and Gutters, <http://cfpub.epa.gov/npdes/stormwater/>

Impervious surfaces can be reduced by the use of roof gardens,¹⁶² permeable pavement,¹⁶³ and reduction in street width.¹⁶⁴ Even the use of rain barrels or rainwater tank systems can reduce water volume.¹⁶⁵

Communities can encourage developers to assist in flood management by creating incentives for LID. Such incentives might include tax breaks or considering LID when calculating a development's drainage impacts and any costs related to those impacts that may be assessed against the developer.

IV. CONCLUSION

Flood management is and always will be an ongoing battle between man and nature because of development choices. Indeed, the initial location of settlements along rivers and coastlines is an indication of the choice to exploit a natural resource at the expense of the damages that it can cause. Increasing development in these areas has only exacerbated problems that already existed as a natural part of the cycle of nature.

To assist communities in flood protection, the federal government has helped fund public works projects that have provided physical protection from flood risks. When physical protection was insufficient, the government turned to increased disaster relief and a federally funded insurance program to provide after-the-fact coverage of the losses incurred. However, local reliance on these programs has reduced the incentive of communities to take responsibility for limiting potential flood losses. As the U.S. House of Representatives Task Force on Disaster reported:

[i]f state and local governments believe that the Federal Government will meet their needs in every disaster, they have less incentive to spend scarce state and local resources on disaster preparedness, mitigation, response and recovery. This not only raises the cost of disasters to the federal taxpayer, but also to society as a whole, as people are encouraged to take risks they think they will not have to pay for.¹⁶⁶

menuofbmps/post_8.cfm (last visited Mar. 7, 2006) [hereinafter EPA, Post-Construction Storm Water Management].

¹⁶² Roof gardens not only reduce stormwater runoff, but can also greatly reduce energy costs. EPA, EPA-841-B-00-005D, VEGETATED ROOF COVER 1 (Oct. 2000), available at http://lowimpactdevelopment.org/ftp/Roof_cover_Factsheet.pdf.

¹⁶³ See EPA, Post-Construction Storm Water Management, *supra* note 161.

¹⁶⁴ EPA, LOW IMPACT DEVELOPMENT, *supra* note 100, at 8; Hager, *supra* note 157, at 12.

¹⁶⁵ EPA, LOW IMPACT DEVELOPMENT, *supra* note 100, at 8.

¹⁶⁶ HIGHER GROUND, *supra* note 1, at 8 (internal quotation marks and citation omitted).

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In light of the increasing populations in coastal areas and a forecast of more severe storm patterns for at least the next decade,¹⁶⁷ the time has come for communities to take greater responsibility for reducing flood risks and preventing flood losses. Reliance on the federal government for after-the-fact relief is merely a crutch, the need for which can be removed by increased involvement in flood management. Active involvement in improving risk assessment, improving and maintaining appropriate flood control technology, and making wiser development choices will open the door to less reliance on federal assistance. Communities must begin making these changes now before the federal well runs dry.

¹⁶⁷ See *supra* notes 12 and 13 and accompanying text.

The Restitutionary Approach to Just Compensation

Tim Kowal*

I. INTRODUCTION

Can the just compensation clause save the public use clause?¹ Many commentators agree that public use is a sham-ble, if not a “dead letter.”² Despite the less deferential public use standard set forth by the Michigan Supreme Court in *County of Wayne v. Hathcock*,³ the U.S. Supreme Court’s decision in *Kelo v. City of New London*⁴ shattered any hope of restoring a property rule⁵ to the public use clause at the federal level. *Hathcock* set forth a three pronged disjunctive test to restrict the local government practice of handing off condemned property to rent-seeking private developers.⁶ This was just the sort of test that propertarians were hoping the Supreme Court would establish in

* J.D. Candidate 2007, Chapman University School of Law, Orange, California; B.A. Philosophy, University of California, Irvine, California. This article was the first prize winner in the Seventh Annual Program for Judicial Awareness Writing Competition, sponsored by Pacific Legal Foundation. For more information, visit Pacific Legal Foundation’s website at <http://www.pacificlegal.org>. I would like to thank Professor John C. Eastman for his guidance and exemplary commitment to constitutional justice, and Professor Donald J. Kochan for his assistance in forming this comment’s thesis and for encouraging me to develop it. I especially thank Andi for her extraordinary patience and commitment. And finally a thanks to Chapman University School of Law, for assembling a wonderful team of legal minds.

¹ U.S. CONST. amend. V (“[N]or shall private property be taken for public use, without just compensation.”).

² See Thomas W. Merrill, *The Economics of Public Use*, 72 CORNELL L. REV. 61, 61 (1986) [hereinafter Merrill, *The Economics of Public Use*] (remarking that, even 20 years ago, “most observers today think the public use limitation is a dead letter”). Timothy Sandefur has remarked that current takings jurisprudence has “reduce[d] the public use clause to a pointless redundancy.” Timothy Sandefur, *A Gleeeful Obituary for Poletown Neighborhood Council v. Detroit*, 28 HARV. J.L. & PUB. POL’Y 651, 673 (2005).

³ *County of Wayne v. Hathcock*, 684 N.W.2d 765 (Mich. 2004) (overturning the controversial and widely deferential holding of *Poletown Neighborhood Council v. City of Detroit*, 304 N.W.2d 455 (Mich. 1981)).

⁴ 125 S. Ct. 2655 (2005).

⁵ See Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1105–06 (1972) (explaining that the takings clause provides both a property rule, which prevents against nonconsensual forfeiture of property, and a liability rule, which provides for forced transfers of entitlement).

⁶ *Hathcock*, 684 N.W.2d at 783.

Kelo. Instead, *Kelo* preserved a tradition of deference⁷ to state and local legislatures, and reaffirmed that “it is only the taking’s purpose, and not its mechanics’ . . . that matters in determining public use.”⁸ *Kelo* does more than to reaffirm local governments’ eminent domain power to develop public works; it extends deference over condemnations that turn land over to *private developers* for purely economic stimulation.⁹ As a result, eminent domain is justified even though the project has no direct benefit to the public, no public oversight, and no independent public usefulness.¹⁰ In the wake of the Court’s near-total refusal to impose a check on the legislature through the public use clause,¹¹ can any confidence in our property rights be restored through the just compensation clause? Despite the trend among scholars “to focus on the public use limitation to eminent domain as the only way to prevent eminent domain abuse,”¹² the answer is yes.¹³ In fact, the just compensation clause is probably where we should have been looking all along.

What is a public use but something that is useful to the public, and how should meaningful limits be interpreted? A public use under current takings jurisprudence is any use that fits within the broad scope of the police powers. It may be a use that promotes efficiency. It may be a use that promotes ends that are political, social, ecological, economic, or egalitarian. It could be any combination of these goals. Because it is the state and local governments’ job to evaluate these needs and apply the eminent

⁷ *Kelo*, 125 S. Ct. at 2663 (“Without exception, our cases have defined that concept broadly, reflecting our longstanding policy of deference to legislative judgments in this field.”); *United States ex rel. Tenn. Valley Auth. v. Welch*, 327 U.S. 546, 551 (1946) (“We think that it is the function of Congress to decide what type of taking is for a public use . . .”).

⁸ *Kelo*, 125 S. Ct. at 2664 (quoting *Hawaii Hous. Auth. v. Midkiff*, 467 U.S. 229, 244 (1984)).

⁹ *Id.* at 2668.

¹⁰ The majority declines to look past the purpose of the condemnation and a mere showing that the means are not irrational. *See id.*; *see also infra* note 89.

¹¹ Merrill, *The Economics of Public Use*, *supra* note 2, at 64 (“[C]ourts have effectively declared that liability rules alone shall protect all private property rights.”).

¹² Katherine M. McFarland, Note, *Privacy and Property: Two Sides of the Same Coin: The Mandate for Stricter Scrutiny for Government Uses of Eminent Domain*, 14 B.U. PUB. INT. L.J. 142, 143 (2004).

¹³ *See* Brief of the American Planning Association et al. as Amici Curiae in Support of Respondents at 28, *Kelo v. City of New London*, 125 S. Ct. 2655 (2005) (No. 04-108), 2005 WL 166929 [hereinafter American Planning Association Brief] (“Adjusting compensation awards to provide more complete indemnification would be a far more effective reform of the existing system of eminent domain than increasing federal judicial review of public use determinations.”). *See also The Kelo Decision: Investigating Takings of Homes and other Private Property: Hearing Before the S. Comm. On the Judiciary*, 109th Cong. (2005) (statement of Thomas A. Merrill, Charles Keller Beekman Professor of Law, Columbia Law School), available at http://judiciary.senate.gov/testimony.cfm?id=1612&wit_id=4661 [hereinafter *The Kelo Decision*] (“[A] promising reform idea would be to require more complete compensation for persons whose property is taken by eminent domain.”).

domain power towards them, a strong standard of deference might not be so unreasonable. Thus, perhaps we can forgive the Court for finding itself on a slippery slope in its public use analysis, since there appear to be few non-arbitrary lines.

It is the just compensation clause that might actually provide some limits to the eminent domain power. Where public use is a relative question that deserves some standard of deference to the legislative authority, just compensation operates on universal economic principles, and thus does not need to become entangled in notions of deference as does its public use counterpart. If the true cost of the taking must be awarded as just compensation, then we can guarantee that the taking is truly just from an economics perspective. That is, if we take full account of all the interests affected by the taking, then we can ensure that the eminent domain power is used properly. This comment posits that a restitutionary analysis can provide a compensation value that is truly just, and that truly just compensation can bring the proper equilibrium to the power and use of eminent domain. From an economics perspective, while it may be impracticable to properly recognize and assess every effect of a condemnation,¹⁴ restitution theory can provide a remarkably fair and practical valuation mechanism. On the other hand, “fair market value,” the “default standard for determining just compensation,”¹⁵ ignores many important costs that attend eminent domain. “Each person has a price for which he would sell just about everything he owns, but by definition he will accept fair market value for an item only if he desires to sell it, as fair market value implies a seller who does not have to but is willing to sell.”¹⁶ “It seems imperative . . . that when the polity takes an individual’s property against his or her will, a more sophisticated analysis should be required.”¹⁷ “Because a condemnee, by definition, is an unwilling seller, payment of market value will not compensate the person for the

¹⁴ But see H. Dixon Montague, *The Role of the “Separate Economic Unit” in the Determination of Just Compensation*, in EMINENT DOMAIN AND LAND VALUATION LITIGATION 129, 137 (ALI-ABA Course of Study, January 10–12, 2002), available at Westlaw, SG059 ALI-ABA 129.

[I]n no instance should the court exclude from consideration the elements of value that the buying and selling public [consider] in the real world [P]revailing rules permit proof of all of the varied elements of value [The Supreme Court] stated unequivocally that an honest market value assessment must include consideration of every factor that may influence a willing buyer and willing seller in a free market transaction.

Id. at 136–37.

¹⁵ American Planning Association Brief, *supra* note 13, at 27.

¹⁶ Lawrence Berger, *The Public Use Requirement in Eminent Domain*, 57 OR. L. REV. 203, 244 (1978).

¹⁷ Steven M. Crafton, *Taking the Oakland Raiders: A Theoretical Reconsideration of the Concepts of Public Use and Just Compensation*, 32 EMORY L.J. 857, 889 (1983).

loss.”¹⁸

The traditional policies against granting restitution to the condemnee have been (1) that the public should not be made to pay additional costs over and above the condemnee's harm, and (2) that the condemnee already realizes additional value flowing from the public work.¹⁹ The purpose of this comment is to outline factors to be analyzed in individual instances of takings, as an analysis of these factors in the context of individual cases reveals whether the policies against restitution have evaporated, thus providing an opportunity to apply the restitutionary model.

As the less-famous half of the takings clause,²⁰ the “just compensation” clause requires a determination of how much the governmental body must pay a condemnee for taking his property.²¹ The government must first determine whether taking the owner's property will provide a greater good to the community. That is, is there a public use?²² The government must next determine what amount of compensation must be paid to the owner.²³ But determining just compensation is not merely the second half of the inquiry; in certain instances, *it is an inextricable component of determining when a public use in fact exists*. In other words, if paying for the actual cost of the taking would cause the project to become economically unfeasible, this will inform the local government that the project does not actually serve the greater good of the community. If the value of the private property exceeds the utility of the public use, the project creates aggregate loss, and is therefore not a public use at all.²⁴ Demoralization costs—the loss of value that results from the psychological impact of condemnations—may also undermine the aggregate public benefit.²⁵ Without requiring an accurate and truly just measure of compensation, local governments will tend to overregulate.²⁶ Without a diligent approach towards deter-

¹⁸ *Id.* at 890.

¹⁹ See *Bauman v. Ross*, 167 U.S. 548, 570 (1897).

²⁰ See Christopher Serkin, *The Meaning of Value: Assessing Just Compensation for Regulatory Takings*, 99 NW. U. L. REV. 677, 678 (2005) [hereinafter Serkin, *The Meaning of Value*] (“Valuing just compensation turns out to be largely unstudied but essential for defining the extent of constitutional protection for private property.”).

²¹ *Hawaii Hous. Auth. v. Midkiff*, 467 U.S. 229, 231 (1984).

²² *Id.*; see also *Berman v. Parker*, 348 U.S. 26, 32 (1954).

²³ *Midkiff*, 467 U.S. at 231; see also *Olson v. United States*, 292 U.S. 246, 255 (1934).

²⁴ Merrill, *The Economics of Public Use*, *supra* note 2, at 92.

²⁵ Serkin, *The Meaning of Value*, *supra* note 20, at 720.

²⁶ See Thomas W. Merrill, *Rent Seeking and the Compensation Principle*, 80 NW. U. L. REV. 1561, 1583 (1986) (reviewing RICHARD A. EPSTEIN, *TAKINGS: PRIVATE PROPERTY AND THE POWER OF EMINENT DOMAIN* (1985)) [hereinafter Merrill, *Rent Seeking*] (“According to [the ‘fiscal illusion’ principle], if the government is not required to compensate for losses inflicted by its actions, then it will tend to overregulate.”); see also Berger, *supra* note 16, at 244.

mining the costs associated with a taking, we do a disservice to our egalitarian conscience and enable obtuse local government officials to disturb the market and usurp the rights of property owners.²⁷ The public use and just compensation clauses are not disjunctive, and a single calculus of just compensation is neither sufficient nor appropriate.

The remainder of this introduction will provide further policy and scholarly background on just compensation. Part II describes the *Hathcock* approach to analyzing public use. The determination of public use under the *Hathcock* standard will inform the application of restitution theory in determining just compensation. Part III will apply restitution theory in terms of the *Hathcock* standard, and then discuss the principles underlying just compensation, explaining why there is no satisfactory principled justification in granting the private developer all of the assembly gains. Finally, restitution theory is applied to four basic condemnation scenarios.

A. What Restitution Is, and What It Provides

This comment suggests adopting the type of restitution articulated by Thomas W. Merrill:

[W]hen a condemnation produces a gain in the underlying land values due to the assembly of multiple parcels, some part of this assembly gain has to be shared with the people whose property is taken. Under current law, all of the assembly gain goes to the condemning authority, or the entity to which the property is transferred after the condemnation.²⁸

Restitution is typically defined as holding one person accountable to another on the basis that one person unjustly receives benefits or the other unjustly suffers loss.²⁹ The principle

It is inefficient to allow a condemner to take such an owner's property at a value less than he would be willing to sell it. To do so takes property from the hands of a person who values it more and gives it to one who pays less for it, thereby encouraging the overuse of the taking power and the excessive acquisition and construction of facilities by those instrumentalities which happen to have eminent domain power. This argues for using a value greater than fair market value in condemnation.

Id.

²⁷ See Shelby D. Green, *Defending the "Time Culture": The Public and Private Interests of Media Corporations*, 43 FED. COMM. L.J. 391, 397 (1991) ("granting of special privileges . . . were 'reconciled with our egalitarian conscience, first, by insisting that government's action . . . by legitimated by determining that it was in the public interest to confer special privileges to obtain services or public convenience or necessity.'") (quoting J. HURST, *THE LEGITIMACY OF THE BUSINESS CORPORATION IN THE LAW OF THE UNITED STATES*: 1780-1970, at 60 (1970)).

²⁸ *The Kelo Decision*, *supra* note 13.

²⁹ JOHN D. CALAMARI & JOSEPH M. PERILLO, *THE LAW OF CONTRACTS* 600 (4th ed. 1998).

behind the rule is that “[a] person who has been unjustly enriched at the expense of another is required to make restitution to the other.”³⁰ Restitution theory requires that the

condemning authority . . . disgorge or at least share with the condemnee the assembly gains realized through the exercise of eminent domain. Either way, enhanced compensation would have two effects: it would soften the blow to condemnees, and it would reduce the incidence of eminent domain by increasing the costs of condemning property.³¹

Frank I. Michelman discusses restitution in terms of “efficiency gains,” which are defined “as the excess of benefits produced by a measure over losses inflicted by it.”³² The property owner should be treated as a partner in the transaction, as a speculator in the property, not as brush and debris to be cleared away before construction can begin. That one party is given the full benefit of this shift while the condemnee gains nothing belittles the policy that “just compensation should neither enrich the individual at the expense of the public nor the public at the expense of the individual.”³³ Any approach towards just compensa-

³⁰ *Id.* (quoting RESTATEMENT (FIRST) OF RESTITUTION § 1 (1937)). A discussion of why the developer’s enrichment is “unjust” is found in Part 0. See also Emily Sherwin & Maimon Schwarzschild, Comment, *Epstein and Levmore: Objections from the Right?*, 67 S. CAL. L. REV. 1451, 1451 (1994).

Restitution is a slippery term, and it may help at the outset to clarify how it is being used here. In one sense of the word, restitution is a principle of responsibility that comes into play when one person benefits unfairly at another’s expense. The common shorthand phrase for this idea is “unjust enrichment.” In the more technical sense of the word, restitution is a set of legal remedies that measure liability by gains received rather than losses imposed.

Id.

³¹ *The Kelo Decision*, *supra* note 13. See also Merrill, *The Economics of Public Use*, *supra* note 2, at 64 (“Consensual exchange is almost always beneficial to both parties in a transaction, while coerced exchange may or may not be, depending on whether the compensation is sufficient to make the coerced party indifferent to the loss.”).

³² Frank I. Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of “Just Compensation” Law*, 80 HARV. L. REV. 1165, 1214 (1967).

The compensation strategy does this by providing more money to persons whose property is taken in eminent domain. And it too leads to a substitution away from eminent domain, insofar as the costs go up relative to other modes of resource acquisition.

. . . The compensation strategy dovetails nicely with the use of contingent fee representation, since higher compensation leads directly to higher fees for those who represent property owners in eminent domain. The process solution is also more compatible with contingent fee representation, insofar as enhanced process rights in eminent domain proceedings themselves magnify the leverage of property owners in negotiations over settlement amounts.

The Kelo Decision, *supra* note 13.

³³ Donald J. Kochan, “Public Use” and the Independent Judiciary: Condemnation in an Interest-Group Perspective, 3 TEX. REV. L. & POL. 49, 64 (1998) (internal quotations omitted).

What justifies a taking against the owner’s will? It will be recalled, we ar-

tion should not be so circumscribed as to conclude that the landowner has not been injured in this situation; the rights and benefits he would have had in the marketplace have been stripped away by a schema that insists that he is not entitled to more than the present value of his property, although it is clearly worth more to the private rent-seeker.³⁴ In this way, we begin to understand why the private developer's enrichment is "unjust," even where the condemnee is arguably fully restored: the community suffers other injuries that are not easily quantified, such as demoralization costs and loss of subjective attached to the condemnee's property.³⁵ Moreover, there is no principle to justify the private developer's keeping the incremental land value after it has been assembled through eminent domain.³⁶

Restitutionary compensation mitigates the demoralization costs associated with condemnations. Demoralization costs, or insurance costs,³⁷ is a term coined by Frank Michelman, who defines them thusly:

[T]he total of (1) the dollar value necessary to offset disutilities which accrue to losers and their sympathizers specifically from the realization that no compensation is offered, and (2) the present capitalized dollar value of lost future production (reflecting either impaired incentives or social unrest) caused by demoralization of uncompensated losers, their sympathizers, and other observers disturbed by the

gued (1) that the policy underlying the monopoly requirement was the promotion of efficiency by preventing the charging of a supracompetitive price, and (2) that if the condemnee had no monopoly, efficiency would be promoted by letting the market work its will. . . . In each case, society would benefit from competition and the potentially lower cost of such improvements. Condemnee monopoly should be a requisite to condemner's right to take.

Berger, *supra* note 16, at 239–40. See also Daphna Lewinsohn-Zamir, *The Choice Between Property Rules and Liability Rules Revisited: Critical Observations from Behavioral Studies*, 80 TEX. L. REV. 219, 220 (2001) ("Liability rules are best applied when transaction costs are high and bargaining is impossible or difficult In these situations, liability rules should mimic the outcome that otherwise would have been reached by the market.").

³⁴ See Berger, *supra* note 16, at 244.

Each person has a price for which he would sell just about everything he owns, but by definition he will accept fair market value for an item only if he desires to sell it, as fair market value implies a seller who does not have to but is willing to sell. . . . It is inefficient to allow a condemner to take such an owner's property at a value less than he would be willing to sell it. To do so takes property from the hands of a person who values it more and gives it to one who pays less for it, thereby encouraging the overuse of the taking power and the excessive acquisition and construction of facilities by those instrumentalities which happen to have eminent domain power. This argues for using a value greater than fair market value in condemnation.

Id.

³⁵ American Planning Association Brief, *supra* note 13, at 27 ("The most obvious shortfall is the subjective value that individual owners attach to their properties. . . . These values are ignored under the fair market value test.").

³⁶ See discussion *infra* Part III.B.

³⁷ Merrill, *Rent Seeking*, *supra* note 26, at 1581 ("Michelman originally framed the insurance theory in terms of 'demoralization costs.'").

thought that they themselves may be subjected to similar treatment on some other occasion.³⁸

When a local government condemns property and then hands it off to private developers, it undermines the presumption that the project has the public's best interests in mind. Michelman explains that "[w]hen pursuit of efficiency gains entails capricious redistribution, either demoralization costs or settlement costs must be incurred."³⁹ In these cases, where the private developer, not the public, is the primary benefactor of the project, the land-owning community is likely to perceive the redistribution as capricious. Although the public receives incidental benefit, such as through tax revenue and jobs, it is the private developer who receives the principal benefits of the project. The perception of this fact leads to demoralization costs. "According to this theory, the government should compensate in order to overcome the disutilities associated with risk—specifically, the risk of governmental actions that reduce or destroy the value of private property."⁴⁰ Professor Merrill remarks that "there is something curiously incomplete about a theory of the takings clause that makes little mention of reliance, risk, and demoralization costs."⁴¹ Justice O'Connor alludes to demoralization costs in her dissenting opinion in *Kelo*: "For who among us can say she already makes the most productive or attractive possible use of her property? The specter of condemnation hangs over all property."⁴²

B. Determining Where Restitutionary Compensation Applies

The typical valuation method used to determine just compensation has been to assess the harm to the condemnee. That

³⁸ Michelman, *supra* note 32, at 1214.

³⁹ *Id.* at 1215. Michelman defines settlement costs as "the dollar value of the time, effort, and resources which would be required in order to reach compensation settlements adequate to avoid demoralization costs." *Id.* at 1214.

⁴⁰ Merrill, *Rent Seeking*, *supra* note 26, at 1581. Merrill explained that Michelman defined demoralization costs as

the sum of the disutilities that accrue to the losers and their sympathizers when they realize that no compensation is available for present losses, plus the value of the decline in future production caused by the realization that no compensation will be forthcoming for similar losses in the future. . . . Compensation in this view performs the same function as insurance: pooling (or in this case socializing) risks to reduce total costs (and thereby increase the wealth) of society.

Id.

⁴¹ *Id.* at 1582.

⁴² *Kelo v. City of New London*, 125 S. Ct. 2655 (2005) (O'Connor, J., dissenting); see also Berger, *supra* note 16, at 237 (arguing that monopoly and efficiency are not sufficient to justify a taking without an impending public need); see also Sandefur, *supra* note 2, at 678 ("Americans in most states are at risk of losing their homes to whatever faction is able to gain political influence.").

is, the condemnee should be paid for the fair market value of the property and no more.⁴³ Courts have historically denied compensation awards based on the benefit to the condemnor⁴⁴ largely because of the policy that the public should not be made to pay any more than necessary for the legitimate public use of the land.⁴⁵ This policy is properly at work in traditional public use takings, where the government initiates condemnations for the purposes of creating dams,⁴⁶ reservoirs,⁴⁷ levees,⁴⁸ national parks,⁴⁹ low-cost housing,⁵⁰ or public roads.⁵¹ In such traditional takings, it seems intrinsically unfair to require the public to make restitution to the condemnee in the value that it will derive from the new use. This would be unwise for several reasons. First, as the Supreme Court in *Bauman v. Ross* explained over a century ago, “the Constitution does not require that the value should be paid, but that just compensation should be given.”⁵² The Supreme Court surmised that if the condemnee “would, by the proposed public work, receive a benefit to the full value of the property taken . . . it might happen that no compensation at all, or, at most, a nominal compensation would be made.”⁵³ This dicta from *Bauman* voices two important points: just compensation requires an evaluation of all factors, not merely a determination of fair market value, and the proposed project should provide a significant benefit, not merely a distant or theoretic benefit, to the public.⁵⁴ The latter point will become more important later, when this comment provides an evaluation on how just compensation valuations differ depending on the type of project proposed. Second, quantifying demoralization costs is difficult. What is the amount of diminution in property value arising from an instance of condemnation? How is this diminution affected when the condemnation occurs to provide a dam or a levee, compared to a shopping center or an office building?

Accordingly, at least in terms of more traditional public projects, the rationale outlined in *Bauman* rightly mandates a pol-

⁴³ *The Kelo Decision*, *supra* note 13 (“The constitutional standard requires fair market value, no more and no less.”).

⁴⁴ Berger, *supra* note 16, at 233 n.146.

⁴⁵ *Bauman v. Ross*, 167 U.S. 548, 574 (1897) (“[The owner] is entitled to receive the value of what he has been deprived of, and no more. To award him less would be unjust to him; to award him more would be unjust to the public.”).

⁴⁶ *United States v. 13.20 Acres of Land*, 629 F. Supp. 242 (E.D. Wash. 1986).

⁴⁷ *United States v. 49.01 Acres of Land*, 669 F.2d 1364 (10th Cir. 1982).

⁴⁸ *Dayton Gold and Silver Mining Co. v. W.M. Seawell*, 11 Nev. 394 (Nev. 1876).

⁴⁹ *United States v. 320.0 Acres of Land*, 605 F.2d 762 (5th Cir. 1979).

⁵⁰ *Mobeco Indus., Inc. v. City of Omaha*, 598 N.W. 2d 445 (Neb. 1999).

⁵¹ *Mobile County v. Brantley*, 507 So. 2d 483 (Ala. 1987).

