

## **DECISION MAKING REGARDING CONSUMPTIVE USES AND REMOVALS**

### **1. Situation as of February 2000**

This section will briefly attempt to outline selected water management regimes that are now in place in the Basin and some of the changes that are being considered to them. In its 2000 report, the Commission recognized that “water management in the Great Lakes is governed by a network of legal regimes, including international instruments and customs, federal laws and regulations in both Canada and the United States, the laws of the eight Great Lakes states and Ontario and Quebec, and the rights of Aboriginal Peoples and Indian tribes under Canadian and U.S. law, ” and a similar caveat applies here: since it is impossible to offer a full description of existing management regimes, most of which exist at the sub-state/sub-provincial level, this section will focus on select items.

The Commission’s 2000 report devotes considerable attention to the 1985 Great Lakes Charter, a non-binding arrangement among the Great Lakes states and provinces that focuses attention on a number of resource issues in an effort to promote cooperation. The report notes that:

“The Charter provides that the planning and management of the water resources of the Great Lakes Basin should be founded upon the integrity of the natural resources and ecosystem of the Great Lakes Basin. Moreover, the Charter stipulates that the water resources of the Basin should be treated as a single hydrologic system that transcends political boundaries in the Basin. New or increased major diversions and consumptive use of the water resources of the Great Lakes are said to be matters of serious concern, and the Charter states that ‘[it] is the intent of the signatory states and provinces that diversions of Basin water resources will not be allowed if individually or cumulatively they would have any significant adverse impacts on lake levels, in-basin uses and the Great Lakes Ecosystem.’

The Charter provides that no state or province will approve or permit any major new or increased diversion or consumptive use of the water resources of the Great Lakes Basin without notifying and consulting with and seeking the consent and concurrence of all affected Great Lakes states and provinces. The trigger point for notification and for seeking the consent and concurrence of other Great Lakes states and provinces is an average use of 5 million gallons (19 million liters) per day in any 30-day period. In order to participate in this notice and consultation process, jurisdictions must be in a position to provide accurate and comparable information on water withdrawals in excess of 100,000 gallons (380,000 liters) per day in any 30-day period and must have authority to manage and regulate water withdrawals involving a total diversion or consumptive use of Great Lakes Basin water resources in excess of 2 million gallons (7.6 million liters) per day average in any 30-day period.

The Great Lakes Charter also records a commitment by the signatory states and provinces to pursue the development and maintenance of a common base of data and information regarding the use and management of Basin water resources, the establishment of systematic arrangements

for the exchange of water data and information, the creation of a Water Resources Management Committee, the development of a Great Lakes Basin Water Resources Management Program, and additional coordinated research efforts to provide improved information for future water planning and management decisions. Although not fully implemented, these commitments point toward the kind of cooperation and coordination that is required in the future.

On October 15, 1999, the Great Lakes governors issued a statement renewing their commitment to the principles contained in the Great Lakes Charter and pledged to develop a new agreement, based on those principles, that would bind the states and provinces more closely to collectively planning, managing, and making decisions regarding the protection of the waters of the Great Lakes. The governors also pledged to develop a new common standard, based on the protection of the integrity of the Great Lakes ecosystem, against which water projects would be reviewed.

The 2000 Report also covers the Great Lakes Basin Compact, a congressionally approved arrangement that created the Great Lakes Commission and “provides, among other things, for joint or cooperative action to promote the orderly, integrated, and comprehensive development of the water resources of the Great Lakes Basin and to plan for the welfare and development of these water resources.”

In addition, the 2000 Report says that “the Water Resources Development Act of 1986 (WRDA) is a federal law that prohibits any further diversion of water from any U.S. portion of the Great Lakes or their tributaries for use outside the Basin unless such diversion is approved by the governors of all Great Lakes states. It also prohibits federal studies of diversions without the concurrence of the governors. The impetus for the Charter and for WRDA was the concern in the U.S. portion of the Great Lakes Basin, in the early 1980s, that there would be major demands for Great Lakes Basin water from the agricultural and energy sectors of the western and southern United States.”

The 2000 Report acknowledges that several proposals for diversion have been considered by the Governors and Premiers since the signing of the Great Lakes Charter and the passage of WRDA but points out that there has been just one proposal for a new consumptive use large enough to trigger the Charter levels and recognizes that, “consequently, the Charter has not yet provided the impetus for an ongoing conversation among the jurisdictions on the subject of consumptive uses.”

The Commission’s observation on the Charter trigger level led the Commission to a formal conclusion that: “The Great Lakes Charter’s trigger amount for consideration of significant proposed new diversions and consumptive use is too high to encourage the degree of consultation regarding the use of Great Lakes water that is needed to assure the sustainable use of these resources.”

In its conclusions on the Charter, the Commission continued on to say that “the Charter does not require the consent of all Great Lakes states and provinces before allowing a new diversion or

consumptive use to proceed, it does not establish standards for when such consent should be given or withheld, and it does not provide for public involvement during the consultation process.”

The Commission’s 2000 report clearly affirmed the importance of using existing institutions to manage shared waters. Recommendation V says:

“To help ensure the effective, cooperative, and timely implementation of programs for the sustainable use of the water resources of the Great Lakes Basin, governments should use and build on existing institutions to implement the recommendations of this report. In this regard, the governments of the states and the provinces should take action, with respect to the implementation of the Great Lakes Charter, to:

- a. develop and implement, on an urgent basis, the Basin Water Resources Management Program,
- b. develop a broader range of consultation procedures than are currently called for in the Charter to assure that significant effects of proposed uses of water resources in the Great Lakes Basin are assessed, and
- c. ensure that the notice and consultation process under the Charter is open and transparent and that there is adequate consultation with the public.”

With regard to the way existing institutions should manage removals and major new or increased consumptive uses, the Commission offered two major recommendations:

#### “Recommendation I. Removals

Without prejudice to the authority of the federal governments of the United States and Canada, the Governments of the Great Lakes states and Ontario and Quebec should not permit any proposal for removal of water from the Great Lakes Basin to proceed unless the proponent can demonstrate that the removal would not endanger the integrity of the ecosystem of the Great Lakes Basin and that:

- a. there are no practical alternatives for obtaining the water,
- b. full consideration has been given to the potential cumulative impacts of the proposed removal, taking into account the possibility of similar proposals in the foreseeable future,
- c. effective conservation practices would be implemented in the place to which the water would be sent,
- d. sound planning practices will be applied with respect to the proposed removal, and
- e. there is no net loss to the area from which the water is taken and, in any event, there is no greater than a 5 percent loss, (the average loss of all consumptive uses within the Great Lakes Basin); the water is returned in a condition that, using the best available technology, protects the quality of and prevents the introduction of alien invasive

species into the waters of the Great Lakes.

In reviewing proposals for removals of water from the Great Lakes to near-basin communities, consideration should be given to the possible interrelationships between aquifers and ecosystems in the requesting communities and aquifers and ecosystems in the Great Lakes Basin.

In implementation of this recommendation, States and Provinces shall ensure that the quality of all water returned meets the objectives of the Great Lakes Water Quality Agreement.

At this time, removal from the Basin of water that is used for ballast or that is in containers of 20 liters or less should be considered, *prima facie*, not to endanger the integrity of the ecosystem of the Great Lakes. However, caution should be taken to properly assess the possible significant local impacts of removals in containers.

Removal of water for short-term humanitarian purposes should be exempt from the above restrictions.

The governments of Canada and the United States and the governments of the Great Lakes states and provinces should notify each other of any proposals for the removal of water from the Great Lakes Basin, except for those classes of removals referred to in paragraph 4.

Consultations regarding proposed removals should continue in accordance with the procedures and processes that are evolving throughout the Great Lakes Basin and should be coupled with additional opportunities for public involvement.

Any transboundary disagreements concerning any of the above matters that the affected governments are not able to resolve may, as appropriate, be referred by the governments of Canada or the United States to the International Joint Commission pursuant to Article IX of the Boundary Waters Treaty.

Nothing in this recommendation alters rights or obligations under the Boundary Waters Treaty.

#### Recommendation II. Major New or Increased Consumptive Uses

To avoid endangering the integrity of the ecosystem of the Great Lakes Basin, and without prejudice to the authority of the federal governments of the United States and Canada, the governments of the Great Lakes states and Ontario and Quebec should not permit any proposal for major new or increased consumptive use of water from the Great Lakes Basin to proceed unless:

- a. full consideration has been given to the potential cumulative impacts of the proposed new or increases major consumptive use, taking into account the possibility of similar proposals in the foreseeable future,

- b. effective conservation practices would be implemented in the requesting area, and
- c. sound planning practices will be applied with respect to the proposed consumptive use.

In implementation of this recommendation, States and Provinces shall ensure that the quality of all water returned meets the objectives of the Great Lakes Water Quality Agreement.

The governments of Canada and the United States and the governments of the Great Lakes states and provinces should notify each other of any proposals for major new or increased consumptive uses of water from the Great Lakes Basin.

Consultations regarding proposed major new or increased consumptive uses should continue in accordance with the procedures and processes that are evolving throughout the Great Lakes Basin and should be coupled with additional opportunities for public involvement.

Any transboundary disagreements concerning the above that the affected governments are not able to resolve may, as appropriate, be referred by the governments of Canada or the United States to the International Joint Commission pursuant to Article IX of the Boundary Waters Treaty.

Nothing in this recommendation alters rights or obligations under the Boundary Waters Treaty.”

In addition, the Commission recommended that States and Provinces develop standards and procedures to implement the above two recommendations and that there be a moratorium on major new projects to allow time to develop such standards and procedures. Specifically, the Commission said:

“Recommendation IV. Great Lakes Charter Standards

Without prejudice to the authority of the federal governments of the United States and Canada, the Great Lakes States and Ontario and Quebec, in carrying out their responsibilities under the Great Lakes Charter, should develop, within 24 months, with full public involvement and in an open process, the standards and the procedures, including the standards and procedures in Recommendations I and II, that would be used to make decisions concerning removals or major new or increased consumptive uses. Federal, state and provincial governments should not authorize or permit any new removals and should exercise caution with respect to major new or increased consumptive use until such standards have been promulgated or until 24 months have passed, whichever comes first.”

## **2. Recent Developments**

The Government of Canada responded positively to the IJC’s recommendations, but has formally

expressed reservations about some subsequent developments. We will return to that topic later, but for now, we would like to stress that governments at all levels in both countries have always cooperated fully on activities related to the Great Lakes Charter, and continue to seek out common solutions that will benefit both countries despite the reservations expressed by the Government of Canada. That is indicative of the strong and very constructive relationship that exists between our two countries.

