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WATER POLLUTION IN THE GREEN MOUNTAIN STATE: A CASE STUDY OF LAW, SCIENCE, AND CULTURE IN THE MANAGEMENT OF PUBLIC WATER RESOURCES

Daniel D. Dutcher and David J. Blythe***

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INTRODUCTION

By the end of the last century, Vermont had earned a national reputation as a leader in environmental protection. For example, Vermont was the first state in the nation to pass a bottle deposit/redemption bill¹ and the first to ban billboards.² In 1970, Vermont led the nation in statewide land use planning and control by enacting Act 250,³ the state's landmark regulatory program for reviewing and controlling large scale and environmentally-sensitive development. Act 250 utilizes state law implemented by local citizen boards. These legislative efforts took vision and leadership, and came about only after hard-fought political battles and inspired consensus-building.⁴

The fact that Vermont has managed to enhance and preserve the quality of its natural environment throughout the 20th century is only partly the result of these and other community-minded innovations. An entirely different, but no less significant, explanation may be that Vermont virtually missed the industrial revolution, which propelled much of America into unplanned development and widespread environmental degradation. Compared to many other states, Vermont is cold, mountainous, remote, and, hence, sparsely populated. In *The Vermont Owner's Manual*, Frank Bryan and Bill Mares write that Vermont got so far behind the rest of the country

1. VT. STAT. ANN. tit. 10, §§ 1521–1529 (2011).

2. VT. STAT. ANN. tit. 10, §§ 481–506 (2011).

3. VT. STAT. ANN. tit. 10, §§ 6001–6046 (2011).

4. In the first years after Act 250 took effect, it received widespread acclaim. In a retrospective assessment of the law's early impact, Governor Thomas Salmon (1973-1977) wrote:

Act 250 was an idea whose time had come. It represented an intuitive, bipartisan, Vermont response by our then-Governor Deane C. Davis, to a clear and present danger. . . . History records that the most significant period of economic growth in Vermont has occurred following enactment of this visionary statute, which insists that Vermont will employ value-driven criteria as the basis for development decisions. It has tempered how we have grown in a manner that helps make this state the special world that it is.

STATE OF VERMONT NATURAL RESOURCES BOARD, ACT 250: A GUIDE TO VERMONT'S LAND USE LAW 3 (Rev. Aug. 2006), available at www.state.vt.us/nrb/lup/publications/act250brochure.pdf. See generally, CINDY C. ARGENTINE, VERMONT ACT 250 HANDBOOK: A GUIDE TO STATE AND REGIONAL LAND USE REGULATION (Putney Press 3d ed. 2008)(providing a practice guide to permitting under Act 250).

that it's been lapped and now finds itself ahead.⁵ In the 1960s and 1970s, Vermont became a mecca in the back-to-the-land movement, and Vermont's green brand now supports the tourism that keeps the state's economy afloat. In 2004, National Geographic Magazine named Vermont one of the world's best unspoiled destinations.⁶

But Vermont's place at the head of the environmental class may be at risk. Also in 2004, the National Trust for Historic Preservation placed Vermont on its list of significantly endangered historic places in America.⁷ Due in substantial part to the completion in the 1970s of two major interstate highways—I-89 and I-91—Vermont has lost its historic isolation and now increasingly finds itself subjected to the same kinds of environmental pressures as more populated and industrialized states. Nowhere is this pressure felt more keenly than in the efforts to preserve the quality of Vermont's surface waters—its signature lakes, rivers, and streams.⁸

Over the last several years, water pollution in Vermont has become a regular news story. Phosphorus pollution earned Lake Champlain a place in Peter Greenberg's 2009 book, *Don't Go There!: The Travel Detective's Essential Guide to the Must-Miss Places of the World*.⁹ Greenberg was the Travel Editor of the Today Show, and his book has sold over a million copies. In other news, the United States Environmental Protection Agency (EPA) openly criticized the efforts of the Administration of former Governor James Douglas in implementing the Clean Water Act in the state,

5. FRANK BRYAN & BILL MARES, *THE VERMONT OWNER'S MANUAL* (The New England Press, Shelburne, VT 2000).

6. Jonathan B. Tourtellot, *Destination Scorecard: 115 Places Rated*, NATIONAL GEOGRAPHIC (March, 2004), <http://www.nationalgeographic.com/traveler/features/destinationsrated0403/destinationsrated.html>.

7. *Most Endangered Historic Places: State of Vermont*, NATIONAL TRUST FOR HISTORIC PRESERVATION, <http://www.preservationnation.org/travel-and-sites/sites/northeast-region/state-of-vermont-2004.html> (last visited Apr. 10, 2012).

8. The condition of Vermont's natural environment may be coming full circle. Vermont currently absorbs more carbon than it emits because the state is mostly forested, and the state's electrical supply comes mostly from hydroelectric dams. However, Vermont was mostly denuded of forests in the early 1800s for sheep pasture. The forests recovered only after sheep farming in Vermont was no longer profitable. Vermont, both past and present, like virtually everywhere else, has found protecting the environment against economic pressure to be very challenging. *See, e.g.*, R. STRIMBECK AND N. BAZILCHUK, *THE LONGSTREET HIGHROAD GUIDE TO THE VERMONT MOUNTAINS* (Taylor Trade Publishing 1999); CHARLES W. JOHNSON, *THE NATURE OF VERMONT: INTRODUCTION AND GUIDE TO A NEW ENGLAND ENVIRONMENT* (1998).

9. PETER GREENBERG, *DON'T GO THERE!: THE TRAVEL DETECTIVE'S ESSENTIAL GUIDE TO THE MUST-MISS PLACES OF THE WORLD* (2009).

and with regard to Lake Champlain in particular.¹⁰ The Douglas Administration responded by attacking Greenberg¹¹ and attacking EPA.¹²

Vermont's high-profile legislative and courtroom battles over its threatened lakes and streams have begun to tarnish the state's theme-park image. Resistance on the part of the Vermont Agency of Natural Resources (ANR) to fulfill its responsibilities under both the federal Clean Water Act¹³ and Vermont's Water Pollution Control Act,¹⁴ coupled with opportunistic litigation by environmental advocacy organizations, often followed by sometimes hasty reactive legislation, have confused and further complicated Vermont's already labyrinthine environmental regulatory programs. ANR's defenses to a series of successful legal actions brought by environmental advocates occasionally have been characterized by unconvincing interpretations of the law, scientifically dubious rationales, and an apparent lack of resolve to regulate the state's waters in the face of considerable development pressure and political resistance.¹⁵

It is fair to observe that Vermont has clearly struggled—with limited governmental resources and in the face of endemic political pressure to foster economic expansion—to cope with the mounting environmental stressors on its public waters. Nevertheless, in the midst of these struggles, Vermont has more than once found itself leading the nation on water pollution regulation. How and why did these novel issues emerge in Vermont rather than some larger, more populated state like Texas, Pennsylvania, or California? The answer lies partly in the fact that, in reality, no state in the nation, and no federal agency for that matter, fully administers or enforces its water pollution control laws. And while Vermont

10. Governor James Douglas, a Republican, succeeded Democrat Howard Dean in 2003, and was in turn succeeded by Democrat Peter Shumlin in 2011. Governor Shumlin narrowly defeated Republican Brian Dubie, who served as Lieutenant Governor during the Douglas Administration. Anne Galloway, *The Douglas Legacy, Part 2: Attempting more with less*, VTDIGGER.ORG (Jan. 3, 2011, 1:57 AM), <http://vtdigger.org/2011/01/03/the-douglas-legacy-part-2-attempting-more-with-less>.

11. John Dillon, *New Book Warns of Lake Champlain Pollution*, VPR NEWS (Feb. 12, 2009, 5:50 PM), http://www.vpr.net/news_detail/84018/.

12. Press Release, Office of the Governor, Governor says EPA Comments 'Out of Touch and Scientifically Baseless' (June 3, 2008), <http://jimdouglas.vermontegov.com/tools/index.php?topic=GovPressReleases&id=2995&v=Article>.

13. 33 U.S.C. § 1251 et seq.

14. VT. STAT. ANN. tit. 10, § 1250 et seq.

15. See Candace Page, *Judge Tosses Montpelier Sewage Permit*, BURLINGTON FREE PRESS, July 9, 2009, available at <https://secure.pqarchiver.com/burlingtonfreepress/access/1781594581.html?FMT=FT&FMTS=ABS:FT&type=current&date=Jul+9%2C+2009&author=Candace+Page&pub=The+Burlington+Free+Press&edition=&startpage=n%2Fa&desc=Judge+tosses+Montpelier+sewage+permit> (explaining how the ANR has ineffectively protected Lake Champlain and other waters from phosphorus pollution through inaccurate scientific rationales and lackluster effort).

has fallen short of keeping at least some of its surface waters fully protected, its water pollution control programs, by comparison, have often been more effective (or at least, less ineffective) than those of many other states. Further, Vermont appears to have been strategically selected by environmental advocacy organizations to serve as a venue for challenging both federal and state water pollution regulatory programs.

As a result, Vermont represents an interesting and instructive case study of the national struggle over water resource protection. Since the turn of the 21st Century, Vermont has found itself in the forefront of a number of original national legal issues in environmental law and science, with surface water protection foremost among them. Vermont's experience shows how, in many instances, environmental litigation catalyzes environmental cleanup. This experience also shows how all too often stakeholders are not quite prepared to look far enough ahead, work well enough collectively, or take the individual and institutional responsibility needed to deal effectively with water pollution.

Also important, Vermont is home to several committed and creative environmental advocacy organizations, including the Vermont Natural Resources Council (VNRC) and Conservation Law Foundation (CLF). These membership-supported groups have effectively employed actual and threatened litigation, lobbying, technical and legal participation in public debates, and negotiation in their ongoing efforts to compel Vermont to more aggressively follow the law. To the extent these environmental organizations have successfully nudged the state's cleanup efforts ahead, it appears to have been in part because they have understood and advocated national water pollution control issues in a local context. Further, these organizations have operated in a relatively supportive political climate (at least compared to many other states). Finally, the connection that many Vermonters feel to their public waters has surely contributed to Vermont taking a leading role on many water pollution control issues.

On the other side of the scrimmage line, Vermont also provides a telling example of "agency capture"—how the mission of environmental agencies to some extent has evolved from one of regulating business activity in order to protect the environment to one of insulating businesses from the consequences and costs of environmental regulation.¹⁶ The authors readily

16. See Reid Mullen, Note, *Statutory Complexity Disguises Agency Capture in Citizens Coal Council v. EPA*, 34 *ECOL. L. Q.* 927, 927 (2007) (commenting on the change made by environmental agencies from protecting the environment to instead protecting businesses from the costs of environmental litigation and fines). See also, e.g., Roy E. Rickson, *Dimensions of Environmental Management: Legitimation of Government Regulation by Industrial Managers*, 9 *ENV'T & BEHAV.* 15,

and emphatically acknowledge that ANR is comprised of many talented individuals whose commitment to environmental protection is honest and sincere. But a burning house looks different from the inside than it does from the outside. As commentators, we have the luxury of looking at the burning house from the outside. That having been said, the history of recent water law in Vermont nonetheless serves to illustrate how water pollution regulation is as much a crisis of public policy as it is of anthropogenic impact on the physical environment. It is a story about how government, faced with competing interests, sometimes circumvents or turns a blind eye towards those laws meant to protect public resources for the common good unless and until they are forced—by crisis or litigation, and sometimes reluctantly—into action.

Environmental protection is fundamentally an exercise in balancing competing interests, e.g., protecting natural resources and fostering economic development, while simultaneously maintaining or promoting a characteristic quality of life, which is itself a function of intangible values and traditions that may not always comprise a commonly shared vision, and then implementing regulatory strategies to accommodate those interests.¹⁷ In a capitalist society, those competing interests find life in, and are represented by, the marketplace. Water pollution, like other forms of environmental degradation, ultimately represents a market failure. Even in a relatively small marketplace like Vermont, trying to balance and to contain those competing market forces has proven to be a formidable task. Water resource protection raises complicated questions about the role of government in free society, and tends to amplify the perennial argument over individual prerogatives versus collective responsibility.¹⁸ Vermont's experience over the last decade illustrates the inherent difficulties, challenges, and opportunities that arise as states struggle to carry forward

30 (1977) (examining why agency regulation of the environment gives economic development priority over environmental quality).

17. The term “balance” has become a conservative buzzword, the idea being that individual prerogatives are balanced against the common good and somehow the interests of the individual invariably prevail. Individualists often want regulatory agencies to balance individual projects against the larger good, even though striking a balance in environmental protection is primarily a legislative function. Regulatory agencies may accommodate pressure by balancing individual projects through their enforcement discretion. Enforcement discretion has traditionally allowed regulatory agencies to prioritize resources and to administer the law justly, but agencies sometimes use enforcement discretion to ignore laws for political purposes. *See, e.g.,* Bryan S. Miller, Note, *Harmonizing RCRA's Enforcement Provisions: RCRA Overfiling in Light of Harmon Industries v. Browner*, 5 ENVTL. LAW. 585, 587–589 (1999).

18. Vermont's motto is the conundrum, “Freedom and Unity,” VT. STAT. ANN. tit. 11, § 491(2) (2010). Perhaps the motto itself speaks to the nature of political debate from the founding of the nation to the present day.

the national policies of the Clean Water Act through their own laws, their own courts, and their own cultures.

In recent years, Vermont, along with the rest of the nation, has seen a major shift in the focus of water quality protection from regulating the *sources* of pollutant discharges to assessing the *assimilative capacity of the receiving waters*. This newer approach, which frequently utilizes a regulatory tool called the Total Maximum Daily Load (TMDL), requires regulatory agencies to determine the quantitative ability of a receiving water to accept a given pollutant before authorizing a new or increased discharge.¹⁹ Although ambient-based water quality management imposes a substantial burden on both regulatory agencies and the regulated community, it is often the only legally and scientifically defensible approach to determining whether or under what conditions to issue a discharge permit.

This paper offers both a retrospective on and a look forward to some of Vermont's more salient water pollution control issues in the new millennium. We identify some of Vermont's failed water pollution control policies as well as some successes, and we offer—both explicitly and implicitly—suggestions for resolving some current water pollution issues. Addressing water pollution is a legally, scientifically, and culturally complicated task, no less so in Vermont than elsewhere. Indeed, the very complexity of the issues makes it that much easier for politicians to talk a greener game than they play and that much harder for the media and the public to fully understand where the truth lies.

