

Renovation and Innovation: It's Time for the Great Lakes Regime to Respond

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Abstract This commentary reports on a project to explore and evaluate options for Great Lakes governance renewal in anticipation of the 2006–2007 review of the Canada–US Great Lakes Water Quality Agreement (GLWQA). The research included expert interviews and scholarly analysis of governance regimes in 2006, leading to a Great Lakes St. Lawrence River Governance Expert Workshop held in June 2007 (Krantzberg et al. 2007). The two authors have been participants and at times leaders in the institutions this commentary addresses, Krantzberg with the International Joint Commission and Ontario Ministry of the Environment and Manno with the New York Great Lakes Research Consortium and Great Lakes United. Our familiarity with the topic and many of the people involved was helpful in gaining participation and is in itself a rich source of knowledge and experience. In discussing a topic of contemporary controversy, it also understandably can make readers question the objectivity of our assessment. We are also trained in social science scholarship and have taken precautions against biasing the outcomes. This is not intended to be merely a presentation of data. We believe our experience is a net asset in addressing these questions but we leave it to the interested reader to review the reports referenced herein and judge for themselves whether our findings are fairly presented.

Keywords Great Lakes · Governance · Interjurisdictional water management · Ecosystem approach · International joint · Commission · Accountability

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1 Setting

The 1972 Great Lakes Water Quality Agreement was a pioneering international agreement that was both realistic in its goals and effective in its outcomes. According to the International Joint Commission's second biennial report (IJC 1984) the GLWQA was "a milestone document, one of the first international statement that technical, diplomatic and administrative approaches to resource management need to be considered in terms of holistic ecological concepts." Many water governance structures around the world have been informed and improved by insights gleaned from experiences in the Great Lakes (Caponera 1985; Teclaff and Teclaff 1987; Caldwell 1990). Many of the features of the Agreement including its ecosystem approach, public participation and collaborative governance have become central principles of the Integrated Water Resources Management approaches in the European Water Framework Directive and many other multilateral water agreements. Almost two decades ago Manno (1993: 7) wrote,

An atmosphere of change in Great Lakes institutional arrangements was encouraged by many forces, e.g., biophysical alterations of the ecosystem; improvements in scientific understanding of ecology, limnology and other relevant sciences; and the evolution of concepts and laws concerning governmental responsibility for the health of ecosystems and public participation in decisions. These forces both environmental and social, are expressed through changes in the institutional structures of governance. The process of change through experimentation and response is sometimes referred to as "social learning." The evolving Great Lakes governance structure is one example of complex partnerships being experimented with through the world.

But as Botts and Muldoon (2005), point out "the past history of success for the Great Lakes regime is clearly at risk in the early years of the new millennium. . . . Challenges to the regime that suggest such risk" include a "lack of communication with other international institutions." In some respects it could be argued that leadership in the Great Lakes governance regime forgot how to learn and adapt. The Boundary Waters Treaty of 1909 with its International Joint Commission to establish ongoing communication and cooperation in water management set the legal and institutional context within which the Great Lakes Water Quality Agreement was negotiated and is implemented and established the 20th century norm for shared watersheds. Yet in a recent article in this journal, Ma et al. (2008) concluded that "for all three main evaluation criteria (enforcement capability, treaty implementation, dispute settlement mechanism) the 1909 Boundary Waters Treaty exhibits the worst performance." pp. 1070–1071 Neda Zawahri (2008), in her review of river basin commissions notes that, "Commissioners can fulfill their tasks when the communicate directly, hold regular meetings, monitor the river's development and possess conflict resolution mechanisms." As these capabilities decline, so does the commission's ability to perform its function. In this commentary we look both to the lessons drawn from the experiences of people with direct experiences operating within and in relation to the Great Lakes governance regime and place these lessons in the larger context of the scholarly analysis and practical experiences of transboundary water agreements.