Now that three years have passed since publication of the IJC's report, and we have the benefit of considerable additional data and study, it might be helpful to take a retrospective look at the Commission's recommendations. As indicated in the chapter on water use and related information, we are now relatively certain that the consumptive use "problem" has been consistently and significantly overestimated and overstated for the past three decades. While there are gaps in data that make it difficult to do trend analysis and future projections, water use in the Basin is relatively stable, and policy makers do not need to rush to create a new water management system to solve an immediate problem. Nevertheless, because of the large number of remaining uncertainties, and because conservation is justifiable on its own merits, it would be advisable to continue, and to the extent practicable, accelerate water conservation measures. (see the chapter on conservation for more detail)

Regarding the regime proposed for removals, the approach used for the Akron diversion, "(essentially) no net loss of water," is simple, measurable, and could, we believe, be very effective. It, along with its accompanying environmental safeguards, could provide both adequate protection to the waters of the Great Lakes, and reasonable access to communities straddling or outside the basin but close to the basin divide. Pending further advances in measurement and understanding, incorporating broader concepts into a new decision making standard may be impractical. Although concepts like ecosystem integrity and cumulative impact are extremely important, and will become increasingly important in the future, we believe that there are significant technical issues involving measurement that will need to be resolved before it will be possible to establish a regulatory or quasi-regulatory regime that will be both scientifically sound and legally defensible. Predicting the length of time that will be needed to resolve these issues is beyond our competence, but we would not be surprised were it to take a decade or more. (See the chapter on cumulative impact for more detail).

In 2000, the Great Lakes Protection Fund issued a grant to the Great Lakes Commission.<sup>1</sup> The grant asked the GLC to lead a project team to: (1) inventory existing information sources on Great Lakes water resources and begin initial collection of new information, (2) assess the status of water resources and update the Commission's existing database to include information on water withdrawal and use; and (3) collect and present preliminary information on the ecological effects of inventoried water uses. The project management team includes representatives from each of the Great Lakes states and provinces, the Great Lakes Commission, the Council of Great Lakes Governors, USGS, NOAA, the Army Corps of Engineers and Environment Canada.

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<sup>1</sup>[www.glpf.org/00awards](http://www.glpf.org/00awards)

During the course of subsequent work on the project, the project management team incorporated into the scope of its work items relevant to issues outlined in Annex 2001.

In June 2001, the Great Lakes premiers and governors issued a supplementary agreement to the Great Lakes Charter.<sup>2</sup> In this document, the governors and premiers recognized that “the Waters and Water-Dependent Natural Resources of the Basin remain at risk of damage from pollution, environmental disruptions, and unsustainable water resource management practices which may individually and cumulatively alter the hydrology of the Great Lakes ecosystem.” To respond to this risk, the premiers and governors agreed to develop “an enhanced water management system that is simple, durable, efficient, retains and respects authority within the Basin, and, most importantly, protects, conserves, restores and improves the Waters and Water-Dependent Natural Resources of the Great Lakes Basin.”

In the six directives to the Annex, the premiers and governors agreed, among other things, to develop a new set of binding agreements within three years to “protect, conserve, restore, improve and manage use of the Waters and Water-Dependent Natural Resources” of the Basin, to use a process that allows for ongoing public input, to design an information gathering system that will assess available information and existing systems, completely update data on existing water uses, identify needs, provide a better understanding of groundwater, and plan for the implementation of an ongoing support system.

Following the issuance of Annex 2001, the Council of Great Lakes Governors established a Water Management Working Group (WMWG) with a goal of developing a sound water management system. The WMWG then developed a work plan designed to:

- produce recommendations to the Governors and Premiers on a decisionmaking standard;
- draft binding agreements between the States and comparable commitments for the Provinces;
- create cross-border agreements for the States and Provinces and, as appropriate, the two federal governments;
- develop a sound dispute resolution process; and
- ensure the new structure is flexible enough to handle current and future challenges.

The WMWG consists of two representatives from each jurisdiction. It is supplemented by an advisory committee of about 20 regional stakeholder organizations and a resource group of governmental and quasi-governmental groups with technical expertise related to Great Lakes water management. In addition, the WMWG established a number of sub-committees:

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<sup>2</sup>The entire Annex is available in English and French at:  
[www.cglc.org/projects/water/Annex 2001](http://www.cglc.org/projects/water/Annex%2001) and [www.cglc.org/projects/water/Annex2001 fra](http://www.cglc.org/projects/water/Annex2001fra).

- The Decision Making Sub-committee is investigating issues surrounding an appropriate standard for the Great Lakes Basin.
- The Compact Structure Sub-committee is charged with addressing issues surrounding what will or will not be written into the actual compact; who will have implementing authority and what authorities they will have.
- The Inter-provincial/International Agreement(s) Sub-committee has been charged to harmonize water withdrawal standards and establish a structure to resolve cross-border disputes.

In 2002, the WMWG also established:

- a Legal Team to serve as a resource on legal questions, including those related to compacts, constitutional law, and environmental regulations, and
- a Tribal/First Nations Team to serve as a resource on how to involve the Tribes and First Nations in the development of the agreement(s).

The CGLG structure for Annex 2001 is complex and its work is in the initial phases. Many of the technical issues that the WMWG must eventually resolve have been identified in the WRMDSS project. Several key issues underlying Annex 2001 are brought together in Directive #3, which calls for the establishment of a new decision making standard. The full text of this directive is:

“The new set of binding agreement(s) will establish a decision making standard that the States and Provinces will utilize to review new proposals to withdraw water from the Great Lakes Basin as well as proposals to increase existing water withdrawals or existing water withdrawal capacity.

The new standard shall be based upon the following principles:

- Preventing or minimizing Basin water loss through return flow and implementation of environmentally sound and economically feasible water conservation measures; and
- No significant adverse individual or cumulative impacts to the quantity or quality of the Waters and Water-Dependent Natural Resources of the Great Lakes Basin; and
- An improvement to the Waters and Water-Dependent Natural Resources of the Great Lakes Basin; and
- Compliance with the applicable state, provincial, federal, and international laws and treaties.”

As indicated earlier, the Government of Canada has formally expressed serious concerns about certain aspects of the Annex. Regarding consumptive uses, it stated: “Recognizing that improved conservation measures for consumption within the Great Lakes are a high priority, Canada considers that an environmental approach that treats in-basin and out-of basin uses differently is

the most effective way of protecting the Great Lakes.” It elaborated on this distinction by noting that “Bulk removals outside the basin represent a permanent loss to the basin and is not a sustainable use of water. When water is withdrawn within the basin, most of it usually returns to the boundary waters by a natural route - on average, there is essentially no or little loss to the system. Consumptive losses within the basin should not be equated to removals out of the basin.” Regarding removals, the Government of Canada expressed a concern that the proposal could open the door to long-distance, large-scale removals out of the basin.

### **3. Remaining Issues**

Clearly, both the IJC recommendations and the Annex proposals are responding to the same threats, and both have common objectives. Despite differences of opinion on how to meet those common objectives, we are confident that, as work towards an appropriate water use regime proceeds, agencies at all levels in both countries will continue to cooperate fully, and that in the end a regime will be established to the satisfaction of all concerned.

As indicated earlier, the Great Lakes Commission has modified its task to take account of Annex 2001. In particular, the GLC project was expanded to begin a discussion of the issues involved in creating a decision making standard along the lines of Directive #3. Since the Annex 2001 timetable does not call for agreement until 2004, any discussion of the standard must necessarily be limited to the proposals in the Annex, which could conceivably change before they are implemented. For that reason, we will not attempt to pass judgement on the merits of the Annex as currently crafted, but will instead point out, by way of questions, both the kind of fundamental policy concerns that are likely to arise and will have to be answered along the way, and the very significant challenges that will be encountered in devising implementation methodology.

#### **3.1 Policy Questions**

- Is there a legal requirement to adopt a single standard for both in-basin and out-of-basin uses? We have heard and read widely varying opinions on that topic. If not, and based on what we know now, are there compelling reasons to impose a multi-jurisdictional, quasi-regulatory regime within the basin. Without sufficient justification, would it be wise to curtail the freedom of choice of local decision-makers? Would a multi-jurisdictional regime create a huge and perhaps counter-productive bureaucratic apparatus? Over the longer run, would individual jurisdictions tolerate external jurisdictions passing judgement on their internal decisions, such as those dealing with local land use and environmental management?
- Is it possible to achieve a “resource improvement” without, in one way or another, simply taking credit for meeting the responsibilities of some other resource abuser (i.e., some entity that has failed to meet at least a moral obligation to either mitigate some environmental harm that it has caused, or has failed to implement appropriate resource conservation measures)? Viewed in that light, does the resource improvement concept

represent good environmental policy? In the case of removals, how could one quantify the negative effects of bulk removals, in the sense of being able to cope with future, unpredictable stresses such as climate change, in order that they could be offset by equal or greater resource improvements?

- If the constraints in the proposed standard (e.g. no significant detrimental individual or cumulative impact plus and a resource improvement) were rigorously enforced, taking into account all the other potential pressures on water levels, would there be any feasible policy space remaining within which any new or expanded use could take place, either inside or outside of the basin? If the constraints were loosely interpreted, would they, as the Government of Canada suggested, open the door to large-scale, long-distance removals of water from the basin? Are there legal mechanisms available at the state-provincial level to make the constraints legally binding? If so, in the event of a legal challenge, would the courts interpret the constraints rigorously or loosely?
- Would the states and provinces actually enshrine any standard in legislation and regulation? In the 1985 Great Lakes Charter, states and provinces agreed to “seek (where necessary) and to implement legislation establishing programs to manage and regulate the diversion and consumptive use of Basin water resources.”<sup>3</sup> Yet, as the GLC’s recent survey of water use permitting, registration, and reporting programs in states and provinces indicate, there are huge differences in the level of permitting, registration, and reporting throughout the Basin.<sup>4</sup> Jurisdictions with more rigorous water management programs may well be reluctant to agree to a new decision making standard with partners that have not yet completely implemented the legislative/regulative commitments imbedded in the 1985 Charter.

### 3.2 Questions Related to Implementation

- Broadly speaking, would it be possible to achieve the objectives sought by the proposed standard in a simple, durable and efficient manner as called for in the Annex? For example, all the case studies considered to date would seem to require extremely complex accounting practices, based on parameters that are difficult and in some circumstances even impossible to measure. Could the harm associated with a water withdrawal be meaningfully equated to an improvement in some other resource, for example wildlife?
- What is the meaning of the term “significant,” as used in Directive #3? Presumably a

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<sup>3</sup>Principle III, Great Lakes Charter, 1985.

<sup>4</sup>Dan Blake, Report on State and Provincial Water Use and Conservation Programs in the Great Lakes - St. Lawrence Basin, Great Lakes Commission, July 2002. Found at: [www.glc.org/waterquantity/wrmdss/PE3/WaterUseProgramsReportFINAL](http://www.glc.org/waterquantity/wrmdss/PE3/WaterUseProgramsReportFINAL).

project could have an insignificant impact when considered individually, but significant when looked at cumulatively? Certainly, the importance assigned to the question of cumulative impacts appears to be a recognition that a series of “insignificant” minor projects can result in a significant “cumulative” harm, but it is hard to see how one could identify the “straw that breaks the camel’s back.” And even if one could, would it be possible to allow proposals to proceed until some threshold level of harm is reached, and then suddenly prohibit any additional water-dependent development in the Region? Should cumulative impact assessments take into account only similar types of development, or should they also take account of other factors affecting or likely to affect water levels?

- Similar questions of measurement apply to the term “improvement,” as used in Directive #3. What will be meant by improvement? How does one measure an improvement? What is the appropriate scale for the improvement, i.e., should it occur near the withdrawal? Or, for a withdrawal from a stream, in the same basin, Or, for a withdrawal from a lake, in the same lake? Or can an improvement occur anywhere in the Great Lakes/St. Lawrence system? How long should the improvement last? Five years? Ten? Fifty? Indefinitely? If an improvement were made indefinite, how would the improvement be sustained in the face of other changes to the system?