I. VERMONT'S WATER POLLUTION PROBLEMS

A. Phosphorus Loading into Lake Champlain

1. Background

Lake Champlain, on the northwestern border of Vermont, is one of the jewels of the state's natural resources. The lake is 120 miles in length

19. See, e.g., Oliver A. Houck, *The Clean Water Act Returns (Again): Part I, TMDLs and the Chesapeake Bay*, 41 ENVTL. L. REP. 10208 (2011), available at <http://www.eli.org/pdf/41.10208.pdf> (explaining how TMDLs for impaired waterways have been an integral component of the federal Clean Water Act from the get go. However, resource agencies initially focused their attention on technology-based controls rather than ambient-based permitting); Lara D. Guercio, *The Struggle Between Man and Nature—Agriculture, Nonpoint Source Pollution, and Clean Water: How to Implement the State of Vermont's Phosphorus TMDL Within the Lake Champlain Basin*, 12 VT. J. ENVTL. L. 455 (2011) (reviewing nonpoint source pollution controls under the Federalist system and outlining how to implement phosphorus TMDLs in Lake Champlain).

(north-south) and covers 435 square miles within a drainage basin of 8,234 square miles, 56 percent of which lies in Vermont, 37 percent in New York and 7 percent in Quebec.²⁰ It holds approximately 6.8 trillion gallons of fresh water and has 587 miles of shoreline.²¹ The lake can be divided into five distinct geomorphic regions (the South Lake, the Main (or Broad) Lake, Mallett's Bay, the Inland Sea (or Northeast Arm) and Mississquoi Bay), each with different physical characteristics.²² The lake consists of thirteen segments for purposes of water quality standards, which establish the requirements for ambient water quality under federal and state law.²³

Approximately 571,000 people live in the drainage basin, and roughly 200,000 people depend upon the lake for their drinking water.²⁴ 99 public water systems draw water from Lake Champlain, and an estimated 4,149 persons take their drinking water directly from the lake.²⁵

Lake Champlain faces a number of threats, including mercury pollution, exotic and invasive species, and eutrophication from excess phosphorous.²⁶ Mercury pollution in Lake Champlain is largely the result of atmospheric deposition (via rain and particulate fallout) from sources upwind of Vermont and demands national and even international efforts in air pollution control. Exotic and invasive species, which by definition come from far and wide, present long-term challenges in lake management. And while atmospheric deposition contributes to the phosphorous load in Lake Champlain, eutrophication of the lake is mostly the result of regional and local water pollution and can only be effectively addressed through the combined water pollution control efforts of Vermont, New York, and Quebec.

Only a small part of Quebec drains into Lake Champlain, and much of the drainage from New York comes from undeveloped regions of the Adirondack Park. In stark contrast, Vermont's sewage treatment plants, industrial sites, parking lots, streets, ski resorts, and farms discharge the majority of water-borne phosphorous into Lake Champlain. Accordingly,

20. *Lake and Basin Facts*, LAKE CHAMPLAIN BASIN PROGRAM, http://www.lcbp.org/atlas/html/nat_lakefax.htm (last visited Apr. 12, 2012).

21. *Id.*

22. *Lake Champlain, Introduction to the Issues and Ecosystems, The Great Waters Program*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/oaqps001/gr8water/xbrochure/champlai.html> (last updated on July 22, 2011).

23. Vermont Water Quality Standards, 1 Vt. Code R. 12 004 052 § 1.02 (Dec. 30, 2011), available at <http://www.state.vt.us/nrb/wrp/publications/wqs.pdf>.

24. LAKE CHAMPLAIN BASIN PROGRAM, *supra* note 23.

25. *Id.*

26. See generally MARK MALCHOFF & SUSAN TRZASKOS, LAKE CHAMPLAIN FISHERIES HABITAT—A PRIMER FOR LAKE CHAMPLAIN STAKEHOLDERS (2006).

Vermont has accepted the lion's share of responsibility for cleanup.²⁷ To date, however, the efforts of Vermont's executive agencies to curb the introduction of phosphorous loads into Lake Champlain have fallen well short of their responsibilities to the public trust.

2. Eutrophication Due to Phosphorus

Eutrophication is a process by which a body of water becomes enriched with dissolved nutrients. These nutrients feed algae, which then deplete the water of dissolved oxygen through nighttime respiration and microbiologically mediated decay. A plant population is limited in its growth by the nutrient in shortest supply, just as a chemical reaction is limited by the chemical that runs out first—the limiting reagent.²⁸ In the natural state, the nutrient in shortest supply and in greatest demand in many river and lake systems, including Lake Champlain, is phosphorous. Thus, adding phosphorous to the lake feeds a biochemical reaction that causes the algae population—which always lives on the edge of starvation—to grow.

Like other plants, algae produce oxygen through photosynthesis during the daytime. At nighttime, however, plants consume oxygen through respiration. Dying algae feed microbes, which also demand dissolved oxygen. Water holds more dissolved oxygen in cooler temperatures. Thus, fish-kills due to lack of available oxygen in eutrophic waters tend to happen on warm summer nights. Although eutrophic lakes are sometimes called “dead” lakes, they are, in fact, super alive—the problem is that the dominant life form is nuisance algae. In addition to producing algae, phosphorous pollution also feeds photosynthetic cyanobacteria, which used to be called blue-green algae. Some forms of cyanobacteria produce neurotoxins.

Phosphorous pollution in Lake Champlain continues to cause nuisance algae. In recent years, a number of dogs have died as a result of drinking water from parts of the lake that were poisoned by cyanobacteria.²⁹ Some segments of Lake Champlain fail to meet legal water quality standards due to excess phosphorous.³⁰ Phosphorous levels in the lake's 13 segments have

27. VT DEP'T OF ENVTL. CONSERVATION & N.Y. STATE DEP'T OF ENVTL. CONSERVATION, LAKE CHAMPLAIN PHOSPHORUS TMDL, 14–18, (2002), *available at* http://www.vtwaterquality.org/lakes/docs/lp_lctmdl-report.pdf#zoom=100.

28. *See generally* ALEXANDER HORNE & CHARLES GOLDMAN, LIMNOLOGY 346 (2nd ed. 1994) (providing background on Liebig's Law of the Minimum in relation to aquatic environments).

29. *Cyanobacteria—Blue-Green Algae in Lake Champlain*, VT. DEP'T OF HEALTH, (last visited Apr. 12, 2012) http://healthvermont.gov/enviro/bg_algae/bgalgae.aspx.

30. *In re Montpelier WWTF Discharge Permit*, No. 22-2-08, 1, 4, 8 (Vt. Envtl. Ct. 2009), *available at*

increased or stayed about the same during Governor Douglas's tenure (2003 to 2011),³¹ in spite of a \$100 million investment in cleanup.³²

Sources of phosphorous pollution in Lake Champlain include discharges from sewage treatment plants and stormwater runoff, the latter of which carries animal waste and phosphorous-laden sediment into the lake from both developed and agricultural lands, either directly or by way of tributary streams. So much phosphorus has run off the landscapes of Vermont, New York, and Quebec over the years that the lake sediment itself may have become a significant source of phosphorus loading into the lake's water column.³³

B. Stormwater Runoff

Although it may not be immediately obvious to the casual observer or visitor, hundreds of Vermont streams or stream segments are presently polluted.³⁴ Vermont streams are impaired by a variety of causes, but there is a general consensus that the most challenging issue facing these streams today is stormwater runoff from both developed lands and farms.

Stormwater causes four distinct problems in terms of surface water quality: (1) transport and deposition of unwanted sediment into receiving waters, (2) streambank scouring and erosion along the transporting stream channels, (3) introduction of thermal pollution (heat) into receiving waters,

<http://www.vermontjudiciary.org/gtc/Environmental/ENVCRT%20Opinions/Montpelier%20WWTF%20Discharge%20Permit%2022-2-08%20Vtec%20Decision%20on%20Cross-MSJ.pdf> (The Vermont Environmental Court recently found that the Main Lake segment receives about twice the phosphorus load as the maximum loading capacity that the Vermont Agency of Natural Resources established in 2002.).

31. LAKE CHAMPLAIN BASIN PROGRAM, STATE OF THE LAKE AND ECOSYSTEM INDICATORS REPORT—2008, at 4–10 (2008), available at <http://www.lcbp.org/PDFs/SOL2008-web.pdf>; see also ERIC SMELTZER ET AL., TECHNICAL REPORT NO. 57, LAKE CHAMPLAIN BASIN PROGRAM, LAKE CHAMPLAIN PHOSPHORUS CONCENTRATIONS AND LOADING RATES, 1990–2008 1, 31, 36, 38 (Dec. 3, 2009), available at http://www.lcbp.org/techreportPDF/57_Phosphorus_Loading_1990-2008.pdf (reporting that “no significant decreasing phosphorus trends were observed in any lake segment”).

32. Kathryn Flagg, *Pollution in Lake Champlain, Part 1: Where's the Benefit?*, ADDISON CNTY. INDEP. (July 15, 2010), <http://www.addisonindependent.com/201007pollution-lake-champlain-part-1-after-millions-cost-wheres-benefit>.

33. See generally VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION, CLEAN AND CLEAR ACTION PLAN, PHOSPHORUS, available at <http://www.anr.state.vt.us/cleanandclear/phos.htm> (indicating that sediment is a major problem).

34. See UNITED STATES ENV'T'L. PROT. AGENCY, 2008 EPA-APPROVED 303D LIST OF IMPAIRED WATERS, available at <http://www.epa.gov/region1/eco/tmdl/pdfs/vt/303d-vt08-approval-docs.pdf> (listing all of the polluted waters in Vermont that fall within the scope of section 303(d) of the Clean Water Act, as well as those waters that are polluted but not covered by the Clean Water Act); see also *Stormwater Impaired Waters*, VT. DEP'T OF ENV'T'L. CONSERVATION, http://www.vtwaterquality.org/stormwater/html/sw_impairedwaters.htm (last visited Apr. 12, 2012) (listing stormwater-impaired streams in Vermont).

and (4) transport and deposition of chemical pollutants—especially phosphorus—into already impaired receiving waters.

Simply stated, stormwater carries polluted water into streams, and the large slugs of water that enter streams from both developed and agricultural settings during rain events scour and erode stream banks and fill stream beds with sediment. Natural forests and wetlands infiltrate rainfall and then gradually discharge cool groundwater into streams, thereby naturally regulating flows and protecting stream habitat. In contrast, runoff from the impervious surfaces in urbanized areas, from ski slopes and parking areas at ski resorts, from golf courses, and from farm fields can make streams flashy, with higher and warmer high flows and lower low flows compared to streams in more natural environments.

Excess stormwater runoff sets into motion a series of interrelated impacts on the streams that serve to collect and transport the runoff. Heated water flowing into streams from developed landscapes lowers dissolved oxygen levels in receiving waters, contributing to the eutrophication of those waters. Exogenous sediment washing into surface waters from surrounding lands and endogenous sediment entrained from scoured streambeds and banks can clog fish gills and bury the gravelly habitats that fish need for breeding and feeding. As high flows during storm events scour out channels, streams are deprived of their natural flood plains. Future storm events then drive streams into even deeper trenches. Rainfall that runs off urbanized and agricultural landscapes fails to recharge groundwater. As unnaturally high flows in stormwater-impaired streams subside after rain events, these streams become desiccated, having been deprived of their base flows by lack of groundwater discharge. The unnatural changes to the shape and structure of streambeds and banks, along with pollutants that wash off the surrounding landscape, destroy the aquatic microinvertebrates that support the aquatic food chain.

During rain events, urbanized and agricultural areas send a witch's brew of pollutants into streams. These pollutants include agricultural chemicals, metals, pet wastes, litter, and sediments. If not carefully managed, manure and sediment from farms wash into streams. Parking areas, roads, and roofs at ski resorts and golf courses produce runoff that accelerates changes in stream geomorphology. The list goes on.

C. Draining and Filling Wetlands

Protecting wetlands is essential for protecting the waterways to which they are hydrologically connected,³⁵ and wetlands also merit protection in their own right for the numerous ecological and societal functions and values they serve. The Clean Water Act protects most wetlands in Vermont.³⁶ However, the federal government does not have sufficient resources or the political backing to effectively protect all Vermont wetlands. Accordingly, Vermont, like a number of other states, has adopted its own wetland rules.³⁷

The Vermont Wetlands Rules (VWR) were originally adopted in 1990 and were last revised effective August 1, 2010. Generally speaking, the VWRs regulate activities in wetlands by (1) providing for a system in which wetlands are classified according to their ecological significance, with some receiving greater protection from anthropogenic activity than others, (2) specifying a process by which wetlands are delineated, and (3) allowing certain activities within wetlands and their associated buffer zones based upon whether those activities impact ten “functions and values” established by the VWR.³⁸

D. Destroying Vegetated Riparian and Littoral Buffers

Another stressor to surface waters that is receiving increasing attention is the absence of riparian (streamside) and littoral (lakeside) vegetated buffers. Forested buffers provide habitat and cover for aquatic species and can help keep streams cool. Buffers can also help stabilize banks and filter nutrients that would otherwise run into waterways. By depositing large woody debris into streams, forested riparian buffers help create pools and riffles and broad stream beds, thereby maintaining habitat for aquatic organisms. The lack of vegetated riparian buffers and the altered hydrology caused by compacted landscapes has been shown in some instances to cause stream banks, in both developed areas and next to farm fields, to erode or slump into streams in large chunks through a process known as *mass wasting*. In agricultural lands in particular, phosphorus is present in the surface soil in large quantities. It is also present in developed and urbanized areas. Because phosphorous attaches itself to soil particles, a

35. Christine M. Weller et al., *Role of Wetlands in Reducing Phosphorous Loading to Surface Water in Eight Watersheds in the Lake Champlain Basin*, 20 No. 5 *Envtl. Mgmt.* 731, 731 (1996).

36. 33 U.S.C. § 1344(g)(1) (1987).

37. Vermont Wetland Rules VT CODE R 12 004 056, § 5 (2010), available at <http://www.nrb.state.vt.us/wrp/publications/VWR%207-16-10.pdf>.

38. *Id.*

single mass wasting event may contribute tons of phosphorous to the adjacent stream and thus into downstream waters.