At its outset The Great Lakes Water Quality Agreement helped build and sustain momentum in each country to address a widespread crisis of algal blooms and fish die-offs and associated beach fouling resulting from excess nutrients, predominately phosphorus, from poorly treated wastes from fast-growing municipalities, agricultural run-off and more. Water quality models helped establish reasonable targets for phosphorus reduction (that were eventually achieved) and each country with its own complex jurisdictional challenges and regulatory cultures independently set about to achieve shared goals. A governance infrastructure was created within the IJC that included a binational Science Advisory Board, for ongoing consideration and interpretation of vast amounts of new scientific data resulting from the increased interest in Great Lakes water quality processes and, a Water Quality Board with high-level representation from state and provincial environmental agencies to consider the scientific evidence, share policy innovations and evaluate progress in achieving shared targets. Concerned citizens and organized environmental advocacy groups recognized this emergent Great Lakes governance system as an important site to which they could bring their perspectives, advocate for their preferred policy approaches and have a reasonable chance to have them considered by decision-makers in both countries. Even as progress in addressing conventional water quality problems were made, science was discovering new dangers in the presence of persistent bioaccumulative toxic chemicals in the waters and sediments of the lakes that were far less visible than fouled beaches but potentially more insidious. While many successful efforts to address this and other water quality problems within the context of the GLWQA, a clear consensus emerges from our project and several others that suggest that the institutional infrastructure of the agreement, that in conjunction with the countless other regional organizations and networks we refer to as the Great Lakes Governance System, clearly needs reevaluation and revitalization. While there is considerable disagreement among our informants and others about the causes of an apparent decline of legitimacy and effectiveness of this governance system (capture by Great Lakes polluting industries, capture by overwrought activists, the inevitable result of increasing complexity of the problems, the inevitable result of inadequate funding, decline of environmentalism as part of the political agenda in both countries, Great Lakes became old news, etc) there is also considerable agreement, even a consensus, on some of what needs to be done. It is to the apparent consensus that we wish to draw attention.

In 2006–2007 a comprehensive review of the operation and effectiveness of the Great Lakes Water Quality Agreement (GLWQA) required of the federal governments of Canada and the United States was initiated with the release of the International Joint Commission's (IJC) 12th Biennial Report in 2004. The IJC began that report imploring the governments to "address a fundamental question: collectively, are policy, program and management efforts sufficient to protect water quality... in the Great Lakes basin and to ensure ecosystem integrity?" (IJC 2004)

The review took place through 2006 and technically finished late in 2007. There emerged a generally shared perspective among a large constituency of the Great Lakes community that addressing governance issues is of paramount importance if any changes made to the GLWQA is to be successfully implemented (ARC 2007). Matters of accountability, transparency, distributed governance and shared decision making are all absent from the current GLWQA, leading to the threat that if not

addressed in a new agreement, an implementation deficit is nearly certain. These issues were addressed throughout the project and are discussed below.

Because 2008 was marked by national elections in both countries, the momentum for renegotiating existing agreements stalled in the face of the widely shared belief that action could only ensue when new leadership was in place. Since then the US and Canada have agreed to begin negotiations on a revised or transformed Great Lakes Water Quality Agreement. This is an important moment to consider the governance issues addressed by our project.

Our informants and Workshop participants, in addition to a number of recent and significant voices agree that governance reform in the Great Lakes is critical to future ecosystemic recovery and well-being in the Basin and that any renegotiation of a GLWQA should produce substantive changes in the governance structure in the Basin (e.g. Jackson and Kraft Sloan 2008 and others). Without “significant and rapid changes, the Great Lakes Agreement is at the brink of irrelevancy,” Botts and Muldoon (2005) wrote following the 12th Biennial Report, and “the Great Lakes themselves [are] subject to an onslaught of existing and new threats without a binational regime in place to deal with them.” The Michigan Environmental Council (2004) called “the failure of [the] institutions [of this regime] to promote the long-term sustainability of the Great Lakes ecosystem... itself part of the problem that must be addressed by a Great Lakes restoration agenda”.

The IJC (2006a) offered advice to the Canadian and U.S. governments to produce a stronger and contemporary GLWQA that accelerates progress, requires greater governmental accountability, and provides for more public involvement. The IJC (2006b) followed with a singular focus on institutional accountability in its 13th Biennial Report, calling for the creation and application of an “Accountability Framework” that is “uncommonly strong... clear, potent, and workable. Notably these issues of participation and accountability have been central and controversial throughout the development and early implementation of the of the European Union’s Water Framework Directive. While a full discussion of the WFD and its similarities and differences with the Great Lakes governance regime is beyond the scope of this article, it is clear that the many of the issues raised by our informants and workshop participants echo those being dealt with in Europe. Like the GLWQA, the EU WFD has adopted watershed and ecosystem approaches that require each River Basin District, the management units adopted by the WFD, to prepare comprehensive River Management Plans similar to the Lakewide Management Plans called for in the GLWQA, with implementation left to the member states. The emphasis on planning begs the question in both contexts of shared responsibilities of who is accountable for achieving objectives, measuring and reporting indicators of success and directing resources toward effective implementation. As (Nilsson and Langass 2006) report about the early stages of WFD implementation, “strict legal requirements to actually achieve joint management are weak.” (p. 304)