⁵² *Bauman v. Ross*, 167 U.S. 548, 570 (1897).

⁵³ *Id.*

⁵⁴ *Id.* at 562, 569–70.

icy against employing restitution theory in determining just compensation depending on the use and the amount of utility that actually flows to the public. But what shall we make of just compensation when these policies are not controlling? What about those situations that find themselves at the outer limits of public use—projects initiated, planned and owned by private developers, employing the government's power of eminent domain only when the developer finds it less costly than the particular transaction costs it might face? Where a project faces the low ebb of public usefulness, investment and control, and where a private developer stands ready to incur the majority of the benefits, the *Bauman* guideposts evaporate.

C. Renewed Consideration of Restitution

Without the *Bauman* rationale—that the public should not be disgorged, and the utility of a true public use flows to the condemnee⁵⁵—there is no reason that restitution theory should not apply. Instead, the private developer, who, in such instances, will have incurred substantial assembly gains through the exercise of eminent domain, should be made to share some of these gains with the condemnee. Restitution is a desirable valuation mechanism for scenarios where the *Bauman* policies do not apply. If the project's value to the public is slight, and if the public does not incur the cost of paying restitution to the condemnee, restitution theory makes the taking more like a market-based transaction. Moreover, if the developer realizes that it will be disgorged of a share of its profits, it will be less-inclined to initiate projects unless they represent a significant upward shift in the property's value and usefulness.⁵⁶ The allure of using restitution as a valuation mechanism is that it is completely practical. An independent appraisal will readily quantify the assembly costs, and the developer, who is in the business of assessing the profitability of such developments, has the job of determining whether the project is still profitable; if it is not, then the forced transfer is unjustified from an economic perspective—we may not ever need to bother with the pesky constitutional issues.⁵⁷ If

⁵⁵ *Bauman*, 167 U.S. at 581.

⁵⁶ Note that only the profit from the property transaction would be disgorged; the profit from the subsequent use would remain in the developer.

⁵⁷ See Berger, *supra* note 16, at 241–42.

[I]t is probable that the railroad and the public golf course takings would . . . present difficult if not insurmountable problems in measuring efficiency, whereas the industrial park, manufacturer's expansion, and urban renewal cases might more easily be handled. My guess would be that, if an increase in value requirement were imposed in the latter cases, some of these projects would never be undertaken in the first place.

the forced transfer is profitable, then every interested party—the private developer, the public,⁵⁸ and the condemnee—stand to gain from the transaction under a restitutionary model. Requiring restitution maintains our property system’s middle-ground approach to property rights; utility cannot prevail against private interests unless the utility achieved is substantially greater than the private interest. After all, protecting the individual promotes utility in its own way⁵⁹ while staying within our chosen construct of capitalism with a strong presumption towards private property rights.⁶⁰

Bauman reiterates the general idea that just compensation is not a fixed term, but merely a “general principle.”⁶¹ “Just compensation means a compensation which would be just in regard to the public, as well as in regard to the individual”⁶² The Supreme Court “has been careful not to reduce the concept of ‘just compensation’ to a formula.”⁶³ In awarding just compensation, the jury is free to consider the relevant facts and determine what compensation is appropriate.⁶⁴

Flowing from this general policy of fairness to the public is the notion that the public should not be required to pay a pre-

. . . .
[T]he condemner’s objective need for the condemnee’s land should clearly outweigh the degree of impingement upon the latter’s interest. . . . [It is] unfair to impose the drastic remedy of involuntary taking upon another for frivolous reasons.

Id.

⁵⁸ We may presume that demoralization costs will be substantially diminished if payment of restitution becomes the norm. If the community does not perceive the possibility of condemnation as a threat due to the fact that they stand to gain by virtue of sharing in the assembly costs, demoralization costs will be insubstantial.

⁵⁹ ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS, 477–78 (The University of Chicago Press 1976) (1776).

[E]very individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. . . . [H]e intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it.

Id. at 477–78.

⁶⁰ JESSE DUKEMINIER & JAMES E. KRIER, PROPERTY 1095 (5th ed. 2002) (explaining that it is speculated that Madison inserted the compensation requirement to ward off egalitarian redistributions of wealth).

⁶¹ *Bauman v. Ross*, 167 U.S. 548, 569 (1897); see also *id.* at 570 (quoting *Chesapeake & Ohio Canal Co. v. Key*, 5 F. Cas. 563, 564 (C.C.D.C. 1829) (No. 2,649) (“It is impossible for the legislature to fix the compensation in every individual case.”)).

⁶² *Bauman v. Ross*, 167 U.S. 548, 570 (1897).

⁶³ *United States v. Cors*, 337 U.S. 325, 332 (1949).

⁶⁴ See *Bauman*, 167 U.S. at 569–70 (citing *Chesapeake & Ohio Canal Co. v. Key*, 5 F. Cas. 563, 564 (C.C.D.C. 1829) (No. 2,649)).

mium in order to effect legitimate public purposes.⁶⁵ After all, “[p]roperty rights serve human values. They are recognized to that end, and are limited by it.”⁶⁶ The power of eminent domain is held in trust by the government to promote the benefit of the public as a whole, including the condemnee. In fact, as *Bauman* pointed out, the public project might create such a benefit to the condemnee that “it might happen that no compensation at all, or, at most, a nominal compensation would be made.”⁶⁷

II. FACTORS THAT DETERMINE A PUBLIC USE

We have discussed the policies underlying just compensation. This part discusses how the public use affects the determination of just compensation, evaluating the aforementioned policies in the context of nontraditional takings.

Justice O'Connor in *Kelo* opined in her dissent that public use should not extend so far as to cover economic development takings.⁶⁸ The Court has intimated that the “extraordinary demand” associated with a project may be a significant factor in determining whether it is a public use.⁶⁹ Public initiation of a project creates a strong presumption that the project is for the benefit of the public.⁷⁰ Inversely, initiation by a private developer typically means that the benefit, risk, and control are all in the private actor. These differences fundamentally alter the balance of the underlying policies that determine the proper valuation of the property.

A. Defining Just Compensation as a Function of Public Use

In *County of Wayne v. Hathcock*,⁷¹ the Michigan Supreme Court adopted Justice Ryan's dissent in *Poletown Neighborhood Council v. City of Detroit*,⁷² and held that, although the condemnations qualified as a legitimate public use, the transfer of the

⁶⁵ *United States v. 320.0 Acres of Land*, 605 F.2d 762, 782 (5th Cir. 1979) (“[T]he Government, in pursuing public benefits through the power of eminent domain, is not forced to overcompensate private-propertyholders.”).

⁶⁶ *State v. Shack*, 277 A.2d 369, 372 (N.J. 1971).

⁶⁷ *Bauman*, 167 U.S. at 570 (citing *Chesapeake & Ohio Canal Co. v. Key*, 5 F. Cas. 563, 564 (C.C.D.C. 1829) (No. 2,649)).

⁶⁸ *Kelo v. City of New London*, 125 S. Ct. 2655, 2673 (2005) (O'Connor, J., dissenting) (“Are economic development takings constitutional? I would hold that they are not.”).

⁶⁹ *United States v. 320.0 Acres of Land*, 605 F.2d 762, 782 (5th Cir. 1979) (quoting *United States v. Cors*, 337 U.S. 325, 333 (1949)).

⁷⁰ *Erie County Indus. Dev. Agency v. Roberts*, 94 A.D.2d 532, 539 (N.Y. Sup. Ct. 1983) (holding that projects that are initiated and financed by the private developer cannot be considered public works projects).

⁷¹ *County of Wayne v. Hathcock*, 684 N.W. 2d 765 (Mich. 2004).

⁷² *Poletown Neighborhood Council v. Detroit*, 304 N.W.2d 455, 464 (Mich. 1981) (Ryan, J., dissenting).

condemned property to private developers did not pass constitutional muster.⁷³

The foregoing indicates that the transfer of condemned property to a private entity, seen through the eyes of an individual sophisticated in the law at the time of ratification of our 1963 Constitution, would be appropriate in one of three contexts: (1) where “public necessity of the extreme sort” requires collective action; (2) where the property remains subject to public oversight after transfer to a private entity; and (3) where the property is selected because of “facts of independent public significance,” rather than the interests of the private entity to which the property is eventually transferred.⁷⁴

Thus *Hathcock* imposed a separate rule for different types of public uses. A condemnation that is not a truly necessary means of achieving a public use, not subject to public oversight, and not effected for the direct and immediate purpose of public health and safety (such as removing blight), will not pass constitutional muster under the *Hathcock* standard. This public use test seeks to restore the property rule in the public use clause. The *Hathcock* test defines a public use as a use that is truly for the public benefit, and not merely a tenuous claim that the private development will result in some utility flowing to the community.⁷⁵ Looking to the control that the local government maintains over the project provides a reasonable assurance that the project is indeed for the good of the public. Finally, the *Hathcock* standard still allows for hand-offs to private development, but only when the initial condemnation independently satisfies the public use requirement—thus a condemnation that removes “urban blight for the sake of public health and safety” satisfies the public use requirement,⁷⁶ and a subsequent hand-off to private developers would then be permissible.

A court need not be inclined to so restrict its public use guidelines as the Michigan Supreme Court did in *Hathcock*. However, the same inquiry made in *Hathcock* ought to be made in any condemnation case, irrespective of the particular jurisdictional disposition towards public use, since the factors of *Hathcock*’s public use test are relevant to employing restitution, to the extent that they affect the *Bauman* rationale. In other words, because *Bauman* prevents restitution, we must determine whether *Bauman* is controlling, and the best way to do that is through a *Hathcock* analysis. Regardless of the outcome of the public use question, the questions posed by *Hathcock* are neces-

⁷³ *Hathcock*, 684 N.W. 2d at 781.

⁷⁴ *Hathcock*, 684 N.W. 2d at 783.

⁷⁵ *Id.* at 795.

⁷⁶ *Id.* at 783.

sary to determine the proper measure of just compensation. Such an inquiry helps to illustrate a continuum of public usefulness and defines the location of a particular condemnation proceeding along this continuum. Where the public usefulness is great, *Bauman* would require that the public not be required to pay more than market value. As discussed earlier, the *Bauman* rule serves egalitarian ends, but is also rooted in sound economic theory, since a true public good will bring value to all members of the public, including the condemnee. In this way, *Bauman* satisfies our desire to give additional compensation to the condemnee who has suffered the loss of his property rights. However, what shall we make of situations where the public usefulness is meager, tenuous, or dubious? In these circumstances, of course, we could not say, as in *Bauman*, that the condemnee receives any real benefit from the project. Takings jurisprudence has long supposed that public use is not a binary determination, but rather a matter of degree, and that at some point, "if regulation goes too far it will be recognized as a taking."⁷⁷ As such, it is not troubling to conclude that the just compensation inquiry will also be one of degree and based upon the particular facts in question.⁷⁸ In other words, as the public usefulness of the project decreases, the amount of just compensation must increase. The need for varying valuation mechanisms for just compensation parallels the need for heightened scrutiny in certain types of takings.⁷⁹ The question we must then ask is just how the public use inquiry determines the just compensation inquiry. We now turn to the *Hathcock* test to find our answer.

1. The *Hathcock* Test

If the public use depends on the private development, the property has not been "selected on the basis of 'facts of independent public significance,'"⁸⁰ and thus there must either be public

⁷⁷ *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 415 (1922) (describing in now-famous language the historical difficulty of line-drawing in the realm of public use).

⁷⁸ *United States v. 320.0 Acres of Land*, 605 F.2d 762, 780–81 (5th Cir. 1979) ("But these obvious (although sometimes overlooked) precepts do not, by themselves, decide the multitudinous condemnation cases with their almost limitless range of fact complexes.").

⁷⁹ See Brief of Amici Curiae New London Landmarks, Inc. et al. in Support of Petitioners on the Merits at 7, *Kelo v. City of New London*, 125 S. Ct. 2655 (2005) (No. 04-108), 2004 WL 2812009 ("Courts should apply heightened scrutiny to takings for a private benefit, for general, undefined economic benefits, or for an uncertain or unduly vague intended use."); see, e.g., Brief of Amicus Curiae of Professors David L. Callies et al. in Support of Petitioners at 21–22, *Kelo v. City of New London*, 125 S. Ct. 2655 (2005) (No. 04-108), 2004 WL 2803192 (suggesting an intermediate level of scrutiny similar to that used for exactions).

⁸⁰ *Hathcock*, 684 N.W.2d at 783 (quoting *Poletown Neighborhood Council v. Detroit*, 304 N.W.2d 455, 478 (Mich. 1981) (Ryan, J., dissenting)); see also *Redevelopment Agency of San Francisco v. Hayes*, 266 P.2d 105, 114 (Cal. 1954).

oversight or an extraordinary need for the project to satisfy the *Hathcock* test. Where, on the other hand, the “act of condemnation *itself*, rather than the use to which the condemned land eventually would be put, was a public use,”⁸¹ the condemnation is selected on the basis of “facts of independent public significance.”⁸² Although the condemning agency is generally entitled to a presumption of validity,⁸³ where the public benefit is coterminous with the private benefit, this presumption may be undermined under this prong of the *Hathcock* test.⁸⁴ The fact that a private developer stands to receive substantial benefit should be enough to trigger a court’s suspicion. The Supreme Court of Washington in *City of Seattle v. Westlake Project*⁸⁵ rejected the use of eminent domain because of the concern that the benefits to the public were incidental as compared with the benefits that would flow to private interests.⁸⁶

Originally the definition of “public use” was very narrowly restricted. . . . [T]he more modern courts have enlarged the traditional definition of public use to include “public purpose.” The idea now is that the taking of the property itself, as distinguished from the subsequent use of that property, may be required in the public interest.

Id. at 123. “[Since] the acquiring of the property is for a public use, its sale and the transfer of the property from one individual to another, so far as they may occur, are merely incidental to that use . . .” *Id.*

⁸¹ *Hathcock*, 684 N.W.2d at 782.

⁸² *Id.* at 783.

⁸³ See Gary P. Johnson, *The Effect of the Public Use Requirement on Excess Condemnation*, 48 TENN. L. REV. 370, 373–74 (1981) (“Consequently, courts began to look at the ultimate purpose of a project in order to justify a taking that eventually would benefit the public.”).

To say, as has been too often carelessly said, that “the acts done by these corporations are done with a view to their own interests, from which an incidental benefit springs to the public,” is to admit their private character, and the private use of the property condemned to their use. But it is obvious, that the object which determines the character of a corporation is that designed by the legislature, rather than that sought by the company. If that object be primarily the private interest of its members, although an incidental benefit may accrue to the government therefrom, then the corporation is private, but if that object be the public interest, to be secured by the exercise of powers, delegated for that purpose, which would otherwise repose in the State, then, although private interest may be incidentally promoted, the corporation is in its nature public—it is essentially the trustee of the government for the promotion of the objects desired—a mere agent, to which authority is delegated to work out the public interest through the means provided by government for that purpose, and broadly distinguishable from one created for the attainment of no public end, and from which no benefit accrues to the community except such as results incidentally, and not necessarily, from its operations.

Swan v. Williams, 2 Mich. 427, 435 (1852).

⁸⁴ *County of Wayne v. Hathcock*, 684 N.W. 2d 765, 783 (Mich. 2004) (“[T]he underlying purposes for resorting to condemnation, rather than the subsequent use of condemned land, must satisfy the Constitution’s public use requirement.”).

⁸⁵ 638 P.2d 549 (1981).

⁸⁶ *Id.* at 559. Public benefit included new stores in which to shop; private benefits included higher incomes. See *id.*

The second prong of the *Hathcock* test asks whether the condemnation is necessary towards the realization of a public purpose.⁸⁷ The condemning authority must demonstrate that the transfer of the condemned property “to a private entity involved ‘public necessity of the extreme sort otherwise impracticable.’”⁸⁸ The type of extreme deference that is characteristic of most courts, including most notably the U.S. Supreme Court in *Kelo*, does not exist under a *Hathcock* analysis.⁸⁹ The necessity required by the Michigan Supreme Court is an actual, physical necessity; the “very *existence* [of the public benefits] depends on the use of land.”⁹⁰ This standard intimates the very sort of holdout behavior that would make public projects impracticable without the power of eminent domain. This sort of necessity is found in classic public uses such as “highways, railroads, [and] canals”⁹¹

The third prong of the *Hathcock* test concerns forced transfers that do not remain “accountable to the public in its use of [the] property.”⁹² “Land cannot be taken, under the exercise of the power of eminent domain, unless, after it is taken, it will be devoted to the *use of the public, independent of the will of the corporation taking it.*”⁹³ This language again suggests a return to

⁸⁷ See *Hathcock*, 684 N.W.2d at 782.

⁸⁸ *Id.* at 781 (quoting *Poletown Neighborhood Council v. Detroit*, 304 N.W.2d 455, 478 (Mich. 1981) (Ryan, J., dissenting)).

⁸⁹ See *Kelo v. City of New London*, 125 S. Ct. 2655, 2663 (2005) (“Without exception, our cases have defined that concept broadly, reflecting our longstanding policy of deference to legislative judgments in this field.”). The majority attempts to rein in its sweeping deference by employing “meaningful rational basis review” that seeks to prevent takings that are “intended to favor a particular private party, with only incidental or pretextual public benefits.” *Id.* at 2669–70 (Kennedy, J., concurring). But this lax standard of review is easily bested by legal engineering. Justice Kennedy wrote that because “benefiting Pfizer was not ‘the primary motivation or effect of this development plan,’” and that instead “‘the primary motivation for [respondents] was to *take advantage* of Pfizer’s presence,” the taking was permitted. *Id.* at 2670 (emphasis added). Thus, as long as local governments properly frame their intentions, it will evade judicial review of its use of eminent domain.

Courts might then take the intellectual path set out by the California Court of Appeal’s decision in *Redevelopment Agency of San Francisco v. Del-Camp Investments*. In that case, the property owner argued that the public use requirement prohibited a redevelopment agency from taking his property for the construction of a hotel. The court rejected this argument because “the public use for which defendant’s property was to be taken was community redevelopment, not the construction of a hotel.” In the end, the condemnation is the same, merely with a different name.

Sandefur, *supra* note 2, at 670 (quoting *Redevelopment Agency of San Francisco v. Del-Camp Investments*, 113 Cal. Rptr. 762, 766 (1974)).

⁹⁰ *Hathcock*, 684 N.W. 2d at 781 (quoting *Poletown*, 304 N.W.2d 455, 478 (Ryan, J., dissenting)).

⁹¹ Sandefur, *supra* note 2, at 669 (quoting *Poletown*, 304 N.W. 2d 455, 478 (Ryan, J., dissenting)).

⁹² *Hathcock*, 684 N.W.2d at 782.

⁹³ *Id.* (quoting *Poletown*, 304 N.W.2d 455, 476 (Ryan, J., dissenting) (quoting Berrien

common sense ideas about the limits of eminent domain powers, and that a substantial public interest must exist to overcome an owner's property rights. Regulation⁹⁴ and subsidies⁹⁵ over private projects are often indicative of an intrinsic public interest. Regulation and subsidies may entitle the project to a presumption of public use, since government subsidies suggest that the project is of extraordinary public interest.⁹⁶ Historically, governments have subsidized private developments when there is substantial public need for the project, but the project itself carries too much risk for the private developer to proceed without government assistance,⁹⁷ or because the project is not lucrative enough to attract redevelopment without subsidization.⁹⁸ When the public subsidizes a project, public oversight is likely to follow.⁹⁹

The general principle under eminent domain "excludes enhancement of value resulting from the government's special or extraordinary demand for the property."¹⁰⁰ In the type of public use required by *Hathcock*, we see that the principle elucidated in *Bauman* applies.

Springs Water Power Co. v. Berrien Circuit Judge, 94 N.W. 379, 380–81 (Mich. 1903))).

⁹⁴ See Sandefur, *supra* note 2, at 656 ("One chief rationalization [for finding a public use] was that the railroad was regulated by the government in such a way as to render it essentially 'public.'").

⁹⁵ See Gideon Kanner, *Making Laws and Sausages: A Quarter-Century Retrospective on Penn Central Transportation Co. v. City of New York*, 13 WM. & MARY BILL RTS. J. 653, 727 (2005) (remarking that subsidies were given to railroads because of the substantial reciprocal benefits given to society, and because of the great risk taken by the railroads, intimating that the government wished to make up the cost of risk by granting subsidies. However, subsidies are often also granted towards wasteful projects to reward political supporters. *Id.* at 762–63; see also Greater Westchester Homeowners Ass'n v. Los Angeles, 603 P.2d 1329, 1333 (Cal. 1979) ("[A]irports so subsidized must be available for public use on 'fair and reasonable terms and without unjust discrimination. . . .')").

⁹⁶ See Kanner, *supra* note 95, at 727 (discussing the importance of the role of railroads as the reason for their subsidization).

⁹⁷ See *id.*

⁹⁸ See George Lefcoe, *Finding the Blight That's Right for California Redevelopment Law*, 52 HASTINGS L.J. 991 *passim* (2001) (explaining how local governments seek out "blighted" areas in need of redevelopment, and offering subsidies to developers if needed). But see Colin Gordon, *Blighting the Way: Urban Renewal, Economic Development, and the Elusive Definition of Blight*, 31 FORDHAM URB. L.J. 305, 322 (2004) (explaining how private developers exploit redevelopment by seeking "the 'blight that's right'—an area with at least some of the conditions needed to make a plausible case for subsidized redevelopment, but not so run-down as to put private investment at risk").

⁹⁹ See Scott L. Cummings, *Community Economic Development as Progressive Politics: Toward a Grassroots Movement for Economic Justice*, 54 STAN. L. REV. 399, 479 (2001) ("[I]n exchange for subsidies, developers are being required to provide community benefits packages, which, in addition to living wage provisions, typically include job training programs and community hiring agreements."); Paul Stephen Dempsey, *Transportation: A Legal History*, 30 TRANSP. L.J. 235, 237 (2003) ("Historically, government has facilitated transportation by building the airports, the seaports, the rail and transit lines, subsidized their operations where necessary, and established the basic codes and rules pursuant to which the industry serves the public.").

¹⁰⁰ United States v. Cors, 337 U.S. 325, 333 (1949).

[A]n unwilling seller, a condemnee, receives “just” compensation only in the limiting case in which the property is taken for the purpose of providing a “pure public good.” Only in this case does the condemnee receive the additional benefits flowing from the provision of the pure-public good itself that augment the incomplete compensation resulting from the “market value” of the property. . . . Only in the case of a taking for the purpose of providing a pure public good can the benefits, both pecuniary and nonpecuniary, that flow from the “pure public good,” added to the fair market value (plus incidental expenses) equal the just compensation mandate of the fifth amendment.¹⁰¹

Under *Bauman*, the reason that just compensation should be limited to the amount of the condemnee’s harm is that the public should not be made to pay more for public works projects, and that the condemnee shares in the benefits of the public works project. In this sense, we satisfy the Rawlsian “justice as fairness” idea, that just compensation must do better than to merely place the condemnee in a neutral position.¹⁰² Thus, a taking should not evade the possibility of restitutionary compensation where the public use does not satisfy a *Hathcock* inquiry. Stated alternatively, where a condemnation arises out of public necessity, there is an added presumption that the just compensation award should be based solely on the condemnee’s harm, since, according to *Bauman*, the condemnee already realizes value flowing from the public project. Conversely, where necessity does not exist, it follows that there will be a stronger presumption towards awarding the condemnee a greater recovery. “As one moves away from the central case of the ‘pure public good’ . . . the benefits to the condemnee diminish.”¹⁰³ Without an “extraordinary demand for the property,”¹⁰⁴ the public has a reduced interest in the condemnation, and thus has a weaker presumption in taking the better of the bargain for itself.¹⁰⁵

Where the public’s interest in the condemned property is coterminous with that of the private developer, the public’s interest is represented by the private developer; thus, the presumption of validity of the government’s exercise of eminent domain is diminished. Eminent domain is a mechanism whereby the public is

¹⁰¹ Crafton, *supra* note 17, at 891–92.

¹⁰² See Michelman, *supra* note 32, at 1219.

¹⁰³ *Id.* at 892.

¹⁰⁴ *Cors*, 337 U.S. at 333.

¹⁰⁵ It is conceivable that the opposite could be argued: that one would pay a premium on a more urgent project, and less on a more frivolous project. But this is not our context in takings analysis, in which the justification is based on the grave need, and the reason for paying as little compensation as justice requires is to allow the public to realize a useful project. Inversely, justice requires that the public pay more to a condemnee when the project is frivolous, or the property is used by the government as capital, or the taking is otherwise not truly necessary to effect a legitimate public purpose.

empowered to avoid expensive transaction costs and to transact as a unitary body. The power of eminent domain is not meant to buttress private developers whose interests just so happen to align with the government's interests. Thus, *Hathcock* held that where "there are no facts of independent public significance (such as the need to promote health and safety) that might justify the condemnation of defendants' lands[,] there may be a reduced presumption of validity of the condemnation."¹⁰⁶

III. RESTITUTION AS A VALUATION MECHANISM

Thus far, this comment has sought to establish the policies underlying compensation awards in traditional condemnations. These types of takings are defined by the test set forth in *Hathcock*: (1) "where [the] 'public necessity [is] of the extreme sort'"; (2) "where the property remains subject to public oversight"; or (3) the taking occurs "because of 'facts of independent public significance.'"¹⁰⁷ The Michigan Supreme Court in *Hathcock* held that a condemnation that does not conform to any of the three tests does not pass constitutional muster as a public use in the first place.¹⁰⁸ When a proposed project fails to conform to one or more of the *Hathcock* factors, the project affects the policies that control the amount of just compensation owed to the condemnee. The result is that transfers of condemned property to a private entity that fail one or more of the *Hathcock* tests are subject to a diminished presumption of public usefulness, and thus an increased presumption of benefit to the condemnee through just compensation. In such scenarios, awarding compensation that goes beyond the condemnee's harm (such as restitutionary awards) would not be *just* compensation. Conversely, where the policies set forth in *Bauman* do not exist, then neither does any reason to limit the condemnee's compensation award to the amount of harm incurred. Clearly, as we have seen, the quantifiable harm incurred is not the only cost associated with the taking. Demoralization costs,¹⁰⁹ as well as the subjective value of the property to the condemnee, are losses that, although difficult to measure, should be considered in determining just compensation if just compensation is to fulfill its constitutional purpose in providing substantial justice. Professor Berger argued that "the recovery allowed should be substantially in excess of the loss, perhaps fifty percent higher, in order to compensate the condemnee for the gross infliction of injury for private purposes solely in the

¹⁰⁶ *County of Wayne v. Hathcock*, 684 N.W.2d 765, 784 (Mich. 2004).

¹⁰⁷ *Id.* at 797 (Weaver, J., concurring in part and dissenting in part).

¹⁰⁸ *Id.* at 783.

¹⁰⁹ *See supra* Part I.A (defining demoralization costs).

name of efficiency.”¹¹⁰ Awarding market value in absence of any additional award may be a matter of expediency, since it excuses the court and the condemnor from engaging in an inquiry of actual costs and the requirement of justice, but it should not be regarded as constitutionally sufficient.