A number of these technical questions, along with many others were identified by participants at a workshop linked to the GLC’s work, but it is clear that finding satisfactory answers to many of them will take a good deal of time and effort. The Great Lakes Protection Fund is continuing to support projects that are designed to contribute to the effort to develop a standard. In 2002, GLPF agreed to fund projects designed, among other things, to build case studies of how small communities near the edge of the Great Lakes drainage basin can meet their water needs under the management system contemplated by Annex 2001; to build case studies for new or increased use within the Basin under the envisioned management system; to prepare a water conservation toolkit; to develop metrics and models to quantify the resource impacts of various types of water withdrawals; to build a modeling framework that couples existing models in ways that allow for predictions of effects on a scale of a basin river system (i.e., not simply local modeling); and to produce a tool that simulates the impact of groundwater withdrawal on flows into the Great Lakes and develop protocols that can be shared by U.S. and Canadian agencies that track groundwater.<sup>5</sup>

As cooperative efforts move forward, one can anticipate the identification of further issues requiring research and evaluation in order to build a workable regime for dealing with both in-basin and out-of basin uses. In fact, one immediate benefit of the quest for an improved regime is the fact that it is stimulating discussion and research among water resource managers and researchers in the Basin. Simply knowing more about the resource is a significant benefit to any management scheme that may result from the ongoing effort.

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<sup>5</sup> [www.glpf.org/02awards](http://www.glpf.org/02awards)

Annex 2001 indicates that the governors and premiers see the creation of a unified and credible decision making standard as key to the water management system they envision for the Basin, although it is quite possible states and provinces will find it necessary to make distinctions between in- and out-of-basin uses in the application of a unified standard. The Government of Canada has expressed a preference for an approach more like that recommended by the International Joint Commission. The initial work on the resource improvement standard would suggest that either a) implementation may have to await major scientific advances, and those advances are not on the immediate horizon or b) ways will have to be found to significantly simplify the approach before any regime is likely to be supported by all governors and premiers in legally binding agreements.

## LEGAL AND POLICY CONSIDERATIONS

### 1. Situation as of February 2000

In its 2000 Report,<sup>6</sup> the Commission noted that the Great Lakes Basin was subject to a network of legal regimes, both domestic and international. The report did not provide a detailed discussion of all the possible legal issues that could arise in the context of water management in the Basin; it did however identify those “aspects of the legal regime that bear most directly on the issues raised in [the] report.”<sup>7</sup> Specifically, the section in the report on legal and policy considerations focused on both the international legal context and the domestic legal context, with a separate short section on Aboriginal Peoples and Indian tribes.

#### 1.1 International Legal Context

The discussion of the international legal context in the 2000 Report had three primary prongs: the legal regime created by the Boundary Waters Treaty of 1909, the arrangements instituted in the Great Lakes Charter of 1985, and international trade law.

##### 1.1.1 *Boundary Waters Treaty*

The Commission noted the effectiveness of the Boundary Waters Treaty of 1909, for a period of over ninety years “in assisting Canada and the United States to avoid and resolve disputes over freshwater.”<sup>8</sup> It also observed, however, that the treaty regime does not treat all Basin waters in the same way. For example, while the treaty requires Commission approval in cases where the “use, diversion, or obstruction” of boundary waters will affect water levels or flows on the other side of the boundary (Article III), in the case of tributaries to boundary waters or of transboundary rivers, each nation reserves “exclusive jurisdiction and control over [their] use and diversion”. (Article II). The Commission also noted that groundwater was not referred to explicitly in the treaty. Finally, it remarked on the extensive use of the Commission by the two governments as a means of investigating and making recommendations on both water quantity and water quality issues over the years.

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<sup>6</sup>International Joint Commission, *Protection of the Waters of the Great Lakes*, Final Report to the Governments of Canada and the United States (February 22, 2000) [hereinafter “2000 Report”].

<sup>7</sup>*Id.*, at 31.

<sup>8</sup>*Id.*

In summary, the Commission concluded (Conclusion 17) that the Boundary Waters Treaty “continues to provide effective protection for both countries from abuses to the waters of the Great Lakes Basin ecosystem [and] represents a proven regime for avoiding and resolving disputes that arise between Canada and the United States over boundary waters and transboundary rivers”.<sup>9</sup> In this respect, the Commission also stressed the importance of the Great Lakes Water Quality Agreement in buttressing the protection afforded by the Boundary Waters Treaty. More specifically, the Commission refers to its own role in the implementation of its recommendations regarding “Major New or Increased Consumptive Uses” (Recommendation II of the 2000 Report), where it states that in the implementation of Recommendation II (which the Commission anticipates will occur in the context of “the procedures and processes that are evolving throughout the Great Lakes Basin”), “[a]ny transboundary disagreements ... that the affected governments are not able to resolve may, as appropriate, be referred by the governments of Canada or the United States to the International Joint Commission pursuant to Article IX of the Boundary Waters Treaty.”<sup>10</sup>

### **1.1.2 Great Lakes Charter**

The Commission’s 2000 report noted the significance of the Great Lakes Charter of 1985<sup>11</sup> in the management of the waters of the Basin. The Charter was initiated in reaction to proposals to divert Lake Superior water as a means of coping with the depletion of the Ogallala aquifer in the U.S. southwest. Although the Charter signatories include all the Great Lakes states and the two Canadian provinces<sup>12</sup>, it was developed initially in the context of concerns originating in the United States, and the only litigation touching on the status of the Charter has been in U.S. courts. These developments are discussed below in the context of U.S. domestic developments.

Briefly, the Charter requires (Principle IV) that any signatory notify, consult and seek the consent of the other states or provinces for any new or increased diversion or consumptive use “of the

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<sup>9</sup>*Id.*, at 44.

<sup>10</sup>*Id.*, at 48.

<sup>11</sup>Council of Great Lakes Governors, *The Great Lakes Charter*, Principles for the Management of Great Lakes Water Resources (February 11, 1985). The Charter can be found on the Council’s website at [www.cglg.org](http://www.cglg.org).

<sup>12</sup>Specifically Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin, and Ontario and Quebec.

water resources of the Great Lakes Basin.”<sup>13</sup> If the permitting state or province follows the Charter Consultation Procedures, it has the discretion to approve or disapprove the diversion subject only to the duty to notify other affected states and provinces. The Charter is a non-binding agreement and is at most “soft law”. In the first litigation to consider it, a federal district court described it as “a kind of gentlemen’s agreement between the Governors of the Great Lakes States and the Provinces of Ontario and Quebec that the parties to the charter should not make any new diversion of Great Lakes waters averaging more than 5 million gallons per day over a 30-day period without the notification, consultation and approval of all the parties to the charter.”<sup>14</sup> As the Commission noted in its 2000 Report: “Although not fully implemented, [the Charter] commitments point toward the kind of cooperation and coordination that is required in the future.”<sup>15</sup>

Shortly before the Commission issued its 2000 Report, the governors of the Great Lakes issued a statement that both re-committed them to the principles in the Charter and to the development of a new agreement to improve the collective management of the waters of the Great Lakes and the development of a common standard for reviewing water projects.<sup>16</sup>

### **1.1.3 *International Trade Law***

Finally, international trade law was an issue on which the Commission received numerous submissions, and this is reflected in a separate section in the 2000 Report’s chapter on legal and policy considerations. In addition to a number of submissions made by interested parties in the course of the Commission’s public hearings, the Commission received representations from both the Deputy United States Trade Representative and the Canadian Department of Foreign Affairs and International Trade; the Commission found that both these representations “generally are consistent with the Commission’s views regarding the effect of international trade law on the ability of the two countries to protect the water resources of the Great Lakes Basin.”<sup>17</sup>

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<sup>13</sup>Principle IV is triggered by any diversion in excess of 5,000,000 gallons (19 million litres) per day over a 30-day average.

<sup>14</sup>*Little Traverse Bay Bands of Odawa Indians v. Great Springs Waters of America, Inc.*, Case No. 1:02-CV-127 (Western District of Michigan May 28, 2002).

<sup>15</sup>*2000 Report*, at 32.

<sup>16</sup>Council of Great Lakes Governors, “A Statement on Protecting the Great Lakes: Managing Diversions and Bulk Water Exports” (October 15, 1999), Chicago. The statement can be found at <http://www.cglg.org/projects/water/press101599.html>.

<sup>17</sup>*2000 Report*, at 33.

Additionally, the Commission heard from several experts on international trade law as to the implications of trade law for water management. The general tenor of these opinions was “similar to the views expressed by the Canadian and U.S. governments.”<sup>18</sup>

The central conclusion of the Commission (Conclusion 23) with respect to international trade law obligations was that

International trade law obligations ... do not prevent Canada and the United States from taking measures to protect their water resources and preserve the integrity of the Great Lakes Basin ecosystem. Such measures are not prohibited so long as there is no discrimination by decision makers against persons from other countries in their application, and so long as water management policies are clearly articulated and consistently implemented so that undue expectations are not created.<sup>19</sup>

The Commission further concluded that neither nation could be “compelled by trade laws to endanger the waters of the Great Lakes ecosystem”; nevertheless, the Commission recognized that the public “remains deeply concerned that international trade law could affect the protection of these waters.”<sup>20</sup> This latter finding is reflected in the Commission’s recommendation with respect to trade law (Recommendation IX) – namely, that the two governments “should direct more effort to allaying the public’s concern that international trade obligations could prevent Canada and the United States from taking measures to protect waters in the boundary region, and

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<sup>18</sup>*Id.*

<sup>19</sup>*2000 Report*, at 45. Strictly speaking, the Commission dealt with more than just international trade obligations under the rubric of International Trade Law. It also dealt with *investment* obligations, albeit those existing under a trade agreement – specifically, under Chapter 11 of NAFTA. These investment obligations were also a source of comment in the Commission’s public hearings, and, in this respect, the Commission noted (at 34) that

Actions with respect to water diversions or sales that nationalize or expropriate an investment of a foreigner may lead to a claim under Chapter 11 of NAFTA, which gives private investors of one country the right to commence proceedings against another country for injuries to the rights accorded private investors under the agreement.

The concerns with respect to the implications of Chapter 11 for water management have continued to be expressed, especially by non-governmental organizations, to the present day.

<sup>20</sup>*Id.*

... to direct more effort to bringing greater clarity and consensus to the issue.”<sup>21</sup>

## 1.2 Domestic Legal Context

### 1.2.1 Canada

In its 2000 Report, the Commission reviewed the constitutional underpinnings of Canadian water in the Constitution Act. Water does not constitute a separate head of power under the Act and federal and provincial authority with respect to water must therefore be found under a number of constitutional headings. In the case of the federal government, the Commission noted that it “exercises jurisdiction over water management primarily through its legislative [as opposed to proprietary] authority” and that “[h]istorically, the primary interest of the federal government has been focused on its constitutional responsibilities for fisheries ... navigation ... and international relations, although it has in recent years taken a role in water quality, particularly with respect to toxic substances.”<sup>22</sup> Two more general sources of federal power – the power to implement “Empire” treaties (notably the Boundary Waters Treaty) and the peace, order and good government power – have also been relevant for water management in an international context. With respect to international water relations, the Commission noted the existence of the International Rivers Improvements Act, which may have implications for some water withdrawals having international aspects. However, the Act is limited in important ways (including its non-application to boundary waters), and the Commission observed that, “as with other federal legislation, the act is not designed to provide a general mechanism for dealing with water removals...”<sup>23</sup>

The Commission noted that the federal government, in November 1999, had introduced into Parliament “proposed amendments to the International Boundary Waters Treaty Act that, if enacted, will impose a prohibition [for which there may be exceptions established by regulations] on removals of boundary waters from their water basins ... Moreover, the amendments will [subject to certain exceptions] require persons to obtain a license from the Minister of Foreign Affairs for the use, obstruction, or diversion of boundary waters in a manner that in any way affects, or is likely to affect, the natural level or flow of boundary waters on the other side of the international boundary.”<sup>24</sup> This legislation was described as one part of the Canadian federal

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<sup>21</sup>*Id.*, at 50.

