FOREWORD: RESTORING AND MAINTAINING THE ECOLOGICAL INTEGRITY OF LAKE CHAMPLAIN

David K. Mears and Trey Martin[1]

"Q: What do you call 100 lawyers at the bottom of Lake Champlain?
A: A good start."

—Popular joke in Vermont.

"There are two things that interest me: the relation of people to each other, and the relation of people to the land."[2]

—Aldo Leopold

INTRODUCTION

The genesis for this issue of the Vermont Journal of Environmental Law ("VJEL") was a dynamic and informative symposium held on October

1. David Mears is currently Vice Dean for Faculty and Professor of Law. He was Commissioner of the Department of Environmental Conservation within the Vermont Agency of Natural Resources while the Lake Champlain Phosphorus TMDL and implementation plan were being developed by the U.S. Environmental Protection Agency and the Department. Trey Martin is Deputy Secretary of the Vermont Agency of Natural Resources where he has worked since 2012 as an attorney and in his current capacity. The views expressed in this article are theirs alone and do not necessarily reflect the position of the Vermont Law School or the State of Vermont.

2. CURT MEINE, ALDO LEOPOLD: HIS LIFE AND WORK (Madison: Univ. of Wis. Press, 2010).

23, 2015 at Vermont Law School ("VLS"). The symposium was entitled *TMDLs 2.0: Charting a Course for Clean Water* and included presentations from and dialogue among an impressive array of scholars and practitioners in the arena of water-quality-protection policy and law. At a time when the health of some of our most treasured waterbodies across the nation is declining, with significant environmental and economic consequences, the panelists at the symposium discussed the unfulfilled promise of the use of total maximum daily loads ("TMDLs") under Section 303(d) of the federal Clean Water Act ("CWA").[3]

I. SUMMARY OF THE SYMPOSIUM

Two major themes emerged from the conversations at the symposium. In one strand of discussion, the participants asked and debated whether litigation that has driven the development of TMDLs has in turn led to positive results for our nation's waters. In another, the symposium's speakers and the audience also explored ways in which we can reimagine the ways we live on the land in a manner that accommodates a human presence while meeting our shared goal of protecting clean water.

Vermont was an ideal location for this discussion given the state's proud history on environmental issues, engaged citizenry, and a broadly shared desire in this state to protect and promote a landscape of prosperous cities and villages in which our communities are supported by working fields and forests, surrounded by green hills and silver waters.[4] The symposium discussion was also enriched by the fact that the Environmental Protection Agency ("EPA") and the State of Vermont were, at the time of the symposium, in the final stages of the process of adopting a major new TMDL and implementation plan addressing nutrient pollution into Lake Champlain. Additional wind in our sails was the passage of Act 64, referred to as "Vermont's Clean Water Act," in the 2015 legislative session.

As a brief aside, it is worth noting that over the last forty years, and especially the last fifteen, Vermont state officials, legislators, and advocates have given intense focus to the complex environmental, fiscal and practical problems that prevent even small states like Vermont from making progress on large watershed problems like phosphorus pollution in Lake Champlain.

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3. 33 U.S.C. § 1313(d) (2012) ("Each state shall establish . . . the total maximum daily load . . . at a level necessary to implement the applicable water quality standards . . . .").

4. VT. COUNCIL ON RURAL DEV., IMAGING VERMONT: VALUES AND VISION FOR THE FUTURE 25–27 (2009), http://vtrural.org/sites/default/files/content/futureofvermont/documents/Imagining_Vermont_FULL_Report1.pdf [https://perma.cc/AQ9S-VFST].

This experience greatly influenced the legal approach Vermont took in negotiating the new Lake Champlain TMDL with EPA. Vermont also drew heavily on lessons learned around the country including the Chesapeake Bay region. The symposium provided a perfect forum at an ideal time to reflect on Vermont's experience and that of other regions of the country.

