

EDITORIAL

Toward a “Better Understanding” of the Great Lakes Basin Ecosystem

Chris McLaughlin* and Gail Krantzberg

*Dofasco Centre for Engineering and Public Policy
McMaster University
Hamilton, Ontario L8S 4K1*

That the purpose of the Great Lakes Water Quality Agreement (the Agreement) is to “restore and maintain the physical, chemical, and biological integrity of the waters of the Great Lakes Basin Ecosystem” will certainly be familiar to anyone acquainted with the document. It is perhaps the most oft quoted text from the Agreement throughout the body of literature that has built up concerning it. In contrast to the ubiquitous mention of the purpose, however, is the neglect of the means by which the Agreement instructs that the purpose is, in large measure, to be met: through a “better understanding” of the Great Lakes Basin Ecosystem (the Basin). We focus here on the implications of our collective failure to emphasize this instructional phrase and suggest a critical role for a “better understanding” to be considered during the present review of the Agreement.

The phrase “better understanding”—and the spirit that it embodies—has not received adequate attention in efforts to restore and maintain the waters of the Basin. This is no trivial matter. While Great Lakes researchers have made unquestionable gains advancing our understanding of ecological form and function in the Basin, the importance of a social science for Great Lakes sustainability must be equally up to the task. The issue is that while research has improved our knowledge of individual

aspects of the Basin, we continue to lack flexible institutional structures that would enable us to synthesize and learn from that research. These structures will be required so as to form coherent policy based on a systemic, “better” understanding of sustainable systems.

Botts and Muldoon (2005) have suggested that the Agreement allows for flexibility, for example, in requiring a periodic review (Article X(4)) that permits adjustments to the policy and programs

under changing conditions, or where scientific research solves known or reveals new problems. While technically this is true, there is little evidence outside of, for example, Annexes 2 and 15, to suggest that in the spirit of a “better understanding” this, in fact, is

the reality. The Agreement was revised in 1987 and called on the parties to meet twice yearly to coordinate their respective work plans and to evaluate programs. Consequently, the role of the International Joint Commission (IJC) was diminished. Since the establishment of the Binational Executive Committee (BEC) in 1991, there has been no evaluation by the governments of the effectiveness of BEC or the IJC and its institutions. On the question of whether this revision has been helpful or harmful there has been little if any formal inspection. Will the upcoming review of the Agreement look back at 1987 to examine the consequences of these changes for Great Lakes governance under the Agreement?

The phrase “better understanding”—and the spirit that it embodies—has not received adequate attention in efforts to restore and maintain the waters of the Basin.

*Corresponding author. E-mail: chris.mclaughlin@mcmaster.ca

Discord over the most effective scope for the Agreement or its correct amount of inclusivity of issues has also occurred on these pages. Postulating simple cause and effect relationships will not make the actual existing problems and emerging stressors in the Basin any less complex and uncertain. While we concur with Minns and Kelso (2000) that the argument of Bowerman *et al.* (1999)—that chemical injury must remain the principal focus of the Agreement—is too restrictive in scope, we believe that the increasingly complex nature of the issues now demands an even further evolution of our ecosystemic response and means of institutional learning.

One of us has argued previously on these pages that the interface between science and policy is fundamental to achieving sustainability in the Basin (Krantzberg 2004). It was suggested that scientists and policymakers commonly disengage because they lack sufficient appreciation for the other's domain (*i.e.*, "the scientific community tends to consider the 'resource' as the starting point and the policy maker considers the 'social consequences' of resource use as a starting point"). The promise of the synergistic engagement of these two realms—theory and practice, research and policy—has motivated the IJC's Science Advisory Board (SAB) to call for greater integration between science and policy. A better understanding will only come from a governance model that fosters learning.