In recent years, Vermont has enacted regulatory and incentive-based programs to limit the removal of vegetative riparian buffers and to encourage the restoration of buffers lost to erosion and over-clearing for farming or for development.³⁹ Act 250 and national flood insurance programs place some limitations on development in floodplains,⁴⁰ and numerous municipalities have adopted ordinances to protect riparian and littoral zones. However, the state does not directly regulate these important ecotones. Despite millions of dollars spent on cleanup plans for impaired waters, the state still does not require farmers to fence livestock out of streams. This oversight makes it difficult for the state's cleanup plans to pass reasonable muster.

E. Lack of Political Will

Legally and scientifically sound administrative systems designed to protect and restore public water resources have been in place for decades. These systems rely on proven pollution-control technologies and practices and on management plans organized around the limited capacity of streams and lakes to assimilate pollutants. But make no mistake, implementing programs based upon these strategies will be expensive and will require a cultural and political commitment to resource protection, which has been sorely lacking.

As the old saying goes, "dilution is the solution to pollution." But the state's lakes and streams can absorb only so much. Pollution control strategies that rely on the *assumed*, but not the *scientifically-documented*, ability of receiving waters to disperse pollutants must be abandoned. To assimilate receiving waters, the state should replace these strategies with those that budget the introduction of pollutants based on the actual capacities of the waters.

Vermont's continuing failure to bring its polluted waterways into compliance with legal standards is due directly to the continuing refusal of the state's executive branch to properly assess the assimilative capacity of receiving waters and then to connect funding and cleanup programs to this physical fact. The indisputable need to organize water pollution control around the capacity of the receiving waters, rather than the demands of dischargers, has become Vermont's inconvenient truth.

39. VT. STAT. ANN. tit. 10, § 1427 (2010).

40. See VT. STAT. ANN. tit. 10, § 6086(a)(1)(d)–(f) (2010) (requiring permit for development or subdivision affecting floodways, streams, and shorelines).

The next section provides a brief primer on water pollution control law. This is followed by a short history of how Vermont has struggled—and largely failed—to effectively implement these laws. Finally, this paper offers some recommendations on how to restore and maintain Vermont's water resources in the face of formidable challenges.

II. THE FEDERAL AND STATE REGULATORY SCHEME FOR WATER POLLUTION CONTROL

Water pollution in Vermont is subject to a complex combination of federal and state regulations.⁴¹ Vermont, like most other states, has sought and accepted delegation from EPA to implement the federal Clean Water Act within its borders. Through the National Pollutant Discharge Elimination System (NPDES) permitting program, the Clean Water Act directly controls discharges of pollutants from point sources.⁴²

Point sources are discrete, confined conveyances, such as pipes and ditches. Nonpoint-sources, which include unconcentrated runoff and atmospheric deposition, for example, are not subject to the NPDES program. The NPDES permitting system extends to certain categories of stormwater runoff, including runoff from municipal areas and industrial sites, large animal farms, and runoff from construction sites over one acre. For the most part, the Clean Water Act leaves large swaths of post-construction (operational) stormwater runoff and all nonpoint-source pollution control for the states to regulate, with some financial and technical assistance from the federal government.⁴³

In addition to managing the federal Clean Water Act, Vermont has adopted its own stormwater permitting program to help manage the operational stormwater discharges that federal law leaves unregulated.⁴⁴ Unlike the federal law, Vermont's stormwater permitting program is not limited to point-source discharges.⁴⁵ Rather, jurisdiction under Vermont's stormwater permitting program depends on the amount of impervious surface created by new development. ANR, through its Department of

41. See *Stormwater NPDES Petition*, No. WQ-03-17, (Vt. Water Resource Bd. Oct. 14, 2004), available at <http://cfpub.epa.gov/npdes/stormwater/rulemaking.cfm> (for a comprehensive summary of federal and state law governing stormwater pollution in Vermont).

42. 33 U.S.C. § 1342 et seq. (2006).

43. See *Proposed National Rulemaking to Strengthen the Stormwater Program*, U.S. ENV'TL. PROT. AGENCY, <http://cfpub.epa.gov/npdes/stormwater/rulemaking.cfm> (last visited Apr. 12, 2012) [hereinafter *Proposed Rulemaking*] (explaining how EPA is developing regulations for post-construction (operational) stormwater runoff).

44. VT. STAT. ANN. tit. 10, § 1264(a) (2011).

45. *Id.*

Environmental Conservation, manages both the NPDES permitting program and Vermont's stormwater permitting program through the Vermont Water Pollution Control Act and accompanying state regulations.⁴⁶

Both the federal and state water pollution control laws in Vermont deploy a two-tiered strategy. In tier one, discharges subject to these permitting programs must comply with certain technological controls. In the case of conventional point-source discharges—industrial and municipal wastewater treatment facilities—these treatment requirements are known as technology-based effluent limitations (TBELs). TBELs do not specify the actual technologies that need to be employed, but rather state the levels of specific pollutant parameters allowed in the discharger's wastewater. In other words, TBELs are expressed as end-of-pipe water quality conditions without regard to the ability of the receiving waters to accept the discharge.

The required TBELs differ depending on the nature and source of the discharge. Thus, every sewage treatment plant must use both primary and secondary treatment. Primary treatment settles solids, and secondary treatment employs living microorganisms to digest the bacteria in the remaining liquid.

For stormwater discharges, tier-one technology-based controls are commonly referred to as best management practices, or BMPs. Dischargers of stormwater above certain volumes must utilize detention ponds, vegetated swales, infiltration systems, low-impact development, and other structural or design practices to help regulate stream flows and to remove some pollutants, including phosphorous. The required BMPs are linked to site conditions, especially the area of the impervious surfaces from which rainwater runs off. The law presumes that deploying the necessary BMPs will control the volume and content of stormwater discharges to levels sufficient to protect water quality.

Technology-based controls (TBELs and BMPs) are knee-of-the-cost-curve solutions. They generally represent the most pollutant removal per dollar invested. Technology-based controls, however, are not the only treatment technologies available, and, despite the name, best management practices do not always represent the best pollution control practices possible.

46. 33 U.S.C. § 1342 (2006); VT. STAT. ANN. tit. 10, § 1263 (2011). Vermont has not amended its Water Pollution Control Act and regulations to keep pace with the evolving requirements of the federal Clean Water Act. However, Vermont operates with the idea that its statutes and regulations incorporate by reference all delegated federal requirements. Stormwater NPDES Petition, No. WQ-03-17, (Vt. Water Res. Bd. Oct. 14, 2004), *available at* <http://cfpub.epa.gov/npdes/stormwater/rulemaking.cfm>.

Tier-one technologies are typically enough, or are presumed to be enough, to maintain legally acceptable water quality. However, when water quality is threatened or actually drops below legal standards, water pollution control administrators must move to tier two and replace or complement TBELs and BMPs with WQBELs—water quality based effluent limitations. Unlike TBELs and BMPs, which are determined by the type of discharge (e.g., meat packing plant, paper mill, certain acreages of pavement, etc.), WQBELs are determined by the limited capacity of the receiving waters to assimilate pollutants. The focus shifts from the end of the pipe to the assimilative capacity of the receiving waters.

All states delegated to administer the Clean Water Act, including Vermont, have adopted water quality standards for all surface waters in the state.⁴⁷ Under the Clean Water Act, all waters must be fishable and swimmable, but not all waters need to be pristine.⁴⁸ Water quality standards represent the goals or uses for the various streams and lakes in the state. Acceptable uses include but are not limited to public water supplies, recreation, irrigation, and fish and wildlife habitat.⁴⁹ The receipt or dilution of pollution is not an acceptable goal or use, but discharges of pollutants may be permitted provided those established uses are protected.

State water quality standards ensure that established uses are protected by means of water quality criteria. Criteria may be numeric (e.g., micrograms per liter of phosphorous) or narrative (e.g., no toxins in toxic amounts). The Vermont Water Quality Standards⁵⁰ provide different numeric phosphorous limits for different segments of Lake Champlain because different parts of the lake are naturally more eutrophic than others. The limits established are based on user surveys that determined the point at which unnatural levels of eutrophication become a nuisance for recreation.⁵¹

Under section 303(d) of the Clean Water Act, state water pollution control administrators must list all waters of the state that fail to meet water quality standards or that are threatened with failing to meet these standards.⁵² This list of threatened and impaired waters (or water-quality-

47. Clean Water Act, 33 U.S.C. § 1313(b)(1) (2000).

48. *Id.*

49. Vt. Water Quality Standards §§ 3-02, 3-04 (2011).

50. See Vermont Agency of Nat'l Resources, *Appendix A—Vermont Regulations Pertaining to Surface Water Management*, (last visited Apr. 11, 2012), http://www.vtwaterquality.org/wqd_mgtplan/swms_appA.htm#_Toc279488813 (explaining that Vermont Water Quality Standards are promulgated by the Water Quality Panel of the Vermont Natural Resources Board, with the advice and consultation of the Vermont Agency of Natural Resources).

51. *Lake Champlain Phosphorus TMDL*, VERMONT AGENCY OF NATURAL RESOURCES, http://www.vtwaterquality.org/lakes/htm/lp_phosphorus.htm (last visited July 15, 2012).

52. 33 U.S.C. § 1313(d).

limited segments) is often called the “303(d) list” for short. The state must develop a cleanup plan designed to bring the listed waters into compliance with water quality standards and remove them from the list when compliance is achieved.

WQBELs must be designed so that all the permitted and unpermitted discharges and runoff into a stream or lake, from both developed and undeveloped sites, collectively do not result in a violation of the water quality standards (uses and criteria) that the state has established for the receiving waters. Establishing WQBELs for a single discharge can be relatively simple. Thus, if a sewage treatment plant causes a violation of water quality standards despite secondary treatment, then an appropriate level of tertiary treatment, which may involve chemical neutralization of pollutants prior to discharge, could be determined without much difficulty.

Establishing WQBELs becomes much more challenging when multiple sources of pollutants contribute to the violation of water quality standards, especially if some of those sources are stormwater discharges. Sewage treatment plants and other conventional sources of water pollution (e.g., industrial sources) can be permitted using a steady-state analysis. This assumes that certain minimum flows in the receiving waters are available to dilute the discharges and that the quality and quantity of effluent coming out of the discharge pipes is about the same all the time or can effectively be predicted and adjusted. The assumed minimal flows available for dilution are the drought conditions that could be expected to occur over the course of one week every ten years, typically abbreviated as 7Q10. A steady rate of discharge can be permitted for conventional sources because, on average, the number of times people flush their toilets and do their wash remains constant, and the maximum amount of pollutants a factory needs to discharge can be determined and permitted in advance. Treatment techniques are so sophisticated for conventional discharges that effluent limitations for metals are measured by micrograms per liter, which translates roughly to parts per billion.

Unlike conventional steady-state discharges, stormwater discharges vary considerably from day to day and year to year, depending principally on rain events. Moreover, the affordable treatment techniques for stormwater are far less efficient than those available for conventional pollutants. A stormwater detention pond, for example, may typically remove less than half the phosphorous coming into it. That means that two comparable developments with stormwater BMPs discharge about the same amount of phosphorous that one of those developments would discharge without any treatment at all.

For polluted waters like streams in Chittenden County (Vermont's most urbanized county, which includes Burlington—the state's largest city) and Lake Champlain, which receive pollutants from multiple sources, tier two of the state and federal water pollution control programs requires Vermont to allocate pollutant loads among discharges or categories of discharges by means of TMDLs. The total load allocation of pollutants to all sources, including point sources and nonpoint sources, must not exceed the assimilative capacity of the receiving waters. TMDLs consist of a “wasteload allocation” for present and future point sources, a “load allocation” for present and future nonpoint sources, and a “margin of safety” to account for errors in estimating loads and the pollutant removal efficiencies of prescribed treatment technologies and practices. NPDES permits and state stormwater permits must be consistent with applicable TMDLs. Nonpoint sources that are not governed by federal or state permitting programs may be managed through technical or financial outreach or may be brought into state regulatory programs through changes in state statutes or rules. However, TMDLs must include reasonable assurances that reductions in nonpoint-source pollutants will occur within a reasonable time frame so that overall pollutant targets will be achieved.⁵³

The key point of establishing WQBELs in tier two by means of a TMDL compared to employing TBELs and BMPs in tier one is to back calculate. An effective cleanup plan based on a TMDL implements a pollutant budget. It determines the total pollutant load that the receiving waters can assimilate and then allocates that load among all pollutant sources, present and anticipated. All those sources must then employ treatment practices sufficient to bring the total load down to levels that the receiving waters can assimilate.⁵⁴

53. ENVTL. PROT. AGENCY, EPA 440/4-91-001, GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS (April 1991), available at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/decisions_index.cfm.

54. Considerable controversy exists over whether or how complex stormwater pollution problems can be redressed through pollutant budgeting. Models and assumptions used in estimating pollutant loads and load-reduction efficiencies of treatment practices are far from perfect. However, these tools have long been employed on smaller scales. It should be possible to employ these tools on a larger scale through a watershed, subwatershed, and site basis to form a mosaic of loading sources and load reduction practices that represents an overarching plan. The Vermont Agency of Natural Resources has already broken certain stormwater-impaired streams into sewersheds. Inaccuracies in estimating existing loads and the load-reduction efficiencies of various prescribed treatment practices can be narrowed through experience and by adjusting budgeting figures through the adaptive management process. See *In re Montpelier WWTF Discharge Permit*, No. 22-2-08, at 9 & n.10 (Vt. Env'tl. Ct. June 30, 2009), available at <http://www.vermontjudiciary.org/gtc/Environmental/Opinions.aspx> (explaining in its recent decision the shortcomings of the Lake Champlain Phosphorus TMDL, and likening an effective cleanup plan to a financial budget).

Beginning in the early 1970s, when Congress passed the Clean Water Act over President Nixon's veto, Vermont and other states, through the Clean Water Act's state-federal partnership, made great strides toward restoring and maintaining the nation's waterways. Through a combination of funding and enforcement, state and federal agencies responsible for administering and enforcing the Clean Water Act forced dischargers of conventional point-source pollution (principally municipal sewage and industrial wastewater) to comply with the Clean Water Act's tier one technology-based controls. Teams of administrators, engineers, and lawyers administered and enforced the NPDES permitting program through the police powers of the states. Targeted discharges were numerous but were sufficiently limited in number as to be readily identifiable. When municipalities or industries resisted, pollution control agencies had the legal tools and the political support to bring them into line with the Clean Water Act's science-based permitting requirements.