On one hand, the TMDL symposium highlighted that recent TMDLs developed for Chesapeake Bay and Lake Champlain are breaking new ground.[5] On the other, participants also discussed the fact that research to date suggests that EPA and state environmental agencies have not been able to demonstrate sufficiently meaningful results even after many thousands of TMDLs have been completed.[6] Other participants critically evaluated whether the major pollution issues in the Mississippi River Basin, toxic chemicals in the sediment of the Spokane River, or pollution associated with agricultural operations could even be addressed using TMDLs.[7] Most

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5. A panel moderated by Vermont Law School Professor John Echeverria entitled *American Farm Bureau v. EPA: Protecting the Chesapeake* featured: Jon A. Mueller, Vice-President for Litigation, Chesapeake Bay Foundation; Richard E. Schwartz, Partner, Crowell & Moring; Nina Bell, Executive Director, Northwest Environmental Advocates; and Mary Jane Angelo, Professor of Law, Alumni Research Scholar, and Director, Environmental and Land Use Law Program, University of Florida Levin College of Law. Vermont Law School, *American Farm Bureau v. EPA: Protecting the Chesapeake*, YOUTUBE (Nov. 25, 2015), https://www.youtube.com/watch?v=8LEaupBEMpo [https://perma.cc/9AXB-Y5XZ].

Another panel, moderated by Vermont Law School Professor Laurie Ristino entitled *The Lake Champlain TMDL* featured: Deborah Markowitz, Secretary, Vermont Agency of Natural Resources; Chuck Ross, Secretary, Vermont Agency of Agriculture, Food & Markets; Stephen Perkins, Aquatic Ecosystems Program Manager, U.S. Environmental Protection Agency, Region 1; Chris Kilian, Vice President and Director, Conservation Law Foundation Vermont; and author David Mears. Vermont Law School, *October 23, 2015 VJEL Symposium: The Lake Champlain TMDL*, YOUTUBE (Dec. 1, 2015), https://www.youtube.com/watch?v=d5oI57qMjhw [https://perma.cc/63WE-YGG2].

6. Dave Owen, Professor of Law, University of California Hastings College of the Law, delivered the morning keynote presentation *After the TMDLs*, with a data rich exploration of the results achieved through TMDLs thus far. Vermont Law School *Oct23 2015 VJEL Symposium Morning Keynote: After the TMDLs*, YouTube (Dec. 9. 2015), https://www.youtube.com/watch?v=koCsT0xHuP8 [https://perma.cc/FT5V-ACU2]; *see also* Dave Owen, *After the TMDLs*, *infra* p.845.

7. One panel, entitled *Cutting Edge Litigation I: Exploring the Gulf of Mexico and Toxics in Washington State* and moderated by Vermont Law School Professor Jack Tuholske included: Richard A. Smith, Managing Partner, Smith & Lowney, PLLC; Richard E. Schwartz, Partner, Crowell & Moring, LLP; and Matt Rota, Senior Policy Director, Gulf Restoration Network. Vermont Law School, *Oct23 2015 VJEL Symposium Litigation I*, YouTube (Nov. 30, 2015), https://www.youtube.com/watch?v=bPuknydJdls [https://perma.cc/4868-S3WG].

Another panel, entitled *Cutting Edge Litigation II: Agricultural Tile Drains and the Effectiveness of TMDLs* moderated by Vermont Law School Professor Laura Murphy included: Charlie Tebbutt, Law Offices of Charles M. Tebbutt, P.C.; Debora K. Kristensen, Partner, Givens Pursley, LLP; Jerry Anderson, Richard M. and Anita Calkins Distinguished Professor of Law, Drake University Law School; and Mark James, Global Energy Fellow in Vermont Law School's Institute for Energy and the Environment. Vermont Law School, *2015 VJEL Symposium: Cutting Edge Litigation II: Agricultural Tile Drains . . .TMDLs*, YOUTUBE (Dec. 1, 2015), https://www.youtube.com/watch?v=2mSP98G_BvU [https://perma.cc/GYM3-VNA8].

participants likely left the symposium partly uncertain whether our national clean water policy is on the right track, but also armed with a rich array of ideas and tools to support a course correction.