<sup>22</sup>*Id.*, at 35.

<sup>23</sup>*Id.*

<sup>24</sup>*Id.*, at 34-35.

government's "three-part strategy, announced on February 10, 1999, to prohibit the removal of water (including removals for the purposes of export) out of Canadian water basins" The other two prongs of the strategy included the joint Canada-U.S. reference to the Commission which led to the 2000 Report and "an effort by the Canadian Minister of the Environment to seek the endorsement by provinces and territories of a Canada-wide accord prohibiting bulk water removals to ensure that all of Canada's watersheds are protected."<sup>25</sup>

Provinces also have both significant legislative and proprietary powers under the Constitution; of particular significance is provincial ownership of public lands and resources, including water. As the Commission noted, these proprietary powers are buttressed by grants of legislative authority over such matters as management and sale of public lands, local works and undertakings, property and civil rights in the province and matters of a local or private nature. All provinces have significant legislation governing the use of water. In the case of the two Basin provinces, Quebec and Ontario, at the time of the Commission's 2000 Report both these provinces had recently adopted new legal provisions with respect to water withdrawals. Ontario had adopted in 1999 a regulation prohibiting (subject to certain exceptions) the transfer of water from the Great Lakes Basin.<sup>26</sup> In the same year Quebec adopted a Water Resources Preservation Act prohibiting (subject to specified exceptions) the transfer of surface or ground water out of the province. Although this was adopted as an interim measure pending the completion of a then-ongoing provincial inquiry with respect to water management, the legislation was subsequently extended.<sup>27</sup>

### 1.2.2 *United States*

The key domestic developments in U.S. domestic law relating to water management in the Great Lakes Basin leading up to the release of the Commission's 2000 Report arose out of the Great Lakes Charter, discussed above. The Charter was implemented by the adoption of state laws that

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<sup>25</sup>*Id.*, at 35.

<sup>26</sup>O. Reg. 285/99 (filed April 30, 1999, gazetted May 15, 1999).

<sup>27</sup>*Water Resources Preservation Act*, S.Q. 1999, c. 63 (in force November 26, 1999). The Act was originally conceived as an interim measure pending the report of the Commission sur la gestion de l'eau au Québec. That report, which was issued in May 2000 (and which may be found on the website of the Bureau d'audiences publiques sur l'environnement – BAPE – at [www.bape.gouv.qc.ca/eau](http://www.bape.gouv.qc.ca/eau)) "categorically opposed" any large-scale transfer of freshwater resources from Quebec, and recommended that the *Water Resources Preservation Act* be made permanent. The latter recommendation was effectively accepted in December 2001 with the passage of *An Act to Amend the Water Resources Preservation Act*, S.Q. 2001, c. 48 (in force 18 December 2001).

prohibited out of basin diversions.<sup>28</sup> The Charter and the anti-diversion laws apply both to interstate and intrastate diversions.<sup>29</sup>

The Charter, and state laws implementing it, raised serious federal constitutional issues. Any state law which subjects interstate diversions to a higher standard than intrastate diversions, or which imposes a flat prohibition on them, is suspect under federal constitutional law. Laws which *per se* discriminate against interstate commerce will almost certainly be held in violation of the judge-made Dormant Commerce Clause as a result of the 1982 decision in *Sporhase v. Nebraska*<sup>30</sup>. In contrast, the power to subject intrastate diversions to different standards does not raise as serious Dormant Commerce Clause problems: there is no discrimination against interstate commerce and states have long successfully asserted the power to protect areas of origin from trans- watershed diversions.

The power of states to protect their water resources as a result of carefully crafted conservation regimes has never been tested, but state power is not as constricted as many assume. For example, an out of state user challenged a cross-border permit denial under Nebraska's post-*Sporhase* law, but the court upheld the denial.<sup>31</sup> The court admitted that the statute applied only to interstate uses but concluded that "when compared with the regulation of intrastate uses of groundwater, the overall regulation relevant to this litigation is evenhanded."<sup>32</sup>

Congress endorsed the Great Lakes Charter in 1986. The Omnibus Water Resources Development Act of 1986 [WRDA] prohibited all diversions from the Great Lakes or any United States tributary for use outside the basin.<sup>33</sup> Congress may waive the Dormant Commerce Clause, since it is judge-made law and Congress can decide which state actions threaten to undermine, and its power to waive the doctrine has never been seriously limited by the Supreme Court. WDRA was intended as an express waiver of the Dormant Commerce Clause.

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<sup>28</sup>For example, Michigan Comp. Laws 324.32703.

<sup>29</sup>Michigan is an exception in this respect, because it is the only Great Lake state or province whose territory lies wholly within the basin.

<sup>30</sup>458 U.S. 941 (1982).

<sup>31</sup>*Ponderosa Ridge LLC v. Banner County*, 554 N.W.2d 151 (Neb. 1996)

<sup>32</sup>554 N.W.2d at 165. See generally Richard S. Harnsberger et al., *Interstate Transfers of Water After Sporhase*, 70 Neb. L. Rev. 754 (1991).

<sup>33</sup>42 U.S.C. 1962d-20(d).

After its passage, WRDA was applied in several relatively small diversion proposals. These precedents have influenced state thinking about the process and standards for small diversions that raise long risks because of their cumulative impacts by shaping the on-going dialogue about standards.<sup>34</sup> The scope of both the Charter and WRDA was raised in the Crandon Mine proposal in Northern Wisconsin. The company planned to divert groundwater from the Great Lakes to the Mississippi River drainage, and NGOs argued that this triggered WRDA and the Charter notification process. However, the U.S. Army Corps of Engineers ruled that the groundwater did not fall within WRDA.<sup>35</sup>

WRDA and the Great Lakes Charter preserved the status quo on the Great Lakes but WRDA's ability to provide Dormant Commerce Clause immunity was questioned in a 1999 legal memorandum prepared for the Council of Great Lakes governors. It also suggested that the WRDA violated the non-delegation doctrine because it did not provide a sufficient standard in reviewing diversions and was not a sufficiently clear waiver of the Dormant Commerce Clause.<sup>36</sup>

### **1.3 Aboriginal Peoples and Indian Tribes**

The Commission received many submissions in the course of its public hearings under the Water Uses Reference with respect to the interests of the Aboriginal Peoples and Indian tribes in the waters of the Great Lakes Basin. The Commission also had some work undertaken on this issue, and commented briefly on it in the 2000 Report. Specifically, it noted with respect to Canada that the nature of Aboriginal Peoples interests in water was not yet clearly settled, while in the United States, although “the right of Indian tribes to the use of the waters of the Great Lakes Basin has continued without significant challenge since the reservations were established (late 1700s to mid-1800s)”, and although there has been some litigation as to tribal fishing rights in the Great

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<sup>34</sup>For example, a Wisconsin diversion was approved in 1989; in 1992 Michigan vetoed a plant to augment the supply of a small Indiana community just outside the basin. Canada strenuously objected to an Illinois request that the U.S. Army Corps of Engineers increase the Chicago diversion to relieve barges stranded along the Illinois River in the drought summer of 1988, and the request was in fact denied.

<sup>35</sup>See James P. Hill, *The New Politics of Great Lakes Water Diversion: A Canada-Michigan Interface*, 2 *The Toledo J. of Great Lakes, Law, Science & Policy* 75 (1999).

<sup>36</sup>The non-delegation doctrine is a United States Supreme Court doctrine designed to reconcile the rise of the administrative state with the federal constitution, which makes no provision for administrative agencies. A strict reading of the principle of separation of powers would prohibit the delegation of functions from one branch to another, but the Court has held that legislative functions can be delegated to the executive so long as the legislation contains an intelligible principle or standard to cabin the exercise of discretion.

Lakes, “there does not appear to have been any dispute over tribal use of water from the Great Lakes or its tributaries flowing through or adjacent to the reservations.”<sup>37</sup>

Whatever the ambiguities in the legal interests of Aboriginal Peoples and Indian tribes, the Commission found a consistent position in their “uniformly expressed opposition to exports or diversions from the Great Lakes Basin [in which they] strongly urged the need to ensure opportunities for the participation of Aboriginal Peoples and Indian tribes in decisions concerning the waters of the Great Lakes Basin ecosystem.”<sup>38</sup> Finally, the Commission in its 2000 Report declined to address the issue of the relationship between international trade agreements and treaties with Aboriginal Peoples and Indian tribes, which in its hearings it had been requested to clarify, on the basis that it was not the appropriate forum for addressing the issue.

## **2. Recent Developments**

### **2.1 United States**

The major U.S. development is the enactment of federal legislation which reconfirms that the federal government has delegated the primary decision-making authority to the states because the federal and state interests on this issue are congruent. Subsequent to the IJC’s 2000 Report, and in light of the concerns raised earlier with respect to the effectiveness of the Great Lakes Charter, the Basin states succeeded in obtaining new federal legislation. Section 504 of the Water Resources Development Act of 2000 [WRDA 2000] Section 504 directs the states, in cooperation with the two basin Canadian provinces, “to develop and implement a mechanism that provides a common conservation standard embodying the principles of water conservation

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<sup>37</sup>*2000 Report*, at 38. Indian Tribes exist in the Great Lakes states of Michigan, Minnesota, New York and Wisconsin. Some reservations border or are near the lakes and the Saint Lawrence, but all reservations potentially use surface and ground waters that are part of the Great Lakes system. United States law recognizes two types of Indian rights which can arise as a result of a treaty or the creation of a reservation. *Winters v. United States*, 207 U.S. 564 (1908). The tribe may reserve or be granted hunting and fishing rights, and the tribe may reserve or be granted federal Indian water rights. These rights have historically been granted to support irrigated agriculture the reservations in the Western United States, but the emerging view is that the rights are intended to fulfill the purposes of the reservation and these can include fishery maintenance and perhaps ecosystem protection. Because, there is no Indian irrigation around the Great Lakes, any Indian water rights remain inchoate. Reservations may have groundwater waters as an incident of land ownership.

<sup>38</sup>*Report 2000*, at 38.

and resource improvement for making decisions concerning the withdrawal and use of water from the Great Lakes Basin.”<sup>39</sup> WRDA 2000 corrects the delegation objection and reinforces the conclusion that Congress intended the legislation as a waiver of the Dormant Commerce Clause.