Like the discussions in our project, observers and participants debate the appropriate scope of Europe’s River Basin management plans. “The goals of the WFD are ambitious,” Tippet et al. (2005) conclude, “and they and will require changes in behaviour from a wide range of actors and stakeholders in order to be realized. In

addition to the water sector, diverse changes in urban planning, industrial design, architecture, agriculture, infrastructure planning and landscape management will be required. Such changes in behaviour require a shift in understanding, so that people can see the potential value of such changes in terms of their own and their sectors' interests."

2 Methods

The Expert Workshop Report released in October 2007 (Krantzberg et al. 2007) described, and to some extent quantified, opinions of more than 50 Great Lakes science and policy experts who were interviewed by Krantzberg and de Boer between January and May 2007. Those interviews were open-ended, conducted in person, confidentially, and were taped and transcribed. Krantzberg et al. summarized the findings from the interviews and described how at a subsequent meeting, workshop participants reacted to these findings. (The two groups, interviewees and workshop participants, had minimal overlap in their composition.) The report also detailed aspects of the current Great Lakes governance regime that require improvement if "revitalization" of the Great Lakes Basin Ecosystem is to be realized.

This Commentary provides a distillation of the scholarly literature researched and analyzed subsequent to that Workshop, additional reviews of a range of inputs and analyses of the GLWQA, based on the government-led review of the Agreement, and a series of governance papers commissioned by the products of a graduate student workshop course focused on the GLWQA held at SUNY College of Environmental Science and Forestry led by Manno.

We based our analysis in part on interview questions that emerged when examining the literature on management of shared resources, research on institutions and accountability for shared resource management, and professional knowledge of the historic and current state of the Great Lakes regime.

Problems believed to be causal or symptomatic of a decline in the effectiveness of the Great Lakes governance structure are believed to stem from a lack of institutional accountability and responsibility, a lack of inclusion and engagement of non-governmental civic society, and a lack of distributive governance that coordinates and is flexible. In illuminating solutions it will be of central importance that governments establish inclusive procedures to legitimize the decision making. These three themes form the basis for the analysis of other binational or multinational shared-water governance regimes from around the world, mining them for opportunities to reform the Great Lakes regime. These included

- Europe (European Union Water Directive Framework)
- Asia (Mekong River Commission)
- North America (South Florida Water Management District)
- North America (Great Lakes Fishery Commission)
- Middle East (Israel Jordan Water Agreement)

2.1 Key Findings

2.1.1 Monitoring and Reporting on Progress in Meeting the Purpose of the Agreement

Our informants and our review of relevant literature agree that the State of the Lakes Ecosystem Conference (SOLEC), a biennial conference hosted by the US EPA and Environment Canada as a forum to exchange monitoring and research information about ecosystem conditions, has largely replaced the IJC biennial meetings as the forum through which the governments report to each other and the public. Since monitoring and reporting on the state of the lakes also necessarily implies success or failure of GLWQA implementation, the venue and format for such reporting becomes a significant governance issue. Two concerns have arisen as a result of substituting SOLEC for the IJC biennials. First, that it reflects a turn away from performance to state variables and thereby decoupling the monitoring function from the task of assessing progress in achieving the commitments in specific articles and annexes of the GLWQA, and second, the shift has left the governments in the position of reporting on themselves to themselves, bypassing any chance for the IJC and the public to hold governments accountable for achieving the goals and objectives of the GLWQA.

One possible solution would be to revise SOLEC so that the indicators for which SOLEC reports are more directly useful as measures of program success in achieving the specific objectives of a NEW GLWQA and that the reporting is done by “third party” expertise widely respected by the Great Lakes citizenry. Although we find widespread agreement that SOLEC needs improvement, there is no consensus in terms of specific changes or replacements. Differences that emerge reflect different ways to understand the relationship between science and policy. In other words, science describes and policy prescribes. This has been the position of SOLEC’s organizers who have often stated that the purpose of SOLEC is to provide a scientifically sound assessment of conditions not programs, the argument being that the program assessments tend to focus on things managers can measure, such as permits issued, infrastructure built, reports produced rather than on the state of the resource itself. On the other hand, without linking the scientific indicators to policy relevant objectives such as those in a revised GLWQA, the data provided lacks the context that gives it meaning. Further, with no indicator endpoints identified, a state descriptor lacks context for where within a continuum of conditions the state exists.