II. WHAT IS A TMDL?

Professor Oliver Houck of Tulane University School of Law, one of the nation's preeminent scholars of the CWA and a keynote speaker at the symposium, describes TMDLs as "a water-quality based strategy for waters that remained polluted after the application of technology-based standards."[8] More specifically, he explains the process as follows:

> States would identify waters that remained polluted after the application of technology-based standards, they would determine the total maximum daily loads (TMDLs) of pollutants that would bring these waters up to grade, and they would then allocate these loads among discharge sources in discharge permits and state water quality plans. If the states did not do it, EPA would.[9]

In the strictest sense of the CWA, TMDLs are a regulatory pollution diet born out of a largely mathematical exercise of calculating the necessary reductions in pollutant loads into those waters that are not meeting clean water standards. The acronym (and the underlying phrase) has come to mean much more, encapsulating the obligations of industry, farmers, and landowners subject to the plans, aspirations of clean water advocates, and planning efforts of regulatory agencies, municipal leaders, and state legislators. These groups and others must work together under EPA's jurisdiction to give life to the mathematical requirements of the TMDL, which are often given flesh in implementation plans state regulatory agencies develop in addition to TMDLs in order to achieve the necessary pollution reductions. It was in the spirit of this broader meaning that the TMDL symposium's participants explored opportunities for using this provision of the law to do a better job of addressing the most persistent and difficult challenges facing us as we seek to fulfill the promise of the CWA to "restore and maintain the chemical, physical and biological integrity of the Nation's waters."[10]

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8. OLIVER HOUCK, THE CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY, AND IMPLEMENTATION 3 (1999).

9. *Id.* at 5.

10. 33 U.S.C. § 1251(a).

III. BRIEF INTRODUCTION TO THE LAKE CHAMPLAIN TMDL

In Vermont, we start the second half of the 2010s following an intensive conversation and effort over a period of almost four decades to define a more effective path for protecting Lake Champlain using a TMDL-centered approach.[11] The most recent chapter of this conversation was triggered by an EPA decision issued in January 2011, just days after Professor Mears was appointed Agency of Natural Resources, Department of Environmental Conservation ("DEC") Commissioner by Vermont Governor Peter Shumlin, to disapprove the 2002 State of Vermont Lake Champlain Phosphorus TMDL.[12] EPA's decision was driven, in turn, by a lawsuit filed by the Conservation Law Foundation challenging EPA's approval of the 2002 TMDL.[13] While states typically issue TMDLs, EPA is required by the CWA to issue its own TMDL in the event that it disapproves one issued by a state.[14] EPA and Vermont elected, within that legal framework, to cooperate in the development of the TMDL and redeveloping of the state's implementation plan, sharing information and ideas throughout the process.

Eric Smeltzer and Kari Dolan provide, in two of the articles in this issue, a more detailed explanation of how Vermont and EPA have sought to use the TMDL process to bring Vermonters together in a shared understanding of the data, science, and policy challenges facing the state and region.[15] Smeltzer describes the use of updated data and computer modeling to illustrate the choices necessary to achieve the required pollution load reductions. Dolan describes the public process and collaboration between Vermont and EPA leading to the choices reflected in the state's implementation plan.

As Dolan explains, in addition to technical challenges, legal positioning, and legislative efforts, a major part of the process in the development of the Lake Champlain Phosphorus TMDL and accompanying

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11. *Restoring Lake Champlain*, VT. DEP'T ENVTL. CONSERVATION, http://dec.vermont.gov/watershed/cwi/restoring [https://perma.cc/H8YA-GAN8] (last visited July 8, 2016); Eric Smeltzer, *History of Vermont's Lake Champlain Phosphorus Reduction Efforts*, *infra* p. 615.