A. Restitution as Generally Equitable

Courts have long held that the taker’s gain should not determine the measure of just compensation.¹¹¹ “The Constitution requires ‘just compensation,’ not fair market value.”¹¹² The Court has reasoned that it must “adopt working rules in order to do substantial justice in eminent domain proceedings,”¹¹³ suggesting that the market value rule is based as much on expediency as anything else. Thus the current rule regarding just compensation represents an idea of efficacy in the law, but it is not so clear that it represents one of justice, as the constitution requires. As this comment has argued, restitution may even be constitutionally required in most cases of condemnations for traditional public uses; as *Bauman* demonstrates, restitution simply does not make sense in certain condemnation scenarios. Stated broadly, there are two types of takings: ones in which private developers are major stakeholders, and ones in which they are not. We are not here concerned with the latter—it is safe enough to assume that these types of takings are of the sort that will readily meet the *Hathcock* standard, and are therefore the sort in which the *Bauman* principles apply. Lawrence Berger defines a public taking as “one which benefits large numbers of persons in a nondiscriminatory and nonexclusionary manner. Takings for railroads, hospitals, streets, and governmental buildings would clearly come within the classification.”¹¹⁴ The incidence of private stakeholders in such takings is merely a matter of expedience;

¹¹⁰ Berger, *supra* note 16, at 236–37.

¹¹¹ See *United States ex rel. Tenn. Valley Auth. v. Powelson*, 319 U.S. 266, 281 (1943) (“It is a well settled rule that while it is the owner’s loss, not the taker’s gain, which is the measure of compensation for the property taken . . .”); *United States v. Miller*, 317 U.S. 369, 375 (1943) (“Since the owner is to receive no more than indemnity for his loss, his award cannot be enhanced by any gain to the taker.”); *Bauman v. Ross*, 167 U.S. 548, 574 (1897) (“The just compensation required by the constitution to be made to the owner is to be measured by the loss caused to him by the appropriation. He is entitled to receive the value of what he has been deprived of, and no more.”); Berger, *supra* note 16, at 233 n.146 (“It is of course well established that a condemnee is *not* entitled to recover the benefit the condemnor reaps through the condemnation.”).

¹¹² American Planning Association Brief, *supra* note 13, at 28. “The Court has been reluctant to endorse deviations from the market value standard . . . because differentiating between claimants . . . would create administrative problems for courts.” *Id.* at 28–29. See also Berger, *supra* note 16, at 233 (describing some situations in which “it is perfectly sensible as well as just to allow the condemnnee the greater recovery”).

¹¹³ *United States v. Miller*, 317 U.S. 369, 375 (1943).

¹¹⁴ Berger, *supra* note 16, at 225.

the development of these projects is not generally the sort that presents a substantial pecuniary opportunity to private developers. Thus, it is generally safe to assume that these projects are public uses in a traditional, non-controversial sense.

Restitution awards reduce demoralization costs,¹¹⁵ preserve predictability, protect condemnees' infra-marginal value,¹¹⁶ and generally promote private property rights. In takings involving a pure public use, courts balance several factors against these interests, including the *Bauman* principle of preserving a low price to the public, overcoming monopoly behavior and holdouts, and generally serving utilitarian property goals.¹¹⁷ A valuation method that affords condemnees only that which will "make them whole" while allowing the government to appropriate the property for the good of the public, is arguably *just* compensation for takings that survive the *Hathcock* analysis. However, takings that fail the *Hathcock* analysis undermine the conclusion that "fair market value" will satisfy the demand of just compensation.

B. An Argument from Principles

Our system of property rights is informed by ideas of both individual rights and utilitarianism. Property rules are based on an individual rights approach to ownership; liability rules are based on a utilitarian approach.¹¹⁸ Where individual rights are sufficiently outweighed by perceived social interests, the utilitarian perspective informs the operation of the eminent domain power. Thus, eminent domain is typically employed "to overcome barriers to voluntary exchange created when a seller of resources is in position to extract economic rents from a buyer."¹¹⁹ Since the Fifth Amendment is basically a liability rule,¹²⁰ it presumes

¹¹⁵ See discussion *supra* Part 0.

¹¹⁶ See Crafton, *supra* note 17, at 889. "An infra-marginal seller is one who values the good being held in stock more than the price offered on the market." *Id.* n.181.

¹¹⁷ See generally *Hawaii Hous. Auth. v. Midkiff*, 467 U.S. 229, 230 (1984) (breakup of an oligopoly is a valid public purpose); *Berman v. Parker*, 348 U.S. 26, 28 (1954) (blight-removal is a valid public purpose). Additionally, courts have opined that monetary compensation might not even be required at all if the benefit made available to the public may be counted towards the condemnee's just compensation.

If the jury would have a right to consider the benefit, as well as the damage, without the provision of the charter which requires them to do so, the same objection would still exist, namely, that, under the provisions of the charter it might happen that no compensation at all, or, at most, a nominal compensation, would be made.

Bauman v. Ross, 167 U.S. 548, 570 (1897).

¹¹⁸ See Calabresi & Melamed, *supra* note 5, at 1105–06 (explaining how property is generally viewed as an entitlement that may not be taken unless the holder sells it willingly, but this general rule may in certain cases be ignored, allowing a forced transfer of the entitlement to better serve public utility).

¹¹⁹ Merrill, *The Economics of Public Use*, *supra* note 2, at 65.

¹²⁰ See *id.* at 64 ("[C]ourts have effectively declared that liability rules alone shall

a utilitarian analysis. That is, provided that the government shows that the taking is for a “public use,” the property rule of the takings clause is satisfied, leaving only a liability rule—that just compensation be paid. As we have seen, disgorgement of the public is not justified. A public use is naturally one whose goal is to enrich the public, and the condemnee’s interest may not be permitted to disgorge such enrichment. However, where a public use project is initiated and controlled by a private developer, the utilitarian perspective does not inform as to what should be done with any surplus gains. Once the developer is adequately incentivized to proceed with the project, to whom do the surplus gains owe?

The utilitarian approach justifies a calculus that disgorges the developer as long as it leaves enough to incentivize that developer to go through with the useful project.¹²¹ As long as the developer is adequately incentivized, there is no further utilitarian justification to allow him to keep any surplus profits. Instead, the utilitarian perspective might instruct that the surplus gains be allotted to the government. This is a poor idea, however, since it results in the local government deriving profit from a project for which it bore no risk. Such a policy would result in local governments liberally invoking eminent domain power for private development so that the local government might keep the surplus profits, resulting in treatment of property as capital rather than for legitimate public projects, and ultimately undermining the role of property rights.

If the utilitarian perspective does not inform as to the allocation of surplus profits, then, as Professor Merrill suggested, perhaps labor theory informs that the surplus should remain in the developer.¹²² “The labor theory may be out of fashion, but as between a condemnor and a condemnee, the condemnor is typically more responsible for, and hence arguably deserving of, the sur-

protect all private property rights.”). This is probably much to the chagrin of the Founders, however. See Sandefur, *supra* note 2, at 662.

The use of eminent domain to redistribute “resources or opportunities to one group rather than another solely on the ground that those favored have exercised the raw political power to obtain what they want” puts political popularity ahead of justice. Thomas Hobbes argued that in the state of nature “there [can] be no propriety, no dominion, no mine and thine distinct; but only that to be every man’s that he can get: and for so long, as he can keep it.” The goal of the Constitution was to curb these problems. As a founding father, James Madison strove to maintain the distinction between might and right.

Id.

¹²¹ This assumes, of course, that the project passes constitutional muster as a “public use” in the first event.

¹²² Merrill, *The Economics of Public Use*, *supra* note 2, at 86.

plus generated by the project.”¹²³ However, this argument cannot be taken seriously, since labor theory is a rule that stands to protect those who have actually used and added to property.¹²⁴ Professor Merrill presumes to apply it to a developer who has, as of yet, only made a claim to add value to the property. Because the assembly value is realized through the exercise of the eminent domain power, it is difficult to understand how labor theory yields any helpful insight here.

Because utilitarian principles have been served, and because labor theory does not apply, the individual rights principle must be reinstated. Presumably, the developer sought condemnation in order to overcome high transaction costs. If we properly recognize eminent domain as a power designed to ensure that useful projects occur, but not designed to ensure maximum profits to rent-seekers, then we understand that eminent domain only suspends individual rights to the extent that the useful project occurs. Once the project is adequately incentivized, eminent domain authority ends, and its egalitarian principles are no longer relevant in determining the distribution of surplus profits. At this point, the condemnee’s rights may now govern the distribution of the surplus gains. As we have discussed, the developer’s claim to individual rights to the property via labor theory fails. Thus, any surplus assembly gains derived from the exercise of eminent domain power must therefore vest in the condemnee.

It is worth noting that restitution theory presumes to disgorge the assembly value realized through eminent domain. That is, the increased value of the *property*, not the profit from the use itself. Were this not so, inefficient use would certainly occur, as the developer would have no incentive to continue in profitable activity if profits from such activities were disgorged. Instead, restitution theory would disgorge the developer’s profit from the increased value of the land that arises from its redistribution and new use. The general idea is that the developer should not profit twice from the transaction. The value from the use owes to the developer, but the value of the property that is

¹²³ *Id.*

¹²⁴ See JOHN LOCKE, THE SECOND TREATISE OF GOVERNMENT § 27, 17 (Thomas P. Reardon ed., Liberal Arts Press 1952) (1690). Locke explains that “every man has a property in his own person; . . . [t]he labor of his body and the work of his hands . . . are properly his. Whatsoever then he removes out of the state that Nature has provided and left in, he has mixed his labor with, and joined to it something that is his own, and thereby made it his property.” *Id.* We may properly understand this rule to apply *ex post*; labor theory does not entitle a developer who merely *intends* to add his labor—the theory does not disgorge one owner simple because another makes plans to put his hands to the soil. Instead, labor theory only makes land the rightful property of the laborer at the conclusion of his labor.

acquired through a forced transfer owes to the condemnee.¹²⁵

1. Eminent Domain's Purpose is to Facilitate the Market

Transaction costs, from the developer's perspective, are what an owner stands to gain from selling his property to an extraordinarily motivated buyer. It is the amount between the market value and the developer's valuation of the property that the owner seeks to claim for himself. The problem with transaction costs is that the two parties run the risk that they will not settle on an agreeable amount (due to the monopoly problem,¹²⁶ the holdout problem, or otherwise failed negotiations), and the transaction—which presumably would create a substantial aggregate benefit—will not occur.

Thus, the function of eminent domain in this transaction is to provide an escape hatch so that it will occur,¹²⁷ even if the failed negotiations prevent it from occurring in the market. But, it must not be made more than an escape hatch: eminent domain should resume the work of finding the amount which both the buyer and seller would have agreed to if negotiations had been successful. Of course, one of the flaws may have been that the price at which the owner would have sold was simply more than the developer would have paid. In this instance, if there is a public use, then the owner would receive less than he wanted; however, this would still be more than the property was worth (this is necessarily so, since the aggregate benefit is improved). Therefore, we might rightly call the owner "greedy," and be satisfied by saying that he should be happy with the amount that he receives. However, some scholars have used game theory to show that negotiations that fail due to greedy landowners is the exception rather than the rule.

[A]nalysis of "Ultimatum Game" bargaining experiments—which resemble negotiation under property rules—reveals that, contrary to standard economic assumptions, people do not try to hold out for all the gains from a trade, but fairly split its potential profits. This opti-

¹²⁵ Notice that this reflects the way the transaction would likely occur in the market. An unwilling seller, faced with a willing developer-buyer, would seek to ascertain the developer's valuation of the property, and seek to negotiate a sale price at that amount. If property is necessary to the project, if the seller is truly unwilling (that is, uninterested in selling for market price), if the buyer is truly willing, and if rent-seeking is not an option, the negotiated price will invariably gravitate towards the developer's subjective value of the property.

¹²⁶ Merrill, *The Economics of Public Use*, *supra* note 2, at 65 ("[W]hen a seller of resources is in position to extract economic rents from a buyer[,] [t]his . . . can lead to monopoly pricing by the seller, to unacceptably high transaction costs, or to both."); Berger, *supra* note 16, at 225 ("Purchase is generally not feasible where the other party is in a monopoly position and does not want to sell at or even above the fair market value . . .").

¹²⁷ Presuming, of course, that the transaction would serve a public purpose.

mistic finding regarding probable bargaining success is further supported by studies exploring the difference between sellers' and buyers' attitudes toward risk. Consequently, negotiation under property rules in real life should be more successful than theoretically inclined scholars tend to assume. Indeed, property rules may be viewed as promoting agreement and fair sharing among the parties.¹²⁸

Despite predictions that the responder will seek to maximize his profits by accepting whatever is offered, Lewinsohn-Zamir explains that offers that deviate substantially from fifty percent are typically rejected.¹²⁹ This rejection is due to the tendency of individuals to resist unfairness by rejecting substantially unfair offers.¹³⁰ In addition, "[i]t is highly unlikely that people ordinarily feel entitled to all the profits of every transaction. Rather, they expect to receive a certain, acceptable share."¹³¹ If Lewinsohn-Zamir's projections are correct, we should assume that, if negotiations were to succeed in the market, landowners would typically share forty to fifty percent of the assembly gains.¹³²

C. Determining Where Restitution Is Appropriate

As the Supreme Court affirms the constitutionality of taking property to hand-off to private developers, the valuation tests that weigh the public interests against the condemnees' interests should now tip in favor of the condemnees. As such, valuation mechanisms must be reassessed in order to determine the correct mechanism in these scenarios. After all, a one-size-fits-all valuation mechanism has never been deemed appropriate.¹³³ Where private developers are the primary benefactors (thus failing *Hathcock's* "independent public significance" test), just compensation based on fair market value, while making the condemnee whole, still enriches the rent-seeker. In the context of eminent domain, when a party who is not the public at large is enriched,¹³⁴ it is appropriate to apply restitution as against the

¹²⁸ Lewinsohn-Zamir, *supra* note 33, at 221.

¹²⁹ *Id.* at 232.

¹³⁰ *Id.* at 229–30.

¹³¹ *Id.* at 233.

¹³² *Id.* at 239.

¹³³ *Bauman v. Ross*, 167 U.S. 548, 569 (1897) ("It is impossible for the legislature to fix the compensation in every individual case. It can only provide a tribunal to examine the circumstances of each case, and to estimate the just compensation."); *see also United States v. 320.0 Acres of Land*, 605 F.2d 762, 780–81 (5th Cir. 1979).

But these obvious (although sometimes overlooked) precepts do not, by themselves, decide the multitudinous condemnation cases with their almost limitless range of fact complexes. Supplementing these precepts are a number of "working rules" and "practical standards" developed by the courts in their endeavor to do substantial justice in eminent domain proceedings.

Id. (citing *United States v. Cors*, 337 U.S. 325, 332 (1949)).

¹³⁴ Restitution purports to disgorge parties of unjust enrichment. Restitution is thus

enriched party in order to afford the condemnee an opportunity to share in the profits of the endeavor. What becomes clear is that restitution is generally an inappropriate valuation mechanism by virtue of the fact that, nearly categorically, the public may not be disgorged.¹³⁵ As we have seen in *Hathcock*, when the government oversees a necessary project by which it derives direct benefit on behalf of the public,¹³⁶ the condemnee must be content with fair market value plus costs.

However, where a private actor especially benefits by virtue of the condemnation, he affects the factors that determine the just compensation to be paid. A condemnee's interests are never disregarded, although they may be eclipsed by a more compelling public need. Although, where the public need is particularly slight, or where the condemnee may receive the benefit of the proceeding without burden to the public, the condemnee's interest in receiving such benefit is substantially improved in relation to the interests to be balanced. Where restitution would be paid by a private developer rather than the public, and such payment is from the developer's surplus (thus not destroying his incentive to go forward with the project), restitution is not only appropriate, but obligatory in terms of fairness.

1. Application of Restitution Theory

Some examples may serve to illustrate the mechanics of restitution theory and its supporting principles. The restitution theory proffered here suggests that when a public use is not characterized by an extraordinary public need, public oversight, or independent public significance, as described in *Hathcock*,¹³⁷ the condemnee is entitled to the increased land value that results from the forced transfer of entitlement to the private developer. Supporting this theory are economic principles that illustrate that market value does not describe the total cost of the forced transfer, foundational principles of property rights.

Assume that each of these scenarios represents a project that

inapplicable in pure public use takings, since the public at large cannot properly said to be "unjustly enriched." Because the public comprises everyone—including the condemnee—the condemnee cannot claim that anyone has been unjustly enriched, as even the condemnee has benefited by his property being put to public use.

¹³⁵ The public might conceivably be disgorged where the government controls and directly benefits by a project that is so frivolous that it cannot be considered "necessary" under *Hathcock*. However, such a project is not likely to pass constitutional muster as a public use in the first event. A disgorgement rule could be useful, however, if a court is unwilling to prohibit the project, since it could entitle the condemnee to all surplus profits from the project, thus deterring the government from other similar projects reducing demoralization costs and the harm to the condemnee.

¹³⁶ See *County of Wayne v. Hathcock*, 684 N.W.2d 765, 781–83 (Mich. 2004).

¹³⁷ See discussion *supra* Part 0.

has a private developer as a major stakeholder, and that the state or local government does not provide a substantial subsidy for the project. A public use exists under *Hathcock* when there is an extraordinary public necessity, public oversight, or independent public significance.¹³⁸ This kind of public use will be represented as *H*. Assume that the increase in land value due to the forced transfer of entitlement to the private developer is surplus profit to the extent that disgorgement of such increase would not destroy the developer's incentive to go forward with the project. This surplus is represented as *S*. Assume that the market value of the condemned property is undisputed, and is represented as *MV*. Assume that because of additional costs such as demoralization costs, loss of perceived value, etc., *MV* does not represent the true cost of the forced transfer. Finally, assume that the Ultimatum Game indicates that the landowner will share 45% of the assembly gains. Taken as such, there are four possible scenarios:

Scenario A: *H* and *S* both exist.

Scenario B: *H* exists; *S* does not exist.

Scenario C: *H* does not exist; *S* exists.

Scenario D: Neither *H* nor *S* exist.

Under a *Hathcock* rule, we know that neither Scenario C nor D will be constitutionally permitted, since there is no public use under that rule. So our inquiry is at an end in a jurisdiction that adopts the *Hathcock* rule for determining public use as to C and D, since the taking will be prohibited. Restitution theory may inform a non-*Hathcock* jurisdiction as to scenarios, and it may still inform a *Hathcock* jurisdiction as to scenarios A and B.

a. Scenario A

Since *H* exists, and the condemnee receives *MV*, we recognize the need to give him something more to offset the other costs associated with the forced transfer. The public is not paying for the project, so restitution theory would not disgorge the public. However, the other *Bauman* policy applies, since the significant public usefulness of the project will flow to the condemnee. Thus, the condemnee's costs have been covered, and he has been provided with some benefit on top of that, resulting in an economic gain. However, restitution is still supported by the argument from principles. Because there is a presumption towards individual rights, and the eminent domain power should only go so far as to effect useful public projects, we must take notice of the

¹³⁸ *Hathcock*, 684 N.W.2d at 783.

developer's surplus, S . Utilitarianism requires that if a useful public project can occur while making the condemnee whole, then the taking is justified. But, it does not inform as to how to distribute S . Individual rights theory, on the other hand, does inform as to the distribution, and requires that the distribution flow to the condemnee as a nominal compensation for the deprivation of his property right. Finally, the Ultimatum Game suggests that this transaction would in the market arrive somewhere near $MV + (45\% \text{ of } S)$. Thus, restitution theory should allow the condemnee recovery in the amount of $(45\% \text{ of } S)$ over and above MV .¹³⁹

b. Scenario B

Since H exists, and the condemnee receives MV , we again recognize the need to give him something more to offset the other costs associated with the forced transfer. As in scenario A, the public is not paying for the project, so restitution would not disgorge the public, and the public usefulness of the project flows to the condemnee. Thus, we begin much the same as we did in A, where the condemnee's costs have been covered and he has been provided with benefit on top of that, resulting in an economic gain to the condemnee from the transfer. Unlike A, however, S does not exist, and thus, there is nothing to disgorge; anything that is taken from the developer would result in disincentivizing the developer and jeopardizing the project. Because the project satisfies the *Hathcock* test, principles of utilitarianism require that the project be protected. In A, the utilitarian goal in bringing about the project governs the transaction only to the point that it guarantees the realization of the project; once that is assured, the presumption towards protecting individual rights takes over. The presumption towards individual rights will favor the condemnee. In the present scenario, because S does not exist—that is, no value is derived once the presumption towards individual rights takes over—there can be no restitution, because there is nothing to be disgorged. Restitution, therefore, must depend on the existence of S .

c. Scenario C

Since H does not exist, a *Hathcock* jurisdiction would pro-

¹³⁹ See Berger, *supra* note 16, at 243 ("In the case of a private taking . . . it was suggested that the measure of damages should prima facie be the greater of the increase in value to the condemner's property or 150% of the loss to the condemnee."). At any rate, the measure of compensation should be substantially greater than market value: the developer's gains should be significant in order to justify a taking that only speciously provides public utility, and equitable distribution of these gains should provide something like 150% of the condemnee's loss, as Berger suggests.

hibit the taking. Because *S* exists, as in *A*, there is something to be disgorged. Here, there are even stronger reasons to apply restitution theory. First, as in the previous scenarios, it is not the public who is being disgorged. But here, because *H* does not exist, there is no compelling public use that flows to the condemnee. Thus, *neither* of the *Bauman* policies against awarding restitution apply in this case. Second, the economic rationale is even stronger than in *A*, since there is heightened concern over demoralization costs.¹⁴⁰ Finally, game theory predicts a similar outcome as in *A*. Thus, where *S* exists, but *H* does not exist, we find the justification for restitution theory to be at its zenith.

d. Scenario D

For the same reasons as in *C*, the condemnee has a stronger claim to compensation over and above *MV*. The demoralization costs are also increased as they are in *C*—perhaps even more so: if we assume from the nonexistence of *S* that the project is only marginally profitable, then the condemnation seems to lack not only a direct public purpose, but also a compelling private interest. This merely marginal aggregate utility might not be sufficient to justify the initial presumption towards individual rights. However, because *S* does not exist, the private developer cannot be disgorged without endangering the project. Accordingly, the condemnee does not receive the benefit of the public project, and the community suffers heightened demoralization costs. This scenario lacks any compelling justification, and should be prohibited as economically inefficient.

IV. CONCLUSION

Redirecting our focus to the just compensation clause is the most effective response to a vacuous public use standard. In cases of condemnations that fail a *Hathcock* analysis, such as condemnations for the benefit of rent-seeking developers, a restitutionary compensation would provide a share of the gains to the condemnee, who deserves it at least as much as the developer himself. The historical presumption against restitution is founded upon: (1) the idea that the public should not be made to pay any more than necessary to effect a public project, and (2) the idea that the public utility of the project flows to the condemnee, providing him with value. In the types of takings we have discussed, where the private developer is the primary stakeholder, who foots the bill through the local government to

¹⁴⁰ As the community perceives condemnations to occur more frequently or without compelling public purpose behind them, demoralization costs increase.

purchase the condemned land, and provides only attenuated benefit to the public, the presumption against restitution evaporates. An analysis of the principles governing the transaction reveals that the condemnee has the strongest claim to surplus assembly gains. Because of demoralization costs, subjective values, speculative public utility, substantial private enrichment, and guiding principles of individual rights and utilitarianism, restitutionary compensation is a significantly more just valuation mechanism than mere fair market value.

Space Tourism: Regulating Passage to the Happiest Place Off Earth

*Catherine E. Parsons**

“Interplanetary travel is now the only form of ‘conquest and empire’ compatible with civilization. Without it, the human mind, compelled to circle forever in its planetary goldfish bowl, must eventually stagnate.”¹

I. INTRODUCTION

Since SpaceShipOne succeeded in winning the X PRIZE in October 2004, space tourism businesses have been booming with several companies in the race to become the first to send paying customers into suborbital space.² As a result, states are already fighting over which will be the home to the first space resort and launch locations.³

Space tourism is an excellent starting point for other private space endeavors. As a means of entertainment, it has the potential to bring in investors and enthusiasts, create immediate profit, and lay the groundwork for greater research and funding in other space applications.⁴ Like the aeronautics industry, private enthusiasts have challenged boundaries of man’s capabilities, and competitions have opened the door to a myriad of possibilities for private astronautics. Unlike the aeronautics industry, which was pushed to its limits by the necessities of war, private

* J.D. Candidate, 2007, Chapman University School of Law, B.S., Mathematics, emph. Computer Science, 2004, Chapman University. The author expresses her gratitude to attorney Lee Horton for his invaluable input, the X Prize Foundation for making the events leading to this comment possible, editor Amy St. Romain, and the Force being with her throughout writing this comment.

¹ ARTHUR C. CLARKE, VOICES FROM THE SKY 12 (Pyramid Books 1967) (1965).

² Scaled Composites, Tier One Private Manned Space Program, <http://www.scaled.com/projects/tierone/index.htm> (last visited Mar. 19, 2006); *The Race to Blast Tourists Into Space*, CNN.COM, Mar. 21, 2006, <http://www.cnn.com/2006/TECH/space/03/20/space.tourism.ap/index.html> (“more than a dozen companies are developing rocket planes to ferry ordinary rich people out of the atmosphere”).

³ Alan Boyle, *New Mexico Lays Out Its Spaceport Plan*, MSNBC.COM, Dec. 14, 2005, <http://www.msnbc.msn.com/id/10467451/>. Virgin Galactic has already announced that it will be tenants of the New Mexico spaceport after its estimated completion date of late 2009 or early 2010. Virgin Galactic chose New Mexico over other potential sites, including Mojave Spaceport in California. *Id.*

⁴ For example, asteroid mining, low gravity research, and even colonization of other celestial bodies.

astronautics and space tourism have the opportunity to develop at their own pace. Total safety, not a struggle for survival, will be the industry's first priority.

Russia was the first to offer space-hungry multi-millionaires a ride in the Soyuz spacecraft, coupled with a brief stay on the International Space Station (ISS).⁵ Organizations like the X PRIZE Foundation wanted more affordable commercial space travel; therefore, like the early aeronautics prize challenges, the Foundation spurred competition through a contest for glory, and a \$10 million prize.⁶ As with the early aeronautics industry, private businesses are emerging and are eager to capitalize on the newly uncovered space tourism market by offering space rides exponentially cheaper than Russia.

Congress has responded to the promising industry by attempting to solidify domestic law in a manner that will secure public safety while still supporting the industry's developing financial needs.⁷ Congress has also considered incentive plans in an attempt to stimulate investment.⁸ Whether Congress's actions will benefit the industry remain to be seen, and there is still more the United States government can do to help the space tourism industry prosper.