As the population of America grew and water use patterns changed, the gains in water pollution control from permitting conventional discharges often failed to outpace the losses wracked up by point-source and nonpoint-source runoff from urban sprawl and farming.⁵⁵ Vermont and other states can no longer lay the blame for water pollution on a convenient list of sewage treatment plants and industrial sites. The contribution to diminished water quality from agriculture, development, and other human activities is well established. The responsibility now lies with all of us—and so must the solution, through our collective political will.⁵⁶

Through years of litigation, millions of dollars spent, and many promises to protect the environment, Vermont's executive agencies have resisted pollutant budgeting and other essential policies for cleaning up the state's polluted waters. The existing federal and state regulatory schemes for managing Vermont's waterways are fundamentally sound, but they cannot work if they are not fairly and effectively administered and enforced. The next section explores some examples of how Vermont has neglected—and, at times, actively resisted—its responsibilities to manage Vermont's public water resources and the litigation and legislation that have ensued.

55. In addition, the regulatory approaches that proved so effective in the early years of implementing the Clean Water Act fell out of favor with the Reagan Revolution. As Southern Democrats fled to the Republican Party in the wake of Democratic civil rights legislation, environmental regulation became a prime locus of resentment against government. In a sense, for many conservatives green became the new black.

56. For a detailed exploration of how environmental law and science have failed in the face of cultural obstacles see JAMES GUSTAVE SPETH, *The Bridge at the Edge of the World: Capitalism, the Environment, and Crossing from Crisis to Sustainability* (Yale Univ. Press 2008).

III. VERMONT'S BATTLES OVER ITS PUBLIC WATER RESOURCES

A. *In re Hannaford*

Vermont's shortcomings in regulating stormwater runoff made headlines near the end of the Dean Administration in 2001, following the Vermont Water Resources Board's decision on preliminary legal issues in the case of *In re Hannaford*.⁵⁷ CLF appealed a stormwater discharge permit that ANR had issued for a proposed commercial shopping center in South Burlington. The appeal alleged that the permit unlawfully authorized new stormwater discharges into stormwater-impaired waters—in this instance, into a small stream called Potash Brook and then into Lake Champlain by way of Potash Brook and certain unnamed watercourses.

ANR had issued the permit on the basis of technology-based controls (BMPs), even though it had included Potash Brook and Lake Champlain on the state's 303(d) list of waters impaired for phosphorus. Including Potash Brook and the lake on the state's 303(d) list meant that a TMDL needed to be developed under state law to establish WQBELs for discharge permits; however, the state did not have a cleanup plan in place. Therefore, the appeal presented the novel issue of whether or how discharges of stormwater into stormwater-impaired waters could be permitted in the absence of a TMDL. The Board was not able to locate any case law from any state or federal jurisdiction on the issue except for a 1978 Water Resources Board decision that relied on state law to prohibit a stormwater discharge into a stormwater impaired stream.⁵⁸

Interestingly, CLF argued for beefed up BMPs, believing that requiring and then developing a TMDL would only delay the cleanup effort and result in a plan that would still need to be implemented. ANR argued vehemently that, because stormwater is different from conventional discharges, its current technology-based controls were all that was necessary, even though the waters were violating the state's Water Quality Standards.⁵⁹ In keeping

57. *Hannaford Bros. Co.*, No. WQ-01-01, 2001 WL 34064020 (Vt. Water Res. Bd. June 29, 2001), available at http://www.nrb.state.vt.us/wrp/decisions/wrbdecisions/index_2001.htm.

58. *Pyramid Co.*, No. WQ-77-01, 1977 WL 187947, at *9 (Vt. Water Res. Bd. 1977). In 2007, in a case that parallels the Board's construction of state law in *Hannaford*, the United States Court of Appeals for the Ninth Circuit held that an NPDES permit may not be issued under the federal Clean Water Act for new or increased discharges of pollutants of concern into impaired waters in the absence of a TMDL. *Friends of Pinto Creek v. U.S. E.P.A.*, 504 F.3d 1007, 1017 (9th Cir. 2007).

59. *Hannaford*, 2001 WL 34064020, at *5. The Board had recently decided, in *In re Home Depot USA*, No. WQ-00-06, Mem. of Decision: Motion to Alter at 4 (Mar. 16, 2001), that discharges of stormwater into water that are not impaired enjoy a rebuttable presumption of compliance with the Vermont Water Quality Standards. In *Hannaford*, however, the fact that the waters at issue were impaired rebutted any presumption of compliance. 2001 WL 34064020, at *16-17.

with the two-tiered approach of water pollution control law, the Board disagreed with both sides and held that permitting new or increased discharges of stormwater into stormwater-impaired waters in the absence of the TMDL was prohibited by the Vermont Water Pollution Control Act and state regulations.⁶⁰ To obtain a permit, the applicants would need to prove at an evidentiary hearing that their proposed development would not increase the stormwater pollutants coming off the site.⁶¹ The Board added that the TMDL and anti-degradation requirements of the state's pollution control laws should prevent the prohibition against new or increased discharges into impaired waters from encouraging the sort of development sprawl that would lead to additional impaired streams.⁶²

The Board issued its decision on the basis of state law because ANR issued the permit under appeal pursuant to the state's stormwater program and not under the NPDES of the federal Clean Water Act. Moreover, the parties agreed that federal requirements were not at play in the case.⁶³ However, the Board carefully considered the provisions of the Clean Water Act and regulations that prohibit new or increased discharges into impaired waters in the absence of a cleanup plan.⁶⁴ In fact, early drafts of the *Hannaford* decision included an extensive discussion of the Clean Water Act, including the possibility that the discharge at issue required an NPDES permit pursuant to the Clean Water Act's residual designation authority.⁶⁵ Although the Board edited the discussion of federal law from the final decision, the Board eventually incorporated much of the cut material into a later case in which the residual designation authority was directly at issue.⁶⁶

The Board's decision in *Hannaford* led to near hysteria in the media and in circles of power across the state. Hyperbolic accusations flew around that the Board had shut down virtually all new development in Vermont. Media outlets widely (and incorrectly) reported that the Board had denied the permit, even though the Board had merely ruled on preliminary issues of law and had not yet determined whether the proposed development and treatment systems would unlawfully result in a new or increased discharge

60 *Hannaford*, 2001 WL 34064020, at *15.

61. *Id.* at *19.

62. *Id.* at *16.

63. *Id.* at *18.

64. See 40 C.F.R. § 122.4(i) (2011) (describing what is required when adding a pollution source into a water body that does not meet water quality standards).

65. See National Pollution Discharge Elimination System, 33 U.S.C. § 1342(p)(2)(E) (2006) (requiring a permit for discharges that violate a water quality standard or pollute the waters of the U.S.).

66. *In re Stormwater NPDES Petition*, No. WQ-03-17, Mem. of Decision (Apr. 1, 2004), aff'd in part and rev'd in part, 910 A.2d 824 (VT 2006).

into the receiving waters.irate developers and their attorneys confronted Board members on the streets and Board staff at professional functions.

ANR filed a motion to alter with the Board, the permit applicant moved to dismiss the appeal, and the Vermont Agency of Commerce and Community Development, along with a regional industrial group, moved to intervene in the case. The Board granted the motions to intervene as a matter of course and scheduled a hearing on the motions to alter and to dismiss. At the hearing on these motions, the Board's Montpelier conference room was packed with reporters, television cameras, spotlights, microphone arms, and spectators. Holding steady, the Board denied the motions and scheduled an evidentiary hearing on whether the permitted treatment systems met the standard of no new or increased discharge.⁶⁷

As the case moved ahead, ANR continued to insist that stormwater permits should be written only by means of its existing BMPs, even though there was no evidence that doing so would improve water quality and the Board had already rejected that approach. In addition, the Agency argued that the Board should define the legal standard of no new or increased discharges in terms of ecological impacts rather than mass loads. The Agency preferred an *impacts* analysis rather than a *loading* analysis because, the argument went, the receiving waters were already so polluted that the impacts from any one new development would not be measurable, and, therefore, permits could be issued indefinitely for increased discharges. The Board rejected ANR's arguments and ruled that state law prohibited new or increased loads rather than impacts.⁶⁸

The appellants urged the Board to deny the permit, or, in the alternative, to issue the permit with the condition that the discharge not exceed *predevelopment* conditions. The Board rejected those arguments as well and decided that the *existing discharge* from the site represented the appropriate baseline for determining whether a proposed discharge into impaired waters lacking a cleanup plan would be "new or increased" and, therefore, prohibited.⁶⁹ The Board reasoned: "Using background conditions as a cap on stormwater discharges into impaired waters . . . could needlessly impede efforts to improve the condition of impaired waters through technology controls prior to establishing a [pollutant load] allocation."⁷⁰

67. Hannaford Bros. Co., No. WQ-01-01, 2001 WL 34064019, at *6-7 (Vt. Water Res. Bd. Aug. 29, 2001), available at http://www.nrb.state.vt.us/wrp/decisions/wrbdecisions/index_2001.htm.

68. *Id.* at *6.

69. Hannaford Bros. Co., No. WQ-01-01, 2002 WL 31967603, at *1 (Vt. Water Res. Bd. Jan. 18, 2002), available at http://www.nrb.state.vt.us/wrp/decisions/wrbdecisions/index_2002.htm.

70. *Id.* at *10.

Following the fact-finding hearing, the Board held by a vote of four-to-one that the developers had met their burden of proving that the BMPs they planned to use would prevent any increase in pollutant loading from the site. The Board therefore affirmed the issuance of the stormwater discharge permit.⁷¹ Because the developers received their permit to discharge into impaired waters, the environmental groups appealed the decision to the Superior Court. On appeal, the Board's decision was affirmed.⁷²

The developers in *Hannafor*d were able to meet the strict standard of no new or increased loads of pollutants of concern because the project site was already disturbed and their proposed treatment systems would capture the existing untreated runoff. Portions of the project site had been used to dump solid waste from the construction of I-189. However, the stakeholders realized that, in most instances, proposals to develop raw land would not be able to meet the standard of no-new-or-increased-loads of stormwater pollution. The *Hannafor*d decision therefore poured sand in the gearbox of the state's stormwater permitting mill. Moreover, *Hannafor*d laid the groundwork for a series of additional cases in which the Vermont Water Resources Board was called upon to decide, in the first instance, issues of national import in water pollution control.⁷³

B. Watershed Improvement Permits

Following *Hannafor*d, interest groups turned their attention to the Vermont Legislature, which rewrote the state's stormwater law. In doing so, the Legislature essentially adopted the Board's decision, but, in line with longstanding federal law, the Legislature provided for the issuance of *Watershed Improvement Permits* (WIPs) as an alternative to TMDLs.⁷⁴ The state's immediate interest was to keep the permitting process going, and ANR set to work on developing WIPs, which, if not successfully challenged by environmental groups, would render the *Hannafor*d no-new-discharge standard for impaired waters without cleanup plans inapplicable.

71. *Id.* at *18–19.

72. *In re Hannafor*d Bros., No. 280-02 CnCv (Chittenden Co. Super. Ct. Apr. 30, 2003).

73. It is noteworthy that the Water Resources Board consisted of five citizen volunteers appointed by the Governor, an executive officer, two staff attorneys, and an administrative assistant.

74. VT. STAT. ANN. tit. 10, §§ 1264(a) & (f)(1)(A) (2011). See Total Maximum Daily Loads and Individual Water Quality-Based Effluent Limitations, 40 C.F.R. § 130.7(b)(1). See generally ERIC MONSCHIN AND LAURIE MANN, CATEGORY 4B—A REGULATORY ALTERNATIVE TO TMDLS (EPA 2007), available at http://water.epa.gov/lawsregs/lawguidance/cwa/tmdl/upload/2009_06_04_tmdl_results_36monschein_wef07_paper7.pdf (discussing national study on states employing alternatives to TMDLs).

It is interesting to note the extent to which the permitting restrictions resulting from *Hannaford* led to so much press and captured so much time and energy on the part of Vermont's development community and the Legislature. Previously, the lingering and worsening state of Vermont's stormwater-polluted waters had garnered relatively little attention. It was the spanner that the Board threw into the state's permitting works in *Hannaford* that got people motivated, more than the deteriorated condition of the receiving waters or the absence of any workable plan for cleaning them up--which the *Hannaford* decision also brought to light. ANR finally set about to develop cleanup plans only because such plans were necessary to allow the Agency to continue issuing discharge permits. As the Board found, the law linked the availability of discharge permits to maintaining or improving water quality, and that is what got the cleanup process underway, not any inherent concern on the part of the government for the state's stormwater problem.

In fact, in the wake of *Hannaford*, some rather embarrassing details relating to the state stormwater permitting program came to light. It turned out that ANR had cannibalized its stormwater program to cope with budget cuts during the Dean Administration. The Agency eventually disclosed that nearly 2,000 state stormwater permits had expired or were out of compliance. In some cases, permitted systems had never been built, some had been built incorrectly, and others had been built but had fallen into disrepair.⁷⁵ Although the state lacked the resources to enforce existing stormwater permits prior to *Hannaford*, it could not ignore the demands of developers for new permits. As a consequence, the state directed millions of dollars that were previously considered unavailable into its stormwater program after *Hannaford*.

C. *In re Morehouse Brook*

In 2003, when the Governor's Office passed from Howard Dean to James Douglas, stormwater in Vermont once again made headlines. After *Hannaford*, ANR seized upon the provisions in the new stormwater legislation that authorized WIPs under some circumstances. Through WIPs, ANR attempted to get past the Board's tough permitting standard for polluted waters without TMDLs. The Agency established WIPs rather than TMDLs for a handful of stormwater-impaired streams in Chittenden

75. See, e.g., Nancy Bazilchuk, *Vermont Allows Stormwater Permits to Lapse*, BURLINGTON FREE PRESS, Mar. 18, 2002, at A1 (explaining why allowing stormwater permits to lapse results in permitted systems not being built and others falling into disrepair because the permits are not being enforced statewide).

County. The WIPs applied updated stormwater BMPs to new stormwater discharges and selected existing discharges for retrofits.