12. STATE OF VT., VERMONT LAKE CHAMPLAIN PHOSPHOROUS TMDL PHASE I IMPLEMENTATION PLAN 18 (2015), http://dec.vermont.gov/sites/dec/files/wsm/erp/Champlain/docs/Ph%201_plan_Version_4.pdf [https://perma.cc/G3XT-67XA].

13. *Id.*

14. 33 U.S.C. § 1313(d)(2).

15. Eric Smeltzer, *Technical Explanation of the 2016 TMDL Issued by EPA*, *supra* p. 650; Kari Dolan, *The Importance of Inter-Agency Collaboration and Public Engagement in the Development of the Implementation Plan for the Nonpoint Source-Focused Vermont Lake Champlain Phosphorus TMDL*, *infra* p. 663.

implementation plan was outreach to the public. EPA and Vermont state agencies met with people representing a wide array of perspectives from across the watershed. Participants in the process had the opportunity to offer their ideas for improving the lake, ask practical questions, and express concerns about the feasibility, cost, or desirability of action. Perhaps not surprisingly, the common theme that emerged from those conversations was that Vermonters love Lake Champlain, they grasp the environmental significance, economic cost, and health risks associated with allowing its continued decline and they have many good, some competing, ideas for protecting the lake. Working within this context, state and federal officials worked to develop an approach that was based in science and data, targeted at the most significant sources of pollution, in order to produce measurable results and a healthier Lake Champlain.

Another theme that emerged—less romantic and more specific, but consistent with public expectations for targeted actions—was the shared desire of Vermonters to tackle the major challenge in the Lake Champlain Watershed, namely polluted stormwater runoff. This type of water pollution flows from many sources, including paved and other impervious surfaces in developed areas, unpaved roads, roadside ditches, farm fields, and streambank and bed erosion. Nearly every human activity on the landscape, if not done with care, has the potential to increase the volume and intensity of runoff, carrying nutrient, sediment, and other pollutants, that inexorably finds its way to Lake Champlain. Tropical Storm Irene arrived during the development of the Lake Champlain Phosphorus TMDL and reinforced for the public and government officials the growing scientific consensus that the Lake Champlain region is getting wetter and facing more frequent and intense precipitation events, both rainfall and snowmelt. During Tropical Storm Irene, when three to seven inches of rain fell on Vermont in a twenty-four-hour period, excess stormwater overwhelmed already flooding streams and rivers, streambanks eroded, and massive sediment loading occurred at the mouths of all of Lake Champlain's tributaries.[16]

As is discussed in several of the articles, the fact that polluted stormwater control is still a problem over forty-five years after the passage of the CWA should not be a surprise given that the Act was not clear on the precise mechanism for controlling this category of pollution. Congress did not provide a detailed set of specific technology-based controls as it did for point-sources, such as municipal and industrial wastewater treatment plants. While states are clearly free to enact protections that go beyond the

16. David K. Mears & Sarah McKearnan, *Rivers and Resilience: Lessons Learned from Tropical Storm Irene*, 14 VT. J. ENVTL. L. 177, 178 (2013).

congressional scheme, the Act does not provide specific direction for states nor a clear mechanism for EPA oversight of state action.[17]

Learning that polluted stormwater runoff is the major challenge facing Lake Champlain is also not surprising when you learn that the Lake Champlain Watershed has one of the highest ratios of land to water of any major waterbody in the United States. Nearly ninety percent of the water flowing into Lake Champlain flows across a landscape of farms, working forests, and developed land through a system of rivers that have been significantly altered over time.[18] While the parts of Vermont, New York, and Québec that are in the Lake Champlain Watershed are largely rural, the landscape of this region has been intensively touched by human hands over its history and most of that activity has taken place without an understanding of the impact that land use and development can have on a receiving water like Lake Champlain or regard to practices that might mitigate those impacts. Indeed, Vermont is still learning how to balance development and economic growth with protection for water resources.