This comment will explore the United States' role in developing the law regulating space tourism. Part II discusses why space tourism, as a means of entertainment, is an excellent place to begin development of space travel technologies. Part III will provide an overview of the history of space tourism and the recent events leading up to the proliferation of this business. Part IV looks at the United States government's response to this entirely new industry and the government's impact on it.

⁵ See Associated Press, *Want To Go To Space? First Read This*, MSNBC.com, Dec. 29, 2005, <http://msnbc.msn.com/id/10642660> [hereinafter AP, *Want To Go To Space*].

⁶ See *infra* Part III.C.

⁷ Representative Lampson explained that "the basic purpose of [The Space Launch Act] is to establish a framework for regulating the emerging commercial human space flight industry. The Committee on Science has heard ample testimony that such a framework is needed if the companies are to make their plans and attract needed investment capital. At the same time, Congress needs to ensure that safety is protected as this new industry emerges." 150 CONG. REC. H10050 (daily ed. Nov. 19, 2004) (statement of Rep. Lampson). See also Henry R. Hertzfeld & Frans G. von der Dunk, *Bringing Space Law into the Commercial World: Property Rights Without Sovereignty*, 6 CHI. J. INT'L L. 81, 97-98 (2005) (Solidifying space law is key to the success of space commercialization. "Unless and until a way of assuring private enterprises that their investments in research and development, equipment, and operations in space can be recovered, the insecurity and risks of not having an operating mechanism for establishing these rights will impede the fast growth of commercial space.").

⁸ See *infra* Part IV.A.

II. WHY SPACE TOURISM IS THE BEST PLACE TO BEGIN

Space tourism is a very young industry and unique in many respects. As with any emerging industry, there are many questions surrounding its very existence. In these early years, all that space tourism can be is entertainment—a luxury good for the slightly space-obsessive and wealthy. A preliminary question must be addressed: why should space tourism be encouraged? The simple answer is: why not?⁹ The overarching answer is that history has demonstrated that there are three main ways to spur innovations in technology—war, necessity, and entertainment.¹⁰ Through entertainment, space tourism will at a minimum provide an opportunity for regular people to explore the unknown; the industry also has great potential to be a source of incredible technological innovations.

Immediately after the United States won the space race by placing a man on the moon, space exploration technology was no longer a priority in the United States' Cold War agenda and was put on the political back-burner.¹¹ As moon landings became routine, public interest and political support for National Aeronautics and Space Administration (NASA) declined.¹² Government development of manned space technology did not cease entirely, but it came close.¹³ The same space shuttles that went into service in 1981 are still NASA's only means of transporting a human into space.¹⁴ NASA has continued its existence and made remarkable scientific findings despite its slim support, but after two space shuttle disasters have essentially grounded the fleet since 2003, NASA's future is tenuous at best.¹⁵ Even President Bush's recent proposal to include a return to the moon in NASA's budget seems to have fallen on deaf ears, as congressional and public support concentrates on domestic issues.¹⁶ The public

⁹ See generally ARTHUR C. CLARKE, *THE PROMISE OF SPACE* (1968) (explaining different methods of space exploration and emphasizing the importance of human participation).

¹⁰ See *infra* text accompanying notes 11–21.

¹¹ See RICHARD HIRSCH & JOSEPH JOHN TRENTO, *THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION* 206–07 (1973). President Nixon dramatically cut the NASA budget “with the skill of a politician. NASA was no longer popular with the public. . . . The old popular political punch that had been NASA's chief congressional weapon was just not strong enough any more, and the President seized this opportunity to let the program wind down.” *Id.*

¹² *Id.*

¹³ OXFORD DICTIONARY OF SPACE EXPLORATION 224 (2005).

¹⁴ *Id.*

¹⁵ *NASA Scrubs May Shuttle Lunch*, CNN.COM, Mar. 14, 2006, <http://www.cnn.com/2006/TECH/space/03/14/space.shuttle/index.html>; OXFORD DICTIONARY OF SPACE EXPLORATION 224 (2005).

¹⁶ *Bush Space Plan Faces Opposition*, CNN.COM, Jan. 14, 2004, <http://www.cnn.com/2004/TECH/space/01/14/bush.opposition/index.html>. The proposed budget increase will

commitment to the space race that existed in the 1960's is simply not there anymore; today, people only support tax expenditures in the interest of national defense or in response to necessity.¹⁷

Waiting to investigate the vast possibilities of space exploration until emergencies arise will result in an inordinately small window of time to accomplish the difficult feats necessary to evade disaster. Emergencies triggering necessity include limited resources,¹⁸ the dying sun problem,¹⁹ asteroid strikes,²⁰ and other planetary or stellar catastrophes—all of which are not theoretically pressing matters, at least to current knowledge.²¹ The necessity for escaping the planet is not immediate enough to motivate investment now—the initial monetary commitment for speculative and far-off profits is too great.

Entertainment, however, has proven to be the great motivator of the modern era. People in their spare time turn to a myriad of activities for entertainment, from video games and movies to skydiving and rock climbing. In the age of globalization and a consumer society, the latest gadgets and toys have put technology front and center in the casual entertainment arena. Most importantly, by its nature, entertainment has stressed safety within the expansion of its development.

War and necessity regularly foster demand before technology is fully developed, resulting in greater risks to safety than are normally permitted.²² However, in today's consumer marketplace, particularly in the entertainment sector where luxury good lawsuits are a part of everyday business,²³ such safety risks are

likely not be enough for President Bush's stated goals anyway.

¹⁷ For excellent articles on space war technologies designed for national security, particularly to combat terrorism, see Dawn Stover, *The New War in Space*, POPULAR SCIENCE, Sept. 2002, at 40; see also Dawn Stover, *Battlefield Space*, POPULAR SCIENCE, Nov. 2005, at 50.

¹⁸ JOEL LEVY, *THE DOOMSDAY BOOK: SCENARIOS FOR THE END OF THE WORLD* 106–07 (2005).

¹⁹ *Id.* at 186–87.

²⁰ *Id.* at 215–16.

²¹ The majority of the science fiction genre is predicated on these various theories.

²² See, e.g., ROBERT JACKSON, *SUBMARINES OF THE WORLD* 18 (2000) (noting the Russian submarine *Alfa*, launched in 1970, had a seriously flawed and unreliable reactor); TERRENCE POULOS, *EXTREME WAR* 345–50 (2004) (detailing the German tank *Ferdinand*, which was “extremely slow, easily disabled, and inadequately armed,” was originally designed to combat the Soviet Union's KV-1 and was still used on the front lines during the 1943 assault on Kursk despite its underdeveloped design); DIANA PRESTON, *BEFORE THE FALLOUT* 244, 244 n.*, 245 (2005) (describing the research and development which resulted in the atomic bomb, and the desperate measures taken during World War II under war pressure, such as human radiation experiments where “patient subjects . . . were never told that the injections were part of a medical experiment for which there was no expectation that they [would] benefit, and [to which] they never consented”) (internal citations omitted).

²³ Robert J. Bliwise, *Litigation: Too Much of a Good Thing?*, DUKE MAGAZINE, Jan-Feb, 1996, at 8, 11 (discussing the litigious nature of the United States particularly in the

not tolerated.²⁴ Currently, the only market for space tourism is affluent space enthusiasts, and the main motivation for such an individual to purchase a ticket is simple enjoyment and entertainment.²⁵ If this experience is not presented and maintained as safe as possible, then demand will disappear.²⁶

A prime example of the entertainment business driving technology is the video game industry's effect on computer hardware. Sony's most recent game console, the PlayStation 3, is still in development.²⁷ This next generation in video game entertainment will feature the revolutionary Cell processor, a piece of hardware about the size of a thumbtack with processing power comparable to that of a supercomputer, ten times the power of the Pentium 4 processor.²⁸

With individuals and industries increasingly relying on computers and other technological advancements, companies like Sony can utilize entertainment as a means to recover development costs and generate initial profits. This consequently drives companies to create what consumers ultimately want: something smaller, better, and faster. Gamers willing to spend hundreds of dollars on video game systems and games provide funding for further computer technology research and development.²⁹ This

products liability arena, pointing out that "[f]ederal products-liability lawsuits involving personal injury increased sixfold from 1975 to 1989," and that "[r]ising liability costs have influenced product innovation and product introduction decisions, particularly in markets in which the liability exposure is substantial. And the products-liability price tag, which is passed on to the consumer, sometimes reaches staggering levels").

²⁴ See *id.* (internal citations omitted) ("The fact that [the lawnmower company] had met the safety commission's safety standards did not get them off the hook. The typical argument is, 'Well, the regulations are a floor, they're not a ceiling on your responsibility'—that would be the plaintiff's argument.").

²⁵ See FUTRON CORPORATION, SPACE TOURISM MARKET STUDY: ORBITAL SPACE TRAVEL & DESTINATIONS WITH SUBORBITAL SPACE TRAVEL, <http://www.futron.com/pdf/SpaceTourismMarketStudy.pdf> 9 (Oct. 2002) [hereinafter FUTRON CORPORATION] (study surveying over 450 affluent Americans in market research for suborbital and orbital space tourism). Interest beyond the extremely affluent, however, is definitely out there. "More than ten million people each year visit space museums, space camps, rocket launch-recovery sites, and government space research and development centers, generating approximately \$1 billion in revenue per year." Charity Trelease Ryabinkin, *Let There Be Flight: It's Time to Reform the Regulation of Commercial Space Travel*, 69 J. AIR L. & COM. 101, 108 (2004).

²⁶ Spaceflight is inherently risky, "even after exhaustive, detailed, and careful investigation, extensive re-engineering, and changes in communication," and thus all the more reason for it to be developed through the industry demanding the highest levels of safety with the most demanding of customers. Molly K. Macauley, *Flying in the Face of Uncertainty: Human Risk in Space Activities*, 6 CHI. J. INT'L L. 131, 133 (2005).

²⁷ Chris Roper, *PS3 Power: Details on Cell*, IGN.COM, Feb. 7, 2005, <http://gear.ign.com/articles/585/585862p1.html>.

²⁸ See *id.* The PlayStation3 will actually contain three cell processors. Most home computers currently for sale contain a single processor comparable to the Pentium 4. *Id.*

²⁹ Gamestop, Sony PlayStation 2 Redesign with Gran Turismo 4!, <http://www.gamestop.com/product.asp?product%5Fid=B020245V> (last visited Mar. 19, 2006) (advertising a new PlayStation 2 game console which was originally released over five years ago;

fuels creative ventures that, although less profitable in the short term, ultimately aid companies in discovering the technology of the future, both safely and efficiently.³⁰

In anticipation of this result, the impact of the Cell chip is already growing: IBM intends to use Sony's Cell chip to run its new line of blade servers.³¹ Sony, Toshiba and IBM recently renewed their partnership for another five years.³² Originally developed for the entertainment industry in Sony's PlayStation 3, the partnership is now fully "pitching to the defense, medical and entertainment industries."³³ This is an excellent example of not only how war, necessity and entertainment can drive the creation of technology, but also how entertainment can fund technology that will later assist in the defense and medical industries. Likewise, space exploration will develop from space entertainment, and with it will come prime capital and safe technology development, later creating the tools and systems necessary to enhance and sustain other industries, such as mineral gathering and deep space exploration.³⁴

III. A BRIEF HISTORY OF SPACE TOURISM AND THE REACH FOR GREATER HEIGHTS

While the interest in space exploration is long standing, the exploration itself has only been attempted recently.³⁵ Born from Cold War competition, the space race was a battle between governments, not private parties, and the governing laws were designed accordingly.³⁶ Though government support has steadily decreased, private interest has continued to grow. With a little help from space hunting innovators, like the X PRIZE Founda-

bundled with one game, the console still sells for around \$200).

³⁰ Welcome to the Sony Electronics CES 2006 Virtual Press Kit, <http://news.sel.sony.com/ces06/> (last visited Mar. 19, 2006) (demonstrating that Sony is involved in a myriad of entertainment enterprises that recursively fund each other).

³¹ Associated Press, *IBM's Newest Processor Targets PlayStations and Battle Stations*, LONDON FREE PRESS, Feb. 9, 2006, at D1. Blade servers "are relatively thin chunks of circuitry designed to perform specialized computing tasks."

³² *Id.*

³³ *Id.*

³⁴ Sir Richard Branson of Virgin Galactic has stated: "[o]ur principal aim behind this is not to make money. The principal aim is to reinvest any money we make into space exploration." Leonard David, *Richard Branson and Burt Rutan Form Spacecraft Building Company*, SPACE.COM, July 27, 2005, http://www.space.com/news/050727_branson_rutan.html [hereinafter David, *Spacecraft Building Company*]. "Eventually these trips will also serve as an important tool for investigation into commercial remote sensing and microgravity and atmospheric research." 150 CONG. REC. H786 (daily ed. Mar. 3, 2004) (statement of Rep. Reynolds).

³⁵ DAVID SCOTT & ALEXEI LEONOV, TWO SIDES OF THE MOON 61 (2004). Yuri Gagarin was the first man in space in 1961—less than fifty years ago.

³⁶ Joanne Irene Gabrynowicz, *Space Law: Its Cold War Origins and Challenges in the Era of Globalization*, 37 SUFFOLK U. L. REV. 1041, 1042–43 (2004).

tion, the private sector is capitalizing on an opportunity that was never before legitimately considered by anyone other than science fiction writers. Reminiscent of early aviation competitions, the X PRIZE demonstrated that travel beyond what were the assumed upper boundaries for private parties was not only possible, but could also be extremely profitable.³⁷ Even before the X PRIZE came to fruition, Russia made clear that there was a market for space tourism and sold the first space tourist tickets.³⁸

A. Russia's New Enterprise

In 2001, Russia offered the first opportunity for private individuals to buy a ticket into space.³⁹ After the collapse of the Soviet Union, seeking funds for its struggling space program and grossly indebted country, the Russian government began selling roundtrip tickets on a Soyuz spacecraft for a brief stay in the ISS.⁴⁰ For \$20 million, plus paperwork, and rigorous testing and training, one could take a trip off this world to the ISS.⁴¹ To date, Russia's program has been relatively successful.

Initially, the United States government vehemently opposed Russia's space tourism endeavor, fearing that inexperienced passengers without the requisite multilingual skills would jeopardize the missions.⁴² After repeated reassurances by the Russians, the United States government finally relented, but demanded that tourists sign tortuous waivers and liability agreements.⁴³

The first successful space tourist was Dennis Tito.⁴⁴ Tito, a 60-year old California millionaire, was an investment fund manager and former NASA rocket scientist.⁴⁵ In April 2001, Tito spent ten days in space after intense training with cosmonauts near Moscow.⁴⁶ As the first space tourist, NASA required Tito to sign legal documents pledging that he and his heirs would not sue NASA if something went wrong.⁴⁷ Furthermore, NASA re-

³⁷ "Space tourism could revolutionize the human experience and could potentially become billion-dollar industry, creating numerous jobs in high-tech manufacturing and design." 150 CONG. REC. H837 (daily ed. Mar. 4, 2004) (statement of Rep. Jackson-Lee); *see also* FUTRON CORPORATION, *supra* note 25, at 9 (the study predicts the overall space tourism market will be generating revenues over \$1 billion per year by 2021).

³⁸ *See* AP, *Want To Go To Space*, *supra* note 5.

³⁹ *Id.*

⁴⁰ Space Today Online, Tourists Visit the International Space Station, <http://www.spacetoday.org/Astronauts/SpaceTourists.html> (last visited Mar. 20, 2006).

⁴¹ *Id.*

⁴² *Id.*

⁴³ *See id.*

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ *Id.*

quired Tito to pay for anything he broke.⁴⁸

One year later, in April 2002, South African Mark Shuttleworth became the second civilian space tourist.⁴⁹ The twenty-eight year old internet tycoon also became the first African to reach space.⁵⁰ Traveling into space for more than entertainment, Shuttleworth purchased a seat to conduct AIDS and stem cell experiments.⁵¹ He called his trip “a working vacation.”⁵²

The third and most recent space tourist, though he preferred the more somber title of “space flight participant,” was Dr. Gregory Olsen.⁵³ While training at Russia’s Yuri Gagarin Cosmonaut Training Center in 2004, the sixty-year old Olsen learned to speak elementary Russian and was educated about the basic Soyuz and ISS equipment.⁵⁴ Though his original flight was postponed due to health concerns,⁵⁵ in October 2005, he traveled on the Soyuz to the ISS.⁵⁶ A New Jersey businessman and scientist, Olsen, like Shuttleworth, opted for a working vacation.⁵⁷ Olsen used his time at the ISS to grow crystals for experimental use in infrared cameras, his company’s chief manufactured product.⁵⁸ Once again, a tourist’s trip into space was about business, not just entertainment.

Wealthy celebrities have also been drawn to the idea of space travel. N’Sync pop star Lance Bass began training in June 2002 and had a guaranteed seat aboard the Soyuz for a trip in October 2002, but failed to accumulate the required funds in time.⁵⁹ Even so, the publicity around his attempt to become, at the age of twenty-three, the youngest person to ever enter space, brought more widespread attention to space tourism.⁶⁰ In June 2002, Supermodel Cindy Crawford also suggested she wanted the coveted Soyuz seat, but never actually signed up.⁶¹

⁴⁸ *Id.*

⁴⁹ *Id.* Shuttleworth was the first space tourist subject to a new agreement between NASA and all other International Space Station partners, which was created “[a]fter NASA lost the battle to prevent the Russians from launching Dennis Tito . . . at least NASA wanted to prevent problems and embarrassments as much as possible.” See MICHEL VAN PELT, SPACE TOURISM: ADVENTURES IN EARTH ORBIT AND BEYOND 27 (2005).

⁵⁰ Space Today Online, *supra* note 40.

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ See *id.* “The singer’s space flight was to have been supported by Los Angeles television company Destiny Productions, which would have filmed his training and voyage for a TV special.” *Id.*

⁶¹ *Id.*

In May 2002, flight doctors at Russia's Institute of Biomedical Problems in Moscow tested former NASA Associate Administrator for Policy Planning, Lori B. Garver, to see if she was physically able to make the trip.⁶² She is neither rich nor famous, but hoped to become a space tourist through gifts and sponsorship funding.⁶³ Her goal was "to demonstrate that ordinary people could go to space."⁶⁴ Though she did not make the trip, her goal was already in other people's minds.

As early as 1998, companies like Space Adventures, based in Arlington, Virginia, recognized the private interest in space travel.⁶⁵ Russia used Space Adventures to locate customers financially capable of taking a ride to the ISS.⁶⁶ Space Adventures has also provided space flight training,⁶⁷ high altitude rides in Russian MiGs,⁶⁸ and simulated zero gravity rides.⁶⁹

Early companies like Space Adventures helped foster the public's hopes to travel in space, but were only able to provide an expensive avenue through a governmental body. In recent years, there has been a shift in reliance from government to the private market in commercial space travel. The private space race has largely mirrored aviation development of the beginning of the twentieth century.

B. The Early Days: First Aviation Competitions

Competition has furthered man's attempts to leave the Earth's surface for over a century. In the early 1900s, when aviation was in its infancy, hundreds of races, challenges, and prizes were offered, stimulating the advancement of aircraft technology.⁷⁰ The Orteig prize of 1927 is one of the most famous, which offered a \$25,000 prize to the first person to fly nonstop from New York to Paris.⁷¹ No government was yet willing to develop the technology, and no private sector had yet seen the

⁶² *Id.* Garver was a part of the corporate Space Program Development team at DFI International when the tests were conducted.

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ Space Adventures, Overview- Who We Are, <http://www.spaceadventures.com/company/overview> (last visited Mar. 20, 2006).

⁶⁶ Space Today Online, *supra* note 40.

⁶⁷ Space Adventures offers an "Orbital Qualifications Program that includes all medical examinations and tests required to be flight certified by the Russian space agency, Rosaviakosmos." VAN PELT, *supra* note 49, at 27.

⁶⁸ Space Adventures, Space Adventures' Programs, <http://www.spaceadventures.com/company/programs> (last visited Mar. 20, 2006).

⁶⁹ *Id.*

⁷⁰ X PRIZE Foundation, History of Prizes, <http://www.xprizefoundation.com/prizes/default.asp> (last visited Mar. 20, 2006).

⁷¹ *Id.*

profit-making potential of a flight across the ocean. The Orteig prize filled the gap, providing entertainment to the competition's spectators, and money and glory to its winner. Nine teams attempted to cross the Atlantic and win the prize; Charles Lindbergh won the competition in the legendary Spirit of St. Louis.⁷²

Lindbergh's small team of professionals proved that, with innovation and effort, long distance air travel was possible, and that such innovation did not require government-conglomerate sponsorship.⁷³ At that time, Lindbergh's simple, yet solid design was dramatically different from the direction conventional aviation was going; had it not been for the massive publicity generated by the competition, Lindbergh's plane's design would probably have never received the attention that it did.⁷⁴ Within one year of the 1927 flight, Lindbergh's aircraft was personally viewed by a quarter of all Americans.⁷⁵ In only a few years, there was a substantial increase in the public's interest and awareness of the aviation industry: a 400 percent increase in airplanes, a 300 percent increase in pilot's license applications, and thirty times the number of commercial airline passengers.⁷⁶ Lindbergh's single flight has been rightfully credited for "starting a chain of events which directly triggered the multi-billion dollar commercial aviation industry of today."⁷⁷ Lindbergh's flight created an increase in demand for air travel, which encouraged competition, decreased prices and improved performance. The everyday person could fly.

C. Recent Times: X PRIZE Brings a New Era

Following in Orteig's footsteps, a small group of entrepreneurs decided that the world needed a Spirit of St. Louis experience to break the commercial space barrier.⁷⁸ Hoping to gather the needed support to launch another major competition in innovation, Peter H. Diamandis, Byron K. Lichtenberg, Colette M. Bevis and Gregg E. Maryniak established the X PRIZE Foundation in 1995.⁷⁹ The St. Louis community, the same roots of the Spirit of St. Louis Organization which backed Lindbergh almost

⁷² *Id.*

⁷³ *See id.*

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.*

⁷⁷ *Id.*

⁷⁸ *See generally* X PRIZE Foundation, History of the X PRIZE, http://www.xprizefoundation.com/prizes/xprize_history.asp (last visited Mar. 20, 2006) (explaining that X PRIZE Founder Peter H. "Diamandis had the idea of creating a cash prize for space travel as a mechanism to implement his life-long dream of traveling into space.").

⁷⁹ *Id.*

seventy years earlier, answered their call.⁸⁰ The X PRIZE Foundation began with ten members, each contributing \$25,000;⁸¹ today, there are over sixty-five members.⁸²

The Foundation did not have a simple task in front of them. Before the X PRIZE Foundation could even announce its proposed competition, the Foundation had to make agreements with NASA, the Federal Aviation Administration (FAA), and other space and aviation organizations in order to ensure that they would cooperate.⁸³ After securing approval from these entities, the X PRIZE Foundation announced the X PRIZE competition on May 18, 1996.⁸⁴ By September 1997, over a dozen teams had registered to participate.⁸⁵ In May 2004, the X PRIZE was renamed the ANSARI X PRIZE after Iranian entrepreneurs Anousheh and Amir Ansari, whose multi-million donation made the competition even more enticing.⁸⁶

The competition's rules were simple: design and successfully launch a craft that could safely carry three adults above sixty-two miles, the traditionally recognized boundary between Earth and Space, and return them safely.⁸⁷ Then, complete the flight again within two weeks, reusing at least ninety percent of the original craft.⁸⁸ The competition's requirements meant that the design had to be safe, largely reusable and cost-effective.⁸⁹ If a team completed the challenge, the Foundation promised a \$10 million prize—and the honor of being the Lindbergh of space.⁹⁰ The competition was a major success. Twenty-six teams from seven countries entered the race.⁹¹ Most importantly, several

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.* On that very day, aviation designer Burt Rutan committed his small company to the endeavor. *Id.*

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ ANSARI X PRIZE, Rules and Guidelines, http://www.xprize.org/teams/rules_and_guidelines.php (last visited Mar. 20, 2006) [hereinafter Rules and Guidelines]. See ERIC ANDERSON & JOSHUA PIVEN, THE SPACE TOURIST'S HANDBOOK 51 (2005) (defining 62 miles as the working boundary between atmosphere and space).

⁸⁸ *Id.*

⁸⁹ It was hoped that these competition requirements would help get the space industry as a whole past the "chicken-and-egg problem of economics. To drastically lower the costs of spaceflight, a vehicle needs to fly frequently. But to find enough customers to fly frequently, one needs to have low prices, and that requires low costs. The solution seemed to lie in new markets, and the one many believed could jump-start the private sector was 'space tourism.'" Editorial, *Commercial Space at a Tipping Point*, AVIATION WEEK & SPACE TECH., Sept. 27, 2004, at 66 [hereinafter *Commercial Space at a Tipping Point*].

⁹⁰ *Id.*

⁹¹ X PRIZE Foundation, The Ansari Legacy, http://www.xprizefoundation.com/about_us/ansari_legacy.asp (last visited Mar. 20, 2006).

unique concepts and designs, created under the ideas of simplicity, safety, efficiency, and cost-effectiveness were born.

Armadillo Aerospace designed a “brutally simple” hydrogen peroxide fueled rocket.⁹² John Carmack, a video game software design engineer, founded this small, unpaid team.⁹³ Their re-entry design used a new compressible nose cone that crumples upon impact to absorb the shock.⁹⁴ One of Canada’s teams, Canadian Arrow, brought back the German V2 rocket design.⁹⁵ The team used research developed sixty years ago to create a modern, safe vertical rocket.⁹⁶ The Da Vinci Project created perhaps the most innovative and unique concept of the ANSARI X-PRIZE competitors. Led by Brian Feeney, an expert in 3-D computer-aided design, the team created a balloon-launched spacecraft named Wild Fire.⁹⁷ “Carried to 80,000 ft. by a reusable helium balloon, Wild Fire releases on ignition, takes an angular trajectory to clear the balloon, then fires straight up.”⁹⁸ Also Canadian based, Da Vinci Project was staffed completely by volunteer labor.⁹⁹ 500 workers generously gave over 100,000 man hours, making it the largest volunteer project in Canadian history.¹⁰⁰

Other teams designed a multitude of variations on rockets and launch mechanisms—ranging from vertical launch rockets to dual-system lifters and launchers.¹⁰¹ These were no longer science-fiction plans captured only on paper, they were being simulated and tested; concepts were becoming a reality.

D. The Sky is No Longer the Limit: SpaceShipOne Wins the X PRIZE, Honor and Glory

Burt Rutan of Scaled Composites’ TierOne Project won the ANSARI X PRIZE on October 4, 2004.¹⁰² This innovative aero-

⁹² Preston Lerner, *A Few Dreamers Building Rockets in Workshops*, POPULAR SCIENCE, May 2003, at 56, 63.

⁹³ *Id.* at 58. Carmack created the famous computer games Doom and Quake. *Id.*

⁹⁴ *Id.* at 64.

⁹⁵ *Id.*

⁹⁶ ANSARI X PRIZE, Canadian Arrow, <http://www.xprize.org/teams/arrow.php> (last visited Mar. 21, 2006).