Consistent with the notion of distributive governance is distributed accountability. One idea that emerged from our informants and participants’ discussion of the Reporting and Accountability functions in the Great Lakes regime is to focus progress reporting at the level of the Lakewide Management Plans (LaMPs) and to focus the link between science and policy at the level of the management plans with a stronger linkage to watershed planning and Remedial Action Plans (RAPs). As noted previously this is consistent with the reporting strategy of the EU’s water framework directive and its River Basin Plans. But unlike with the WFD, there is the additional need for reporting and accountability at the Agreement level. The GLWQA and its RAPs and LaMPs have been developed in a unique historical, geographical and ecological context of multiple watersheds and ecosystems linked together in a single Great Lakes Basin Ecosystem. As our project concluded, in the

Great Lakes context any devolution of accountability to the level of LaMPs and RAPs need also to be integrated into a larger framework of Great Lakes governance. Ecosystem conditions could be reported on a lake by lake basis then relying on SOLEC as an opportunity to assess overall basin quality based on a much more limited number of indicators that have meaning to the public and policy makers.

Have the responsibilities for reporting reside with the agencies, not a third party, this is the right scale and with the right partners.

Monitoring and reporting must remain the responsibility and obligation of the agencies, third party reporting weakens accountability

While there was little enthusiasm for an independent third party to monitor and report on ecosystem conditions under a revised GLWQA, our graduate student workshop course uncovered a growing interest in intergovernmental scientific panels operating under the terms of international environmental agreements. The most well known example is the Intergovernmental Panel on Climate Change that won a Nobel Peace Prize for the impact of its reports that have helped stimulate global interest in the impacts of climate change. Quasi-independent as a result of its diverse source of funding and consisting of scientists appointed by governments, the IPCC is a semi-official, but demonstrably independent scientific advisory body. In one of the papers on Great Lakes governance commissioned by the IJC, McCaffrey (2005) recommended elements of a new Great Lakes institutional arrangement that included a binational scientific body independent of two governments to monitor present conditions, anticipate future stressors, and prepare regular reports for the IJC and the Great Lakes community. We found no interest in having the IJC itself fulfill this function.

3 Engagement of Civil Society

Civil engagement in environmental restoration and protection is crucially important, both socially and economically. This was supported by another theme that clearly emerged from our workshop, interviews and literature review; that is, the need to reengage broad and informed citizen participation. Throughout our research we encountered a strong consensus that that citizen activism related to the GLWQA and to the IJC's water quality responsibilities have declined significantly over the past decade or more. This decline represents a significant loss of what scholars call "Social Capital," those networks, shared norms and reservoir of trust built up over years of working across jurisdictions, interests and disciplines to coordinate and cooperate on GLWQA activities. In economic terms, as Pahl-Wostl et al. (2007) point out "it can be argued that, the higher the social capital in a given social context, the lower the transaction costs needed in the provision of a public good such as "environmental quality or improving ecosystem resilience."

Even while this social capital has depreciated there has been considerable expression of public concern about issues of water level management, out-of-basin water diversion, and near-shore and recreation-related water quality conditions. These

have not, however, focused at the regional and international levels, but have been subject to more local and hands-on expressions of public concern and activism. Given that the overall responsibility for the protection and restoration of the Great Lakes remains binational and multi-jurisdictional, our research suggests a need to reengage public perceptions and public participation at the level of the GLWQA or its replacement.

Newer water governance regimes such as the EU WFD and others influenced by the theory and practice of Integrated Water Resource Management and the principles of the Dublin Conference on Water and Sustainable Development emphasize the active involvement of stakeholders and the general public in contributing local knowledge, responding to draft plans, and actively participating in plan development (Tippet et al. 2005; Ako et al. 2010). Binational management of the Great Lakes basin ecosystem, under the current Agreement, lacks the specificity regarding Public information and consultation as made explicit in the WFD.