The fact that the sources of pollution into the Lake Champlain Watershed are so diffuse and spread across such a wide area can seem overwhelming, but the work of many of the authors in this issue suggest that it should be possible to change the way in which we touch the landscape, such that pollutant loads are reduced to levels that the watershed can assimilate and remain healthy. While returning Vermont's landscape to some pristine state that existed before European settlement is not the goal established by the state or federal clean water laws, there are opportunities to restore the natural functions of many parts of the watershed through conservation and improved methods of building and managing the built environment. Restoring these natural functions through, for instance, allowing more rainfall to infiltrate into the ground, show great promise in reducing pollution. The authors in this issue have collectively identified significant opportunities to invest in protecting Lake Champlain through strategic investments in policies that use this type of approach to protect and preserve Vermont's landscape.

The authors also describe a process for implementing these policies in a manner that creates transparency and accountability. From a "tactical basin planning" process used by DEC to an "accountability framework" imposed by EPA, the State of Vermont has worked with EPA to establish a process that is oriented to action and results. As described in these articles, the

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17. 33 U.S.C. § 1251.

18. *Where does the Phosphorous in Lake Champlain Come from?*, LAKE CHAMPLAIN BASIN PROGRAM, http://sol.lcbp.org/Phosphorus_where-does-p-come-from.html [https://perma.cc/3L5E-FBE2] (last visited July 8, 2016).

TMDL and implementation plan achieve this goal through a system of reporting and feedback with consequences for failing to implement the plan.

Ultimately, for Vermont, the question about the effectiveness of TMDLs can, somewhat cynically, be translated into the more specific question: Have lawyers and decades of legal battles have been good for Lake Champlain? It is true that litigation has driven the development of two TMDLs, one in 2002 by the State of Vermont and one just issued by EPA on June 17, 2016. The immediate outcomes of this litigation, in the form of EPA's recent TMDL and the associated Vermont implementation plan, show promise. If successful, the development of these documents suggest that the CWA can indeed provide a framework for restoring the quality of Lake Champlain. What remains to be determined is a longer-term question: Can the TMDL serve as an effective catalyst for adopting new land use and watershed management approaches that will serve as lasting solutions and not just short-term fixes?

IV. ORIGINS OF THIS VJEL ISSUE

At the conclusion of the symposium, authors David Mears and Trey Martin agreed that the dialogue that took place was important—both for Vermonters working to address Lake Champlain's pollution problems and for those across the country trying to use TMDLs in similarly challenging circumstances. With the Lake Champlain Phosphorus TMDL now complete and the experience of working with EPA, other state agencies, communities, and organizations across the state still fresh in our minds, we also wanted to capture the energy of other participants in the process.

Participants in the symposium heard a tension—one that we hope is expounded in this VJEL issue—between some of the recent successes in using TMDLs to drive action, such as in the Chesapeake Bay and Lake Champlain on the one hand and a lack of success when viewing the effects of TMDLs nationally. In Vermont, for example, the dialogue has been a constructive one. As is described in the articles contained in this issue, EPA and Vermont are engaged in the most ambitious program yet undertaken to restore Lake Champlain. Though it is a program that will require a sustained focus of time and resources to be successful, the Lake Champlain TMDL and state implementation plan represent important progress.

In contrast, at the national level, the uncertainty about the effectiveness of TMDLs has become a topic for debate and calls into question the effectiveness of the effort by clean water advocates to galvanize states to

more effectively protect clean water using TMDLs.[19] Further, questions about the effectiveness of TMDLs, combined with litigation and controversy surrounding the Chesapeake Bay TMDL, have become part of a broader political discourse about the role of the federal government in protecting clean water.[20] The adoption of new federal rules defining CWA jurisdiction,[21] the legal challenge to the Chesapeake Bay TMDL,[22] legislation being considered in Congress to rollback CWA protections,[23] and lawsuits across the country challenging federal efforts to protect clean water[24] all reflect this broader debate about the role of the federal government and implementation of the CWA.