⁹⁷ Lerner, *supra* note 92, at 64.

⁹⁸ *Id.*

⁹⁹ ANSARI X PRIZE, Da Vinci Project, <http://www.xprize.org/teams/davinci.php> (last visited Mar. 21, 2006).

¹⁰⁰ *Id.*

¹⁰¹ ANSARI X PRIZE, ARCA, <http://www.xprize.org/teams/arca.php> (last visited Apr. 11, 2006) (describing a vertical launch rocket); ANSARI X PRIZE, Suborbital Corporation Team, <http://www.xprize.org/teams/suborbital.php> (last visited Apr. 11, 2006) (describing a dual-system lifter and launcher).

¹⁰² Alan Boyle, *SpaceShipOne Wins \$10 Million X Prize*, MSNBC.COM, Oct. 5, 2004, <http://www.msnbc.msn.com/id/6167761/> [hereinafter Boyle, *SpaceShipOne Wins*]; Scaled Composites, *supra* note 2.

nautics designer has created some of the most unique and intrinsically beautiful aircraft of modern times,¹⁰³ and is particularly well-known for his kit planes that people can build themselves.¹⁰⁴

After Rutan announced his participation in the competition, he set his small team to work on a two-stage system.¹⁰⁵ SpaceShipOne and White Knight worked almost flawlessly for all three launches.¹⁰⁶ White Knight, a slow-rising, high-altitude aircraft, flew to an altitude of approximately 50,000 feet, then released SpaceShipOne from underneath it.¹⁰⁷ Once clear of White Knight, SpaceShipOne ascended to over sixty-two vertical miles, powered by a rocket using essentially old tires and laughing gas for propulsion.¹⁰⁸ Then, SpaceShipOne changed its wing format to a feathered position to gently float down into the atmosphere, and repositioned the wings to their original setting to glide to a landing.¹⁰⁹ The ship did not even need a heat shield, a major design issue with NASA's fleet.¹¹⁰ Rutan's team received what little financial support it needed from Microsoft billionaire Paul Allen.¹¹¹ From concept to launch, the TierOne Project cost only \$25 million; the Rutan team created a reusable space ship for approximately the same price as one space ride with the Rus-

¹⁰³ *Boneyard: Where Machines End Their Lives* (History Channel television broadcast Feb. 2, 2006).

¹⁰⁴ That is actually how he met one of his pilots who was part of the TierOne project—Mike Melvill built one of Rutan's Long-EZ kit planes in 1978, and flew across the country to Mojave just to show Rutan. Rutan hired Melvill to be his test pilot and business partner. Eric Adams, *The New Right Stuff*, POPULAR SCIENCE, Nov. 2004, at 60, 68.

¹⁰⁵ See Bill Sweetman, *Burt Builds Your Ride to Space*, POPULAR SCIENCE, July 2003, at 48.

¹⁰⁶ Almost perfectly—during the first test flight that reached space, SpaceShipOne had some roll problems which took it off-course, and the trim control locked during the stage where SpaceShipOne was feathered, but the problem resolved itself and Mike Melvill returned safely. *Black Sky: The Race for Space* (Discovery Channel television Oct. 3, 2004) [hereinafter *The Race for Space*]. During the first flight for the X PRIZE, Mike Melvill dealt with a dangerous barrel roll while traveling at Mach 2.5 at the edge of space; Melvill utilized the reaction control system, a safety feature the TierOne team predicted may be needed. *Black Sky: Winning the X Prize* (Discovery Channel television October 10, 2004) [hereinafter *Winning the X Prize*]. Besides passing very close to the White Knight, Brian Binnie had a perfect flight for the second X PRIZE launch. *Id.* These issues were not great enough to stop the pilots from finding time to take pictures and play with candy and toys in the zero gravity. *Id.*

¹⁰⁷ Sweetman, *supra* note 105, at 48–49; *The Race for Space*, *supra* note 106.

¹⁰⁸ Sweetman, *supra* note 105, at 48–49; *The Race for Space*, *supra* note 106.

¹⁰⁹ Sweetman, *supra* note 105, at 48–51; *The Race for Space*, *supra* note 106.

¹¹⁰ Editorial, *SpaceShipOne Propels Space Travel Future*, THE CITY PAPER ONLINE, Oct. 8, 2004, http://www.nashvillecitypaper.com/index.cfm?section_id=38&screen=news&news_id=36324 (noting that SpaceShipOne did not require heat shield tiles); Kathy Sawyer, *Heat Shielding Was Area of Concern Before Columbia*, WASH. POST, Apr. 15, 2003, at A2 (noting the difficulties NASA has experienced with space shuttle heat shields from the 1986 Challenger flight to the 2003 Columbia flight, both of which ended in tragedy).

¹¹¹ See Adams, *supra* note 104, at 62.

sians.¹¹²

Rutan's revolutionary idea eventually broke several records. On June 21, 2004, Mike Melvill became the first civilian pilot to cross the outer space barrier in Rutan's SpaceShipOne, by just 408 feet.¹¹³ The test flight showed once again that a small group of innovators could perform more efficiently and cost effectively in an area believed to be only within the purview of governments. The public appeared to agree. Approximately 11,000 people went to the middle of the Mojave Desert to see the test launch; some even went the day before to sleep on the tarmac in order to get good seats.¹¹⁴ The event was broadcast live worldwide, demonstrating the popularity of the event.¹¹⁵ Seemingly, the private space bubble had been popped; Burt Rutan and his team had turned the hope that within this generation, everyday people would touch space, a little more plausible.¹¹⁶

On September 29, 2004, Rutan's SpaceShipOne flew for a second time, in its first flight for the ANSARI X PRIZE.¹¹⁷ The team also had a new sponsor—multi-millionaire Sir Richard Branson, of the Virgin conglomerate, saw the business opportunity of a lifetime and brought in Rutan and Allen to form Virgin Galactic, a subsidiary of the Virgin Corporation.¹¹⁸ Virgin Galactic is committed to using scaled-up versions of White Knight and SpaceShipOne (to be named White Knight Two and SpaceShipTwo) to take tourists into suborbital space,¹¹⁹ and is accepting reservations for rides launching as early as 2008.¹²⁰ The cur-

¹¹² *Id.*; Space Today Online, *supra* note 40 (listing the price of a Russian flight to the International Space Station at \$20 million).

¹¹³ Alan Boyle, *Private Rocket Ship Breaks Space Barrier*, MSNBC.COM, June 21, 2004, <http://www.msnbc.msn.com/id/5261571/> [hereinafter Boyle, *Private Rocket Ship*]. See also Boyle, *SpaceShipOne Wins*, *supra* note 102 ("In addition to winning the X Prize, Binnie's flight smashed the altitude record for an airplane, set by X-15 pilot Joseph Walker in 1963. That altitude was 354,200 feet (67 miles or 107.9 kilometers).").

¹¹⁴ See *id.* See also Windows Media Video: SpaceShipOne Flight 15P (America By Air) (available at http://www.scaled.com/projects/tierone/video/americanabyair-SS1_v02.wmv).

¹¹⁵ CollectSPACE, Private Spacecraft to Launch June 21, <http://www.collectspace.com/news/news-060204a.html#062104b> (last visited Apr. 6, 2006).

¹¹⁶ The "giggle factor—the idea that only astronauts and cosmonauts have any business in space," was finally conquered. There had been a tendency to dismiss space tourism as a science fiction fantasy, and was even concluded as "infeasible" by some in the U.S. aerospace industry. Ryabinkin, *supra* note 25, at 116–17. SpaceShipOne definitely gave the dismissive roll of the eyes a reason to look up.

¹¹⁷ Alan Boyle, *SpaceShipOne Whirls Into Space for a Prize*, MSNBC.COM, Sept. 29, 2004, <http://www.msnbc.msn.com/id/6126386/>.

¹¹⁸ Virgin Galactic, A Starship Built on Enterprise, <http://www.virgingalactic.com/who.asp> (last visited Apr. 6, 2006).

¹¹⁹ Press Release, Virgin Galactic, Branson and Rutan Form "The Spaceship Company" (July 29, 2005), available at <http://www.virgingalactic.com/en/press/OshkoshPressRelease.doc> [hereinafter The Spaceship Company].

¹²⁰ Virgin Galactic, When Can I Go?, <http://www.virgingalactic.com/en/when.asp> (last

rent price tag is \$200,000.00,¹²¹ one percent of the price of a Soyuz ride.¹²² Branson and Rutan also later created The Spaceship Company, which will build the new fleet of commercial ships.¹²³

On October 4, 2004, only a week later, SpaceShipOne, piloted by Brian Binnie, made its third successful trip to space and back, well within the two-week and ninety percent reuse requirements to win the \$10 million X PRIZE.¹²⁴ At 69.6 miles, Binnie also broke the X-15's previous altitude record for a horizontal launch craft.¹²⁵ More importantly, Rutan's team knew what they accomplished would now make private space travel a reality.¹²⁶

E. Since the X PRIZE: The Cup and a Budding Industry

Following the success of the X PRIZE, the X PRIZE Foundation went a step further and created the X PRIZE Cup to motivate continuous invention and innovation.¹²⁷ On October 9, 2005, the first X PRIZE Cup event was held, complete with a show depicting the history of aircraft and spacecraft and demonstrations by previous X PRIZE contenders.¹²⁸ There was also the Eggs Prize, where middle school students competed against each other by building water rockets which had to safely launch a raw egg thirty meters into the air twice within two hours.¹²⁹ Most importantly, the X PRIZE Foundation announced that, starting in 2006, it would have an annual X PRIZE Cup: "the Cup hopes to initiate multimillion-dollar prizes to incentivize continued breakthroughs in suborbital operations—prizes such as maximum alti-

visited Mar. 21, 2006).

¹²¹ *Id.*

¹²² Space Today Online, *supra* note 40 (listing the price of a Russian flight to the International Space Station at \$20 million).

¹²³ David, *Spacecraft Building Company*, *supra* note 34; The Spaceship Company, *supra* note 119.

¹²⁴ Boyle, *SpaceShipOne Wins*, *supra* note 102; Rules and Guidelines, *supra* note 87.

¹²⁵ *See id.* ("In addition to winning the X Prize, Binnie's flight smashed the altitude record for an airplane, set by X-15 pilot Joseph Walker in 1963. That altitude was 354,200 feet (67 miles or 107.9 kilometers).").

¹²⁶ Associated Press, *SpaceShipOne Takes Its Place at Smithsonian*, MSNBC.COM, Oct. 5, 2005, <http://www.msnbc.msn.com/id/9601983/>. SpaceShipOne now hangs in the Milestones of Flight Gallery of the Smithsonian Institute's National Air and Space Museum next to Charles Lindbergh's Spirit of St. Louis. *Id.*

¹²⁷ X PRIZE Cup, About the X PRIZE Cup, http://www.xpcup.com/index.cfm?goto=2005_activities.default (last visited Mar. 21, 2006) [hereinafter About the X PRIZE Cup].

¹²⁸ X PRIZE Cup, Schedule of Events, http://www.xpcup.com/index.cfm?goto=2005_activities.schedule (last visited Mar. 21, 2006).

¹²⁹ X PRIZE Cup, The Eggs Prize, <http://www.xpcup.com/index.cfm?goto=education.eggspize> (last visited Mar. 21, 2006). Educational programs such as this will help maintain interest and awareness in students of science, space, and confidence in their own creativity.

tude, farthest cross range, and fastest turn around time.”¹³⁰ The X PRIZE Foundation wants to assure that interest and competitive ideas stay alive, though it has little to be worried about. Since the X PRIZE, space tourism companies have been springing up. The race is no longer just about glory; it is also about making money.

Jeff Bezos, founder and CEO of Amazon.com, created Blue Origin to develop low-cost space passenger vehicles of his own.¹³¹ On his ranch in Van Horn, Texas, Bezos is building a suborbital space launch facility that will test components to create a vertical take off and landing vehicle within the next seven years.¹³² In January 2005, Bezos’s company was still in the licensing stage, and working with the FAA to certify its launch site.¹³³

Armadillo Aerospace, though it did not win the X PRIZE,¹³⁴ is still determined to be a contender in commercial space travel.¹³⁵ Featured at the latest X PRIZE Cup event,¹³⁶ Armadillo is researching and developing computer-controlled ethanol rocket vehicles for suborbital tourism flights.¹³⁷

Even more ambitious, Bigelow Aerospace, owned by Las Vegas businessman Robert Bigelow, is developing an orbiting space hotel.¹³⁸ Nearing its testing phase, Bigelow has created a hotel in compact pieces that can be inflated and reassembled in space.¹³⁹ The only challenge seems to be getting it into orbit. Taking from the X PRIZE model, Bigelow is offering a \$50 million award in his America’s Space Prize competition.¹⁴⁰ The prize will be awarded to the first independent United States group that develops a five or more crew spacecraft that can make at least two orbits, dock and orbit with the space hotel, and is at least eighty percent reusable.¹⁴¹

With public interest in space travel soaring, more companies

¹³⁰ About the X PRIZE Cup, *supra* note 127.

¹³¹ Leonard David, *Blue Origin: Rocket Plans Spotlighted*, SPACE.COM, June 13, 2005, http://www.space.com/news/050613_blue_origin.html.

¹³² Alan Boyle, *Amazon Founder Unveils Space Center Plans*, MSNBC.COM, Jan. 13, 2005, <http://msnbc.msn.com/id/6822763/>.

¹³³ *See id.*

¹³⁴ *Cf.* Boyle, *SpaceShipOne Wins*, *supra* note 102 (explaining that SpaceShipOne won the X PRIZE).

¹³⁵ Armadillo Aerospace Home Page, <http://www.armadilloaerospace.com/n.x/Armadillo/Home> (last visited Mar. 22, 2006).

¹³⁶ *Id.*

¹³⁷ *Id.*

¹³⁸ *See* Michael Belfiore, *The Five-Billion-Star Hotel*, POPULAR SCIENCE, Mar. 2005, at 50, 52, 56.

¹³⁹ *Id.* at 54, 56.

¹⁴⁰ *See* Bigelow Aerospace, Inc., America’s Space Prize, <http://www.bigelow-aerospace.com/prize.html> (last visited Mar. 22, 2006).

¹⁴¹ *See id.*

are joining the new space race.¹⁴² Several of the original X PRIZE contenders are still working on their concepts. Like the different airline companies, there are still a variety of niches to fill, and plenty of money to be made.¹⁴³ But even with the increasing public interest and a myriad of space technology developments, there is concern that the legal hurdles may be insurmountable.

IV. UNITED STATES RESPONSE TO SPACE TOURISM

After SpaceShipOne's triumph at the ANSARI X PRIZE, many individuals and corporations hope to create a competitive private space industry. However, investors are concerned about how the United States government may respond to the growing industry. Stuart Witt, manager of the Mojave Spaceport, stated: "[t]he single biggest factor facing the private sector in reaching orbit or interplanetary or even reaching the surface of the moon is the United States Congress Frankly, I think that is the only issue."¹⁴⁴ Witt is not alone in his concern. Congress has responded to the call, but whether its actions will benefit the industry or bring about its downfall remain to be seen.

A. Congress Gets Involved

Over the past few years, Congress has considered involvement in the private space industry. Several House bills have been proposed trying to create investment incentives; however, none have survived.¹⁴⁵ In 2003, Representative Ken Calvert proposed the Invest in Space Now Act of 2003.¹⁴⁶ The Invest in Space Now Act recognized the United States' potential to be the leader in space technology.¹⁴⁷ The Act would have granted a tax credit for owners of stock in C-corporations that were qualified space transportation vehicle providers at the time the stock was

¹⁴² See FEDERAL AVIATION ADMINISTRATION, ASSOCIATE ADMIN. FOR COMM. SPACE TRANSP., 2004 U.S. COMMERCIAL SPACE TRANSPORTATION DEVELOPMENTS AND CONCEPTS: VEHICLES, TECHNOLOGIES, AND SPACEPORTS (Jan. 2004), available at <http://ast.faa.gov/files/pdf/Book1screen.pdf>.

¹⁴³ See, e.g., Sandi Doughton, *Bezos Brings Space Race to Kent as he Plans a Passenger Rocket*, SEATTLE TIMES, Dec. 25, 2005, at A1, A20 ("Each of the enterprises is focusing on a different approach to the same challenge—developing a reliable, affordable and safe method to get people into space. Competition among the groups will raise the odds of success").

¹⁴⁴ Alan Boyle, *Spaceports Compete in Race for Business*, MSNBC.COM, Oct. 7, 2004, <http://msnbc.msn.com/id/6191567/> [hereinafter Boyle, *Spaceports Compete*].

¹⁴⁵ *Recent Developments- Commercialization of Space: The Commercial Space Launch Amendments Act of 2004*, 17 HARV. J.L. & TECH. 619, 630 (2004) [hereinafter *Recent Developments*].

¹⁴⁶ Invest in Space Now Act of 2003, H.R. 2358, 108th Cong. (1st Sess. 2003).

¹⁴⁷ See H.R. 2358.

issued.¹⁴⁸

In the same year, Representative Dana Rohrabacher proposed the Zero Gravity, Zero Tax Act of 2003.¹⁴⁹ This Act would have excluded from gross income any “gain on the sale or exchange of any stock of a qualified space corporation.”¹⁵⁰ Neither the Invest in Space Now Act nor the Zero Gravity, Zero Tax Act was signed into law.

In March 2005, Rohrabacher reintroduced the Zero Gravity, Zero Tax Act.¹⁵¹ Rohrabacher also introduced the Space and Aeronautics Prize Act which aimed to create a government prize system reminiscent of the X PRIZE.¹⁵² The Space and Aeronautics Prize Act would grant a cash award in recognition of achievements in research, development, and prototype demonstrations that have potential application to both public and private space endeavors.¹⁵³

While none of this legislation has been voted past the House floor, it demonstrates that congressional interest is growing, as members begin to understand the importance of the space tourism industry.¹⁵⁴ Tax benefits and prize systems will encourage investment. During these formative years, it is equally important that Congress tread lightly when it comes to regulating space tourism to avoid stifling development.

B. Regulating Commercial Space Travel

Before the 1980s, there was no private space transportation industry; thus, there was no domestic regulation on the matter.¹⁵⁵ There was, however, an international body of law governing space, consisting of treaties set during the Cold War era.¹⁵⁶ All of the existing treaties have outdated ideas of how space would eventually be utilized, particularly requiring that all space

¹⁴⁸ H.R. 2358.

¹⁴⁹ Zero Gravity, Zero Tax Act of 2003, H.R. 914, 108th Cong. (1st Sess. 2003).

¹⁵⁰ H.R. 914.

¹⁵¹ See Zero Gravity, Zero Tax Act of 2005, H.R. 1024, 109th Cong. (1st Sess. 2005).

¹⁵² See Space and Aeronautics Prize Act, H.R. 1021, 109th Cong. (1st Sess. 2005).

¹⁵³ See H.R. 1021.

¹⁵⁴ See also 150 CONG. REC. H10045-H10048 (daily ed. Nov. 19, 2004) (statement of Rep. Rohrabacher) (expressing legitimate concerns that if regulatory barriers hinder the growth of the space industry, it will “force this industry to go overseas, rather than provide the jobs here and the development of technology here”).

¹⁵⁵ Press Release, U.S. House Comm. on Transp. and Infrastructure, Future of Commercial Space Transportation to be Focus of Congressional Hearing, (Feb. 7, 2005), available at <http://www.house.gov/transportation/press/press2005/release8.html>.

¹⁵⁶ See Gabrynowicz, *supra* note 36, at 1041–42. For challenges that the current outer space laws place on further commercialization and development of outer space, see Ty S. Twibell, *Space Law: Legal Restraints on Commercialization and Development of Outer Space*, UMKC L. REV. 589, 610–12(1997).

developments be for the “common heritage of mankind.”¹⁵⁷ It is uncertain whether the space treaties, which make no reference to space “tourists,” even apply to the private space tourism industry;¹⁵⁸ thus, the treaties should be revisited, or even entirely replaced.

During the early 1980’s, “recognition of the value of commercial space transportation by U.S. government officials, and the ban of commercial payloads from flying aboard the Space Shuttle after the Challenger disaster, promoted the development of [the commercial space transportation industry] in the United States,”¹⁵⁹ and in 1984, Congress passed the Commercial Space Launch Act to regulate future launches.¹⁶⁰ Congress also created the Office of Commercial Space Transportation (OCST) within the Department of Transportation.¹⁶¹ The OCST was renamed the Office of the Associate Administrator for Commercial Space Transportation (AST) and was transferred to the FAA in 1995.¹⁶² Until recently, however, it was uncertain whether the FAA and AST’s jurisdiction also covered space tourism.

Until December 2004, several agencies were competing for the jurisdiction over suborbital craft.¹⁶³ These ships are designed to enter space using rocket power, and thus appeared to be under the purview of AST.¹⁶⁴ However, several of these suborbital craft had two stages, behaving like airplanes for take-off and landing,

¹⁵⁷ See Lynn M. Fountain, Note, *Creating Momentum in Space: Ending the Paralysis Produced by the “Common Heritage of Mankind” Doctrine*, 35 CONN. L. REV. 1753, 1753 (2003); see also Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty), intro., Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205.

¹⁵⁸ See Julie C. Easter, *Spring Break 2023—Sea of Tranquility: The Effect of Space Tourism on Outer Space Law and World Policy in the New Millennium*, 26 SUFFOLK TRANSNAT’L L. REV. 349, 366–67 (2003) (pointing out the treaties “fail, however, to provide a solution to the problems anticipated by frequent commercial travel into outer space by citizens worldwide”); Steven Freeland, *Issues in Space Law: Up, Up and . . . Back: The Emergence of Space Tourism and Its Impact on the International Law of Outer Space*, 6 CHI. J. INT’L L. 1, 10 (2005); see generally R. Thomas Rankin, Note, *Space Tourism: Fanny Packs, Ugly T-Shirts, and the Law in Outer Space*, 36 SUFFOLK U. L. REV. 695 (2003) (examining the history of space travel and resulting international treaties, and how they might apply to commercial space flight in tort and criminal cases).

¹⁵⁹ Ryabinkin, *supra* note 25, at 114.

¹⁶⁰ See Press Release, U.S. House Comm. on Transp. and Infrastructure, *supra* note 155.

¹⁶¹ *Id.*

¹⁶² *Id.*

¹⁶³ See, e.g., 150 CONG. REC. S10054 (daily ed. Sept. 30, 2004) (Exhibit 2, a letter to the Committee on Commerce, Science, & Transportation, written by several members of the developing space tourism industry) (“[C]onfusion has developed as to whether some of these suborbital RLVs [Reusable Launch Vehicles] might be regulated as a rocket or an airplane, or worse still, as both . . . this regulatory uncertainty was a real and unnecessary barrier to private investment in, and therefore the success of, this new suborbital RLV industry, and that Congress needed to fill in the ‘legislative gap’ . . .”).

¹⁶⁴ *Recent Developments*, *supra* note 145, at 626.

and, therefore, appeared to be subject to the FAA's Regulation and Certification Group, which regulates experimental aircraft.¹⁶⁵ Regulation under either branch of the FAA could have meant death to the industry. AST's licenses were set up for non-reusable rockets, which cost millions of dollars, but were "a sufficiently small fraction of the total" cost of launching commercial rockets.¹⁶⁶ FAA experimental aircraft and passenger licenses, however, are equally expensive and their cost is a major hurdle for small and start-up businesses.¹⁶⁷ Space tourism crafts desperately needed their own regime—existing regulatory systems did not properly fit these new vehicles, and the high cost of these systems threatened to destroy the industry.¹⁶⁸

1. The Commercial Space Launch Amendments Act of 2004

In October 2004, federal legislation was in a state of flux as House and Senate negotiations were underway.¹⁶⁹ The industry was strongly pushing for "fly at your own risk" provisions and full independence with their safety standards.¹⁷⁰ The industry argued that these open provisions and standards were essential for extra protection from lawsuits "because of the inherent risk involved with flying experimental spacecraft."¹⁷¹ The responsive argument claimed that passengers would be "forced to give up their access to due process."¹⁷²

After serious negotiations and compromises, President Bush signed the Commercial Space Launch Amendments Act of 2004¹⁷³ (Space Launch Act) into law on December 23, 2004.¹⁷⁴ The Space Launch Act replaces the original legislation from 1984,¹⁷⁵ now

¹⁶⁵ *Id.*

¹⁶⁶ Rand Simberg, *Permission to Fly*, FOXNEWS.COM, Oct. 15, 2003, <http://www.foxnews.com/story/0,2933,100181,00.html>. The cost of launching a non-reusable commercial rocket is so incredibly expensive that a mere multi-million dollar license is not considered a barrier, but rather just another small cost factor of production. *Id.*

¹⁶⁷ See Rand Simberg, *Certifiable*, FOXNEWS.COM, July 24, 2003, <http://www.foxnews.com/story/0,2933,92840,00.html>.

¹⁶⁸ Easter, *supra* note 158, at 378. "To have a successful program, investors must know that their financial endeavors are secure and that the restrictions imposed by outer space law are predictable. The feeling of security will make participants more likely to carry out their plans in space because they will not suffer losses from engaging in activity that is later deemed to be impermissible." *Id.* at 379.

¹⁶⁹ Boyle, *Spaceports Compete*, *supra* note 144.

¹⁷⁰ *Id.*

¹⁷¹ *Id.*

¹⁷² *Id.*

¹⁷³ Commercial Space Launch Amendments Act of 2004, 49 U.S.C.A. §§ 70101–70305 (West 2004).

¹⁷⁴ Alan Boyle, *Private-Spaceflight Bill Signed Into Law*, MSNBC.COM, Dec. 23, 2004, <http://msnbc.msn.com/id/6682611/> [hereinafter Boyle, *Private-Spaceflight Bill*].

¹⁷⁵ Glenn Harlan Reynolds, *International Space Law in Transformation: Some Observations*, 6 CHI. J. INT'L L. 69, 70 (2005) (noting "[t]he pre-2004 version of the Commercial Space Launch Act of 1984 did not address space tourism directly").

under the purview of the AST,¹⁷⁶ but the Act also distinguishes commercial human space flight as its own industry in many regards.¹⁷⁷ According to Senator Inhofe, sections were modified in order to remove governmental barriers to the space tourism business and to protect the budding industry.¹⁷⁸

The Space Launch Act enacted some major protections for space tourism businesses. Most importantly, the industry won its “fly at your own risk” clause in 49 U.S.C.A. § 70105(b)(5) which allows a licensed party to carry space flight participants only if they “inform[] the space flight participant in writing about the risks of the launch and reentry, including the safety record of the launch or reentry vehicle type,” and that the United States government has not certified the vehicle as safe.¹⁷⁹ After being fully informed, the participant must also give written consent.¹⁸⁰ This appears to give space tourism businesses a great deal of freedom.