The basin states were involved in a continuing standards development process that was underway before the reference, and the process has continued after the 2000 final report. States took the first step to implement WRDA 2000 by adopting Annex 2001. Annex 2001 was the result of an open two-year process that began in October, 1999. Annex 2001 is best seen as an interim step in the process of drafting a binding agreement. A preliminary draft was released on December 14, 2001. It committed the states to prepare binding agreements between the states and provinces within five years, guidelines for the development of a new withdrawal standard, modification provisions and a commitment to develop an information sharing system. In response to both industry and environment comments, an express commitment to on-going public participation was also added.<sup>40</sup>

The final version, signed on June 18, 2001, provides in part:

The Governors and Premiers agree to immediately prepare a Basin-wide binding agreement(s), such as an interstate compact and such other agreements, protocols or other arrangements between the States and Provinces as may be necessary to create the binding agreement(s) within three years of the effective date of the Annex. The purpose of the agreement(s) will be to further the Governors’ and Premiers’ objective to protect, conserve, restore, improve, and manage use of the Waters and Water-Dependent Natural Resources of the Great Lakes Basin. The agreement(s) will retain authority over the management of the Waters of the Great Lakes Basin and enhance and build upon the existing structure and collective management efforts of the various governmental organization within the Great Lakes Basin.

The new set of binding agreement(s) will establish a decision making standard that the States and Provinces will utilize to review new proposals to withdraw water from the

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<sup>39</sup>WRDA standards reflect in part the position of Governor Engler of Michigan. In his 1992 veto of the proposed Lowell, Indiana diversion, Governor Engler suggested that diversions might be allowed if no imminent adverse health, safety and welfare risks were demonstrated, there was meaningful conservation and clean water was returned to the lakes after use.

<sup>40</sup>It also contained an interim exemption for *de minimis* withdrawals which were defined as those of 1 million gallons per day or less. The preliminary annex was modified in response to objections from the environmental community and Great Lakes industries. Environmental NGOs objected to the exemption and this was dropped from the final version.

Great Lakes Basin as well as proposals to increase existing water withdrawals or existing water withdrawal capacity.

The new standard shall be based upon the following principles:

- Preventing or minimizing Basin water loss through return flow and implementation of environmentally sound and economically feasible water conservation measures; and
- No significant adverse individual or cumulative impacts to the quantity or quality of the Waters and Water-Dependent Natural Resources of the Great Lakes Basin; and
- An Improvement to the Waters and Water-Dependent Natural Resources of the Great Lakes Basin; and
- Compliance with the applicable state, provincial, federal, and international laws and treaties.

The standard guidelines partially reflect the experience with the two Ohio and Wisconsin diversions which were conditioned on the promise that they cause no net loss to the lakes. Annex 2001 commits the Great Lakes states to an ambitious effort to develop a two-track approach to the future use of Great Lakes waters: first, they have agreed to develop a use standard which can be applied on a case by case basis by each state through its own state water management law; and, second, they have moved towards the development of a cooperative mechanism among themselves and the two basin provinces for both large and small scale in-basin use and out-of-basin diversions.

As to the first track, the attainment of a common use standard will be difficult because, while the Great Lakes States are slowly moving from the common law of riparian rights to regulated riparianism, the rate of change varies considerably among the states. Regulated riparianism seeks to move states from a tort to a property model of water allocation. The tort model resolves conflict post hoc and the property model seeks to create firm entitlements that will avoid inter-user conflicts. Regulated riparianism also injects the idea that water resources are public resources in which individual rights to use can be obtained subject to the state's power to supervise and regulate these uses.<sup>41</sup> Regulated riparianism has three primary components:

1. State water planning;

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<sup>41</sup>See 2 R. Beck, WATERS AND WATER RIGHTS § 9 (1991).

2. An integrated permit system for ground and surface water use; and
3. The establishment of base or environmental flows and lake levels.

The move towards regulated riparianism by the Great Lakes Basin states poses two significant difficulties. First, the level of water management varies considerably among the basin states. Second, the states have committed themselves to regulate both large and small out-of-basin diversions and in-basin use; the regulation of small-scale projects like this raises both problems of information assembly and the challenge of unprecedented interstate and state-provincial cooperation.

With respect to the first of these difficulties, each state follows the common law of riparian rights with some statutory modifications. In many states, the common law remains the primary allocation mechanism. For example, Illinois relies on the common law of riparian rights to resolve most lake and stream conflicts except for the Lake Michigan diversion.<sup>42</sup> The Department of Transportation has special authority to administer the United States Supreme Court decree in *Wisconsin v. Illinois*.<sup>43</sup> By statute, Illinois has also adopted the “reasonable use” as opposed to the common law “absolute ownership rule” rule for groundwater allocation. Michigan continues to rely on the common law as does Indiana, New York, and Ohio. Pennsylvania is somewhat similar to Illinois. It relies on the common law, but it has a permit system for the uses of two of its major rivers, the Delaware and Susquehanna, which are allocated by interstate compacts and cover about two-thirds of the state.

The second difficulty noted above flows from the fact that the states have committed themselves to a complex standard for in- and out-of-basin projects and to a binding agreement to regulate these projects. Future additional water use must both have “no significant adverse individual or cumulative impacts to the quantity or quality of the Waters and Water-Dependent Natural Resources of the Great Lakes Basin; and constitute “an improvement to the Waters and Water-Dependent Natural Resources of the Great Lakes Basin.” The former standard is the NEPA cumulative impacts standard and the latter appears to have come from the Clean Water Act’s section 404 wetlands mitigation program.<sup>44</sup>

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<sup>42</sup> See 6 WATERS AND WATER RIGHTS 335- 344.

<sup>43</sup> 615 ILCS 50.

<sup>44</sup> Under Section 404, a developer can obtain a permit to drain natural wetlands on the condition that they construct new, artificial ones.

The dual standard in turn presents two major difficulties. First, as discussed elsewhere, to apply it effectively to projects, especially small ones, a great deal of water use and environmental impact data must be assembled and synthesized. Second, the implementation of the standard will require unprecedented levels of cooperation. Should the states negotiate an interstate compact (which might include the two basin provinces), it would be the first major regulatory compact in the water area. Most interstate compacts divide an interstate resource into state shares but do not contain a post-division management regime.<sup>45</sup>

The second track that the states are following in addition to the development of a common use standard is the development of a cooperative mechanism among themselves and the provinces for both large and small scale water-use projects. The Great Lakes Charter, WRDA, Annex 21 and parallel Canadian federal and provincial legislation are already sufficient legal barriers to any large-scale diversion. The Charter and WRDA are non-binding, but at a minimum they chill any plan to take large amounts of Great Lakes water to non-basin states. To succeed the plan would have to have the approval of all states and provinces, as well as the two federal governments. Annex 2001 commits the states to develop a binding management scheme for all new projects, regardless of whether the project is an in-basin use or an out-of-basin diversion. Two factors, one legal, and the other hydrologic, seem to drive this process.

First, the Great Lakes Governors are following the advice of international trade law experts and the conclusions of the IJC Report. These experts, along with others, counsel that the best defense to a NAFTA or GATT challenge to a ban on the trans-national export of water is the existence of strong water conservation regulatory regime.<sup>46</sup> A strong region-wide conservation regime would also make it easier to defend the policy of keeping water within the Great Lakes basin or the

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<sup>45</sup>Two compacts in the eastern United States, the Delaware and Susquehanna, provide a permanent compact commission but these commissions have dealt primarily with flood control and pollution project evaluation, construction and short-term drought management. They have not displaced state water allocation to the extent that a binding agreement to evaluate and permit all withdrawals from the lakes might.

<sup>46</sup>The influence of international trade on state allocation decisions can be seen in a recent filing in the Michigan state court litigation challenging Perrier's extraction of ground water. The challenges allege that if Perrier is given the right to extract ground water and sell it for profit "nothing will stand in the way of private exploitation or privatization of Michigan's water resources by others" because the United States Dormant Commerce Clause, the GATT and Chapter 11 of NAFTA "will chill or deprive the State . . . of any public control, subjecting the state to exorbitant losses." Motion for Brief in Support of Motion for Summary Disposition, *Sapp v. Great Springs Waters, Inc.*, Mecosta C'ty Cir. Ct, Case No. 01-14563-CE (filed 2001). A Michigan trial judge has ruled that the withdrawal and sale of Michigan groundwater is lawful but reserved judgment on whether the proposed withdrawal would injure other land owners. For a discussion of a related federal court challenge to the extraction see text to note 44 , *infra*.

Great Lakes states against a challenge under the Dormant Commerce Clause. At present, these regimes do not exist in any Great Lakes state. As described above, the level of regulation varies considerably from state to state.

Second, the Annex 2001 Working Group of the Council of Great Lakes Governors has accepted the position that the basin may be equally harmed by the cumulative impact of small in-basin projects as well as small out-of-basin diversions.

The commitment to negotiate a binding mechanism to regulate Great Lakes diversions which applies to both the Great Lakes states and Canadian provinces will be a great political as well as legal challenge. The states can be bound in two basic ways. First, the federal government can preempt control over the Great Lakes; thus any decision would be binding on all states under the Supremacy Clause. The Great Lakes are international, navigable waters and thus the federal government could assert full plenary power them. However, the federal government has chosen to share its authority with the states. This allows states to cooperate among themselves subject to federal approval. A second means by which states may be bound is an interstate compact. Article I, Section 10, Clause 3 of the U.S. Constitution provides “No state shall, without the Consent of Congress . . . enter into any Agreement of compact without another state, or with a foreign power . . .” The “Compact Clause” has been interpreted to allow states to enter into binding agreements to define or share their quasi- sovereign powers. In the twentieth century, a number of states entered into compacts to define their inchoate equitable shares of interstate rivers. An interstate compact is a federally approved binding agreement among the states. Once approved the Compact becomes federal law and federal common law applies.

The language of the Compact Clause also permits compacts with foreign powers. Article I, Section 10, Clause 1 draws a distinction between Compacts and Treaties. The latter are reserved exclusively to the federal government. As a general matter, the subordinate or member units of federal systems, the United States states and Canadian provinces, may have the competence to enter into formal relations with other nations of subordinate units of those nations. No general international rule exists to prohibit the exercise of such competence,<sup>47</sup> but the scope of state power remains undefined. Some commentators have argued that the Compact Clause is limited to agreements among the federal United States states. However, Professor Lawrence Tribe argues that the Clause encompasses other agreements.<sup>48</sup> He suggests two limitations. Any state-provincial agreement could not trench of the President’s exclusive foreign affairs power or be inconsistent with existing treaties. It is unlikely that Congress would consent to a state-provincial compact that was inconsistent with either Canada’s or the United States’ interpretation of the Boundary Waters Treaty of 1909.

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<sup>47</sup> 2 ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, Federal States, 362, 366 (1995).

<sup>48</sup> 1 L. Tribe, American Constitutional Law, p. 630, f. 37 (3d ed. 2000).