Underlying the conversations at both the state and federal level is an ideological struggle over the role of the federal government in decisions that involve the intersection of national interests in streams, rivers, and lakes and local interests in the land use decisions that impact those waters. Professor Mears touches on the issue of the appropriate balance between federal, state, and local authority in describing the ongoing litigation over the Chesapeake Bay TMDL, but for the most part, the articles in this issue do not side one way or the other on this debate. Our own assumption is that

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19. Dave Owen, *After the TMDLs*, *infra* p. 845.

20. U.S. GOV'T ACCOUNTABILITY OFFICE, CLEAN WATER ACT: CHANGES NEEDED IF KEY EPA PROGRAM IS TO HELP FULFILL THE NATION'S WATER QUALITY GOALS 17, 22, 26–37 (2013), http://www.gao.gov/assets/660/659496.pdf [https://perma.cc/Y6KA-PDK4].

21. *See, e.g.*, Russell Wilson, *Wetlands Determinations – Uncertainty for the Clean Water Rule?*, JDSUPRA BUS. ADVISOR (July 7, 2016), http://www.jdsupra.com/legalnews/wetlands-determinations-uncertainty-for-15857/ [https://perma.cc/5GX9-QFEV] (discussing Supreme Court precedent and rulings that have shaped EPA's and the Army Corps of Engineers' jurisdiction under the CWA)

22. *See, e.g.*, Karl Blankenship, *Supreme Court Refuses To Hear Bay Cleanup Challenge*, BAY J. (Feb. 29, 2016), http://www.bayjournal.com/article/supreme_court_refuses_to_hear_bay_cleanup_challenge [https://perma.cc/NZQ8-N3W8] (recapping the American Farm Bureau Federation's challenge alleging that the Chesapeake Bay TMDL is the "federal government [] effectively seizing land use authority from state and local governments")

23. *See, e.g.*, *House Looks To Roll Back Clean Water Protections*, S. ENVTL. L. CTR. (Jan. 11, 2016), https://www.southernenvironment.org/news-and-press/news-feed/house-looks-to-roll-back-clean-water-protections [https://perma.cc/W5MS-7VJW] (discussing bills in the U.S. House of Representatives that would effectively prevent EPA and the Army Corps of Engineers from moving forward with the new Clean Water Rule and prevent them from clarifying the waters that are under CWA jurisdiction)

24. *See, e.g.*, Sabrina Eaton, *Ohio Sues U.S. Environmental Protection Agency over New Water Regulations*, CLEVLAND.COM (June 29, 2015), http://www.cleveland.com/open/index.ssf/2015/06/ohio_sues_environmental_protec.html [https://perma.cc/Q5CF-3VFY] ("The lawsuit DeWine submitted to the United States District Court for the Southern District of Ohio is among a flurry of challenges to the rule that were filed today in federal courts."); Press Release, Ctr. for Biological Diversity, Lawsuit Challenges Loopholes in New EPA Rule Exempting Wetlands and Streams from Clean Water Act Protections (July 22, 2015), https://www.biologicaldiversity.org/news/press_releases/2015/clean-water-act-07-22-2015.html [https://perma.cc/S7XC-U4KB].

collaboration among local, state, and federal officials is critical to ultimate success and, consequently, that federal authority and resources will remain an important backdrop to meaningful progress, even as state and local officials, legislators, and advocates work to implement both federal and state laws in a cost-effective and strategic manner.