The Space Launch Act also includes the commercial human space flight industry in its temporary indemnification and insurance scheme which requires participants to purchase insurance, but also indemnifies participants up to \$1.5 billion beyond the insurance cap.¹⁸¹ This is a major economic protection to the industry, shielding them “from high insurance costs due to the risk of even a single catastrophic event.”¹⁸²

¹⁷⁶ See 49 U.S.C.A. § 70103 (West 2004) (granting authority to the Secretary of Transportation to carry out the Space Launch Act); see also 49 U.S.C.A. § 70119 (West 2004) (authorizing appropriation of funds to the AST under the Space Launch Act). Because the AST is a subset of the FAA, both under the wing of the Department of Transportation, the administrative agency’s names will be used throughout this Comment interchangeably. Leonard David, *FAA Sets Up Plan for Spaceflight Permits*, MSNBC.COM, May 25, 2005, <http://msnbc.msn.com/id/7983128/> (“[T]he Office of the Associate Administrator for Commercial Space Transportation, or AST, [is] the only space-related line of business within the FAA and under the wing of the U.S. Department of Transportation.”).

¹⁷⁷ See *infra* text accompanying notes 179–91.

¹⁷⁸ 150 CONG. REC. S10051-52 (daily ed. Sept. 30, 2004) (statement of Sen. Inhofe) (“To incentivize and safely get government out of the way is the philosophy of the Commercial Space Launch Amendments Act of 2004 . . .”).

¹⁷⁹ 49 U.S.C.A. § 70105(b)(5)(A) (West 2004). However, space vehicles will not be considered fully approved by the United States government or its administrative agencies until 2012 because the AST and FAA will not be given full regulatory control until that time. 49 U.S.C.A. § 70105(c)(3) (West 2004).

¹⁸⁰ Laura Montgomery, *Space Tourism and Informed Consent: To Knowingly Go*, 51 FED. LAW. 26, 28–29 (2004) (What “informed consent” really would entail varied in the early debates from recommending the passenger make out a will before boarding to telling the passenger “you have a 1 in 14 chance of dying on this flight” and showing several “videos of catastrophic rocket accidents”).

¹⁸¹ 49 U.S.C.A. §§ 70112–13 (West 2004). 150 Cong. Rec. H836 (daily ed. Mar. 04, 2004) (statement of Rep. Boehlert) (explaining that the indemnification is currently set to last for three years, and studies are currently commencing to determine how to end it without harming the industry).

¹⁸² *Recent Developments*, *supra* note 145, at 629. See also Hertzfeld & von der Dunk, *supra* note 7, at 93 (The insurance agreement protects the United States government, as

49 U.S.C.A. § 70105a created an entirely new, experimental permit for reusable suborbital rockets, allowing research and development to test new design concepts, equipment, or techniques, and to facilitate crew training.¹⁸³ The permit also grants an unlimited number of launches and reentries for the covered design, eliminating the burden and cost of securing a new license for each test.¹⁸⁴ In 49 U.S.C.A. § 70104, which provides restrictions on launches, operations, and reentries, subsection (d) specifically notes that regulations may only require one license or permit “to conduct activities involving crew or space flight participants, including launch and reentry”¹⁸⁵

49 U.S.C.A. § 70105(c) was the major compromise. Favorable to the industry, 49 U.S.C.A. § 70105(c)(2) allows only minimal regulations on space tourism vehicles. This section allows only regulations that prohibit design features that have resulted in a serious or fatal injury, or that may contribute to events that pose a high risk of causing a serious or fatal injury.¹⁸⁶ In 2012, however, pursuant to 49 U.S.C.A. § 70105(c)(3), full regulatory control will pass to the FAA.¹⁸⁷ Assuming the first commercial space flights launch on schedule, the FAA will have the power to regulate all aspects of the space tourism industry after only five years of operation with actual space tourists.

49 U.S.C.A. § 70105(a)(2) grants the FAA power, when granting licenses and permits, to regulate safety standards for launch vehicles, reentry vehicles and crews, so long as it does not interfere with 49 U.S.C.A. §§ 70105 (b) and (c).¹⁸⁸ This narrows the interpretation of 49 U.S.C.A. §§ 70105 (b) and (c) dramatically; demonstrating that these sections were not intended to be full blanket exceptions, particularly with respect to crew members.

Aside from the Space Launch Act’s eight-year termination of self-regulation, there are other provisions that give immediate regulatory power to the FAA over persons involved, both as customers and crew.¹⁸⁹ 49 U.S.C.A. § 70105(b)(4) mandates that crews must receive training and pass medical standards as de-

well. “[B]y treaty, every space-faring nation has agreed that each government will ultimately be liable for the actions of its citizens. This potential large liability has necessitated a licensing and regulatory system to be established in many nations to protect government funds.”).

¹⁸³ 49 U.S.C.A. § 70105a (West 2004).

¹⁸⁴ 49 U.S.C.A. § 70105a(e)(1) (West 2004).

¹⁸⁵ 49 U.S.C.A. § 70104(d) (West 2004).

¹⁸⁶ 49 U.S.C.A. § 70105(c)(2) (West 2004).

¹⁸⁷ 49 U.S.C.A. § 70105(c)(3) (West 2004).

¹⁸⁸ 49 U.S.C.A. § 70105(a)(2) (West 2004).

¹⁸⁹ 49 U.S.C.A. § 70105 (West 2004).

terminated by the FAA, and that all crews must be fully informed in writing that the United States government has not certified the launch vehicle as safe.¹⁹⁰ Furthermore, 49 U.S.C.A. § 70105(b)(6)(A) also gives the FAA power to create regulations that will require physical examinations, medical and training requirements for space flight participants, but this clause terminates in December 2007.¹⁹¹ Thus, even though the Space Launch Act seems to represent the industry's freedom to regulate itself, the FAA still retains some control.

2. Space Wars on Paper: The Fight in Congress and Their Interpretations

Several members of Congress recognize that space tourism will play an important role in the future of space technology and that space tourism requires a proper foundation in order to prosper. "Failing to provide a precise and consistent form of management will negatively affect the industry's ability to plan for its future, compete with international providers and attract financing from investors."¹⁹² Supporters felt that

[t]his is about a lot more than joyrides in space, although there is nothing wrong with such an enterprise. This is about the future of the U.S. aerospace industry. As in most areas of American enterprise, the greatest innovations in aerospace are most likely to come from small entrepreneurs The goal of this bill is to promote robust experimentation, to make sure that entrepreneurs and inventors have the incentives and the capabilities they need to pursue their ideas. That is important to our Nation's future.¹⁹³

Supporters further contended these trailblazing space entrepreneurs "just need government to get out of the way," but still "are seeking a government regulatory regime that will provide predictability, . . . stability and support to help them attract private capital In short, this industry requires government regulation, but not so much regulation as to stifle it."¹⁹⁴

Supporters in Congress' main argument was balance—creating a regulatory system that would protect crew and general

¹⁹⁰ 49 U.S.C.A. § 70105(b)(4) (West 2004).

¹⁹¹ 49 U.S.C.A. § 70105(b)(6)(A) (West 2004).

¹⁹² 150 CONG. REC. H786 (daily ed. Mar. 3, 2004) (statement of Rep. Reynolds).

¹⁹³ 150 CONG. REC. H835 (daily ed. Mar. 4, 2004) (statement of Rep. Boehlert). Science Committee Chairman Sherwood Boehlert of New York has been called the greenest Republican in the House, thus his support was especially notable considering the provision's environmental regulation exemptions. Boehlert went from finding the legislation "flighty" to "one of the most important measures this committee will move this year." See *Commercial Space at a Tipping Point*, *supra* note 89, at 66.

¹⁹⁴ 150 CONG. REC. H835-36 (daily ed. Mar. 4, 2004) (statement of Rep. Gordon) ("Such a framework is needed if the companies are to make their plans and attract needed capital.").

public, while still giving the industry the most latitude possible to experiment.¹⁹⁵ California Republican representative Dana Rohrabacher, who sponsored the bill, said that “[o]verall, the bill will help get this new industry on its way and on its feet and give the existing space launch industry more time to grow.”¹⁹⁶ The House almost unanimously agreed that commercial human space flight should be officially placed under the AST, and that issuance of permits and licenses needed to be streamlined.¹⁹⁷ Other provisions, however, were not so warmly embraced.

49 U.S.C.A. § 70105 was the most controversial section of the Space Launch Act. Specifically, the liability waivers and eight-year buffer, which would temporarily restrain the FAA’s regulatory control, were hotly contested. Supporters wanted to allow developers freedom to experiment and generate start-up revenue, so long as the passengers were fully informed.¹⁹⁸ The FAA must wait patiently for the industry to no longer be a “risky novelty. . . . [I]t seems to me kind of silly to regulate Burt Rutan’s vehicle, which has flown three times, as if it was a Boeing 747. If we regulate it that way, then his craft will never evolve into the equivalent of a 747.”¹⁹⁹

Congressional opponents to the Space Launch Act believed its drafters were establishing freedom in the industry at the cost of safety, where someone would have to be killed before regulators could step in.²⁰⁰ The opponents also felt that the eight-year block before the FAA could regulate was similar to the FAA’s original, but inappropriate role as both promoter and watchdog of the aerospace industry.²⁰¹ At a minimum, opponents wanted to

¹⁹⁵ 150 CONG. REC. H836 (daily ed. Mar. 4, 2004) (statement of Rep. Boehlert) (“We are still a long way off from making rockets common carriers like airplanes, but we need to promote the experimental work.”) Representative Lampson explained that “the basic purpose of [The Space Launch Act] is to establish a framework for regulating the emerging commercial human space flight industry. The Committee on Science has heard ample testimony that such a framework is needed if the companies are to make their plans and attract needed investment capital. At the same time, Congress needs to ensure that safety is protected as this new industry emerges.” 150 CONG. REC. H10050 (daily ed. Nov. 19, 2004) (statement of Rep. Lampson).

¹⁹⁶ 150 CONG. REC. H836 (daily ed. Mar. 4, 2004) (statement of Rep. Rohrabacher).

¹⁹⁷ 150 CONG. REC. H840 (daily ed. Mar. 4, 2004) (statement of Rep. Rohrabacher). The Space Launch Act first made it through the House as H.R. 3752, and was passed 402 to 1. It was amended while in the Senate to increase some of the controls and sent back to the House as H.R. 5382, the version that was eventually signed into law. 150 CONG. REC. H10048 (daily ed. Nov. 19, 2004) (statement of Rep. Rohrabacher).

¹⁹⁸ 49 U.S.C.A. § 70105 (West 2004).

¹⁹⁹ 150 CONG. REC. H10049 (daily ed. Nov. 19, 2004) (statement of Rep. Boehlert).

²⁰⁰ Boyle, *Private-Spaceflight Bill*, *supra* note 174. Representative Johnson asked his fellow House members to renegotiate the bill, asserting that “[u]nder no circumstances should we allow the desire for profits to ever interfere with the responsibility of maintaining safety and proper oversight.” 150 CONG. REC. E2119 (daily ed. Nov. 20, 2004) (speech of Rep. Johnson).

²⁰¹ 150 CONG. REC. H10049 (daily ed. Nov. 19, 2004) (statement of Rep. DeFazio).

delay the bill and more thoroughly discuss “when it would be appropriate to begin to regulate for the health and safety of passengers on these space crafts.”²⁰²

Supporters responded that some regulation now is better than no regulation.²⁰³ They firmly believed that there needed to be an initial framework to create security for the industry and its investors.²⁰⁴ Supporters also noted that the bill would be the only way to protect the federal government from liability for licensed launches because the FAA would “continue to license private space flights without adequate authority to protect either the safety of the public or the finances of the government.”²⁰⁵ The Space Launch Act already represented “the most feasible compromise possible in this session of Congress.”²⁰⁶ Space flight technology will be developing for far longer than the Space Launch Act allows, and Congress should be cautious with its regulatory approach.²⁰⁷

In the end, the Space Launch Act received the necessary two-thirds majority in the House, and “went virtually unmentioned on the Senate floor” when it passed in December 2004 “tacked onto a package of House bills that were approved by unanimous consent in the Senate.”²⁰⁸ Representative Rohrabacher said it was “a ‘great victory for the future of America’s space efforts.’”²⁰⁹ Representative James Oberstar has continued to contest the Space Launch Act, and in February 2005, introduced a bill, H.R. 656, to amend the Act to grant the FAA more regulatory powers, taking into account the “inherently risky nature of human space flight.”²¹⁰

Representative DeFazio claimed the eight year limit would continue to be extended until the industry matured and a horrible tragedy occurred due to failure to regulate. 150 CONG. REC. H10051 (daily ed. Nov. 19, 2004) (statement of Rep. DeFazio).

²⁰² 150 CONG. REC. H10050 (daily ed. Nov. 19, 2004) (statement of Rep. DeFazio).

²⁰³ “My colleagues are going to hear today that there is not enough regulation in here to protect the consumer, but if this bill goes down, there will be no regulation to protect the consumer.” Uncertainty in the regulatory regime would have continued had this bill not been passed—at a minimum, it has given temporary clarity to the law. 150 CONG. REC. H10048 (daily ed. Nov. 19, 2004) (statement of Rep. Rohrabacher).

²⁰⁴ 150 CONG. REC. H836 (daily ed. Mar. 4, 2004) (statement of Rep. Gordon).

²⁰⁵ 150 CONG. REC. H10052 (daily ed. Nov. 19, 2004) (statement of Rep. Boehlert). Representative Boehlert concluded his comments by stating “[l]et us not take the position of the equivalent of not letting the Wright Brothers test their ideas without first convincing Federal officials that nothing could go wrong.” *Id.*

²⁰⁶ 150 CONG. REC. H10050 (daily ed. Nov. 19, 2004) (statement of Rep. Lampson).

²⁰⁷ Colin B. Picker, *A View From 40,000 Feet: International Law and the Invisible Hand of Technology*, 23 CARDOZO L. REV. 149, 151 (2001) (addressing how technological development has pressed the law as it presses society, and how legislatures must be cautious to not act too quickly with inaccurate information).

²⁰⁸ Boyle, *Private-Spaceflight Bill*, *supra* note 174. The Space Launch Act passed in the House by a vote of 269 to 120. *Id.*

²⁰⁹ *Id.*

²¹⁰ 151 CONG. REC. E181 (daily ed. Feb. 8, 2005) (extension of remarks by Rep. Ober-

After the Space Launch Act passed, Burt Rutan said that the “current regulatory system is [still] in need of repair and nearly destroyed his program.”²¹¹ The AST still has control over launches by private companies in the United States; their mission statement indicates they must ensure that these “activities do not harm public interests, including safety of the public and property as well as U.S. national security and foreign policy interests.”²¹² However, Rutan said that the process promulgated by the AST under the FAA “increased the risk for my test pilots. It did not reduce the risk to the non-involved public. It destroyed our safety policy of ‘always question the product, never defend it.’”²¹³ Rutan explained that the current process “is likely to be misapplied for the regulation of future commercial spaceliners,” just as it “was grossly misapplied for our research tests.”²¹⁴ Rutan also explained that the FAA was already thin on staff and could not effectively regulate the airline industry.²¹⁵ Eight years from now, giving the FAA even more power will only stretch the agency further, rendering it unable to quickly resolve regulatory problems.

3. The FAA Steps In: Proposed Regulations

Under 49 U.S.C.A. § 70120, the AST had twelve months to provide proposed regulations; these regulations would go into ef-

star); see also H.R. 656, 109th Cong. (1st Sess. 2005).

²¹¹ Leonard David, *Good News, Bad News for Space Tourism*, MSNBC.COM, Apr. 20, 2005, <http://msnbc.msn.com/id/7579297/> [hereinafter David, *Good News, Bad News*]. In addition to AST's involvement, the International Traffic in Arms Regulations (ITAR), which is enforced by the U.S. Department of State's Directorate of Defense Trade Controls (DDTC), poses significant issues for American space tourism. Under ITAR, exchange of technical information between one in the United States and anyone from a foreign nation must first be cleared by the DDTC, including the technology used in most X PRIZE team's rockets. Due to the restrictions contained in ITAR, it was not until August of 2005 that Mojave-based Rutan and London-based Branson were able to fully “activate all parts of the project.” If the space tourism industry is to achieve its full potential, either the law must be modified or special expedited procedures, like those in the Space Launch Act, must be created. The federal government must be cautious to protect our national security, but also not to destroy space's golden age before it even comes to fruition. See Leonard David, *U.S. Gives OK for SpaceShipTwo Dealings*, MSNBC.COM, Aug. 15, 2005, <http://msnbc.msn.com/id/8963138/>; Rosanna Sattler, *Transporting a Legal System for Property Rights: From the Earth to the Stars*, 6 CHI. J. INT'L L. 23, 39–41 (2005).

²¹² See Press Release, U.S. House Comm. on Transp. and Infrastructure, *supra* note 155.

²¹³ David, *Good News, Bad News*, *supra* note 211. SpaceShipOne was licensed by the FAA before the Space Launch Act was passed, and thus “had to comply with multiple and time-consuming requirements, including among others: (1) policy approval; (2) safety approval; (3) payload and payload reentry approval; (4) environmental approval; and (5) ongoing reporting obligations throughout the term of the license.” Ryabinkin, *supra* note 25, at 107.

²¹⁴ David, *Good News, Bad News*, *supra* note 211.

²¹⁵ *Id.*

fect after eighteen months.²¹⁶ In early 2005, the FAA began hearings to discuss the nature of these future regulations.²¹⁷ FAA chief Marion Blakey recognized that “[i]t was more than 20 years after the Wright brothers’ first flight before government regulations concerning aviation were put into place.”²¹⁸ Initial proposed guidelines required tourists to get physical exams and sign forms accepting the risks.²¹⁹ Drafts of the FAA guidelines also stated that operators of these space vehicles should disclose to their customers their safety record and provide safety training before the launch.²²⁰ Pilots would be required to carry an FAA pilot certificate and pass a medical examination.²²¹ The FAA proposed special training with particular emphasis on “abort scenarios, emergency operations and procedures that direct the vehicle away from the public in the event of a problem during flight.”²²²

On December 29, 2005, the FAA released its proposed regulations for public review as mandated under the Space Launch Act.²²³ While the FAA interprets the Space Launch Act to mean that “the FAA has to wait for harm to occur or almost occur before it can impose restrictions, even against foreseeable harm,”²²⁴ it has interpreted its power to regulate crew training and qualifications broadly.²²⁵ The FAA already has certain design requirements within its proposed rules, such as defined environmental control, life support systems, and physical restraints for persons and objects.²²⁶ The FAA claims it is making these standards as part of its crew requirements because environmental controls are important for the crew to function efficiently, and space flight participants need to be restrained to keep them “from interfering

²¹⁶ 49 U.S.C.A. § 70120 (West 2004).

²¹⁷ Press Release, U.S. House Comm. on Transp. and Infrastructure, *supra* note 155.

²¹⁸ Associated Press, *Congress Revisits Space Tourism Debate*, MSNBC.COM, Feb. 9, 2005, <http://msnbc.msn.com/id/6942959/> [hereinafter AP, *Congress Revisits Space Tourism Debate*]. See also Ryabinkin, *supra* note 25, at 105 (noting “the Warsaw Convention and initial lack of domestic regulation provided the U.S. airline industry with the combination of protection and freedom it needed to flourish”).

²¹⁹ *FAA Outlines Guidelines for Space Tours*, MSNBC.COM, Feb. 10, 2005, <http://msnbc.msn.com/id/6948660/> [hereinafter *FAA Outlines Guidelines*]. The FAA is essentially formalizing the regulations required by the Space Launch Act.

²²⁰ *Id.*

²²¹ *Id.*

²²² *Id.*

²²³ Human Space Flight Requirements for Crew and Space Flight Participants, 70 Fed. Reg. 77261 (Dec. 29, 2005).

²²⁴ Human Space Flight Requirements for Crew and Space Flight Participants, 70 Fed. Reg. at 77270.

²²⁵ The FAA has also interpreted the term “crew” expansively. Human Space Flight Requirements for Crew and Space Flight Participants, 70 Fed. Reg. at 77264.

²²⁶ Human Space Flight Requirements for Crew and Space Flight Participants, 70 Fed. Reg. at 77268.

with flight crew activities.”²²⁷ In the name of setting standards for their broad classification of crew members, the FAA has begun to intrude on the innovator’s territory. Public comment closed on February 27, 2006, and the official regulations will be released soon thereafter.²²⁸

While the FAA claims it is allowing the industry itself “to determine the best way to meet the [regulatory] standards,” space entrepreneurs are still concerned that proposed and future regulations may stifle the space tourism business before it even begins.²²⁹ In response, these trailblazers have banded together to create the Industry Consensus Standards Organization, and resolved to establish their own industry requirements.²³⁰ Group member Michael Kelly told the House Infrastructure and Transportation’s subcommittee on aviation that “[i]f government regulates safety aspects of space fliers themselves, it would be tantamount to killing the industry.”²³¹ On February 8, 2005, these entrepreneurs joined to officially become the Personal Spaceflight Federation, hoping “to work with federal regulators to help draw up the ‘rules of the road’ for suborbital space tourism.”²³² The Federation’s goal is to press a greater self-policing model within the industry instead of regulation by an outside entity.²³³

4. “This Bill is Not Some Wild-eyed Libertarian Scheme.”²³⁴

For commercial human space travel to thrive, the FAA must intrude as little as possible. The AST under the FAA already works with its parent, the Department of Transportation, in conjunction with the Secretary of Defense and the Administrator of NASA, to schedule commercial launches of satellites to prevent collisions and protect the public.²³⁵ The Space Launch Act already protects participants, requiring that tourists be informed and given the freedom to make their own risk evaluations.²³⁶

²²⁷ Human Space Flight Requirements for Crew and Space Flight Participants, 70 Fed. Reg. at 77269.

²²⁸ Human Space Flight Requirements for Crew and Space Flight Participants, 70 Fed. Reg. at 77262.

²²⁹ *FAA Outlines Guidelines*, *supra* note 219; AP, *Congress Revisits Space Tourism Debate*, *supra* note 218.

²³⁰ AP, *Congress Revisits Space Tourism Debate*, *supra* note 218.

²³¹ *Id.*

²³² Alan Boyle, *Space Racers Unite in Federation*, MSNBC.COM, Feb. 8, 2005, <http://msnbc.msn.com/id/6936543/>.

²³³ *See id.*

²³⁴ *Commercial Space At a Tipping Point*, *supra* note 89, at 66. Other scholars have even called it “sensible.” Reynolds, *supra* note 175, at 71.

²³⁵ Commercial Space Launch Amendments Act of 2004, 49 U.S.C.A. §§ 70109 (West 2004).

²³⁶ *See, e.g.*, 150 CONG. REC. H10048 (daily ed. Nov. 19, 2004) (statement of Rep. Rohrabacher) (“[The Space Launch Act’s] central premise still is that people have a right and, especially in a developing industry, it is important to have that type of citizen input

The Space Launch Act's notifications and "fly at your own risk" provisions are all that are truly needed to guarantee both the safety of future passengers and freedom of growth for the industry.²³⁷ However, some members of Congress feel that these requirements give too much power to space travel businesses, and that the Space Launch Act's drafters allowed the industry's "desire for profits to . . . interfere with the responsibility of maintaining safety and proper oversight."²³⁸ Representative Oberstar claimed that the lack of immediate FAA control "could encourage a 'tombstone mentality,' in which regulators would have to stand by until someone got killed or seriously hurt."²³⁹

This claim is exaggerated. The industry has every incentive to hold itself to high safety standards in order to generate greater profit, and the Space Launch Act will also prevent any unscrupulous companies from overlooking safety entirely. In addition, the Space Launch Act does not mandate a fatality or even a serious injury before the government may step in: "[the FAA] may come in . . . [when] there is a risk."²⁴⁰ The AST has unlimited authority to regulate in order to protect third parties, and the Space Launch Act gave a clear eight year timetable for when that unlimited authority will extend to passengers.²⁴¹

Another argument by opponents is that this timetable is too long before the FAA can fully regulate commercial space flight passengers; it is impractical for the FAA to be both promoting and monitoring the same business. Representative DeFazio compared it to when the FAA inherited the Civil Aeronautics Board (CAB)'s duty to promote the aeronautics industry; these conflicting responsibilities resulted in a tragic accident.²⁴² Perhaps Representative DeFazio is correct that the FAA's dual role will only lead to a similar tragedy in the space industry. The

which would give them the right to waive certain safety requirements they would not waive in time when we are dealing with advanced technology and technology that has already been commercialized.")

²³⁷ See, e.g., 150 CONG. REC. S10052 (daily ed. Sept. 30, 2004) (statement of Sen. Inhofe) ("Without such a [liability] waiver, the investors fear excessive lawsuits by trial lawyers. Without the investors, many of these fledgling entrepreneurial space companies will not be able to get off the ground, both literally and figuratively.")

²³⁸ 150 CONG. REC. E2119 (daily ed. Nov. 20, 2004) (speech of Rep. Johnson).

²³⁹ Boyle, *Private-Spaceflight Bill*, *supra* note 174.

²⁴⁰ See 150 CONG. REC. H10048 (daily ed. Nov. 19, 2004) (statement of Rep. Rohrabacher). Representative Rohrabacher, the Space Launch Act's proponent, made the above statement. This suggests that the AST's powers are much more broad than the face of the Act indicates, demonstrating that the Space Launch Act is not as hands-off as it should be, or as the industry wanted.

²⁴¹ See 150 CONG. REC. H10049 (daily ed. Nov. 19, 2004) (statement of Rep. Boehlert).

²⁴² See 150 CONG. REC. H10049 (daily ed. Nov. 19, 2004) (statement of Rep. DeFazio). Representative DeFazio claimed the eight-year limit would continue to be extended until the industry matured and a horrible tragedy occurred due to failure to regulate. *Id.* at H10051.

proper remedy, therefore, is for the FAA to allow the industry to both promote and regulate itself.

Space flight will be developing for far longer than eight years—it “is years from being routine, or even a mode of transportation per se. Transportation refers to reaching a desired destination. Space flight, for the foreseeable future, will be an end in itself.”²⁴³ The Space Launch Act has already granted expansive powers to the FAA, and giving the FAA full power after eight years may drive away investors. Both Congress and the FAA should refrain from interfering until they and the industry itself has “accumulated some actual experience with commercial operations” of space flight.²⁴⁴ Representative DeFazio’s example represented a catastrophic result from over sixty years of the FAA’s dual duties—and he is trying to compare it to an unlived eight.