A final development in the United States with respect to issues raised in the 2000 Report concerns the rights of Indian tribes in the Great Lakes Basin. The first assertion of Indian rights occurred in a challenge by three Michigan Indian bands (a lesser organizational status than a tribe) to the location of Perrier bottled water plant in Michigan. Perrier planned to pump 400 gallons per minute from a spring that fed into a Lake which flows into a stream which eventually reaches two tributaries of Lake Michigan, and the bands argued that the proposed diversion would interfere with their Treaty fishing rights. The Michigan Department of Environmental Quality had issued a license, but the governor had not invoked the Charter process. The tribes claimed that the extraction violated the anti-export prohibition in WRDA 2000. However, after tracing the history of Great Lakes diversion controversies from the Chicago diversion to Annex 2001, the court dismissed the complaint on procedural grounds.<sup>49</sup> United States Supreme Court jurisprudence requires that persons claimed implied rights under federal statutes designed to advance a general public interest demonstrate that they fall within a specially benefitted class, that Congress intended implicitly or explicitly to create the right, that the right is consistent with the statutory scheme and that a federal interest is at stake. Riparians were not found to be a specially benefitted class because any rights extend to the public generally, there was no indication of Congressional intent to create a right, the right would be inconsistent with the statutory scheme which contemplates gubernatorial decision-making, and “tribal rights are fairly peripheral to the statute.

## 2.2 Canada

In Canada, the proposed amendments to the *International Boundary Waters Treaty Act*<sup>50</sup> and the public concerns discussed earlier in this chapter with respect to international trade, although logically separable, became conjoined as the amending legislation (reintroduced after the federal election as Bill C-6 in February 2001) proceeded through extensive committee hearings in both the House of Commons (in the Standing Committee on Foreign Affairs and International Trade) and the Senate (in the Standing Senate Committee on Foreign Affairs).<sup>51</sup>

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<sup>49</sup>*Little Traverse Bay Bands, supra*, note 9.

<sup>50</sup>*An Act to amend the International Boundary Waters Treaty Act*, S.C. 2001, c. 40.

<sup>51</sup>Although this was the primary context in which the implications of international trade law were discussed subsequent to the 2000 Report, the Canadian government also noted, in response to the Report’s Recommendation IX (that the two governments “should direct more effort to allaying the public’s concern that international trade obligations could prevent Canada and the United States from taking measures to protect waters in the boundary region”), that it agreed with this suggestion and in this respect had issued, in February 2001, an update of a November 1999 position paper from the Department of Foreign Affairs and International Trade on *Bulk Water Removals and International Trade Considerations* (attached as Appendix II to the February 2002 response by the Government of Canada, *infra*, note 48).

The amendments added a number of sections to the existing act implementing the Boundary Waters Treaty. The key provisions are found in sections 11 and 12 (licences) and section 13 (prohibitions). The provisions on licences were relatively non-controversial and were generally regarded as a “housekeeping” measure to facilitate Canada’s compliance as necessary with its existing obligations under the Boundary Waters Treaty. Section 11 addresses boundary waters and requires a licence from the Minister of Foreign Affairs for a person to “use, obstruct or divert boundary waters, either temporarily or permanently, in a manner that affects, or is likely to affect, in any way the natural level or flow of the boundary waters on the other side of the international boundary.”(s. 11(1)) However, exceptions are made for “the ordinary use of waters for domestic or sanitary purposes, or the exceptions specified in the regulations.” (s. 11(2)) Section 11 clearly reflects the obligations on Canada under Article III of the Boundary Waters Treaty. Section 12 similarly reflects Canada’s treaty obligations under Article IV in requiring a licence to “construct, maintain, either temporarily or permanently, any remedial or protective work of dam or other obstruction in waters flowing from boundary waters, or in downstream waters of rivers flowing across the international boundary, the effect of which is or is likely to raise in any way the natural level of waters on the other side of the international boundary.” Again, exceptions may be provided for by regulation.

The section that attracted more comment in the course of the parliamentary committee hearings was section 13, which provides that, notwithstanding section 11, “no person shall use or divert boundary waters by removing water from the boundary waters and taking it outside the water basin in which the boundary waters are located.” (s. 13(1)) Moreover section 13 also includes a “deeming” provision (s.13(2)) in which any such removal “is deemed, given the cumulative effect of removals ... to affect the natural level or flow of the boundary waters on the other side of the international boundary.” However, section 13 applies only to water basins as described in the regulations (s, 13(3)) and is subject to exceptions as provided for in the regulations (s. 13(4)).

There was extensive debate with respect to s. 13 in the course of committee hearings, including discussion as to the possible implications of international trade law, the potential advantages and disadvantages of an outright export ban (as opposed to a prohibition on removal from basins), and the extent to which the Act or its regulations should address certain issues (especially related to the particular basins to be covered and the exceptions that would be created for ss. 11, 12 and 13).<sup>52</sup> These discussions, especially with respect to the issue of international trade law, covered many matters that were the subject of comment in the course of the Commission’s hearings held pursuant to the Water Uses Reference.

It was recognized in the committee hearings that the regulations adopted under the Act would be crucial in determining the precise nature of the regulatory regime. Indeed, this was a cause of concern on the part of some of those who spoke at the committee hearings (as well as some

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<sup>52</sup> The committees also had before them draft regulations under the proposed Act.

members of the committees). The major reason given by government representative for dealing with some of the key issues in regulations as opposed to addressing them directly in the Act was the flexibility that regulations afforded. Although the committees had before them draft regulations, the proposed regulations under the Act were not officially published for comment until June 2002, with a deadline for reception of representations of September 26, 2002.

The regulations as proposed in June 2002 address a number of technical issues relating to such matters as the required content for licence applications. However, the key issues that affect the substance of the regulatory regime as set out in the Act can be summarized briefly. These include first, a definition of the term “removal of boundary waters in bulk”; second, a listing of the water basins which are subject to the prohibition on water removal in subsection 13(1) of the Act; and third, a specification of the exceptions to subsection 13(1).

As to the first issue, “removal of boundary waters in bulk” is defined in subsection 2(1) of the proposed regulations as:

“The removal of water from boundary waters and taking the water, whether it has been treated or not, outside the water basin in which the boundary waters are located

(a) by any means of diversion, including by pipeline, canal, aqueduct or channel; or

(b) by any other means by which more than 50,000 L of boundary waters are taken outside the water basin per day.”

Section 2 of the regulations also provides the following important exceptions (s. 2(2)):

“The removal of boundary waters in bulk does not include taking a manufactured product that contains water, including water and other beverages in bottles or packages, outside a water basin.”

With respect to the issue of which basins are covered by the legislation, pursuant to section 5 of the regulations as proposed, subsection 13(1) of the Act applies only to the Canadian portion of the Great Lakes - St. Lawrence Basin, the Hudson Bay Basin and the Saint John - St. Croix Basin.

Finally, regarding the exceptions to subsection 13(1), which was a matter of intense interest in the committee hearings, three types of exception are created in section 6 of the proposed regulations: subsection 13(1) of the Act “does not apply to the removal of boundary waters other than the removal of boundary waters in bulk” [as defined in section 2 of the regulations] (s. 6(1)); nor to “the removal of boundary waters used in a conveyance, including a vessel, aircraft or train, (a) as ballast; (b) for the operation of the conveyance; or (c) for people, animals or goods on or in the conveyance (s. 6(2)); nor to “boundary waters used in a non-commercial project on a short

term basis for firefighting or humanitarian purposes.”

One other aspect of the amendments to the *International Boundary Waters Treaty Act* that also are relevant to the 2000 Report relate to the interests of Aboriginal Peoples and Indian tribes in the waters of the Basin. In the course of the consideration of Bill C-6, the issue of Aboriginal and Treaty Rights was raised and a new section was added to the legislation as finally passed (s. 21.1), providing:

“For greater certainty, nothing in this Act shall be construed so as to abrogate or derogate from the protection provided for existing aboriginal or treaty rights of the aboriginal peoples of Canada by the recognition and affirmation of these rights in section 35 of the *Constitution Act, 1982*.”

The Canadian federal government has also followed, and responded to, the developments that have taken place in the context of the Great Lakes Charter – and specifically to the Annex 2001 process, discussed above in the section on U.S. domestic developments. In its comments to the Council of Great Lakes Governors on Annex 2001<sup>53</sup>, while the Canadian government expressed its appreciation for “the key role played by members of the Great Lakes Charter ... in the management and protection of the Great Lakes”, it also admitted to having “serious concerns about the proposed standard in the Annex...” It identified three concerns in particular:

- first, that “the standard proposed is too permissive, and could compromise the ecological integrity of the Great Lakes Basin by the cumulative impacts of diversions below the *de minimis* threshold<sup>54</sup>, as well as opening the door to long-distance, large-scale removals out of the basin”;
- second, that “there are a number of unanswered legal and jurisdictional questions, not the least of which is the possibility of conflict between the Annex and the *Boundary Waters Treaty*, thereby diminishing the importance of the protections the latter offers to the Great

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<sup>53</sup>“Comments from the Government of Canada on Annex 2001 to the Council of Great Lakes Governors”, February 28, 2001. The Comments may be found as Appendix 1 to the “Government of Canada Response to the International Joint Commission Final Report THE PROTECTION OF THE WATERS OF THE GREAT LAKES (February 8, 2002). The comments were with respect to the proposed Annex 2001. While there are some differences between the proposed and final version of the Annex, the comments on the proposed version are germane to the final version as adopted, which in general retains the features of the proposed version that caused the Canadian government concern.

<sup>54</sup>The reference to a *de minimis* threshold was deleted in the final draft of Annex 2001.

Lakes”; and

- third, that there is a the lack of “clarity on a number of important aspects related to implementation...”

As to the first of these issues – the permissiveness of the proposed standard – one of the key objections that was raised by Canada, apart from the appropriate level for the *de minimis* threshold, was the treatment of in-basin and out-of-basin uses. In this respect, there is a key difference of opinion insofar as “Canada considers that an environmental approach which treats in-basin and out-of-basin uses differently is the most effective way of protecting the Great Lakes.” The Canadian rationale for this asymmetric treatment is based both on the desirability of preventing the introduction of invasive species, pathogens and pollutants, and on the view that as a practical matter, while “[b]ulk removal outside the basin represents a permanent loss to the basin and is not a sustainable use of water ... [w]hen water is withdrawn within the water basin, most of it usually returns to the boundary waters by a natural route [so that] there is essentially no or little loss to the system.”

With respect to the legal and jurisdictional issues raised in the Canadian government’s response, Canada has suggested a number of possible concerns involving potential non-compatibility between the Annex and both the Boundary Waters Treaty and the Great Lakes Water Quality Agreement. Additionally, the response notes that to the extent that the Annex contemplates a binding international agreement between provinces and U.S. states, it raises certain problems as a matter of international and Canadian constitutional law. This problem has been discussed above in the context of the ability of states within the United States to engage in binding international agreements.<sup>55</sup> In Canada, it has been a longstanding position of the federal government that, notwithstanding the silence of the Constitution Act on the matter, the power to enter into such agreements is exclusive to the federal Crown.<sup>56</sup> This does not mean that it is impossible for Canadian provinces to enter into arrangements that may have binding international effect, but this would require the facilitation of the federal government. There have been a number of techniques

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<sup>55</sup>The term “binding international agreements” here refers to those agreements with foreign governments that are governed by international law (as opposed, for example, to contracts that provinces may enter into across international borders with various entities, and which would typically be governed by domestic law). In Canada and in most other countries, these would be referred to generically as treaties, although the term treaty is not used here since it has a special meaning in U.S. constitutional law.