VNRC and CLF appealed the issuance of the WIPs to the Water Resources Board in *In re Morehouse Brook*, alleging that the WIPs failed to ensure that the receiving waters, which remained impaired by stormwater, would come into compliance with the Vermont Water Quality Standards.⁷⁶ Again, the appellants did not argue for TMDLs, but rather for enhanced WIPs with better and more widely applicable BMPs.⁷⁷ The environmental groups continued to regard TMDLs with suspicion, fearing that the planning process was time-consuming and would ultimately result in a *plan* to cleanup rather than actual cleanup.⁷⁸

Douglas's ANR reiterated the argument that the Agency made under Dean in *Hannaford* and that the Board had already rejected—that it was impossible to create TMDLs for stormwater. In its dogged effort to avoid TMDLs, ANR actually argued against its own statutory authority to regulate nonpoint-source discharges. Further, the Agency contended that the WIPs justified new and increased pollutant loads into the receiving waters, even though the WIPs did not contain any schedule for bringing these waters into compliance with the Vermont Water Quality Standards or any demonstration that this would ever happen.⁷⁹ The Agency argued for the iterative application of BMPs through a series of WIPs until the receiving waters complied with the Water Quality Standards.⁸⁰

Morehouse Brook presented the Board with the novel issue of when cleanup plans other than TMDLs are authorized.⁸¹ Here again, the Board decided the case under state law, but with a view to federal law that applied to other kinds of discharges.⁸² But, once again, the Board was left to decide the issue without any definitive case law from other jurisdictions—state or federal.

After a hearing on the merits, the Board reversed the issuance of the WIPs and again instructed the Agency to develop TMDLs for the waterways at issue.⁸³ The Board explained that WIPs were suitable for simpler water pollution problems where the pollutant sources could be

76. *In re Morehouse Brook*, No. WQ-02-04, 1, 6 (Vt. Water Res. Bd. 2003), available at <http://www.nrb.state.vt.us/wrp/decisions/wrbdecisions/2003/wq02-04-fco.pdf>.

77. *Id.* at 23.

78. *Id.* at 20.

79. *Id.* at 22.

80. *Id.* at 22.

81. *Id.* at 6.

82. *Id.* at 18.

83. *Id.* at 29.

readily identified and remedied.⁸⁴ In complex environments (such as those in the *Morehouse Brook* case), however, TMDLs needed to be developed to show that new discharges would not swallow up the pollutant reductions from existing sources.

Simply put, without a pollutant budget, the Agency could not demonstrate that the application of BMPs to certain categories of stormwater discharges would reduce pollutant loads to the point that the receiving streams would comply with the Vermont Water Quality Standards and remain in compliance while receiving future discharges. Once again, the Board determined that ANR improperly relied on the use of technology-based permitting where water-quality based permitting was required. The Board specifically ruled that the forward-looking iterative application of BMPs was not appropriate for these waters and that the Agency needed to develop TMDLs that back-calculated from the assimilative capacity of the receiving waters and allocated pollutant loads accordingly. The Board pointed out that the data that ANR had gathered to implement the WIPs could be applied to pollutant budgets in the form of TMDLs.⁸⁵

D. The Water Resources Board's Investigation of Stormwater TMDLs

ANR decided not to appeal *Morehouse Brook*, conceding that the Board was theoretically right on the law. Instead, the Agency attacked the Board on the science and continued to insist that TMDLs for stormwater were not technically feasible. It appeared to the Board, from the evidence presented in the *Hannaford* and *Morehouse Brook* cases and from its review of the literature, that TMDLs were both possible and necessary to address Vermont's stormwater pollution. In an effort to resolve the technical uncertainties obstructing the development of stormwater TMDLs, the Board launched a formal investigation into this important policy issue. The Board had long been authorized to conduct formal investigations of water resources issues but had never done so before.

The Board assembled a representative group of stakeholders and experts, and, following several months of meetings, the stakeholder group reached consensus that TMDLs were both possible and necessary to address stormwater pollution and agreed upon a technical framework for developing them. Among other things, the stakeholder group helped pioneer the use of flow and sediment as surrogates for the panoply of pollutants in

84. *Id.* at 27.

85. *Id.* at 19.

stormwater runoff. The Board issued its formal report on the investigation in March 2004.⁸⁶

E. Interim Permitting

Although ANR finally agreed to establish TMDLs for Vermont's stormwater-impaired streams, its first order of business was to facilitate interim permitting while this time-consuming and expensive process got underway. The Agency took over the Board's stakeholder group to address this issue, and the Legislature eventually amended the state's stormwater law again to deal with it. Essentially, the Legislature maintained the *Hannaford* no-new-or-increased-pollution standard for impaired waters without cleanup plans, reaffirmed the Board's interpretation of the limited role of WIPs, ordered ANR to develop TMDLs by a date certain, and authorized the use of offsets to facilitate net-zero permitting while TMDL development was underway.⁸⁷

While the interim permitting system pending the development of cleanup plans for impaired waters keeps the permitting mill turning, it inevitably does so at the expense of water quality and may push certain waterways to a point of no return. First, this system removes at least some of the urgency to develop cleanup plans. Second, the new system allows certain stream segments to become more polluted as long as an offset somewhere in the watershed purportedly leads to no net increase in pollution at some point farther downstream. If the point of measurement lies at the bottom of a large enough watershed, then increased pollutant loads into one segment are averaged out or rounded off.⁸⁸ Third, the system is easily gamed, and, in at least some cases, it appears doubtful whether the offset (e.g., a vegetated riparian buffer) will actually remove as much pollution as the new discharge (e.g., a commercial development) will contribute. Fourth, the net-zero permitting program allows watersheds to continue to be built out without comprehensive cleanup plans, potentially making effective load reductions through a TMDL much more difficult to achieve because of the increased number of retrofits that may be required.

86. *In re Developing Cleanup Plans for Stormwater-Impaired Waters*, No. INV-03-01 (Vt. Water Resources Bd. Mar. 9, 2004) (Order Closing Docket and Issuing Final Report for Comment), available at http://www.vtwaterquality.org/stormwater/docs/sw_inv-03-01report.pdf.

87. Vt. STAT. ANN. tit. 10, §§ 1264–1264c (2011).

88. See, Ann Powers, *The Current Controversy Regarding TMDLs: Contemporary Perspectives*, 4 VT. J. ENVTL. L. 9, 18 (2003) (noting that the boundaries for water pollutant trading must ensure that “the environmental consequences of trades between parties occur in the same waterbody or stream/river segment, that boundaries are of manageable size, and are selected to prevent localized problems”).

Here again, development pressures are eating away public water resources, even in a state like Vermont, which has worked doggedly on water pollution control.

F. In re Stormwater NPDES Petition

As ANR set out to develop stormwater TMDLs, the last act in the stormwater litigation that occupied the Vermont Water Resources Board before it was abolished through Governor Douglas's permit reform initiative began to unfold.⁸⁹ Following their previous successes in *Hannaford* and *Morehouse Brook*, VNRC and CLF petitioned ANR to require federal NPDES permits rather than state permits for operational (post-construction) discharges of stormwater into the five streams involved in the *Hannaford* and *Morehouse Brook* cases. As noted above, federal regulations require NPDES permits for certain categories of stormwater discharges. However, federal law stops short of categorically requiring all operational stormwater discharges to obtain NPDES permits. Instead, the regulations grant state water pollution control administrators the authority to designate these residual discharges for NPDES permitting if the discharges contribute to a violation of state water quality standards or constitute a significant discharge of pollutants.⁹⁰

In their petition to ANR, the environmental groups seized on the Board's finding that all of the discharges in the stormwater-impaired waters that the Board addressed in *Hannaford* and *Morehouse Brook* contributed to the impairments of the streams at issue. The Board came to this conclusion because, in the complex watersheds at issue, all of the discharges combined

89. Permit reform transferred the appellate functions of the Environmental Board and the Water Resources Board to the Environmental Division of the Vermont Superior Court. The rulemaking functions of these Boards were transferred to the Water Resources Panel and the Land Use Panel of the newly created Natural Resources Board. 16-5 VT. CODE R. § 200:1 (2012). Permit reform served some beneficent purposes. Although the Boards were run efficiently and the decisions were well-reasoned, the quantity, complexity, and public profile of the cases were becoming too much to continue to ask citizen Board members to handle. And proponents for change were correct in pointing out that the appeal routes for various permits in Vermont (*e.g.*, water supply, water discharge, state land use, municipal zoning, waste storage, air emissions, etc.) involved a labyrinth of different boards, courts, and commissions. Eliminating the Boards was also red meat to the development community, which resented certain decisions that the Environmental Board and Water Resources Board had made and which found the accessibility of these boards to citizen opponents of projects particularly frustrating. Prior to their elimination, the Boards and their professional staffs conducted a functional and financial alternatives analysis and recommended that the Legislature establish professional boards rather than transfer their functions to the Environmental Division. The Legislature has begun to reconsider this recommendation. *See, e.g.*, S. S.28, 263875th Sess. (Vt. 2011), available at <http://www.leg.state.vt.us/docs/2012/bills/intro/S-028.pdf>.

90. *Proposed Rulemaking, supra* note 46.

to produce excess pollutant loads to the receiving waters. Therefore, a comprehensive approach, in the form of a TMDL, was required to reduce these loads to meet legally established water quality criteria. The environmental groups reasoned that, because all of these discharges contributed to the violations, they all required NPDES permits under the state's residual designation authority.

Although the case sounds academic at first blush, the stakes were quite high. Using its enforcement discretion, ANR had largely ignored violations of state operational stormwater permits, or it had at least gone easy on violators. The federal permit program, however, is another matter entirely. Dischargers who violate federal NPDES permits are subject to citizen suits under the Clean Water Act, and federal permits are subject to federal standards, which had not yet been resolved for operational stormwater dischargers at the time. Much of the historic success of the Clean Water Act has been attributed to citizen suits, which allow citizens with legal standing to do the job that government agencies often lack the resources or the political backing to do themselves. In addition, NPDES permits issued under the residual designation authority would apply to dischargers that are grandfathered, and thus exempt, under the state's stormwater permitting law. Furthermore, federal law prohibits new or increased discharges into impaired waters lacking a cleanup plan. Thus, it is questionable whether federal permits can be issued under Vermont's interim permitting standards, which were designed to circumvent the prohibition against new or increased discharges that the Water Resources Board set forth in *Hannafor*d.

ANR denied the residual designation petition of the environmental groups. The groups then appealed the Agency's decision to the Vermont Water Resources Board. The Board was again presented with a novel issue of national import in the control of stormwater runoff, with little or no precedent from other jurisdictions. The arguments advanced by the Agency in defense of the status quo were numerous, lengthy, and often lacking in substance. Indeed, ANR reworked its failed argument in *Hannafor*d and contended that a discharge cannot be subject to NPDES permitting unless that discharge alone would impact water quality by itself. In the end, the Board relied on the simple and plain language of the federal regulations and remanded the case to the Agency. On remand, the Agency was ordered to issue NPDES permits to all but de minimis contributors of stormwater to these polluted streams.⁹¹

91. *Stormwater NPDES Petition*, No. WQ-03-17, (Vt. Water Resources Bd. Apr. 1, 2004) (Mem. of Decision), and *in re Stormwater NPDES Petition*, No. WQ-03-17, (Vt. Water Resources Bd. Oct. 14, 2004) (Mem. of Decision), available at http://www.nrb.state.vt.us/wrp/decisions/wrbdecisions/index_2004.htm.

ANR, with the assistance of the Attorney General, appealed the case to the Vermont Supreme Court. National development and commercial interests joined the Agency's efforts to defend its decision not to use its residual designation authority to require dischargers of stormwater to Vermont's stormwater-impaired streams to obtain federal permits. The Vermont Supreme Court affirmed nearly all of the Board's decision, but it reversed the Board's conclusion that all but de minimis discharges required permits as a matter of law, and remanded the case to the Agency. The Agency was ordered to make factual determinations about which discharges were contributing to the problem—essentially the same as the Board had ordered.⁹²

On remand, the Agency once again denied the petition. VNRC and CLF appealed to the Environmental Court, which had acquired jurisdiction over this matter after the Water Resources Board was abolished. Relying closely on the Board's decision, the Environmental Court reversed the Agency's denial of the petition and sent the matter back to ANR to issue NPDES permits to contributing dischargers.⁹³ The Agency finally conceded and chose not to take the matter back to the Vermont Supreme Court.

On November 19, 2009, the Agency issued General Permit 3-9030,⁹⁴ which requires NPDES permits for over 400 designated discharges into the five waterways at issue in *In re Stormwater NPDES Petition*. Coverage under the General Permit extends to discharges not covered by other federal discharge permits as well as those that do not meet the net-zero standard under the state's permitting scheme. The General Permit requires covered dischargers to employ BMPs, depending on an engineering feasibility analysis of the site, to maximize infiltration and to reduce stormwater runoff.⁹⁵

92. *In re Stormwater NPDES Petition*, 910 A.2d 824, 836 (Vt. 2006).

93. *In re Stormwater NPDES Petition*, No. 14-1-07 Vtec, Decision on Pending Motions (Aug. 28, 2008), available at <http://www.vermontjudiciary.org/GTC/Environmental/Opinions.aspx>.

94. VERMONT AGENCY OF NATURAL RESOURCES, WATERSHED MANAGEMENT DIVISION, NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT 3-9030, http://www.anr.state.vt.us/dec/waterq/stormwater/htm/sw_RDA.htm (last visited July 12, 2012).

95. STATE OF VERMONT AGENCY OF NATURAL RESOURCES, DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES), GENERAL PERMIT 3-9030 FOR DESIGNATED DISCHARGES TO THE BARTLETT, CENTENNIAL, ENGLSBY, MOREHOUSE AND POTASH BROOK WATERSHEDS, available at http://www.anr.state.vt.us/dec/waterq/stormwater/htm/sw_RDA.htm.

G. The Lake Champlain Phosphorus TMDL

Prior to all of this litigation, ANR had, in fact, developed a phosphorous TMDL for Lake Champlain.⁹⁶ The TMDL was vague, however, and the Agency failed to effectively implement it. The Lake Champlain Phosphorous TMDL (LCPTMDL) determined the total mass load of phosphorous that each of the lake's segments can assimilate without violating the phosphorous concentrations established by the Vermont Water Quality Standards. It also allocated maximum loads to major tributary watersheds. However, the LCPTMDL failed to meaningfully describe how these contributing loads could be scaled back to enable the lake to assimilate existing and new discharges. Rather, it adopted the idea that an all-out effort would be required.⁹⁷ As the environmental groups who argued for enhanced BMPs rather than TMDLs in *Hannaford* and *Morehouse Brook* feared, a water pollution control agency can (and did) write a TMDL that does not represent a true pollutant budget or even a decent budget to preserve the receiving water. After the LCPTMDL sat on the Agency's shelves for years, Vermont environmental groups convinced the Legislature to require the Agency to put it into effect. In 2008, the Legislature passed a law requiring the Agency to put the LCPTMDL into effect.⁹⁸

Vermont continues to resist true pollutant budgeting. The Vermont Environmental Court, in a strongly worded and critical opinion, found that

96. Vermont Wetland Rules VT. CODE R. § 5.

97. The personal notes of the authors reveal that the Vermont Water Resources Board provided comments to ANR on a draft of the LCPTMDL in the summer of 2002. The Board expressed doubts that the draft was specific enough to represent a pollutant budget that made its authoring agencies (the Vermont and New York Departments of Environmental Conservation) accountable for its implementation. The Board commented that the draft argued for funding for a list of pollutant control strategies but failed to link those strategies to load reductions, thus leaving discharges connected to sociopolitical processes rather than to the assimilative capacity of the receiving waters. The Board questioned, as it recently had in *In re Morehouse Brook*, whether the iterative application of BMPs to nonpoint sources can substitute for WQBELs grounded in TMDLs. In its final version, the LCPTMDL did not address any of these concerns. Indeed, no one taking a close look at the LCPTMDL could have reasonably concluded that it represented a workable blueprint for bringing phosphorus pollution in the lake within legal limits.