There are several other flaws with Representative DeFazio’s analogy to early aeronautics and the FAA. When the aviation industry first began, it was not regulated for twenty years.²⁴⁵ Also, the sole reason the FAA was given the responsibility of promoting the aerospace industry was due to CAB’s over-regulation in the first place, which almost destroyed commercial air transportation.²⁴⁶

During this eight-year buffer, the space industry will be charged with the task of foreseeing all possible dangerous scenarios and designing safety features and protocols to protect against them. After winning the X PRIZE, Burt Rutan said: “I absolutely have to develop a manned space tourism system that’s at least a hundred times safer than anything that’s ever flown man to space, and probably a lot more. I have to do that.”²⁴⁷

As Burt Rutan explained, heavy FAA regulation may create a greater risk of harm to passengers and the public rather than lessen it. If design safety regulations are formalized, or if the FAA reads its limited powers in the Space Launch Act expansively, the space industry could fall into the dangerous habit of only doing the required minimum. While the hope is that the space industry would still go above and beyond the government’s regulations, since an accident could destroy any business, it still creates a very dangerous avenue for these businesses to avoid taking responsibility. In addition, instead of allowing designers the freedom to create optimal safety systems compatible with

²⁴³ Montgomery, *supra* note 180, at 27.

²⁴⁴ 150 CONG. REC. H836 (daily ed. Mar. 4, 2004) (statement of Rep. Gordon). Even then, it is debatable whether they should move forward.

²⁴⁵ Ryabinkin, *supra* note 25, at 105.

²⁴⁶ See ALFRED E. KAHN, LESSONS FROM DEREGULATION 6–7, 47 (2004).

²⁴⁷ *Winning the X Prize*, *supra* note 106.

their unique creations, the FAA will constrict designers with mandatory, incompatible safety features that will only hinder development.

Representative Oberstar supports full regulation of the industry, and has asserted he “[does] not think we have ever over-regulated safety.”²⁴⁸ Representative Oberstar dismissed industry concerns that the “FAA might not have the technology skills to deal with . . . a new class of vehicle. They would be groping around with this new class of vehicle and would not think creatively.”²⁴⁹ Representative Oberstar answered by listing jet aviation and Cirrus Aviation’s “all-composite general aviation aircraft that had never been attempted before” as examples of where the “FAA did not strangle that new technology in its crib but nurtured it along in a safe manner so that it could be safely deployed.”²⁵⁰ Representative DeFazio agreed, saying that “regulation at the outset” is the only way to prevent tragedy, “given the expertise of the FAA.”²⁵¹

Representative Oberstar’s jet aviation example fails because jet technology was developed during World War II in response to the German Messerschmitt Me 262, the first jet fighter.²⁵² Because the technology was first developed for military rather than private use, the FAA had little involvement and safety standards were greatly relaxed. In addition, Representative Oberstar’s composite aircraft example is completely inaccurate. The Beech Starship, designed by Burt Rutan for Raytheon, was the first composite aircraft to obtain FAA certification.²⁵³ The FAA’s inexperience with this entirely new technology resulted in a series of expensive overlapping prophylactic requirements. The cost of attaining the FAA’s approval drove the Starship’s final price tag too high, which ultimately led to the demise of this unique aircraft.²⁵⁴ Only fifty-three Starships were built, and Raytheon has

²⁴⁸ 150 CONG. REC. H10050 (daily ed. Nov. 19, 2004) (statement of Rep. Oberstar).

²⁴⁹ 150 CONG. REC. H10051 (daily ed. Nov. 19, 2004) (statement of Rep. Oberstar).

²⁵⁰ 150 CONG. REC. H10051 (daily ed. Nov. 19, 2004) (statement of Rep. Oberstar).

²⁵¹ 150 CONG. REC. H10051 (daily ed. Nov. 19, 2004) (statement of Rep. DeFazio). Representative Oberstar recommended changing the language of the Space Launch Act to allow the FAA to “[p]rescribe minimum standards necessary for safety of design features [sic] and operation of a launched vehicle, taking into account the inherently risky nature of human space flight.” *Id.*

²⁵² See TOM CROUCH, *WINGS: A HISTORY OF AVIATION FROM KITES TO THE SPACE AGE* 443–44 (2003).

²⁵³ NASA, A HISTORY OF FULL-SCALE AIRCRAFT AND ROTORCRAFT CRASH TESTING AND SIMULATION AT NASA LANGLEY RESEARCH CENTER 6 (2004), available at <http://techreports.larc.nasa.gov/ltrs/PDF/2004/mtg/NASA-2004-4icns-kej.pdf>; see also *Boneyard*, *supra* note 103 (noting “no other business class airplane has an all composite wing and fuselage”). It had other revolutionary features, such as a forward canard wing, pusher engines, and the “first certificated all glass cockpit in general aviation.” *Id.*

²⁵⁴ *Boneyard*, *supra* note 103 (“[T]he FAA had never certified a composite airframe,

recently recalled and scrapped all leased Starships to save on support costs.²⁵⁵ Thus, despite Representative Oberstar's positive portrayal of the FAA's ability to regulate new technology, experience has shown that FAA regulation in newly innovated areas destroys original concepts before they take off.

As a last resort, opponents of the Space Launch Act question whether space tourism should be supported at all. Representative DeFazio argues that if "presumably much wealthier people [are] paying gigabucks to have the experience," and "there are already entrepreneurs out there experimenting," then "it is not necessary to attract entrepreneurs."²⁵⁶ Representative DeFazio believes that paying customers may not be very knowledgeable and "would be subject[] to those risks without any regulation. It just does not seem necessary to promote this industry at this point in time."²⁵⁷ However, regulating less is not the equivalent of "promoting" the industry, and allowing an industry to develop should not be regarded as a privilege.

"At your own risk" legislation recognizes that people willing to spend \$200,000 to go to space are responsible enough to assess the dangers, and will also contribute funds to develop new types of spacecraft.²⁵⁸

[T]his industry is at the stage when it is the preserve of visionaries and daredevils and adventurers. These are people who will fly at their own risk to try out new technologies. These are people who do not expect and should not expect to be protected by the government. Such protection would only stifle innovation.

The "fly at your own risk" provision in the Space Launch Act will "enable space tourists to be informed consumers."²⁵⁹ If commercial spaceliners take all steps necessary to minimize the risk, fully-informed passengers can accept what danger remains. It appears that opponents to the "fly at your own risk" provision do not believe that adventurers willing to pay hundreds of thousands of dollars to be strapped to the top of a pile of explosives and shot into the infinite black vacuum over sixty miles above the planet's surface do not understand that what they are doing may be dangerous and hazardous to their health.

The public and passengers are further protected because of the need for capital—investments will be near impossible to ob-

and required significant modifications . . . costs soared").

²⁵⁵ *Id.* Being held in a boneyard in Arizona, they are scheduled to be shredded and burned. *Id.*

²⁵⁶ 150 CONG. REC. H10050 (daily ed. Nov. 19, 2004) (statement of Rep. DeFazio).

²⁵⁷ *Id.*

²⁵⁸ 150 CONG. REC. H10050 (daily ed. Nov. 19, 2004) (statement of Rep. Rohrabacher).

²⁵⁹ Montgomery, *supra* note 180, at 27.

tain unless the industry is profitable. Space tourism in the first eight years (and likely for a good while thereafter) is a luxury good, a component of the entertainment industry. Like rollercoasters, part of the thrill is doing something a little dangerous. But no one needs to ride a rollercoaster, and no one will pay to ride one that is unsafe.²⁶⁰ If the industry does not hold itself to the highest levels of both safety and service, it will never be profitable or reach maturity.

Recognizing the immense task before them, the industry is asking for a clear and stable legal framework that gives them broad discretion needed to balance safety and experimental innovation. The industry is not requesting “the laissez faire approach which existed during the barnstorming days of aviation.”²⁶¹ They are legitimately concerned that if the FAA exerts any additional restrictions, space tourism may be doomed before given an opportunity to begin.²⁶² Rutan has already experienced this problem, and it almost “destroyed his program.”²⁶³

Congress should support the space tourism industry’s development by maintaining a hands-off approach. This approach should extend beyond the initial eight years so that competition can fund other space technology outside entertainment. Similar to how video games funded the revolution in computer technology, space tourism as a form of entertainment will allow private entrepreneurs to participate in scientific research and exploration.

V. CONCLUSION

Dedicated dreamers like the X PRIZE Foundation, Burt Rutan, and Sir Richard Branson have worked tirelessly to make space tourism a reality. The spark needed to fuel the industry

²⁶⁰ Representative Jackson-Lee of Texas stated: “if that is all that industry is, an expensive amusement ride, then perhaps the federal government should limit its role to issuing safety guidelines and regulations for liability insurance requirements and waivers and then let the private sector do the rest.” 150 CONG. REC. H837 (daily ed. Mar. 4, 2004) (statement of Rep. Jackson-Lee).

²⁶¹ 150 CONG. REC. S10054 (daily ed. Sept. 30, 2004) (Exhibit 2, a letter to the Committee on Commerce, Science, & Transportation, written by several members of the developing space tourism industry).

²⁶² “The question is whether the FAA and the bureaucracy should be able to control the design of a new space launch vehicle before there are any problems. Should then the space launch bureaucrats, the people who are in government, who are in public service override the entrepreneur, override [sic] the scientist, override the experts and should they be in the pilot seat even if there is no indication that there is any problem with the design?

Now I think that would strangle the baby in the crib. In fact, it would destroy this fledgling industry and send it overseas.” 150 CONG. REC. H10051 (daily ed. Nov. 19, 2004) (statement of Rep. Rohrabacher).

²⁶³ David, *Good News, Bad News*, *supra* note 211.

has launched a competitive business, with several companies fighting to be first to transport paying customers into space. As commercial space tourism develops in the coming years, consumers will take orbital rides, stay in space hotels, and go to low gravity resorts on the moon. Competition will increase, prices will drop, and the everyday family will get to ride the real Space Mountain.²⁶⁴ The space industry, not the FAA or AST or any other regulatory agency, is in the best position to make space travel both efficient and safe. As pure entertainment, it must offer the highest standards of safety and service. Space tourism will deliver one of the greatest experiences of this generation. "You really do get the feeling that you've touched the face of God."²⁶⁵

²⁶⁴ See *Agents Plot to Ship the Rich Into Outer Space*, SPACE.COM, Nov. 15, 1999, http://www.space.com/missionlaunches/launches/space_tourism_991115.html.

²⁶⁵ Boyle, *Private Rocket Ship*, *supra* note 113.

CHAPMAN UNIVERSITY SCHOOL OF LAW

**THE SLIPPERY SLOPE:
URBAN RUNOFF, WATER QUALITY,
AND THE ISSUE OF LEGAL AUTHORITY**

FRIDAY, JANUARY 27, 2006

**LUNCH PANEL: "INSIGHTS INTO THE DAY-TO-DAY
PRACTICALITIES OF CONTROLLING URBAN RUNOFF
AND COPING WITH REGULATION"**

MODERATOR:

JUDGE MICHAEL HAYES

SPEAKERS:

RICHARD G. MONTEVIDEO, RUTAN & TUCKER, LLP

PAUL N. SINGARELLA, LATHAM & WATKINS LLP

**MICHELE A. STAPLES, JACKSON, DEMARCO, TIDUS &
PECKENPAUGH**

GARRY BROWN, ORANGE COUNTY COASTKEEPER

**DAN LAFFERTY, WATERSHED MANAGEMENT
DIVISION, LOS ANGELES COUNTY DEPARTMENT OF
PUBLIC WORKS**

Professor Melissa Berry:

All right, everyone. I think we're going to go ahead and get started. Thank you. My name is Melissa Berry, and I'm a professor here at Chapman. I actually oversee our environmental law, land use and real estate program, the ENLURE program some of you have been hearing about.

And I'm here to introduce our moderator for our panel, for our lunchtime panel. So as you're all munching, we will be talking up here. And our moderator is Judge Michael Hayes, who is a judge on the Orange County Superior Court, where he's been since 1998. He's currently with the Central Justice Division. He was formerly the supervising judge in the North Justice Division. Before being appointed to the Superior Court, he was a judge on the Orange County Municipal Court for a number of years, and before that in private practice. Judge Hayes earned his law degree from Pepperdine University and his B.S. from B.Y.U. He is also an instructor here at Chapman in trial practice and has been doing so since 1997.

We're pleased to have him here today to moderate. He's been praised on the bench for his even disposition and balance. So we'll see how he does as moderator here. Thank you very much.

Judge Michael Hayes:

Thank you for the introduction. I'd like to indicate, though, for those of you that are familiar with where Pepperdine is located, I think it has a lot to say about what we're doing here today. And I never got one minute of that ocean view. My time was in Orange County.

Ladies and gentlemen, I'd like to welcome you this afternoon to the Chapman University School of Law Symposium. And the topic of this panel will be "Insights into the Day-to-Day Practicalities of Controlling Urban Runoff and Coping with Regulation." The Law School has assembled an excellent and prestigious panel to help you with the extremely valuable information on this topic that they have, and at the end we're going to give you a chance, if we do our jobs right, to ask a series of questions. However, in order to do that, I must go over the ground rules with you. For those of you that can't see, I have brought my Iron Man watch. That watch is there because the rules of the panel are I have no more than five minutes to do the introductions, and each of the panel members will have no more than ten minutes. And my Iron Man watch has a stopwatch on

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it. And so you will see me making various hand signals to make sure that we can give everybody a fair chance to present their materials.

I'm going to do a short introduction on each of the panel members. Folks, look at their C.V.'s. This is just a small introduction for highly qualified people. I could spend a whole hour going over their qualifications, and I just don't have the time.

We're going to start off with Ms. Michele Staples. Ms. Staples is a shareholder in the Law Firm of Jackson, DeMarco, Tidus & Peckenpaugh, and she's located in the Irvine office. Michele concentrates her practice in advising and representing developers, large land owners, agricultural businesses and private water suppliers in water and land use matters throughout the State of California. She is a member of the editorial board of the "California Water Law and Policy Reporter." Ms. Staples will speak first on the topic of the regulatory landscape in this area. She's going to give you an overview. This important information allows all the providers in this area to do their work, and she will explain the different boards that govern the work and the environmental protection agency. She will try to explain the permitting scheme and the regulatory approaches of the different regulatory agencies.

The next speaker will be Mr. Richard Montevideo. Mr. Montevideo is a partner with the law firm of Rutan and Tucker, who is sponsoring this event here today. And they are represented. And he is located in the Orange County office. Mr. Montevideo is currently the chair of the Orange County Bar Association section on environmental law. And for you students who want to get involved, this is the guy to talk to. He practices in the area of environmental law and specializes in Clean Water Act issues, Superfund and cost recovery litigation under the Comprehensive Environmental Response, Compensation and Liability Act, for us amateurs, CERCLA, the Resource Conservancy Act, RCRA, and the Hazardous Substance Account Act, known as the Superfund. Mr. Montevideo will talk on the genesis of the Clean Water Act and how it has, as he describes it, morphed into something that it was not necessarily intended to be; that is, as it applies to urban runoff and storm water. Further, he will talk about the intent of the Act as amended in 1987 so as to treat municipalities different than industries. And I was surprised to learn this. This was apparently a result of the recognition that cities and counties are not-for-profit entities and that all of our knowledge will lead us to a conclusion I didn't

know: They cannot stop the rain from falling in California.

Our third panelist will be Mr. Paul Singarella. Mr. Singarella is a partner with the Law Firm of Latham and Watkins and is assigned to the Orange County office. His practice focuses primarily on water quality and natural resources, as well as hazardous substances, contaminated properties, sediments, water rights, hydrology and environmental impact analysis and documentation. He will address the underlying sources of conflict in the legal arena in this area. He will include a discussion of what forces the regulated community to litigate. Mr. Singarella will also discuss how even in litigation the permit holders are made a part of the solution.

And he will then be followed by Mr. Dan Lafferty. Mr. Lafferty is employed with the Watershed Management Division for the County of Los Angeles Department of Public Works. Mr. Lafferty will provide us all with information on the local government perspective and amplify on the challenges of meeting regulatory demands when there are no technologies available to assist.

And last, but not least, is Mr. Garry Brown. Mr. Brown is the founder and executive director of the Orange County Coastkeeper. Mr. Brown will give us an overview of the Keeper movement, which is one of the most powerful environmental movements in the country. The Keeper groups used the citizen suit divisions of the federal Clean Water Act among other laws to promote change in industry and municipal practices with an eye toward water quality protection. It is anticipated that Mr. Brown will provide a pragmatic and practical view of his efforts in achieving improved water quality progress. We tried to get a good cross-section here for you. I think that the symposium organizers have done an excellent job. And I will turn the table over to Michele.

Michele A. Staples:

Thank you.

We wanted to start the panel with a discussion of who the players are in the storm water regulatory context. My presentation today will discuss first the storm water regulatory framework; second, who the players are and the stake holders; and third, the perspectives and tools of the Regional Board, the local agency permittees, the regulated developers and, of course,

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the environmental interests.

I'll also be talking a little bit about the special vocabulary that's used in this area of the law.

First, the regulatory framework. We heard a little bit about the regulatory framework this morning in the first panel, and we will learn more about it. The storm water recovery program really began in 1987 when Congress adopted Section 402(p) of the Clean Water Act to regulate municipal and industrial storm water dischargers under the national pollutant discharge elimination system.

The thinking was that a lot of storm water discharges through municipal facilities, like the open flood control channels that we've all probably seen throughout Southern California. Therefore, Congress decided that discharges could be regulated similar to discharges under NPDES permits that were applied to permit sources like municipal sewer treatment plans.

As a result, concepts developed in the 70's and 80's to regulate municipal sewer systems are now being applied to regulate storm water pollution. But there are significant differences. With treatment plants, the discharges are more predictable and the sources of pollutants are more predictable, while storm water occurs suddenly and in very large amounts. The pollutants in storm water differ depending on whether the storm water is flowing over streets and parking lots or agricultural fields and dairies or construction sites cleared of vegetation.

Municipalities use combined systems to capture and treat sewer discharges and separate systems to capture but not treat storm water. So storm water systems are known as municipal separate storm sewer systems, or MS4's.

Under the Clean Water Act, MS4 permits must require implementation of best management practices (BMP's) to reduce the discharge of pollutants to the maximum extent practicable. So another term that you hear in this area of the law is MEP. And MEP is essentially the performance standard that applies under the Clean Water Act to MS4's.

The MS4 permits require municipalities to develop a storm water management plan with the goal of reducing pollutants to the maximum extent practicable. The municipalities' plans specify the best management practices, or BMP's, that they will use to regulate discharge, such as public education and outreach, illicit discharge detection and elimination, and construction and

post construction inspection and monitoring.

Okay, next topic. Who are the major players and the stake holders?

The NPDES program is administered by the U.S. Environmental Protection Agency. E.P.A. has permitted almost all of the states, including California to issue NPDES permits. However, the states are subject to EPA's continuing oversight.

California established a water quality regulatory system even before the Federal Clean Water Act came into play. Under California's Porter-Cologne Water Quality Control Act, the State Water Resources Control Board has overall authority over water quality throughout the State.

Nine Regional Water Quality Control Boards have front line responsibility for implementing the NPDES program. The geographical boundaries of the nine Regional Boards have been drawn to consider differences throughout the State in terms of climate, topography, geology and hydrology.

Each Regional Board has nine part-time period members appointed by the Governor and confirmed by the State Senate. We heard from one of them today, Professor Minan, who sits on the San Diego Regional Water Quality Control Board.

The Regional Boards develop water quality plans for their hydraulic areas, issue NPDES permits, and undertake enforcement actions, among other activities. The Regional Boards each have an executive officer who is appointed by the Board. Communications with the Board members are restricted by ex parte communication rules so it's really important to know who the executive officer is, because they will be your primary point of communication.

The second major group of stake holders is the municipal permittees. In Southern California, NPDES permits for MS4's are commonly issued to groups of municipalities that comprise metropolitan areas, for example, the county and the cities within the county.

In Southern California, there is a lot of development occurring in the San Diego and Santa Ana Regional Boards, the fastest growing area in the country. And as Professor Minan mentioned, construction sites are regulated under both the MS4 permit structure and general permits, general construction permits.

Also because the MS4 permitting process is a public process, environmental groups and the public are also active in the

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Regional Board's permitting processes.

Third, what are the perspectives and tools of the different players? In the context of

regulating storm water, the primary tools of the Regional Boards are the basin plans that establish the beneficial uses and water quality standards for the water bodies within their jurisdiction and the MS4 storm water permits.

As MS4 permits are issued and renewed, it seems that each Regional Board starts with the last-issued MS4 permit, and then improves or makes the next one more stringent. So the rules in this area are continually tightening.

The municipality's principal compliance document is their storm water management plan. In Orange County, it's called their Drainage Area Management Plan, or DAMP. The Management Plans are essentially watershed based planning documents detailing how the municipalities will use best management practices to achieve storm water compliance.

Municipalities want the Regional Board to consider their local funding constraints in regulating storm water. They would like more time for implementing some of the requirements under their permits and consideration of costs versus benefits, the tremendous cost in relationship to sometimes intangible benefits of the program elements.

They also want more consistency in program implementation, both in terms of consistency between their last MS4 permit and their next one, and in terms of consistency between how different Regional Boards interpret certain requirements such as MEP.

This is particularly important for counties such as Orange and Riverside that straddle two or more Regional Boards.

From the developer's perspective, the most recent MS4's focused quite a bit on construction discharges. As a result, many of my developer clients are experiencing significantly, stepped-up enforcement for the first time, and even six figure fines are not uncommon.

In Orange County, for example, over 1,000 sites were reported out of compliance in 2003 and 2004 compared with just 400 the year before. The key compliance document for developers is the storm water pollution prevention plan. These are generally plans developed in-house or by consultants, and they're kept on the construction site. It's different from a document such as an environmental impact report that is developed in a very

public process with lots of public input.

Developers are finding that the one-size-fits-all storm water pollution prevention plan does not work. Individual construction sites are, of course, different from one another. But the construction site itself changes over time as the property develops. And so storm water pollution prevention plans, and the best management practices evaluated in them, should be updated from time to time.

The primary tools of the environmental groups are litigation and public input during the rule making and permitting processes.

As we heard, environmental litigation is successful in continuing to tighten and strengthen control over construction and municipal discharges.

Environmental interests also participate in the MS4 permitting process, pushing for more stringent regulations each time as part of the permits.

In conclusion, water quality regulation is extremely controversial because there is so much at stake; water quality of the public waters, the ability for municipalities to prioritize and use constrained public resources, and the ability of private developers to construct cost effective housing.

Every ambiguity in the law or regulation either has been or will be litigated as a result. Knowing the regulatory framework, the players involved, the tools available to them, and their concerns is critical to complying and improving upon the storm water regulatory system.

Thank you.

Richard G. Montevideo:

Good afternoon, everyone. This is for Garry. I was hoping he'd give me a little sympathy next time I see him in court.

All right. The Clean Water Act. Many of you may remember the Cuyahoga River catching fire in 1969. It actually got a lot of press. I think "Time" had a major article on it. It was in large part because of that event and other similar events which led to the development of the Clean Water Act in 1972.

Well, how did the Cuyahoga River catch fire in 1969? It wasn't the first time, frankly, it caught fire. You had a 100-mile-long river running through Northeastern Ohio with industrial operations lined up and down the river. And these industrial

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operations would have pipes, point sources, tying directly into the Cuyahoga River, discharging all kinds of terrible stuff. So you then had solvents and chemicals and petroleum kind of sitting there floating on top of the river. It caught fire and there was no good way to put out the fire.

So Congress decides to develop the Clean Water Act. I mean there was a precursor, obviously, but to deal with that type of situation, to deal with the industrial discharger who's got a pipe that's tied into the water discharging bad stuff into water that had been used for navigable purposes, for boating, swimming, et cetera.

And what Congress did was they imposed numeric limits, basically saying, "Hey the stuff that's coming out of your pipe, we want you to reduce the amount of bad stuff that's going into the river."

And they imposed—or had some provisions providing for States to develop water quality standards, which would apply at the front end and through TMDL's at the back end on industrial discharges.

You now have this same framework of the Clean Water Act that's being applied to municipalities, who are—as Justice Hayes indicated, are not-for-profit organizations, who really have no control or literal control—I know Garry would take issue with me—over the stuff that's eventually ending up in our nation's rivers and in lakes, et cetera, and who don't really have a conveyance system. They have a system of streets and private property and sidewalks that tie into a storm drain system, and these water quality standards are now being applied to municipalities, and they're being required to strictly comply with these water quality standards, in many cases for stuff that's just going into engineer flood control channels, concrete-lined flood control channels, which are now being given the same status as the Cuyahoga River.

It really in my mind is attempting to take this model which—in which the Clean Water Act was developed for these industrial discharges, it's attempting to put a square peg, frankly, in a round hole. It just doesn't fit.

Now, Michele had indicated that we have nine Regional Boards within the State of California. We—in your packet, I don't know if you have your information with you, but we had actually included a basin plan lawsuit that was filed in L.A. County just last month. And the premise of that lawsuit is really to say—Xavier I'm sure is very familiar with it. But the purpose

of the lawsuit is to say that municipalities are to be treated differently than industrial dischargers. And when States, in this case the L.A. Regional Board and the State Board develop water quality standards, they have to keep in mind who the discharger is and what control they have over the discharge.

It's our belief that municipalities do have to be treated differently under the law. And I say that based on several cases and some authority under the Porter-Cologne Act, as well as the Clean Water Act itself.

First you have the 1999 case of *Defenders of Wildlife versus Browner*. In that case the Ninth Circuit basically said, "Look, Municipalities—the Clean Water Act does not require Municipalities to strictly comply with water quality standards." It then went on to say, "However, for municipalities either E.P.A. or the States have the discretion to require municipalities to strictly comply with water quality standards."

You then have *BIA of San Diego versus State Water Resources Control Board*, which is a December, 2004 case, a State Appellate case, that took the *Defenders* case and effectively said, yes, municipalities can be required to strictly comply with water quality standards. It then took *Defenders* and went a little step further in my mind and said and they can be required to comply strictly with water quality standards, even if that means going beyond the maximum extent practicable standard under the Clean Water Act.

All right. Then you have the *Burbank versus State Water Resources Control Board* case, which is an April, 2005 case out of the California Supreme Court. And that Court looked at a POTW NPDES permit and looked at the arguments that were made by the City of Burbank and the City of L.A. where they argued that in issuing an NPDES permit for a POTW, the State is required to consider the economic impacts on the discharger.

In that particular case, the California Supreme Court said, all right, if you're looking at compliance with State law, the Regional Boards and the State Board have to comply with the requirements under State law if State law really goes beyond what the Federal law is trying to do. In effect, if it's not a Federal mandate that is being asked to be complied with, then, yes, State law has to be complied with.

The Court in that case actually remanded the case back down to the trial court for the trial court to determine whether or not the water quality standard in that case was a—was required by the Clean Water Act or was a State standard. And if the

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Court concludes that it's a State standard, then, in fact, the Regional Boards have to consider economic considerations in developing the—requiring compliance with the water quality standard.

So you have these three cases. You have the Defenders case, you have the BIA case and you have the Burbank case, and when you put them all together they basically say, look, the Clean Water Act doesn't require that municipalities strictly comply with water quality standards. Yes, according to the BIA case, they can be required to go beyond the MEP standard, but then when you throw in the Burbank case, in effect, you have the result that if they do go beyond what is required by federal law, i.e., the MEP standard, and then you actually have to comply with State law.