Some scholars draw attention to the social construction of shared meanings and values and the fact that environmental knowledge is always contextual to claim that adaptive capacity depends on collaborative forms of decision making and that collaborative governance requires institutional mechanisms for learning and adaptation (Pahl-Wostl et al. 2007). Participatory processes foster and depend on mutual learning. Notwithstanding the multi-jurisdictional context in which the Great Lakes regime operates, there is an explicit need to ensure watershed management engages the constituencies who are impacted or who affect watershed integrity. An adaptive management framework, ongoing civic engagement will be required given that management and policy decisions made in the face of a changing environment under conditions of uncertainty will necessarily have to be amended in time as ecosystem factors and learning means that understanding changes. For example, the EU WFD included citizen engagement in the first river basin management plans and will do so with each successive iteration and review out to the year 2027 (WISE 2010). While several advocates, most notably John Jackson and Karen Kraft-Sloan in their report (2008), have called for a Citizen Advisory Board or a Stakeholder Advisory Board as a new GLWQA institution parallel to the Science Advisory Board and the Water Quality Board with the purpose of representing the public interest, our research did not uncover widespread support for the idea nor have we identified similar boards in other international water agreements. We conclude that, consistent with previous recommendations, the best route for active citizen involvement is at the lakewide and RAP or watershed levels. Our research would support the value of appointing citizen activists with broad experience to the IJC and its existing boards in the future and to create a mechanism for citizen petitions to the IJC similar to what exists in the NAFTA-based Commission on Environmental Cooperation.

4 Transnational Epistemic Communities

The GLWQA with its binational science advisory and water quality boards created conditions in which environmental scientists and managers met frequently, focusing together on a common set of problems, using a common set of tools. The social science literature suggests that transnational epistemic communities tend to self-organize when society recognizes a crisis or major threat but is uncertain about the

causes, severity or possible solutions. Under these conditions, social institutions turn to scientists and create opportunities for scientific and intellectual exchange in search of answers (Haas 1992; Sundström 2000; Hart and Vromen 2008).

Under our proposed new governance structure with a renewed focus on the LaMPs, special emphasis should be placed on developing and supporting epistemic communities. The Lake Erie Millennium Network (<http://www.lemn.org/>) and the way the bi-national scientific community has participated in the Lake Erie LaMP through the network, has been recognized as model for the creation of similar networks for the other lakes. In its 12th Biennial Report on the GLWQA that triggered the current Agreement review the IJC stated that “Lake Erie Millennium Network... is playing a vital and increasingly important role in identifying the issues and research priorities, obtaining the necessary data, and providing the binational forum for exchange of information and reporting,” and recommended that, “the institutional model provided by the Lake Erie Millennium Network should be considered for adaptation and adoption on the other Great Lakes to foster enhanced binational cooperation and communication.” (IJC 2004)

5 IJC Reform

Our research suggests that in significant ways the IJC’s legitimacy and moral authority is closely dependent on the extent that the governments, and the public, trust that its actions are grounded in the best available science well-communicated and objectively applied to Great Lakes management. This is consistent with the findings of the Watershed Partnership Project, a comprehensive study of collaborative watershed governance (Sabatier et al. 2005). It concluded that “the number of activities increases substantially over time and that the partnerships found it easier to agree on, and implement, specific projects than they did to agree on a comprehensive management plan.” The project also found that “success” as measured by the level of agreement and thus effective action is a function of: (1) a perception of a water crisis, (2) the existence of shared norms, (3) the length of time a partnership has been functioning, (4) the level of trust among the partners, and (5) the participation of organizational representatives with the authority to negotiate and make decisions. (Lubell et al., p. 279) These factors have all been present in the Great Lakes governance regime.

That no reference¹ has been given to the IJC under the water quality agreement, notwithstanding the Parties’ intractable problems (such as stopping the invasion of alien species) signals a question of trust and legitimacy. Other perceptions came from

¹“Any questions or matters of difference arising between the High Contracting Parties involving the rights, obligations, or interests of the United States or of the Dominion of Canada either in relation to each other or to their respective inhabitants, may be referred for decision to the International Joint Commission by the consent of the two Parties... In each case so referred, the said Commission is authorized to examine into and report upon the facts and circumstances of the particular questions any matters referred, together with such conclusions and recommendations as may be appropriate, subject, however, to any restrictions or exceptions which may be imposed with respect thereto by the terms of the reference.” (Boundary Waters Treaty of 1909)

our informants that reinforced a retreat from the IJC as the legitimate entity for reporting on the progress of the Parties and engaging civil society:

The IJC does not integrate the issues, it does not seem to have power or influence. If it were not part of the GLWQA would it matter?