<sup>56</sup>The Constitution is silent in this respect since at the time of Confederation Canada did not have such a power, which was exercised on its behalf by the Imperial Government in London.

that have been used in this respect<sup>57</sup> – including the use of indemnity agreements<sup>58</sup>, *ad hoc*<sup>59</sup> covering agreements, and framework agreements (or *accords cadres*)<sup>60</sup>. All these techniques, however, require the participation of the federal government, and under all of them it would be Canada as a whole that would bear responsibility at international law for any breach of obligations

### 3. Remaining Issues

Since the publication of the Commission's 2000 Report, the basin states along with Ontario and Quebec have been engaged in an on-going process that is intended to implement the report's primary conclusions, principles and recommendations. The states and provinces are committed to an open-ended, inclusive process that listens to a wide range of stakeholder and expert opinions. The bodies have not yet adopted a decision standard and they have not yet agreed upon the form

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<sup>57</sup>See generally: Canada, Department of External Affairs, FEDERALISM AND INTERNATIONAL RELATIONS (1968).

<sup>58</sup>Where the federal government enters directly into an agreement with a foreign state for the benefit of a province or provinces, and, typically also, where the obligations are to be carried out at the provincial level. Since Canada is legally liable at international law for any breach of the agreement, the federal government also enters into a separate agreement with the province(s) in question, providing for indemnification in the event that a failure by the latter to comply with international obligations gives rise to a financial claim on Canada. This technique was employed in the Columbia River Treaty and Protocol.

<sup>59</sup>Where an exchange of notes between the federal government and a foreign state provides the necessary assent to an international arrangement that has been agreed to between a province and a foreign state. It is important to note in this respect that “[t]he exchange of notes gives international legal effect to the arrangements between the province and the foreign entity, *but does not involve the province itself acquiring international rights or accepting international obligations*. Only the Canadian Government is bound internationally by the agreement, but the province participates fully in treaty-making through co-operation with the federal authorities.” FEDERALISM AND INTERNATIONAL RELATIONS, *supra*, note 52 (emphasis added). This technique was employed in the Quebec-France education entente of 1965.

<sup>60</sup>A technique that “is similar to the *ad hoc* approach ... except that it is not intended to be restricted in its application to a specific agreement between a province and a foreign entity, but rather to allow for future agreements in a given field by any province which may be interested. *As in the case of the ad hoc procedure, the Federal Government remains responsible in international law for such arrangements.*” FEDERALISM AND INTERNATIONAL RELATIONS, *supra*, note 52. This technique was used in the 1965 Canada-France agreement on cultural collaboration.

of the binding agreement nor have they resolved other important issues.<sup>61</sup> For example, the states and provinces are still considering whether it is legally and otherwise feasible to have different standards for in-basin use and out-of-basin diversions, the threshold in-basin use/out-of-basin diversion levels that will trigger review and application of the proposed standards, the geographic scale which should be used to review small in-basin use/out-of-basin diversions, how to measure improvements to the Great Lakes system, and the availability of the information necessary to support the proposed standards and decision process.

As of this writing, the Canadian federal legislation amending the *International Boundary Waters Treaty Act* has yet to be proclaimed. As a practical matter, this will have to await the adoption of the regulations. As noted earlier, the proposed regulatory text was issued for representations on June, 2002 for a period of 75 days (that is, until September 26). The final shape of the regulatory regime will therefore depend upon any changes that follow on the comments received by the Department of Foreign Affairs and International Trade. It is not currently expected that there will be any major substantive changes in the regime as described earlier in this chapter.

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<sup>61</sup>These issues are discussed in more detail in the chapter on Decision Making Regarding Consumptive Uses and Removals.

## WATER USE DATA AND RELATED INFORMATION

### **1. Situation as of February 2000**

In its description of water use in the Great Lakes basin provided to governments in its 2000 final report, the Commission drew upon data sets provided by the Great Lakes Commission (GLC), the U.S. Geological Service (USGS) and Environment Canada (EC). Because the data spanned several years (1978-1998) and the methods of data collection varied from jurisdiction to jurisdiction, the Commission recognized that trend analysis and jurisdictional comparisons were difficult and so focused on overall aggregate Basin figures for withdrawals and consumptive use. For the year 1993, the data indicated that withdrawals from the Great Lakes Basin amounted to an estimated 2,493 cms (88,060 cfs), with consumptive use estimated to be 121 cms (4,270 cfs). Looking forward, the Commission acknowledged that withdrawal demand would undoubtedly increase, but that “it is impossible to say with confidence just how much the increase will be.” For consumptive use, however, the Commission noted that there was no similar agreement on the most likely future increase: one prediction had consumptive use rising 2 percent by 2040; another had use falling 2-3 percent by 2020; a third had use rising 25 percent by 2020; and a “conservation scenario” predicted a rise in use of 3 percent by 2020.

Following its conclusion that “existing water data, much of which is out of date, do not provide a reliable basis from which to predict future demand,” the Commission<sup>62</sup> proceeded to make the following recommendation on data and research:

#### Recommendation V. Data and Research

Federal, state and provincial governments should move quickly to remedy water use data deficiencies by:

- c. allocating sufficient staff and financial resources to upgrade the timeliness, precision, and accuracy of water use data,
- d. working much closer together to ensure consistency in water use monitoring, estimation techniques, and reporting,
- e. emphasizing and supporting the development and maintenance of a common base of data and information regarding the use and management of the water resources of the Great Lakes Basin, establishing systematic arrangements for the exchange

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<sup>62</sup> International Joint Commission, Report on Protection of the Waters of the Great Lakes, February, 2000.

of water data and information, and undertaking coordinated research efforts to provide improved information for future water planning and management decisions.

Furthermore, governments should immediately take steps to ensure that, on a binational basis, research is coordinated on individual and cumulative impacts of water withdrawals on the integrity of the Great Lakes Basin ecosystem. In support of their decision-making, governments should implement long-term monitoring programs capable of detecting threats (including cumulative threats) to ecosystem integrity. Such monitoring programs should be comprehensive, particularly in their approaches to detecting threats to ecosystem integrity at a spectrum of space and time scales.

As part of an anticipatory policy for identifying emerging issues, governments should, on a binational basis, undertake more active science and research, and in particular, should implement appropriate long-term monitoring programs for key indicators of ecosystem change.”

## **2. Recent Developments**

In its response to the Commission’s 2000 report, the Government of Canada said that plans were “evolving to modernize the Government of Canada’s water monitoring network in order to enhance Canada’s ability in addressing emerging trends across the country in the Great Lakes basin. The Government of Canada will continue working with provinces and territories as well as academia, the private sector, and other partners to address problems associated with data collection, management and accessibility, and to explore innovative ways of monitoring the aquatic environment.” Environment Canada and Ontario have initiated a joint federal/provincial water use and supply project, scheduled for completion in 2005, to gain baseline information on water supply, use and demand at a sub-basin level, identify the ecological sensitivities of the system to water resources and make projections for the future including the potential impacts of climate change.<sup>63</sup>

The primary U.S. response to the Commission’s 2000 report has been at the state level. At the federal level, the USGS National Water-Use Information Program (NWUIP) is responsible for compiling and disseminating the nation’s water-use data. USGS works in cooperation with local, state, and federal agencies that collect water-use information at a site-specific level and compiles the data from hundreds of thousands of these sites to produce water-use information aggregated up to the county, state, and national levels. Every five years, USGS compiles data and publishes a national water-use data report. In the Commission’s 2000 report, the Commission drew upon the data in the USGS five-year report for 1995. The task force has learned that USGS is scaling

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<sup>63</sup> Environment Canada website

back its 2000 report, in part because its program is underfunded and in part because of concerns that certain features of the report, in particular estimates of consumption, lack a sufficient basis in fact to warrant publication. The USGS 2000 report, when issued, will not include consumption estimates; nor will it include data aggregated by basin. The data for the USGS 2000 are still being compiled and reviewed.

At the federal level in Canada, Environment Canada and Statistics Canada have been conducting national water use surveys and publishing related reports on a five year cycle. However there are now early indications that those surveys may be scaled back or perhaps even discontinued in the near future due to budgetary constraints. Cutting back on data collection and analysis may not be damaging in the short term, but good collection and analysis of water use will remain valuable. Governments should recognize that it need not be an all or nothing situation. Taking into account what we already know about water use, it would likely be possible to design very low cost sampling programs that could provide adequate information.<sup>64</sup>

In the Great Lakes Basin, the states and provinces, with support from US and Canadian federal agencies, have set in motion a robust effort to respond to the Commission's recommendations on water use data. In Directive #5 of Annex 2001,<sup>65</sup> the Great Lakes Governors and Premiers "call for the design of an information gathering system to be developed by the States and Provinces, with support from appropriate federal government agencies, to implement the Charter, this Annex, and any new agreement(s). This design will include an assessment of available information and existing systems, a complete update of data on existing water uses, an identification of needs, provisions for a better understanding of groundwater, and a plan to implement the ongoing support system."

The state-provincial effort to implement the data recommendations in the Commission's report and in Annex 2001 is centered at the Great Lakes Commission. The Great Lakes Protection Fund is providing financial support to the GLC to develop a framework for a comprehensive decision support system to provide the data, information, and process required to ensure timely and well informed public policy decisions concerning the use and management of surface and groundwater in the Great Lakes system. Items that are part of the overall effort include literature reviews on various data and measurement issues, workshops, and papers on topics pertinent to the needs of any decision support system that may be developed. The GLC's annual report on water use is a key element of this effort.

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<sup>64</sup> Personal communications with Don Tate, Canadian consultant.

<sup>65</sup> Council of Great Lakes Governors, Great Lakes Charter Annex, June, 2001.

## 2.1 Annual Report of the Great Lakes Region Water Use Database Repository (1998)

Much of the description of water use in the Commission's 2000 report is based on information collected by the GLC for its 1993 annual report. Due to a lack of sufficient current information from the states and provinces, GLC did not produce annual reports for the years 1994-1997. It has recently completed its 1998 report,<sup>66</sup> is working on reports for 1999 and 2000, and hopes to fill in the gaps from 1994 to 1997. The task force was only able to compare the data set in the 1998 report with the (1993) data set used by the Commission in its 2000 report.

The 1998 to 1993 comparison of GLC's data shows that water withdrawals (all categories but hydroelectric) from the Great Lakes appear to have fallen by 17% from 56,920 mgd to 47,230 mgd. Consumption, which is calculated by using coefficients that did not change between 1993 and 1998, is reported to have decreased by 18% from 2639 mgd to 2168 mgd over the five year period. The following table provides a jurisdiction-by-jurisdiction comparison of withdrawals and consumption changes between 1993 and 1998:

	<b>Withdrawals 1993</b>	<b>Withdrawals 1998</b>	<b>Consumption 1993</b>	<b>Consumption 1998</b>
<b>Illinois</b>	4194/15876	2327/8809	37294	37256
<b>Indiana</b>	2956/11190	3020/11432	181/685	196/742
<b>Michigan</b>	11166/42268	8812/33357	589/2230	548/2074
<b>Minnesota</b>	430/1628	558/2112	62/235	88/331
<b>New York</b>	534420299	4754/17996	169/640	306/1158
<b>Ohio</b>	3361/1273	3093/11708	160/606	166/628
<b>Ontario</b>	20572/77873	16570/62724	760/2877	478/1809
<b>Pennsylvania</b>	86/326	89/337	13/49	14/53
<b>Quebec</b>	1372/5194	1372/5194	158/598	158/598
<b>Wisconsin</b>	7439/28160	6633/25222	544/2059	213/806
<b>Total</b>	56920/215466	47228/178777	2638/9986	2167/8203

Unit: mgd/mld

Organizing the withdrawal data by category of use produces the following chart for the years

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<sup>66</sup> Annual Report of the Great Lakes Regional Water Use Database Repository - Representing 1998 Water Use Data in Gallons, Great Lakes Commission, July, 2002.