98. See VT. STAT. ANN. tit. 10, §§ 1385–1386 (2007) (requiring and outlining an implementation plan for the LCPTMDL). The Legislature found that there had been an increase in phosphorus loads into Lake Champlain and that phosphorus reduction efforts need to be quantified. VT. AGENCY OF AGRIC., FOOD AND MKT., VT. AGENCY OF NATURAL RES., VERMONT ECOSYSTEM RESTORATION PROGRAM: 2011 ANNUAL REPORT 17 (2011), available at <http://www.leg.state.vt.us/reports/2012ExternalReports/276255.pdf>. In addition, the Legislature required load reductions to be allocated on a subwatershed basis. *Id.* ANR reports increasing phosphorus concentrations in some segments of the lake from 1990 to 2008, with no lake segments exhibiting decreasing concentrations. *Id.* However, ANR also measured stable or decreasing phosphorus inputs to most regions of the lake. *Id.*

ANR was relying on the dated and vague TMDL to give dischargers a right to pollute and that the TMDL on which it relied was so deficient that permits based on its allocations did not accurately represent WQBELs.⁹⁹ In October of 2008, CLF sued EPA in federal district court to set aside the 2002 LCPTMDL and to develop a new one. In an April 2010 settlement agreement, EPA agreed to reconsider the LCPTMDL and to grant a stay of the litigation. Finally, on January 24, 2011, EPA withdrew its approval of the Vermont portion of the LCPTMDL and agreed to work with ANR to develop a new one.¹⁰⁰ Based on this history, Vermont has never actually had a valid, workable cleanup plan for Lake Champlain.

In EPA's disapproval of the LCPTMDL, and in other formal and informal discussions of water pollution in Vermont, the focus is belatedly, but inevitably, moving toward more algebraic thinking about pollutant budgeting. For example, the EPA found that at least certain components of the cleanup plan failed to provide any reasonable assurance that they would "adequately address the magnitude of the need. In short, the plan provides very little, if any, assurance that the recommended actions will occur, and provides no indication of the magnitude of phosphorus reductions expected from these actions."¹⁰¹

Similarly, the Chair of the Vermont Citizen Advisory Committee for Lake Champlain Basin Program has recently shared some realistic talk with the Press:

Perhaps there is one big move left to make. Force the decisions and costs back directly on the sources of excess nutrient pollution in each watershed, with a strict measurable target to hit at the end of a stream or river going into the lake. Require all of those contributors to work out who does what and how they will pay for it in a process mediated by the state and observed by the EPA over a six-month period.¹⁰²

To make the LCPTMDL effective, ANR needs to describe the dischargers or categories of dischargers who need to undertake specific cleanup tasks and determine when and how much pollution reduction is

99. *In re Montpelier*, *supra* note 33, at 19.

100. H. CURTIS SPALDING, UNITED STATES ENVTL. PROTECTION AGENCY REGION 1, LAKE CHAMPLAIN PHOSPHOROUS TMDL DISAPPROVAL (Jan. 24, 2011), *available at* <http://www.epa.gov/region1/eco/tmdl/pdfs/vt/LakeChamplainTMDLDisapprovalDecision.pdf>.

101. *Id.* at 11.

102. Buzz Hoer, *Is Lake Champlain on Anyone's List?*, BURLINGTON FREE PRESS, Jan. 23, 2011.

expected as a result.¹⁰³ In the same vein, the Agency has now developed TMDLs for a number of stormwater-impaired streams in Vermont's urban areas. To implement these plans, however, the Agency needs to link cleanup efforts to stormwater reductions.

Linking plans and clean up efforts is not an exact science. Consequently, implementing TMDLs requires adaptive management. ANR must use its best professional judgment to link cleanup efforts to load reductions that will be sufficient to bring the receiving waters into compliance with water quality standards. If the resulting actions prove to be too strict or too relaxed, then the Agency can revisit the implementation plan and make appropriate adjustments.

Unfortunately, ANR has consistently interpreted adaptive management to mean that it will iteratively apply cleanup efforts until such time as the receiving waters come into compliance with water quality standards. This approach does not realistically estimate how the BMPs, as applied to existing discharges, will offset new discharges of stormwater. This is the exact approach the Water Resources Board rejected in *Morehouse Brook*, when the Board overturned the WIPs.¹⁰⁴

Although Vermont has spent millions of dollars on programs to cleanup Lake Champlain and stormwater-impaired streams, these efforts will not succeed without a pollutant budget and the money will not be spent wisely. The present approach is similar to a financially reckless company pointing to all the ways it is working to save money, but without being able to show that these savings are bringing expenses within the company's income. To make another analogy, trying to cleanup polluted waterways without a pollutant budget and pointing to all the efforts going into cleanup, but without achieving the desired results, is like failing at a diet. You can complain about how hard you're trying and all the sacrifices you're making and all the food you are not eating, but that won't help you lose weight. It does not do to sacrifice potato chips and milkshakes only to eat extra french fries and ice cream or to walk everyday after work to take off calories only to reward yourself with a Snickers bar when you're finished. Trying really

103. For stormwater-impaired streams, ANR uses flow as a surrogate for pollutant loading, with the expectation that by effectively managing stream flows, pollutant loading, including sediment loads, will also fall into line. *In re Developing Cleanup Plans for Stormwater-Impaired Waters*, No. INV-03-01, (Vt. Water Resources Bd. March 9, 2004) (Order Closing Docket and Issuing Final Report for Comment), available at http://www.vtwaterquality.org/stormwater/docs/sw_inv-03-01report.pdf. The Water Resources Board generally endorsed this approach in its Final Report on Developing Cleanup Plans for Stormwater-Impaired Streams. *Id.* However, the Board expected that while flow could be used as a surrogate, TMDLs would simultaneously address sediment directly. *Id.*

104. See VT. STAT. ANN. tit. 10, § 1264(f)(4) (2011) (requiring compliance with BMPs in order to retain a storm water discharge permit). See ERIC MONSCHEIN, *supra* note 77 and accompanying text.

hard—without more—is not the way to cleanup stormwater-impaired waters.

Consistent with an overall policy emphasis on economic development, Governor Douglas touted a “*Third Way*” of managing Vermont’s environmental problems—a way in which protecting the environment would not interfere with economic growth. The Third Way told people what they wanted to hear—that they can grow in any manner they like without government regulations getting in the way, and that Vermont’s polluted waters are on their way to recovery. Perverting the concept of adaptive management to avoid back-calculating effectively dodges accountability. Governments can point to all of the efforts being taken to address water pollution without ever recognizing their limits.

In the early days of water pollution control, when regulatory agencies went after conventional point-source dischargers, progress was measured by penalties collected. As dischargers bristled under regulatory burdens and environmental regulations became a focal point of conservative wrath, technical and financial assistance began to supplant regulatory control. Now, instead of measuring progress by penalties collected, agencies measure progress by money spent. The government is now paying the people it used to regulate and fine. Money going to local environmental projects, public or private, rarely provokes a political backlash against the regulatory agency dispensing it. In the last decade, over \$100 million¹⁰⁵ has been spent on efforts to cleanup Lake Champlain, but phosphorus pollution in the lake is not getting better. In the face of this stalled progress, government officials cite the astronomical sum already spent on cleanup. The implication is that all one needs to do to get a cleaner lake is spend more money.

The Third Way keeps the permitting mill turning. Dischargers need to jump through certain hoops to get their permits, but the permitting program is still organized around the needs of dischargers rather than the assimilative capacity of the receiving waters. To clean up Vermont’s stormwater-impaired streams and Lake Champlain, it is essential to back-calculate: determine how much the waters can handle and work back from there to ensure that the total pollutant load from all sources—point and nonpoint—does not exceed those limits. To live sustainably, you must ensure that your spending does not exceed your revenues, that the calories you take in do not exceed the calories you burn, and that the amount of

105. Kathryn Flagg, *supra* note 35.

pollution you load into your waterways does not exceed their assimilative capacity.¹⁰⁶

After permit reform, the Vermont Water Resources Board's appellate jurisdiction, as noted, went to the Environmental Court. The rest of the Board's functions, including rulemaking, were transferred to the Water Resources Panel of the Vermont Natural Resources Board. Two matters in particular that came before the Water Resources Panel—basin planning and wetlands regulation—further demonstrate the ongoing argument over Vermont's waterways.

H. Basin Planning and Anti-Degradation

Although federal and state law have required basin planning for decades, ANR allowed basin planning to languish for so long that the Legislature eventually mandated the Agency to develop basin plans for the state's 17 major drainage areas by the year 2000. In 1999, the Legislature extended the deadline to 2006.¹⁰⁷ The Agency presented its first updated basin plan, the White River Basin Plan, to the Vermont Water Resources Board in 2005.

Basin planning is accomplished in two steps. First, planners take inventory of pollution sources, paying particular attention to nonpoint sources that are not addressed through federal and state permitting programs. Then, they coordinate management efforts based on the inventory. Another important function of basin planning is to establish more specific water quality standards for a basin's waterways. Currently, the anti-degradation requirements of federal and state water pollution control laws require the maintenance of existing uses and water quality, some of which may not be reflected in the water quality standards to be protected. Unfortunately, Vermont has long resisted its legal obligations to develop an anti-degradation implementation program to effectuate these requirements.

106. See *In re Waters of the Green Mountain National Forest*, No. ORW-03-01, (Vt. Water Resources Bd. Aug. 9, 2005) (Findings of Fact, Conclusions of Law, and Order), available at <http://www.nrb.state.vt.us/wrp/decisions/wrbdecisions/2005/orw-03-01dec.pdf> (illustrating the Agency's emphasis on permitting rather than protection. Due to certain technical shortcomings in the facts made available to the Board, the Board denied a petition filed by an environmental group to designate some 66 lakes and streams in the Green Mountain National Forest as outstanding resource waters meriting special protection. The Board made a point of denying the petition without prejudice, with the expectation that it would be re-filed with new facts to correct the deficiencies in the record. The environmental organization that originally filed the petition did not have the funding to resume the case. Although the Agency of Natural Resources supported at least some of the proposed designations in the hearings before the Board, neither the Agency nor the new Natural Resources Board have brought any of the proposed designations to fruition.).

107. VT. STAT. ANN. tit. 10, § 1253(d).

Upgrading the water quality standards through basin planning would identify existing uses and water quality that would then be used to set the parameters for permitting and other water pollution control programs. This approach would take some pressure off of case-specific anti-degradation analyses.

In the White River Basin Plan, the Agency of Natural Resources attempted to set goals for waterways that fell below their existing water quality. In some instances, the Agency's own bio-indices of water quality indicated that certain waterways would be most appropriately designated as Type 1 waters—those deserving of the highest level of protection within Class B. However, the Agency recommended the designation of some of these waters to Type 2—a lower category of water quality—in order to accommodate local development interests. In other situations, the Agency proposed Type 2 designations in forested watersheds, even though forest cover is strongly correlated with high water quality.

The Water Resources Board, by then dominated by Douglas appointees, adopted the Agency's recommendations. During the rulemaking process to effectuate the proposed changes to the Vermont Water Quality Standards, however, VNRC and other environmental groups convinced the legislative committee responsible for screening proposed rules to remand the proposed standards for the White River Basin back to the Board for reconsideration. Upon reconsideration, the Board handed the matter off to the Water Resources Panel of the Natural Resources Board.

A major issue that arose with water management typing was whether the management types were intended to represent new classifications (or uses) or new criteria for existing uses. Either way, legislative authority for an agency to develop and apply water management types was not clear. In 2009, the Water Resources Panel opened an investigative docket to look into the matter, which it rather vaguely titled the Science and Policy Advisory Committee (SPAC). SPAC established a laudable goal of integrating basin planning, water management typing, and anti-degradation. After the Panel spent months making little progress, the Legislature assigned the responsibility to establish water management types for at least two watersheds to regional planning commissions.¹⁰⁸ Recently, the Panel issued a draft report on its SPAC that merely summarized the issues and the positions of stakeholders without reaching any decisions. After years of work, the Panel has still neither clarified the process for refining the

108. H.R. H.26, 270128th Sess. (Vt. 2009), <http://www.leg.state.vt.us/docs/2012/Acts/ACT037.pdf>.

Vermont Water Quality Standards in the course of basin planning, nor sought appropriate legislation to clarify the process.¹⁰⁹

I. Wetland Protection

In yet another chapter of Vermont's ongoing argument over its water resources, the Water Resources Panel substantially revised and updated the Vermont Wetland Rules (VWR), but only after a prolonged battle with stakeholders.

1. Resistance to Change

The VWR, unlike the federal rules or those of other state wetland programs, had long relied on inaccurate wetland maps, rather than field identification of wetlands, to determine if the state has jurisdiction to regulate particular sites. The wetland maps in Vermont reportedly omitted up to 30% of the wetlands in the state—much more in some areas—and erroneously identified various other landscape features, including quarries, swimming pools, town fountains, and bedrock glinting in the sun, as wetlands. The mistake occurred because these areas look like wetlands on the aerial photographs used to create the wetland maps. This led to an arbitrary, inefficient, and administratively cumbersome regulatory program.¹¹⁰

Every year since the original adoption of the VWR in 1990, the Water Resources Board, and then its successor, the Water Resources Panel of the Natural Resources Board, entertained a half dozen or so petitions to remove erroneously identified wetlands from the Vermont Significant Wetlands Inventory (VSWI) Maps. In each of these cases, the Board or the Panel generally considered (and gave considerable weight to) the technical recommendations of ANR on these petitions. The Board, and then the Panel, also had jurisdiction under the VWR to add wetlands to the maps. But, despite routinely coming across unmapped wetlands in the course of its field work, in the nearly 20 year history of the old VWR, not once did ANR petition the Board or the Panel to add wetlands to the VSWI Maps.