The IJC does not have the capacity to stay on top of what is going on. It is not an effective watch dog

6 Regionalism, Nationalism, Binationalism

It's important to design a revised or new GLWQA and its implementation institutions carefully.

The current agreement sets common objectives leaving choices about implementation to each government. Aboriginal, state, provincial and municipal governments are not legally parties to it. Since both federal governments tend to resist region-specific environmental programs as inherently inconsistent and because the Great Lakes ecosystem is both larger than any state or province and smaller than either nation it is inherently difficult to match programs with the constituencies with the most at stake. Some interviewees recommended that Great Lakes programs should be deliberately designed to fit into existing national environmental strategies.

We should look at a national strategy and make the Great Lakes become a part of that strategy.

This approach resonated strongly with government staff interviewed. An example might be a national strategy for water infrastructure renewal for which the Great Lakes region would receive its allocation. But this tends to take Great Lakes governance out of the binational context.

One of our significant findings has been documenting the emergence of a possible consensus on focusing a new or revised agreement at the level of the watersheds within individual lake ecosystems and their respective connecting channels. The importance of LaMPs brought out several concerns about how to integrate the LaMPs with the Great Lakes Regional Collaborative in the United States and the Canada-Ontario Agreement (COA) Respecting the Great Lakes Basin Ecosystem.

I cannot overstate the importance of getting all the agencies to sign onto the Lakewide Management Plans and make significant commitments to implementation.

We should integrate a more disciplined process to link the LaMPs to the Great Lakes Regional Collaboration Strategy and the Canada Ontario Agreement. That might be a way to determine lead responsibilities and timelines.

Some have noted that neither the IJC nor the Binational Executive Committee have demonstrated the ability to mobilize the resources needed. There have been a number of calls for an effective coordinating body made up of senior level administrators, perhaps a revised BEC with a clear leadership mandate that could develop,

implement, review and revise a Great Lakes strategy, something comparable to the US Great Lakes Collaborative's Restoration Strategy but negotiated within the context of a Binational agreement.

7 Final Comments

The consensus opinion is that vigorous public participation and dialogue among all elements of the Great Lakes community must remain a cornerstone of Agreement implementation on many levels. Two channels of communication identified as critical are those 'bottom-up' voices from the public, and those among experts and others with professional knowledge of the science and policy of the Great Lakes—known to political scientists as 'epistemic communities'. Europe's WFD provides for both. The Common Implementation Strategy aids member states by providing Public Participation Guidance Documents to ensure the capacity for an open and transparent process. Plan reviews involve not only administrators, but also require a range of public input, from European Parliament members to academics and social and economic non-governmental organizations. Expert Advisory Forums also aid proposal development, work coordination, offer recommendations, and enhance information exchange.

It has also been suggested on many fronts that the complexity of the problems emerging demands that the structure and tools used to assess and deal with those problems require a new kind of social and scientific learning. For this it is recommended that future forms of governance in the Great Lakes be adaptive. "Adaptive governance institutions can play a significant but limited role" in resolving these emerging problems and "new conflicts that confront the patchwork of federal, state [and provincial], and local agencies," instruct Scholz and Stifel (2005). As we have argued, contemporary management of water resources requires participatory engagement and distributive governance. As opined by Pahl-Wostl et al. (2007), we conclude that "major transformation processes are needed because, in many cases, the structural requirements, e.g., adaptive institutions and a flexible technical infrastructure, for adaptive management are not available." As McLaughlin and Krantzberg (2006) note with respect to coordinative and learning capacity of the Great Lakes governance regime: "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 concept of Adaptive Watershed Management (AWM) is instructive here. "AWM addresses" explains NeWater (2010) "inherent uncertainties associated with management and complexity by increasing and sustaining the capacity to learn while managing. Learning is sustained by an iterative process of testing and improving methods of analysis and management policies and practices." This process of learning results from knowledge gained in experimentation and monitoring results. 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, and adjust our governance structures in a manner that is adaptive and nimble.

A powerful suggestion for raising the profile of Great Lakes issues when and if a new agreement is successfully negotiated is for the President and Prime Minister to

participate in a signing ceremony as Trudeau and Nixon did in 1972 for signing the original agreement.

I think it would be wonderful if you could get the president and prime minister to sign a new agreement, that was the beauty of the 1972 Agreement. It seems to give the agreement more value, more weight.

It would be very desirable and helpful to be able to say that the work is mandated to us by the prime minister signing the Agreement

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