This issue also reflects our bias that limiting the dialogue to just the legal and policy considerations is insufficient. It is axiomatic that solving environmental problems requires an interdisciplinary approach. This is nowhere more true than in large watersheds where technology and innovation, law, policy, and science must all come into play to forge successful outcomes. While lawyers have an important role to play, the work of scientists in understanding the nature of the water pollution challenges we face is fundamental to ensuring that our policies and laws are targeted correctly. Sophisticated policy experts and dedicated public officials and legislators are needed who will listen to both scientists and to the broader public in order to develop effective solutions that can maintain long-term investments in governmental authority and resources. Finally, the dialogue is incomplete without the foundation for action by developers, builders, forest managers, and farmers developed by engineers, planners, and others responsible for designing the landscape-scale solutions we need to fully restore our nation's waters.

V. GOALS OF THIS VJEL ISSUE

This issue is designed to broaden the dialogue started at the symposium in October of 2015 to incorporate perspectives and ideas from as many of the relevant professions as possible within the constraints of time and space. As you peruse the list of articles, you will see contributions from a diverse collection of authors including scientists, engineers, and public policy experts from a range of backgrounds including public, private, and non-profit organizations. These authors are, in addition to being innovators in their fields, also fully engaged in both designing and implementing the work of restoring Lake Champlain. As editors, we have not so much strived to represent a diversity of public policy perspectives or ideologies as to gather a diversity of perspectives based on our contributors' professional backgrounds and hands-on experience with the topic.

If not already evident, we want to be clear that we have assumed that our readers share our perspective that it is important and necessary to find ways to achieve the goals of the CWA to restore and maintain the ecological integrity of our nation's waters. It may also be evident that we share a strong sense of optimism that Vermont is on the right track for restoring Lake Champlain. In full disclosure, we are personally invested in

the success of the state's current path given our participation in its development.

The ultimate goal for the editors and authors of this issue is to contribute meaningfully to a dialogue that has been underway for several decades in Vermont and nationally about how to restore clean water to our most precious estuaries, bays, lakes, and river systems. Each of the articles is intended to stand alone, but together, they offer a glimpse into the deeper levels of and connections between the legal, policy, scientific, and other areas of inquiry necessary to understand the challenges and opportunities of the Lake Champlain watershed.

This issue does not— and could not—accomplish our greatest aspiration: a compendium of all of the information necessary to solve all of the challenges facing those who would restore Lake Champlain. For one thing, though our understanding is growing by leaps and bounds, much of that information does not yet exist. We will continue to learn from our mistakes and continue to refine our approaches to adapt to what we learn. Another reason this issue cannot serve as a complete instruction manual is that we would fill a set of volumes approaching a full set of the *Encyclopædia Britannica* if we tried to capture the full array of knowledge necessary to address water pollution across a landscape as large and complex as the Lake Champlain Watershed. As it is, we leave gaps in important areas such as cost-benefit and macro-economic analyses, forest management and health, consideration of invasive species, atmospheric deposition of pollutants, and the effects of pharmaceuticals and endocrine-disrupting toxins. We hope, however, that readers find this a useful start and find both inspiration and helpful insights for their own work, whether in the Lake Champlain Watershed or elsewhere. We also hope, and expect, that others will develop responses and provide information to fill gaps in perspective and knowledge.

CONCLUSION

The CWA and the litigation leading up to the establishment of a new TMDL for Lake Champlain, along with the Vermont implementation plan are an important, but insufficient, part of the progress to date. Municipal governments, transportation agencies, farmers, developers and business owners, watershed groups, conservation districts, and many others have taken important steps to reduce pollution into Lake Champlain over the past decade.

The ultimate long-term success of the Lake Champlain Phosphorus TMDL depends, however, upon on a much larger number of organizations and citizens across the Lake Champlain Watershed to engage, building on

past lessons and rolling up their sleeves, to solve the real but manageable challenges facing us as we implement the plans developed under the auspices of federal and state clean water law. This is also true for other major and minor watersheds across Vermont and the nation. Our hope is that this issue provides a helpful explanation of how this work can be done for Lake Champlain and other waters across the country. We also hope that we have contributed ideas for ways that other states and the federal government can adapt and improve the existing structure established by the CWA.