The SAB's 1999–2001 contribution to the IJC's Priorities Report (IJC 2001) recommended that the IJC "comprehensively identify and review emerging issues." A principal objective of the SAB's emerging issues workshop in 2003 was to identify "specific initiatives that represent the most promising future opportunities for sustaining progress under the Great Lakes Water Quality Agreement" (IJC 2003). The workshop went on to conclude that the current governance structure is fundamentally unable to stop new and re-emerging stressors. The SAB has recently suggested that the Agreement should be examined for opportunities to provide "greater integration" between science and policy. It contends that there has been a tendency for science and policy to be "overcompartmentalized, with policy frequently lagging behind current scientific understanding." Further, the SAB identified the need for "greater institutional capacity" and to "reduce scientific uncertainty." We allow that the Bowerman *et al.* view could prove instructional, but this again underscores our point: that we must alter our governance structure to ensure that improved science does, in fact, lead to a "better understanding,"

because we are unable to form ecosystemic conclusions and responses given the institutional machinery currently in existence.

The traditional *modus operandi* in resource management has been to fine tune existing programs and policies. We assert that fundamental changes in institutional sensibilities are required for sustainability, where sustainability is viewed not necessarily as an identifiable end point but as a process of continual reexamination and redefinition of best practices. Institutions essentially impose structure and constraints on our activities, and our current institutional arrangements reflect the erroneous prevailing view that resources can be managed effectively and sustainably as discrete entities in isolation from the ecological, economic, and social systems in which they are embedded. This view is not only erroneous, it is disquieting because vibrant ecosystems underlie all economic and social gains. Improving and sustaining natural resource systems will require a reinvention of institutions that facilitate learning from a capacious perspective.

The Agreement was (and continues to be) hailed as a beacon of international cooperation in addressing shared environmental degradation. At its signing in 1972, Canadian Prime Minister Pierre Trudeau said that the Agreement "promises to restore to a wholesome condition an immense area which, through greed and indifference, has been permitted to deteriorate disgracefully." We argue that this is remarkable for two reasons. First, the "ecosystem approach" was not yet conceived at the time (and would not be incorporated into the Agreement until 1978), and yet his reference to "a wholesome condition" was certainly a harbinger of a much more holistic and enlightened view of ecological problems and their solutions than was then available. Secondly, his reference to "greed and indifference" suggests a tone or attitude toward the utilitarian view of nature that has been, and continues to be, too slowly incorporated into our decision making models. We must build upon these two themes, to both further our understanding of the ecological systems upon which we are dependent, and address our attitudes regarding the human place in those systems so as to use that better understanding maximally to achieve a sustainable society.

The opportunity to shift programs and policies to achieve "a better understanding" as directed by the Agreement is an under-recognized opportunity. As we all engage in the review of the Agreement, we must seize this opportunity to renovate our management practices, to achieve gains in our knowledge,

and commit to continually reinspecting and adjusting our management paradigms.

REFERENCES

- Botts, L., and Muldoon, P. 2005. *The Evolution of the Great Lakes Water Quality Agreement*. East Lansing, Michigan: Michigan State University Press.
- Bowerman, W.W., Carey, J., Carpenter, D., Colborn, T., DeRosa, C., Fournier, M., Fox, G.A., Gibson, B.L., Gilbertson, M., Henshel, D., McMaster, S., and Upshur, R. 1999. Is it time for a Great Lakes Ecosystem Management Agreement separate from the Great Lakes Water Quality Agreement? *J. Great Lakes Res.* 25:237–238.
- IJC (International Joint Commission). 2001. *Priorities 1999–2001: priorities and progress under the Great Lakes Water Quality Agreement*. Science Advisory Board, Chapter 2. Available online at [<http://www.ijc.org/rel/boards/sab/pr9901/index.html>].
- . 2003. *Priorities 2001–2003: priorities and progress under the Great Lakes Water Quality Agreement*. Science Advisory Board, Chapter 5. Available online at [<http://www.ijc.org/php/publications/pdf/ID1568.pdf>].
- Krantzberg, G. 2004. Science must inform Great Lakes policy. *J. Great Lakes Res.* 30:573–574.
- Minns, C.K., and Kelso, J.R.M. 2000. NO! It is Time for a Great Lakes Ecosystem Management Agreement that SUBSUMES the Great Lakes Water Quality Agreement *J. Great Lakes Res.* 26:1–2.
- Submitted: 25 November 2005*
Accepted: 8 December 2005
Editorial handling: Joseph V. DePinto