Then, in 2005, the Vermont Supreme Court held in *Lake Bomoseen Ass'n v. Vermont Water Resources Bd.*¹¹¹ that reclassification of wetlands

109. See VERMONT WATERSHED MANAGEMENT DIVISION, www.vtwaterquality.org (last visited Apr. 1, 2012) (providing the latest on water management typing).

110. See *Sec'y, Agency of Natural Res. v. Irish*, 169 Vt. 407, 413-14, (Vt. 1999) (upholding the presumption that the wetlands identified on the maps were significant and subject to the requirements of the Vermont Wetland Rules).

111. *Bomoseen Ass'n v. Vermont Water Resources Bd.*, 178 Vt. 375, 375-76, (Vt. 2005).

and alterations to the VSWI Maps constituted rulemaking and, therefore, needed to follow the formal procedures for rulemaking set forth in the Vermont Administrative Procedures Act.¹¹² The practical effect of the decision was that it was no longer practical to add or remove wetlands from the VSWI Maps.

The *Bomoseen* decision prompted the Natural Resources Board to look into whether it would continue to make sense to rely on the VSWI Maps when determining if it had regulatory jurisdiction over wetlands. Following preliminary research that supported a new approach, the Board opened an investigative docket in 2006 that proposed improving the efficiency and fairness of the VWR by taking regulatory jurisdiction over wetlands as they exist in the field, rather than relying on wetland inventory maps. ANR staff welcomed the initiative until the political leadership at the top of the Agency caught wind of it, expressed its vehement opposition to the proposed rules, and muted staff support. The Commissioners of all three ANR Departments (Environmental Conservation; Fish & Wildlife; and Forests, Parks, & Recreation) appeared before the Board to oppose the initiative. Instead, ANR supported narrow legislation that would have obviated the *Bomosen* decision and allowed the Board to continue to remove wetlands from the VSWI Maps without going through formal rulemaking. The Republican-dominated Board backpedaled on its idea to dispense with the VSWI Maps, and meetings of a Wetlands Investigation Group (WIG) that the Board had convened to revamp the old rules dragged on.

The Panel encountered significant resistance from not only ANR, but also the Agency of Agriculture, Farms and Markets (AAFM) and certain segments of the regulated community. ANR implausibly contended that the six-person state wetlands office would need to be expanded to 90 individuals in order to accommodate the Panel's proposal, even though wetland programs in comparable states, like New Hampshire, indicated that significant staffing increases in Vermont would not be needed.¹¹³ Of course the argument was casuistic, but ANR could not admit that it opposed the proposed rules simply because extending state regulations to additional wetlands ran contrary to the Douglas Administration's political philosophy.

Developers and realtors argued, among other things, that it would become impossible to buy and sell, or to finance the development of real

112. VT. STAT. ANN. tit. 3, §§ 800-849.

113. Apparently, ANR arrived at the figure of ninety FTEs by analogy to the wetlands regulatory program in New Jersey, which is larger and more populated than Vermont, which has an extensive ocean shoreline, and which has accepted delegation of the administratively burdensome § 404 program.

estate, in Vermont if the Panel looked beyond the maps to identify important wetlands in the field. In support of this argument, opponents relied on *Bianchi v. Lorenz*, 166 Vt. 555, 701 A.2d 1037 (1997), in which the Vermont Supreme Court held that non-compliance with municipal land use permits constituted a defect in marketable title to real estate.¹¹⁴ However, the argument was without merit. First, the Vermont Supreme Court had previously held in *Hunter Broadcasting, Inc. v. City of Burlington*, 164 Vt. 391, 396, 670 A.2d 836, 840 (1995), that latent violations such as filled wetlands would not constitute an encumbrance upon title. Second, the mapping system extended to unmapped wetlands contiguous to mapped wetlands, meaning that real estate could contain latent wetland violations even without moving away from jurisdictional maps. Third, the simple solution to any defects in title that the proposed rules could create would be legislation clarifying that, like the municipal permits in *Bianchi*, wetland violations did not constitute defects in marketable title.

Although the proposed amendments to the VWR would have continued to include an exemption for agricultural lands, AAFM nevertheless weighed in against them.¹¹⁵ AAFM opposed updating the VWR because the new rules would have made it harder for farmers to develop lands they owned but were not farming. Thus, a Vermont executive agency argued, in effect, that the arbitrary omission of protected wetlands from the state's official wetlands maps and from state jurisdiction should be maintained so that those wetlands could be drained and filled in violation of federal law, without interference from state authorities. Indeed, all the arguments against modernizing the VWR assumed implicitly that Vermont should continue to facilitate the violation of federal wetlands regulations. The panel's proposal would have simply extended state protection to wetlands already subject to

114. *Bianchi v. Lorenz*, 166 Vt. 555, 556, 701 A.2d 1037 (Vt. 1997). *Bianchi* was a case involving non-compliance with municipal land use permits in which the Supreme Court held that such non-compliance constituted a defect in marketable title to real estate. It is no overstatement to say that the *Bianchi* decision caused widespread disruption in real estate conveyance and financing until a series of legislative responses provided that non-compliance with municipal permits did not violate the State's marketable title act, 27 V.S.A. Chapter 5, Subchapter 7; see in particular VT. STAT. ANN. tit. 27, § 612. See also *supra* note 107 and accompanying text.

115. In the past, farmers had expressed their frustration with the state's wetlands program, even though the principal basis for regulation of agricultural activities was a function of federal, not state, jurisdiction. For example, in 1999, then-Water Resources Board Chairman Gerald Gossens and then-Commissioner of Agriculture Leon Graves convened a "summit meeting" consisting of farmers (largely from Franklin County), representatives of ANR, EPA, the Corps of Engineers and the House and Senate Agriculture Committees to discuss regulation of agricultural wetlands and to propose changes to the then-effective VWR. Author's notes (on file with author).

federal jurisdiction but for which federal authorities did not have the resources to actually protect.

The Democratically-dominated Legislature finally settled the matter by determining that mapping would not control jurisdiction, and instructed the Board to amend the Wetland Rules accordingly.¹¹⁶ As directed by the Legislature, the Water Resources Panel revised the Rules (effective August 1, 2010). The Legislature, in an effort to quell the drama around modernized Wetland Rules, included a specific statutory provision in Act 31.¹¹⁷ The provision stated that no encumbrance to marketable title to real estate would result from the failure to obtain or comply with a permit for activity in a wetland.¹¹⁸

2. Classification of Wetlands

The Vermont Wetlands Rules (VWR) classified wetlands as Class I (a wetland which is exceptional or irreplaceable in its contribution to Vermont's natural heritage and deserving of the highest level of protection),¹¹⁹ Class II (a wetland which merits protection based on the extent to which it serves the ten functions and values of significant wetlands set forth in the statute),¹²⁰ or Class III (a wetland which is neither Class I or II, and which is insignificant and essentially unregulated).¹²¹

In the revised VWRs, the three-level classification system was preserved. However, the process by which wetlands are classified was changed dramatically. The VSWI are no longer the primary basis for jurisdiction but now serve an advisory function.¹²² In a departure from the prior practice of classifying wetlands through a rulemaking process by the Water Resources Board or Panel, the VWRs now provide that Class II and Class III wetlands are classified as such through a determination process by the Secretary of ANR.¹²³ Class I wetlands are established through formal rulemaking conducted by the Water Resources Panel.¹²⁴

116. H.R. H.447, 247557th Sess. (Vt. 2009).

117. VT. STAT. ANN. tit. 27, § 615.

118. *Id.*

119. VT. STAT. ANN. tit. 10, § 6025(d)(5)(A)–(K) (2010); Vermont Wetland Rules, Vt. Code R. 12 004 056 § 5 (2010), available at www.nrb.state.vt.us/wrp/publications/VWR%207-16-10.pdf.

120. *Id.*

121. VT. STAT. ANN. tit. 10, § 902(6)–(8) (2010).

122. Vt. Code R. 12 004 056 § 4.4.

123. VT. STAT. ANN. tit. 10, § 914 (2010); Vt. Code R. 12 004 056 § 8.

124. Vt. Code R. 12 004 056 § 7.

3. Wetland Permitting

Another major change to the VWRs was the replacement of the previous use of Conditional Use Determinations (CUDs) by ANR with a permit system similar to other natural resource regulatory programs. The CUD was a promise not to enforce violations of the Wetland Rules provided the owner or operator followed all the conditions set forth in the CUD. The original Wetland Rules used CUDs instead of permitting because, in the face of intense political controversy over wetland regulation, the Legislature did not provide for a permitting system when it initially authorized ANR and the Water Resources Board to regulate wetlands. Although a CUD had the same effect as a permit, Vermont culture had evolved enough since the state's first pass at wetland protection in 1990 to enable the Legislature to dispense with this semantic distinction in Act 31 and to simply call a permit a permit. The new permits are more comprehensive, require greater levels of technical information, and are generally more reliant on professional wetlands consultants.

Not unlike the stormwater permit system, the VWRs now provide for both *individual* and *general* permits.¹²⁵ Individual permits may be issued by the Secretary in connection with activities in Class I and Class II wetlands, although any activity permitted in a Class I wetland must be based upon a showing that such activity “meet[s] a compelling public need to protect public health or safety.”¹²⁶ General permits are limited to Class II wetlands. The essential criteria for issuance of a general permit are that the activities authorized by the permit will comply with the VWRs and will have “no undue adverse effect on protected functions and values.”¹²⁷ In solidarity with the federal wetland program, the VWRs continue to follow the familiar sequence of avoid, minimize, and mitigate (or compensate) to determine whether a proposed impact will have an undue adverse effect.¹²⁸ ANR issued the first Wetland General Permit on May 2, 2011.¹²⁹

125. 12 004 056 VT. CODE R. § 9.1 (2010), available at <http://www.nrb.state.vt.us/wrp/publications/VWR%207-16-10.pdf>.

126. *Id.*

127. *Id.* at § 9.7(a)(4).

128. *Id.* at § 9.5(b).

129. VERMONT AGENCY OF NATURAL RESOURCES, DEPARTMENT OF ENVIRONMENTAL CONSERVATION, VERMONT WETLAND GENERAL PERMIT (3-9025) (2011), available at http://www.vtwaterquality.org/wetlands/docs/wl_gp.pdf.

IV. THE WAY FORWARD

In debates over environmental issues in Vermont, interest groups arguing against environmental cleanup frequently ask why Vermont always has to be first, and then characterize Vermont as hostile to business. More than once, Vermont has been first. Vermont spearheaded statewide operational stormwater permitting in the 1970s. And, as noted above, the Vermont Water Resources Board decided a string of cases that led the nation in stormwater management.

But the argument about what Vermont is doing to manage water pollution compared to other states is mostly pointless. For one thing, Vermont is not always first. Douglas Administration officials seriously discussed abandoning to EPA Vermont's delegation to administer and enforce the Clean Water Act.¹³⁰ Vermont was the last state in the nation to implement the federal multi-sector permit for stormwater runoff from industrial sites. And Vermont lagged behind other regions in permitting municipal separate storm sewer systems (MS4s). While Vermont's state stormwater system is unique, many other jurisdictions regulate stormwater in their own way, for example, by municipal ordinance or through the MS4 permitting process. Moreover, as detailed above, Vermont has often ignored or mismanaged its environmental laws. The Water Resources Board issued a series of cutting-edge decisions on stormwater law because insightful environmental groups appealed important violations of the law on the part of ANR.

Vermont does need to be mindful of its regulatory climate. And Vermont can, and should, look to other states for lessons learned. The important point, however, is not what Vermont may be doing to protect its environment compared to other jurisdictions, but what Vermont needs to do to manage its environment responsibly.

Can Vermont move beyond green rhetoric and project funding to pollutant budgeting and environmental and financial accountability? Doing so will not be easy or cheap. The Chesapeake Bay, for example, is just about lost, in spite of massive efforts to save it.¹³¹ This section looks at how the Third Way can be replaced by a Way Forward.

130. See S. S. Res. 13, 246761st Sess. (Vt. 2010), available at <http://www.leg.state.vt.us/docs/2010/resolutn/SR0013.pdf> (The Democratically-controlled Senate felt compelled to pass a resolution discouraging the notion of abandoning the administration of the Clean Water Act in Vermont to EPA.).

131. See, *The Clean Water Act Returns (Again): Part I, TMDLs and the Chesapeake Bay*, (Mar. 2011) 41 *Envtl. L. Rep.* 10208 (*Envtl. Law Inst.*), available at <http://www.eli.org/pdf/41.10208.pdf> (explaining how, after its efforts to update federal TMDL regulations nationwide failed in the face of political opposition, EPA decided to try a more targeted approach and developed special TMDL

The argument about water pollution control is no longer really as much about law or science as it is about societal values. There is serious concern about whether the people of Vermont, as well as those of other states, will actually be willing to do what is required to reverse water pollution trends. The human brain is not especially good at planning for long-term consequences, and people in general are not particularly adept at recognizing their own roles in contributing to problems resulting from multiple sources.¹³² The financial and regulatory burden required to curb water pollution has already been enormous, and a serious effort to manage stormwater will only make this burden heavier.

When Tropical Storm Irene deluged Vermont in late August, 2011, the damage to highways and railroads, not to mention private property, ran into the hundreds of millions of dollars. Bridges and culverts were destroyed, railroads were washed out, and miles of highways collapsed into rivers and streams. Entire communities were cut off, with no way in or out. To meet the emergency, regulatory agencies suspended permitting altogether or followed streamlined emergency permitting procedures, which sometimes involved regulatory approval by telephone.

The speed and efficiency with which public and private transportation workers repaired the damage before the onset of winter was nothing short of heroic. And as Vermonters have reflected on the storm and its aftermath, one of the big takeaways has been how much faster, less expensive, and less frustrating it is to get work done without environmental regulations. In the aftermath of Irene, workers repaired or replaced transportation infrastructure in a matter of months, when the same projects would have been locked up in permitting for years or even decades under normal circumstances. It is possible that, in some instances, repair or reconstruction may have overreached and resulted in unnecessary dredging, armoring, or straightening of rivers and streams in the absence of regulatory oversight.

regulations for the Chesapeake Bay). *See also*, Oliver A. Houck, *The Clean Water Act TMDL Program V: Aftershock and Prelude*, (Apr. 2011) 32 *Envtl. L. Rep.* (Envtl. Law Inst.) 10385 (discussing EPA's failed efforts to amend the TMDL rules). If the new regulatory approach to restoring TMDLs gets any traction, perhaps Lake Champlain will be next, especially if Vermont and New York cannot significantly reduce the lake's phosphorus concentrations under the currently structured federalist approach to water pollution control.