Now, State law, when you look at the Porter-Cologne Act that Michele had talked about, it's, in my mind, anyway, very clear. If the State is going to be issuing a water quality standard, it has to consider a number of factors, one of which is whether the water quality condition that you're attempting to achieve could reasonably be achieved. And there is this reference to reasonableness throughout the Porter-Cologne Act in various sections of the Porter-Cologne Act.

So if the State is issuing a water quality standard that exceeds the MEP standard under the Clean Water Act, then the Porter-Cologne Act is going to kick in, and you have to look at whether the standard is reasonably achievable in light of the discharger. You also have to consider the economic consequences of that decision. And beyond that you have to look at other factors, such as the impact on housing within the region.

So where does that leave us, then? Well, under the Clean Water Act, I think we have clear authority that the Act only requires compliance with the MEP standard when you're dealing with municipalities, and that under the Defenders case, that municipalities are to be treated differently, that Congress intended to treat municipalities differently than the Cuyahoga River dischargers.

Under the Clean Water Act it is still, I think, subject to debate whether a municipal can be required to comply with—strictly comply with water quality standards if that means going above and beyond the MEP standard. Can municipalities be required to unreasonably comply with water quality standards, to comply with impracticable best management practices?

I think at the end of the day we're going to see additional

cases on that, and my guess is at that point we're going to have a decision that says you can't make them in effect strictly comply if it means that you can impose unreasonable requirements on them.

And then finally State law, there isn't any decision on this yet, but, frankly, I think that at least for now in California I am comfortable that if a Regional Board seeks to impose requirements that require municipalities to strictly comply with water quality standards, that in that instance because municipalities are different than Cuyahoga River dischargers, you're going to get kicked into the Porter-Cologne Act, and the reasonableness requirements, economic factors, et cetera, are going to have to be considered.

Thank you.

Paul N. Singarella:

Good afternoon. I'm Paul Singarella from Latham and Watkins.

Just quickly going through my notes here, I think I can get through my ten minutes with the introduction of only one additional acronym. I make no promises, but I'll give it my best shot. And that acronym is ASBS. ASBS stands for an Area of Special Biological Significance.

I want to tell you a quick little war story about ASBS's. There are several dozen ASBS's up and down the State of California along the coast. They were designated by the State Water Resources Control Board back in the 1970's. ASBS's cover about one third of our California coast. In the 1970's when the State Water Board designated these special areas, the State Water Board didn't regulate storm water through a permitting approach.

And so when California Ocean Plan with respect to these ASBS's areas had a rule introduced in 1970's that said there shall be no waste, no waste whatsoever, discharged into ASBS's, the State Water Board was not thinking that that would ever be applied to storm water. This is fairly well accepted. The State Water Board thought that the prohibition, this outright prohibition would apply to industrial discharges or municipalities discharges from treatment works directly into ASBS's. But I think it's safe to say that the State at the time understood that as one of the themes has been this morning, when the rain falls, that water has that nasty tendency to roll downhill, has that

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nasty tendency to intercept that which is in its way, and, quite frankly, when it comes out of the sky it is not pollutant free. So it was recognized that what was going to enter into these ASBS's water sheds along the State of California would not be pristine storm water.

So flash forward to this decade. And this waste prohibition in the California Ocean Plan governing these special areas has been a sleeping giant. Because until recently, it never occurred to the State Water Board that oh, my gosh, with the 1987 change in the Federal Clean Water Act bringing storm water under the National Pollutant Discharge Elimination System, the permitting program, Section 402 of the Clean Water Act, by doing that in 1987 that means that we're going to have to apply this waste prohibition to storm water entering into one third of the State's coastline.

That's a bit of a problem, depending on how you interpret the waste prohibition. Now, the way we're seeing the interpretation coming out of the Central Coast Regional Board last year in the issuance of some orders in its cities like Carmel, what we're hearing from staff at the State Water Board up in Sacramento—we're not quite hearing it yet as official statewide policy because the State Water Board is going to rule on this probably later this year. But what we're hear is that no waste means no storm water, or at least no storm water with any molecules of those pollutants that are picked up along the way.

Well, that is breathtaking. And it's created some very significant controversy over this one particular runoff issue. And to me, it illustrates the tension that we have in the urban runoff area, runoff into the water quality area dealing with storm water of the lofty goals that the legislature often sets out when it enacts legislation. Look at the Clean Water Act. You know what the broad purposes of the Clean Water Act are. They are to preserve, protect, and restore the biological physical chemical integrity of the Nation's waters. My goodness, as someone said earlier, to eliminate the introduction of pollutants from point sources into waters of the United States by 1985? Well, we know that that didn't happen. But that is certainly and obviously a broad purpose of the Clean Water Act.

What's happening at least in the ASBS area—and I wanted to use that as an illustration, I could give you many others—is that in this area where it's our water quality, it's very emotional, it's visceral. Regulators want to do the right thing. Judges want to do the right thing. You know, you read the broad purposes in

the statute, and you think my goodness, stricter regulation seems to be better regulation. But the reality is that our legislatures in D.C. and here in California, they lay out the high-minded broad purposes. But then there is a debate, there is a legislative debate and out of that legislative debate comes policy. And what does the policy say with respect to urban runoff, with respect to storm water. The policy says do everything you practically can, get as many of the molecules out. But we recognize that we've got a big problem here, and we recognize that no matter what you do in terms of the best management practices that we've been talking about, no matter what you do, you're not going to get compliance with water quality standards 24/7, 365 days a year. That's a reality that the legislators had to deal with. So they said to the cities, they said to the dischargers of the storm water, do the maximum extent practicable.

Now, let me give you a quote from a Supreme Court case, 1986. It's a banking case, but it illustrates the difference between the precatory language, the broad purposes language and the underlying plain statutory language reflecting policy decisions. In the Supreme Court in 1986, with a banking issue in front of it, the Court was able to distinguish one from the other, and the Supreme Court said: "Application of 'broad purposes' of legislation at the expense of specific provisions ignores the complexity of the problems Congress is called upon to address, and the dynamics of legislative action. Congress may be unanimous in its intent to stamp out some vague social or economic evil; however, because its Members may differ sharply on the means for effectuating that intent, the final language of the legislation may reflect hard-fought compromises. Invocation of the 'plain purpose' of legislation at the expense of the terms of the statute itself takes no account of the processes of compromise and, in the end, prevents the effectuation of congressional intent." 474 U.S. 361, 373-74.

Here's the thing. When you move over into water quality, something that's a little more visceral than banking, it's much harder to ask regulators, it's much harder to ask jurists to draw this distinction. But unless they're willing to draw that distinction, we're going to be left where we are today. From the perspective of the practitioner representing the regulated community, we don't have today a meaningful compliance opportunity with respect to urban runoff. Because everything you've heard about today, everything that anybody can think of asking us to do, other than capturing all of the storm water and taking all of the pollutants out of it, will not get you to that state

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of compliance with the water quality standards.

And that, my friends, is a public policy problem and challenge of great dimensions. And we're going to be continuing to wrestle with this for I think probably at least the next five to ten years as we try to define how you can get the compliance. My clients, Rich's clients, Michele's clients, we want to comply, but simply by implementing best management practices, even if they're big and beefy, restoring constructed wetlands through entire watersheds, that's happening right now in the Newport Bay watershed, doesn't get you there, doesn't get you to a place where regulators can say with confidence that if you keep doing that, you're in compliance. And that's the problem.

Dan Lafferty:

My name is Dan Lafferty. I work for the Los Angeles County Department of Public Works in the Watershed Management Division. We've heard a lot today about the regulations and what makes for a good regulation, some of the things we should be thinking about when we create those regulations.

My agency gets to live with it when it's all said and done. We get tasked with doing the work that will bring compliance with those regulations. So I thought what I'd do is try to give you a sense of what it is that we do. The level of effort that we expend trying to comply with those regulations, some of the difficulties that we see sort of looming on the horizon as these regulations become more and more stringent, and just sort of a sense of where we think some of the things are a little too far a field in terms of the scope of these regulations.

Los Angeles County is a political entity. We have an NPDES MS4 permit. It regulates the County of Los Angeles, the Flood Control District and the 84 municipalities within the County as permittees. The Flood Control District is the principal permittee on that permit. My agency is the sort of embodiment of the Flood Control District within a County department. So in a sense, we represent two of those permittees at the same time, the County and the Flood Control District.

The County as an entity spends \$65 million a year just on permit compliance. The region as a whole, the County region as a whole, when you consider all the permittees, spends \$225 million a year on permit compliance activities. We've had a permit in place for about 15 years now.

And despite all of those expenditures, we really haven't seen

a very significant improvement in water quality. Now, what does that say?

First, we are doing a really bad job of spending the money; or, second, what we are doing is not addressing the problem and the regulations that we are being asked to do are not providing the benefit that everybody expects from us. I think what that tells us is that there is a very good reason and there are some signs in the TMDL process that if we go out and establish the TMDL's that those are probably going to be a more effective approach in terms of trying to get the water quality we're looking for. Now, having said that, I would not in any way, shape or form advocate that you support TMDL's on top of my agency, but I do think that it does make some sense.

Okay. So let's talk about TMDL's for a second. There is a trash TMDL that is effective in L.A. County. There is a Santa Monica Bay Beaches bacteria TMDL that is effective. There is a metals TMDL. There is a trash TMDL in the San Gabriel River. So that is just a handful that have been passed, developed and adopted to date.

Let me give you a little insight as to what it takes to comply with some of these provisions. The Santa Monica Bay Beaches bacteria TMDL has two components: dry weather and wet weather; dry weather running from April 15 to October 15th, and wet weather the other part of the year. In order for us to comply with the dry weather prohibition, what that says is there can be zero days where there is bacterial level above the water quality objective. Now, we say that, but what that really means for us is we cannot have a discharge that contributes to an exceedence. There may be bacteria out there that cause an exceedence, but we can't be the cause of that. We can't be a contributor to that. So the knee jerk response from an engineering organization is to stop the flow.

Now, in the South Bay in the southern portion of the Santa Monica Bay, we have options available to us for that. Basically, that means developing an inter-tie between the MS4 system and the municipal separate MS4 sewer system into the sanitary sewers. So you build a cross-connection. You build up the flows in your pipe during the nighttime hours where there's capacity available in the sewage treatment plants, you pump it into the sewer lines and lo' and behold, there is no charge in the MS4 system into the beach habitat. That's great when you have sanitary sewers.

But this TMDL also applies in the Malibu area. The entire

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reason there is a City of Malibu is because they did not want the County of Los Angeles building a sewage treatment plant. Therefore, there are no sewers.

There is also very little geology that that is conducive to infiltration. Some of the more innovative engineering approaches that we are familiar with simply do not work; this is because you do not have the geology necessary in place.

So the—most of those diversions that we are building, one of those costs about a million dollars for design and construction. There is a grand total—when you add up what the County has done and what the City of L.A. has done, there's going to be 32 of those low flow diversions, so that's \$32 million of investment.

There is also up in the Malibu region what we're doing for one of the canyons that is truly problematic. It is the one canyon where we get consistent spikes in bacteria counts. We're building a pocket plant. In essence, it is taking all of the summer flows and treating them and then discharging them to the ocean. That's another million dollars for that particular project. And that's just the dry weather compliance costs.

The wet weather is anybody's guess as to how we're going to get there. When you start thinking of the L.A. River during flood stage and try to grab hold of some of that water to treat it, it becomes a truly daunting problem in terms of volumes. Now, granted we have—the bacteria TMDL exception allows us during flood stage to not be subjected to those requirements, because it's unsafe for anybody to be in there and have body contact. So that sort of drives that bacterial TMDL. But that's bacteria only. The estimated cost for wet weather compliance for us in that TMDL is about \$175 million. And that's the low end from our perspective.

That brings us then to the metals TDML. L.A. River metals TMDL has recently passed, let's see, the State board. It hasn't yet been adopted by E.P.A. but it's coming. The limits in that particular TMDL from any of the constituents are well below the limits that we would allow in drinking water. Now, there's a reason for that. Fish are more susceptible to the toxic effects of heavy metals than human beings are.

But from a public policy standpoint, if you are a public agency and you have to go to your constituents and explain to them why you need more money and you're saying you have to build treatment facilities that will treat the storm water at levels above drinking water standards, that is a very difficult concept to tell people that they need to pony up the money for it. But that's what we're confronted with.

Now, the true challenge here is that in addition to having those sorts of levels to treat to, the technology does not exist today for us to do that. There aren't any means for us to employ to get those levels down to what we're being asked to get to.

Part of the rationale for is that is if you invest the money, then the private sector will come forward and meet those market demands. I think the question ought to be asked, though, is that the public agency responsible to drive that process? As has been said, we are not a for-profit entity. Is it appropriate for us to take those scarce public dollars and drive the market to achieve the technologies necessary for these pollutant reductions? I throw that out there, I can see arguments on both sides of that issue.

The other thing is from an agency perspective, how are we going to be held accountable for those things? You know, we have the permit in place. Now we have TMDL's. Down the line we have the ASBS issues staring us in the face, as well. The provisions in the TMDL's that get adopted during the five-year circle of our permits, in the next permit cycle those provisions that are going to take place in the next five years get rolled in. Now, we don't have much of a problem in terms of that being an approach, because the way that we are complying with the TMDL's is a computer-adapted TMDL approach.

However, there still needs to be, in my opinion, that limit of MEP. At some point in time we're done. At some point in time the next incremental dollar that's going to get spent cannot be justified in terms of the benefit that you're going to get. So if you keep going through your computer playing cycles, you keep putting in BMP's, at some point you've got to say you know what, that's enough. We're at 80 percent reductions, we can't get to 100. It's just too costly. We have other things that we need to spend the money on. But that's not the way our permits are set up. You heard in terms of there is progress that is being made in the legal arenas in trying to define what all those—those standards are. We don't have MEP solidly in place in terms of a limit. You couple that with the limitation of the safe harbors language in our permits, which used to say if you were doing everything that you're supposed to be doing under this permit, you are deemed to be in compliance with your water quality objectives, that provision is no longer in our permits. And I don't think it will ever again reappear in our permit, which now says if you are out of compliance, you can be potentially subjected to third-party lawsuits. So I think that if you look at all of those, that the challenges in front of us are extreme.

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In terms of raising money. It's hard in California to raise new money. All the efforts to date are there is no new money for that. And if these new regulations come forth, it's going to be just that much more costly.

Thank you.

Garry Brown:

Good afternoon. I appreciate the opportunity to be here.

And I always like to start by reminding people why we are having this discussion. And you know, Orange County, for an example—and it's a fact that I love to remind people that not that many years ago, in 1950, the population of Orange County was 204,000 people for the entire County. 56 years later, we're at 3 million. In our watershed, including the Inland Empire, which is one of the fastest growing areas, we're close to five million. And so we're talking about this because the casualty of the rapid development we've had is impaired waterways, impaired harbors, and certainly our near-shore waters.

I think, though, to—what really motivates me and what got me to found the organization we do and to actively use third-party lawsuits and the Clean Water Act to effect change is, you know, I am a native of Orange County, and I grew up here. And, you know, the things that I did as a kid growing up here my sons in one generation cannot do, because the things I used to do and experiences I had don't exist anymore.

I think when you look at—you know, when I grew up in Anaheim there were so many abalone around that every ashtray in a restaurant was an abalone shell. People had them in their gardens. The man down the street from me had so many abalone shells, he embedded them in the wall around his house, because you could free dive and get them. When I was growing up we would go down to either pier and we could bring in as many halibut and bonita. I remember way back in the Backbay in Newport I caught a barracuda one time. And I remember as a young guy following my dad on the beach pulling a gunny sack full of clams we dug up on 41st Street. And so in my generation all of that disappeared. And so it makes you think.

You know, nobody's going to stop development. We're obviously going to have more development. And I think a lot of us, or most of us are proud of what Orange County represents and is today. But there have been casualties along the way.

So what we do and how we change policy to look at the

future and virtually plan it better. And so I think that is what we're about. But I want to get into in a second that there has to be a reasonableness of the process, and that's something that's certainly what we have tried to do.

A little background on the Keeper organization as a whole. It started on the Hudson River. And there was a group of fishermen, some second and third generation fishermen that were going broke and losing their fishing vessels because the fish were disappearing. They got into it one night they agreed to meet at the gentleman's house, John Cronin, and they floated all kinds of interesting ideas how to stop polluters, most of which were illegal and felonies.

There happened to be a gentleman in the audience who was the editor of "Field and Stream Magazine" and he pointed out that not too many years prior the Clean Water Act had been signed, there was a provision for third-party lawsuits; and maybe using the law, maybe they could effect change.

So they banded together and started observing what was going on the Hudson River. They collected evidence and identified who owned pipes that were draining into the river. They put a boat on the water and observed what was going on in the water. And if I had more than ten minutes, I'd tell you some of the stories, because they're interesting. What they did is collect a body of evidence. They went to their attorney who reminded them that since they were doing so bad economically, as was he, he couldn't afford to do any legal work for them.

So at the time Robert Kennedy basically had left New York and had been assigned to go up to Pace University Law School to lead the environmental clinic. And they took their body of evidence to Bobby, and he went to a federal judge and got permission to use his senior students, allow them to—under his supervision to file environmental cases in real court under his supervision. And as Bobby likes to say, and it was really easy to judge. Those that won the cases got A. And those that didn't got an F. And so that was the beginning of the Keeper movement.

When I got involved and started, we were the 29th Keeper in the country. And now we're international. And as of last month, we have 157 Keeper programs. And it has been one of the fastest growing organizations in the country. And a lot of people haven't heard of us because we really shot ourselves in the foot, granted, because unlike Surfrider, unlike NRDC, where everybody has the same name, we have 156 Keepers and 156 different names. But somewhere in it, you'll find Keeper because we identify by a

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water body.

But basically to be a Keeper—we're all independent, but we can set our own agenda. But one of the criteria is you have to be willing to litigate and have the capacity to litigate.

And certainly we—let me take it to Orange County. We have found—we have a number of programs, education programs, we have restoration programs, we do a lot of water monitoring. We have become one of the water monitoring arms, I guess, through a number of programs with the Regional Water Quality Control Board. All of our data goes to them. And that's what they're using in several areas to establish TMDL's. And we have our own water lab. And so we do a lot of protocol, and we work well with that. We don't really depend on volunteers. We pay people to do it. Because we want to have credibility in the evidence and in the numbers and data we get.

But just take Orange County. We've been able to effect quite a bit of change through third-party lawsuits. And certainly it's something that there is a role and certainly it has elevated our organization to be a player in this debate as you see it.

When we were very young, we weren't even a year old, we basically filed a Federal Clean Water Act lawsuit against the Irvine Company in Crystal Cove for the ASBS, and we were basically challenging the right to drain all those, as we used to refer to them, as the McMansions, across the beach and into an area of special biological significance. We were the first to ever really use that in the State, to ever use that 35-year-old law. And we found that—what that did, we not only prevailed there, and we found a reasonable solution to the ASBS problem. We wish the State of California and the rest would follow suit and find a reasonable solution, because we feel we have a model for it.

As far as the construction permit, we have enforced the construction permit on a number of developers, and we've seen a vast improvement. And when we first got involved, we saw very little sandbagging, very little ground protection on the hillsides. And then we graduated from that, we feel the industry graduated from that to—to where they would install it when they started construction but would forget to maintain it after a few rainstorms. And it pretty much lost its effectiveness.

We did a few other lawsuits after that, and now in our more recent inspections—of course when we get better rain we'll know—we found that the industry has in this region done an excellent job, and definitely those areas have improved.

Certainly we're involved with the storm water permit. The MS4 permit has been discussed. We have a problem sometimes with MEP. We think maximum extent practicable; some people interpret that as do the least for the cheapest. And so we are prone to more numeric standards on discharges. And we feel with this next round of permits, that's an area that we're real anxious to open up and to—but again, it's got to be reasonable, and it's got to be practicable. And we contend that impossible goals really get us nowhere. And that's something that we're trying to lead our side of the table to basically become a little more practicable. And it's great to be passionate, it's great to want the maximum, but, yet, you know, if it's not achievable and if it's not at all affordable—and in many cities it's virtually impossible in the near future, then, you know, we have got to lower our standards and be a little more patient and we've got to work for reasonable goals. And that's something that we have done and demonstrated I think in a number of cases.

Well, I'm out of time, but I would like to introduce—because the Inland Empire is such a growth area and the upper watershed is certainly integral to what happens down in our watershed, that is our upper watershed, we just this year opened up and got licensed in a new program, and it's called the Inland Empire Waterkeeper. And that program is going to replicate so much of what we're doing in its chapter, and we're funding it. And I'd like to introduce her. We're proud to announce that in November we hired Mandy Revelle as our Inland Waterkeeper. And she's an alum of Chapman both an undergraduate and Chapman Law School here. So we're glad to have Mandy onboard. Thank you.

Judge Michael Hayes:

First I think we ought to give the panel a big round. I was sitting here and some of you may not realize that apparently these proceedings are being taken down by the court

reporter. Am I correct? Let's give the court reporter a hand.

Now, while we do that I want to make sure if you ask any questions, you stand, speak quickly and slur your words and that will help her. Does anybody have any questions for the panelists? And I'm going to go half of everybody in front of me, and I'm going to look over and get some of the students that are sitting in the cheap seats over there. Anybody have any questions?

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Voice:

Yes, sir. Well, I suppose I have some observations about the presentations. One is I don't think that we have a complete understanding of what water quality standards are. Paul made an argument that water quality standards can't be met. It seems to me that it's important for us to appreciate that the structure of the Clean Water Act is contained in Section 301 of the Act, and it deals with point source dischargers. Congress said we're going to impose certain limits on the discharge, but Congress also said that we're going to have water quality standards as a back-up or insurance policy. We're going to require the States to designate certain beneficial uses, and those beneficial uses are going to be protected. Congress recognized the fact that you can place limits on the discharge point sources, and ultimately at the end of the day have a compromised water system, because it doesn't take into account the ambient effects of the discharge. So water quality standards I think are an essential part of the Clean Water Act. And the permits in our region provide that water quality standards cannot cause or contribute to an exceedence of the standard. So we don't want—if the beneficial use that we're interested in protecting is swimming, we don't want to say, well, we can't meet it through the storm water permit, so we're going to have to disregard the beneficial use of swimming. We need solutions. And I think the water quality standards are an important component of the storm water program so that I suppose I would express a contrarian view to that expressed by Paul Singarella.

The other point is about money. It's taken us 150 years, depending on how you want to count, to create the problem. The—in the past our founding fathers and mothers and those who preceded us thought that dilution was the solution to pollution. We could dilute the pollution. So we've had this long period of time in creating the problem. And I don't think that we can expect immediate results.

And I suppose I would ask the question rhetorically. What would our water quality look like if we hadn't spent the money in the last number of years to administer MS4 permits and the other storm water permits? And I think the answer to that is it would be terribly more compromised than it is today. So that the argument that we don't see an immediate return on the investment of monies for storm water regulation doesn't take into account what the water quality would be like if we didn't make that expenditure, nor does it consider the fact that over the long term we've created this problem, it's going to take us a long

period of time in order to work our way out of the problem. So those are just some comments.

Richard G. Montevideo:

I wouldn't mind throwing in a tidbit. I would actually agree with the commenter. The only thing I would point out is the mold that we have is designed to deal with something coming out of a pipe. And most of my clients' concern is that mold really doesn't work.

We need to look at—we can't simply have a municipality start constructing large treatment plants throughout the Country. I'm not even sure people really want that. I didn't hear Gary say he really wanted that.

So my view is that we got to come up with a—some changes. And whether it's through MEP or actual legislative changes by Congress to come up with a better way to deal with the storm water urban run-off problem, to me it's a different problem than the Cuyahoga River problem.

But yet we're using the Cuyahoga River framework to deal with the municipal problem. And if we keep doing that, we're going to be spending money not only on lawyers and litigation, but on programs that don't really fit. Now, I'm not saying that we have the answers, but I think that we need to work together to come up with a solution, to come up with BMP's to start addressing the urban run-off problem.

I don't think the Clean Water Act was designed to deal with the urban run-off problem.

Judge Michael Hayes:

I'll take one more question, and then we have to cut it. I'm sorry.

Xavier Swamikannu:

I have a comment to what was just said. I think what's important is really the receiving model. ASBS, for example, there's an objective you want to protect. And whatever the source of the pollutant, you have to deal with it within the legal frame that you have. What you have right now is the NPDES Program. It treats storm water as a pipe because the conveyance system in the end is a pipe that out-falls to an ASBS or a water

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body. I think in terms of solution and time, perhaps we ought to comprehensively think about how we get there. But I don't agree that the framework doesn't apply. I think the framework applies because it is objectively oriented. It is outcome oriented.

Richard G. Montevideo:

Well, actually—and today there's something to do with the Los Angeles Regional Water Quality Control Board. Are you still in charge of the permitting program with the Regional Board?

Xavier Swamikannu:

Yes.

Richard G. Montevideo:

And Xavier and I have had discussions, let's put it that way, in the past.

I actually don't disagree with you except for my client's point is the fix that's in place under the Act is just—it doesn't fit the mold for municipal storm water.

Yes, you are as a regulator charged with the responsibility of looking at the receiving waters, looking at the beneficial uses to determine whether or not those beneficial uses are being repaired. And whether it's coming from storm water versus the Cuyahoga River dischargers, you're right. In your mind there's really no difference.

And that's the point. The point is Congress, generally speaking, in 1987, 25 years after the Act was adopted said, hey, oh, by the way, we need to apply this to municipal storm water discharges. But what did they do to the Act? Virtually nothing other than to say yeah, it applies now.

So you have the same water quality standard restrictions that are now being imposed by your Regional Board and Regional Boards up and down the State. It's just now taken—that were developed to apply to industrial dischargers. They're just slapping them down and saying, okay, how can we comply.

Something else has to be done. What it is I don't know.

But the present system just isn't working. That's why we have all this litigation. I think it requires a further analysis of what MEP is supposed to be, maybe some additional regulations, probably, frankly, having Congress look at it. But God knows

when that will happen.

In the meantime we're going to have additional litigation, hopefully some additional Federal Court decisions that are going to help us all along the way until we raise the level enough where Congress finally says all right, we need to get into the mix of this and figure it out.

Paul G. Singarella:

Just to impose, the challenge here is the compliance or the lack thereof. If discharges from municipal public treatment works, big waste water plants it's pretty clearly defined what you've got to do. You go to second free treatment. Waste water treatment has been around since the turn of 1900's, over 100 years old. And the storm water arena, whether it's right or wrong, exception of the regulated community is that there is no available compliance kit. That creates uncertainty, it creates tension, and it creates conflict. I'd love to have my compliance kit presented to me by the Regional Board, take it to the—my client and then say, you know what, I'll go fishing.

Judge Michael Hayes:

Ladies and gentlemen, it's my sad duty to report that we have not reached a comprehensible report or solution to the problem, but hopefully we'll take some of the tools of information we've got and we'll get closer to that solution. At a future symposium maybe we can declare it a—one achieved gold. Thank you for coming and enjoy the rest of your program.