132. *See generally*, Daniel D. Dutcher et al., *Landowner Perceptions of Protecting and Establishing Riparian Forests: A Qualitative Analysis*, *SOC'Y & NATURAL RES.* 329, 329 (2004) (finding that riparian landowners on the one hand, feel a community obligation toward responsible land management, but on the other were reluctant to abandon their "ordered landscapes.").

Nevertheless, Irene served to highlight the burdens of environmental regulation.¹³³

Vermonters might decide that it is not worth the money or the perceived loss of individual freedom to make Chittenden County's urbanized streams fishable and swimmable. That may be a legitimate debate. Under the Clean Water Act, however, this debate is supposed to happen explicitly. Right now, it is not happening at all. Instead, government officials have long proclaimed their commitment to clean water while they have allowed at least certain waterways, including Lake Champlain, to languish.

If achieving the goals, or uses, of these waterways set forth by the Vermont Water Quality Standards is not worth the effort, then current law requires the state to perform a *use attainability analysis*, or UAA.¹³⁴ The UAA would take a rigorous look at the costs and benefits of cleanup and make an explicit determination of whether or not the cleanup is worth the cost. An UAA would require government officials to formally write off waterways, and, significantly, to acknowledge having done so. So far, it has been easier politically to take Governor Douglas' Third Way—a murky position somewhere between genuine cleanup and official surrender—and show the people all the government is doing to address water pollution while the state's water resources continue to suffer under unsustainable loads of stormwater runoff. One is reminded of Vermont's Republican U.S. Senator, George D. Aiken, who famously advised President Nixon that the way to end the Vietnam war was to simply “declare victory and go home.”¹³⁵

While Vermont could conceivably write off some of its urbanized streams, and doing so might be within the realm of reason, the tragedy of abandoning Lake Champlain—or even parts of it—to excessive loads of phosphorous would most likely prove unpalatable to most Vermonters. So, with regard to Lake Champlain, Vermont has two choices. The easy way, which will not do much for the lake, will be to continue to throw lots of money at the problem, to allow the endless meetings of experts and stakeholders to carry on, and to (disingenuously) assure the public that the government is taking a balanced approach. The second choice, requiring

133. See generally ALTON CHASE, IN A DARK WOOD: THE FIGHT OVER FOREST AND THE NEW TYRANNY OF ECOLOGY (Houghton Mifflin 1995) (exploring the clash between environmentalists and loggers in the Pacific Northwest).

134. 40 C.F.R. § 131.10(j) (1992).

135. *George Aiken: A Featured Biography*, UNITED STATES SENATE, http://www.senate.gov/artandhistory/history/common/generic/Featured_Bio_Aiken.htm (last visited July 15, 2012).

greater sacrifice and greater political will than has been evident to date, is to implement and enforce a rational system of pollution budgeting.

Balance—while politically expedient—is a dangerous concept in the area of environmental protection. In establishing goals for natural resources management, balance is entirely appropriate. For example, the Vermont Water Quality Standards do not require Lake Champlain to be restored to pristine natural conditions. The legal goal is simply to reduce phosphorous loads to the point that algae is not destroying the lake's recreational values. However, balance becomes dangerous when trying to achieve goals already established by law. Consider the following: balancing wetlands protection means that, as a practical matter, every wetland has a half-life. When a dispute arises, the state surrenders half the wetland to political pressure—a fair compromise to some. Some years later, 50% of what's left is surrendered, and so on. Balance is the easy way to go—the course of least political resistance.

The harder approach to protecting the lake and many other impaired waters, and possibly the only one that will work, is to organize permitting and other cleanup programs around the water's limited assimilative capacity. Stakeholders could engage in a protracted discussion of treatment techniques and site designs, including, for example: stormwater detention ponds, vegetated riparian buffers, low-impact development, and the like—with little likelihood of achieving a workable consensus. But the latest technologies will not, in themselves, clean up these waterways or ensure that the massive financial investments in cleanup will be wisely directed. The only way to know whether cleanup efforts are properly directed is to organize them around the assimilative capacity of the receiving waters. We cannot determine whether we are doing enough (or for that matter, too much) without back-calculating from the finite assimilative capacity of these waterways to determine the pollutant loads they can handle from their various watersheds. The Third Way, which represents the status quo of polluted waterways and misdirected cleanup efforts, needs to be replaced with the Way Forward, which will involve the accountability that comes with pollutant budgeting. Cleanup efforts have stalled, and will remain stalled, because the state continues to avoid creating and following a pollutant budget.

Saving Lake Champlain and other impaired water resources might not be possible without a dramatic change in the political and economic calculus. Witnessing the decline of our natural environment today may be at least loosely analogous to watching westward expansion in the United States during the Eighteenth and Nineteenth Centuries. Many people knew at the time that what was happening was very wrong on many levels, but no

one could actually stop the onslaught. Market forces were too powerful. And so it may be with Vermont's Water Resources. These waterways have unalterable physical limits, and exceeding those limits is a case of market failure. It would be extraordinary indeed if our society found the vision to coordinate and cooperate enough to organize development around those limits. But extraordinary or not, pollutant budgeting is probably the only option for preventing the further decline of the water quality in Vermont.

The preservation of Lake Champlain and Vermont's other streams and lakes will entail more than just increased spending of public money. It will require imposing limits (including outright prohibitions) on certain anthropogenic activities—saying “no” to economic development or expansion when they result in the introduction of pollutants beyond the receiving water's assimilative capacity. Organizing management efforts around the needs of the natural resource, rather than the needs of dischargers, causes many people extraordinary psychological discomfort. We all live at the centers of our own universes. Asking people to start thinking about the needs of other people and natural resources, rather than their own objectives and self-interest, challenges people's priorities in a fundamental way. Some people become angry and upset when you start speaking in these universal terms. Many people do not readily accept that water resources are not some “other,” but rather are integral parts of our common community and of the heritage we will leave for generations to come.¹³⁶ In any event, and as a practical matter in this context, most people simply want to know what they need to do to get a permit, and they do not like hearing “no” for an answer.

Vermont, like other jurisdictions, has reached a kind of stalemate on water pollution control. Regulatory agencies, NGOs, and businesses have locked horns. Businesses may cut regulatory corners to stay competitive, or make good faith errors in the byzantine permitting process, making any particular project vulnerable to legal challenge by environmental groups or even competitors. NGOs compete for money and social status, thereby adopting the same orientation toward power and finance that drives the problems they aim to resolve. Regulatory agencies are caught in the middle.

Researchers are discovering that providing information to the public about bigger-than-self issues—like the pollution of public water resources—typically fails to influence those whose worldviews conflict with the information provided. To break the stalemate over the

136. See generally, Daniel D. Dutcher et al., *Connectivity with Nature as a Measure of Environmental Values*, 39 ENV'T & BEHAVIOR 474, 474 (July 2007) (correlating, statistically, universalism values with environmental concern and behavior).

environment, the task ahead may be to learn how to discuss—and influence—the competing values that lead to or away from concern about the environment and willingness to support coordinated environmental protection programs.¹³⁷ To get ahead of water pollution, Vermonters may need to engage in this discussion of how our deep frameworks foster or impede our willingness to sustainably manage our natural resources.

Real courage will be required to reverse water pollution trends in Vermont. Political philosophy matters. In its more extreme forms, the conservative anti-government philosophy has been bad for the environment at the national level, and it has been bad for the environment in Vermont. For Vermont's water resources to have any hope, Vermonters, as a whole, need to embrace a genuine environmental ethic, and must believe that government can and must act on behalf of the people to protect the state's water resources for the common good. To provide just one rather glaring example of our failure to accept limits, we have spent over \$100 million¹³⁸ on the effort to cleanup Lake Champlain, but we still allow cows in streams. Realistically, we cannot have large numbers of cows defecating in streams and trampling streambeds and banks and expect to have clean water.

Fencing livestock out of riparian zones should be low hanging fruit in the effort to reverse water pollution—a the top priority. Farmers may complain that protecting riparian zones will take valuable land out of production and may require the construction of alternative sources to water animals. Vermont will need to decide whether it can afford to cover all or part of these losses, let more farms go out of business, or leave the farmers alone and live with the polluted runoff. It seems very unlikely that Vermont can continue to allow animals to wander in and out of riparian zones and enjoy clean water at the same time. Other examples of these kinds of tradeoffs, involving agricultural, residential, and commercial lands, abound.

Environmental laws need to be realistic in scope and fairly and effectively administered and enforced. One way to implement TMDLs fairly is through stormwater utilities. Stormwater utilities, which can be operated at the municipal or the state level, can assess fees against property owners based on the amount of impervious surface, or effective impervious surface, they own, and then apply these fees to implement TMDLs on a watershed-wide basis. In this manner, the costs of cleanup are distributed equitably, according to the extent to which property owners contribute to

137. Tom Crompton, *Common Cause: The Case for Working with Our Cultural Values*, 9 (World Wildlife Fund, et al. eds., 2007), available at http://assets.wwf.org.uk/downloads/common_cause_report.pdf.

138. Kathryn Flagg, *supra* note 35.

the problem, and cleanup responsibilities do not impact landowners disproportionately.

Tools and techniques, however, will not be enough to bring water pollution under control. The public must embrace the public policy goals that underlie water pollution control laws and demand their application. Existing water pollution control laws are not perfect, but they are generally pretty good. The problem is that too often the government does not fairly enforce or apply them. The history of the Clean Water Act, both in Vermont and across the nation, could be written as the story of the lawsuits that government agencies have fought and lost. In Vermont, as elsewhere, the idea of enforcement discretion has evolved from a way to implement sensible priorities to a way of simply ignoring inconvenient environmental laws. Qualified, fair-minded officials need to look at these laws in a straightforward way, take these laws to mean what they say, and do what these laws demand. Distorted, politically motivated legal interpretations papered over with misleading media sound-bites might buy political capital, but, ultimately, they discredit the government and destroy its ability to make the law work. To make matters worse, gaming the system in favor of special interests makes the law more confusing and less predictable, inevitably gumming up the permitting process through lawsuits and legislative battles. If Vermonters truly want clean water, then they need to let their water pollution control laws work.

At an absolute minimum and as a first step, Vermont has to stop working against EPA and the environmental advocacy community, and instead work collaboratively to restore and maintain the quality of Vermont's waters. The responsibility for protecting Vermont's water resources cannot be stove-piped at ANR and other government offices. Rather, a genuine environmental ethic needs to be woven into the fabric of government as a whole. ANR needs to be adequately funded, and the Agency needs to work cooperatively with other executive agencies and the widest range of stakeholders.

Restoring and maintaining Vermont's water resources will require a strong planning component. Act 250 and municipal planning can be used to implement TMDLs. Local, regional, and statewide planning can, and must, consider the assimilative capacity of receiving and downstream waterways. The development community needs to be realistically engaged in the design, funding, and implementation of cleanup plans. The prevailing approach from commercial interests of demanding the government to "just tell us what to do" is not enough. If a TMDL limits mass-loading into, or from, a particular watershed, then development interests need to be engaged in the discussion of how those limits will be achieved and sustained. If you

give one group some slack, then you need to take it up from another in order to respect loading limits. The development community needs to move from being victims of (and opponents of) environmental laws, to being stakeholders actively engaged in sorting out how pollutant loads will be distributed across landscapes and among property owners. The greatest environmental challenges in Vermont involve the interrelated issues of land use and water quality. The connection between land use planning and water quality protection has been much discussed, but the waterways cannot survive unless planning and pollution control work in concert.

It may be tempting to place the responsibility for reversing water pollution on our elected officials and their appointees, or even agency staff. However, no law can be enforced beyond a point that the people will accept. Natural resource management agencies in Vermont and elsewhere are compelled to be dysfunctional. These agencies function, or fail to function, not because of any institutional inability to do their jobs. State and federal regulatory agencies are staffed by capable and committed individuals who are given a difficult job to do, with limited resources, and are then beset with mixed messages from the public and their political representatives. Agency staff operate in a politically-driven environment characterized by media sound bites, endless meetings, and glacial progress. Zealous agency officials can make some lasting impacts, but sooner or later, if they push too far, they invariably provoke a backlash.

The causes of water pollution are anthropogenic and so are the solutions. Managing waterways is ultimately about managing people. Law and science are tools. People need to put those tools to work—when they are ready.

CONCLUSION

Vermont faces significant and worsening water pollution. In Vermont, as elsewhere, great strides were made in water pollution control in the 1970s and 1980s as the Clean Water Act subjected sewage and industrial wastewater to technological controls. But those gains are now being outstripped by losses brought by stormwater runoff from cities and towns, farms, and ski resorts. Numerous Vermont streams are impaired by stormwater runoff, and segments of Lake Champlain suffer from persistent algae blooms caused by excessive phosphorous loads pouring in from the surrounding landscape.

While Vermont and the federal government have poured millions of taxpayer dollars into the state's water pollution problems, these efforts

cannot succeed without establishing pollutant budgets for the state's impaired waters and managing them according to their limited capacity to assimilate stormwater. To date, Vermont has talked a greener game than it has played. Government officials can point to all the efforts they have made to curb water pollution in Vermont, but those efforts will not realize results without the organizational umbrella of pollutant budgeting. Trying really hard will not clean up Vermont's waterways. Instead, allowable loads from watersheds and sub-watersheds must be established by back-calculating from the assimilative capacity of the receiving waters. Otherwise, it will be impossible to tell whether efforts made in a particular area are too much or not enough, and whether the gains from the application of imperfect treatment technologies and site designs to existing and new development are outstripping the losses from new and increased discharges.

For a generation, government officials have been telling Vermonters what they have wanted to hear—that the state is working to bring Vermont's waters back, but that, at the same time, government regulation and planning will not stand in the way of anyone's economic interest. To prevent Vermont's waterways from continuing to slip away—to reverse water pollution trends—this Third Way needs to be replaced with the Way Forward. Instead of being lulled into thinking they can have everything, people need to accept the hard truths about the state's water pollution problems, and weigh the actions that will be needed to turn them around. Only then can the people of Vermont decide whether they want to bear the burden of resource protection, or to continue to let the condition of the state's public waters decline.