1993 and 1998:

	<b>1993</b>	<b>1998</b>
<b>Public Supply</b>	6650/25173	6712/25408
<b>Irrigation</b>	1014/3838	434/1643
<b>Industrial</b>	6883/26055	4934/18677
<b>Nuclear Power Plants</b>	23672/89608	14133/53499
<b>Fossil Fuel Plants</b>	16114/60998	19791/74917
<b>Self-supplied Domestic</b>	828/3134	453/1715
<b>Livestock Watering</b>	107/405	131/496
<b>Other</b>	1654/6261	639/2419
<b>Total</b>	56922/215473	47227/178774

Unit: mgd/mld

Some changes from 1993 to 1998 are relatively easy to identify. For example, the large drop in withdrawals in Illinois is largely due to the fact that a nuclear-power plant was taken off line between 1993 and 1998, reducing water withdrawals by over 1700 mgd; and one can be fairly certain that the changes in the nuclear and fossil fuel power plants categories stem from plants coming on or going off line.

Most items, however, are more difficult to explain. Did withdrawals in Michigan, for example, actually drop between 1993 and 1998 or were the estimates used in 1993 high? Why do the data show a drop in Ontario in both consumption and withdrawal from 1993 to 1998? Is there an explanation for the drop in irrigation and industrial withdrawal from 1993 to 1998? Water managers need to be able to answer questions like this, and the states and provinces need to work more closely with GLC to ensure that they can answer these and similar questions in the future.

Currently, the states and provinces submit their water use data to the GLC database. GLC then prepares jurisdictional summaries from the data that are submitted and asks state water officials to review their individual summaries for accuracy. The GLC's annual report would be improved if this exchange produced more explanation of the differences that crop up from year to year. As data is improved over time and differences are explained, it ought to be possible for GLC, states and provinces to identify trends. For example, water officials have already identified a link between the drop in water use in the industrial category to the fact that the U.S. Safe Drinking Water Act is pushing some industries to move onto public water supplies and forego self-supply.

The drops in the irrigation and self-supplied domestic use are more difficult to explain. Did more rain in 1998 produce less irrigation than in 1993? Did less rain lead to drought restrictions

and produce the drop in irrigation? Or is the drop in the irrigation data due to a change in the way the data was collected and estimated? Michigan, for example, improved its data submission effort for the 1998 report, making more extensive use of a model to estimate its agricultural use. Did self-supply domestic use drop because more homes were linked to the public supply? What is the effect of conservation in all categories? What is the effect of changes in state/provincial reporting techniques? To repeat, states and provinces could assist in the analysis by working with GLC to explain changes and to attempt to identify trends in the data they submit. As the Commission's 2000 report indicated, there are significant differences in future demand predictions. Better trend analysis might make it possible to narrow these differences.

## **2.2 The Problem of Estimates and Coefficients**

Most states and provinces estimate at least a portion of the water that they report as withdrawn from the basin and use coefficients to calculate the percentage of withdrawn water that is "consumed" and so not returned to the basin.<sup>67</sup> Illinois, which takes water under rules subject to a consent decree monitored by the US Supreme Court, measures all its withdrawals from all sites. Minnesota also reported its data for the GLC 1998 report as 100% measured and 100% site-specific.

There is more estimation among the other jurisdictions. For example, Ontario, which reported more withdrawal than any other jurisdiction in the 1998 report, reported 99.9% of its data as partially measured, 99.5% as site-specific. Michigan, the second largest withdrawer, turned in data that was 89% measured, 8% partially measured, 3% estimated, and 100% site-specific. Data from Wisconsin were 100% calculated or estimated and 100% aggregated (i.e., not site-specific). Indiana measured 4% of its data, partially measured another 50%, and calculated or estimated the remaining 46%, with 99% of the data site-specific. Data from New York were reported to be 100% partially measured, with all the data site-specific.

Since the region has an abundance of water, water managers do not need data that is 100% accurate to make good decisions. If states and provinces can continue to submit withdrawal data that would allow the GLC to resume its production of annual reports, water managers would be in a far better position to make informed decisions in the future about their collective and individual use of water, particularly if the states and provinces provide more trend analysis and explanation of changes when they submit their data.

While it is difficult to measure water withdrawals, developing good data for withdrawals is far easier than figuring out how much water is actually consumed. According to a briefing paper on

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<sup>67</sup>The information that follows was taken from the individual state analyses found in the Great Lakes Commissions's report.

consumptive use prepared by the GLC,<sup>68</sup> USGS adopted water use coefficients to support the National Water-Use Information Program (NWUIP) in an effort “to provide a consistent means for estimating how much water is lost through consumptive use where the information was insufficient for calculating consumptive use by subtracting return flows (and conveyance losses) from withdrawals.” In practice, rarely can water consumption be measured by simply subtracting return from withdrawal. In its 1980 report on national water use, the first five-year report since establishment of the NWUIP, USGS did not refer to coefficients when reporting consumptive figures. It did report the use of coefficients in its 1985, 1990, and 1995 reports, modifying the coefficients uses slightly from one report to the next.<sup>69</sup> In the run-up to its 2000 report and an internal review of the NWUIP, USGS became concerned that the coefficients being used lacked any real scientific basis and has decided not to include consumption estimates when it issues its 2000 report.

The uncertainty at USGS will undoubtedly spill over into the states and provinces. Pebbles’ examination of the use of coefficients at the state/provincial level indicates that “Great Lakes states and provinces generally are unable to find documentation, either published or unpublished to validate the coefficients that have been adopted. . . . Notwithstanding the lack of documentation or scientific basis for the use of consumptive use coefficients used by Great Lakes jurisdictions, state and provincial officials generally believe that such coefficients are worthwhile for having some sense of consumptive use losses to various water users. . . . Officials also generally agreed that having consistent coefficients among all Great Lakes jurisdictions was important for making Great Lakes water resource policy decisions.”

Having identified the problem, it will be important for national, state, and provincial jurisdictions to fix it. Water managers need to be able to estimate consumption and states and provinces ought to be able to develop coefficients that have documented basis in fact for common use. The effort underway at the GLC to develop better estimation and monitoring techniques should improve the quality of data over time and provide the USGS with the defensible coefficients.

### **2.3 Demand Forecasting**

The Great Lakes Commission reports sporadic forecasting efforts in some states.<sup>70</sup> For example, Illinois prepares forecasts every 8 - 10 years for a 20 - 40 year period, Minnesota has done some

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<sup>68</sup> Victoria Pebbles, *Consumptive Use of Great Lakes Waters*, July, 2002.

<sup>69</sup>In the Great Lakes Commission’s reports, the coefficients did not change from 1993 to 1998.

<sup>70</sup> Dan Blake, *Report on State and Provincial Water Use and Conservation Programs in the Great Lakes - St. Lawrence River Basin*, great Lakes Commission, May, 2002.

forecasting in the Twin Cities Metro area, Ohio prepares forecasts periodically, most recently in 1996 and 1998, and Pennsylvania forecasts demands on public supply systems on a 5 - 10 year basin. As part of the Canada-Ontario program, forecasts have been developed at a sub-basin level in Ontario. However, there does not appear to be any ongoing or cooperative demand forecasting activity for the Great Lakes Basin as a whole.

A brief review of past efforts to estimate basin-wide consumption and forecast future demands is not encouraging. All units in the following chronology are in cubic feet per second (cfs) to facilitate comparisons with early studies.

- In 1973, the International Great Lakes Levels Board<sup>71</sup> estimated consumptive use in 1965 at about 2300 cfs (1485 mgd), and projected uses in the year 2000 at about 6000 cfs (3780 mgd).
- In 1981, the International Great Lakes Diversions and Consumptive Uses Study Board<sup>72</sup> placed consumption at about 5000 cfs (3230 mgd) in 1975, and projected growth to about 9900 cfs (6400 mgd) by the year 2000.
- In 1985, the IJC's Great Lakes Diversions and Consumptive Uses Report<sup>73</sup> estimated 1980 uses at between 3000 cfs (1940 mgd) and 6000cfs 3890 mgd), and projected increases to between about 6000 cfs (3890 mgd)and 8000 cfs (5170 mgd) by the year 2000.
- In 2000, the IJC's Report on Protection of the Waters of the Great Lakes reported a 1993 estimate by the Great Lakes Commission of about 4270 cfs (2760 mgd).
- The most recent estimate of 1998 uses by the Great Lakes Commission places them at about 3350 cfs (2168 mgd).

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<sup>71</sup> International Great Lakes Levels Board, Regulation of the Great Lakes, Appendix B, December, 1973.

<sup>72</sup> International Great Lakes Diversions and Consumptive Uses Study Board, Great Lakes Diversions and Consumptive Uses, Annex G, September, 1981.

<sup>73</sup> International Joint Commission, Great Lakes Diversions and Consumptive Uses, January, 1985.

Clearly, all attempts to define the magnitude of the consumptive use “problem” over the past several decades have overestimated and overstated its urgency. While very important at a local level, it is now becoming clear that on a basin-wide scale, current consumptive uses probably represent only about 1 % - 2 % of the renewable supplies, and that it is quite possible that they may have already leveled off as conservation efforts begin to take effect. This preliminary conclusion, if verified, could have extremely important policy implications.

## **2.4 Water Balance**

As part of its effort to facilitate the construction of a water resources management system for the Great Lakes, GLC is also preparing a paper on the water balance of the lakes.<sup>74</sup> Attempting to quantify the amount of water entering and leaving the lakes is a complex process. It is impossible to measure the flow in every stream, and the measurements from those streams that are gauged include a margin of error. Nor can one measure the exact amount of precipitation falling in the Basin or the evaporation leaving the Basin. Water enters and leaves the basin at different rates, depending on the time of year, and estimates must be used for almost all categories. The water balance paper, when completed, should clarify a variety of issues surrounding the measurement and estimation of water entering and leaving the Basin through a variety of paths and suggest ways the states and provinces might improve data collection. For example, the discussion of streamflow and precipitation gauging might lead to more standardization among the jurisdictions. At a minimum the water balance paper will provide water managers with a tool that will facilitate their discussion of key data issues involved in creating and maintaining a water resources management system. It is important to note that, even though some individual components of the water balance have large errors, the impact of specific man-made changes on water levels can be very accurately estimated. That is because changes in net basin supply are routed rather than the components of net basin supply, and net basin supply can be calculated from direct measurements of water levels and flows.

## **3. Remaining Issues**

The most critical remaining issue is an urgent need for all governments to promptly come to a collective conclusion about the real magnitude of the consumptive use “problem”. As was noted in the section on demand forecasting, based on what we now know, it is now believed that the “problem” has been consistently and significantly overstated for the last several decades. Before rushing to judgement on an appropriate solution, governments should as a matter of the highest priority take a step back and reassess the situation.

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<sup>74</sup> Brian Neff, Roger Gauthier, Chuck Southam, The Great Lakes Water Balance: Errors White Paper, 2002 (draft).

States and provinces, with the assistance of Canadian and US federal agencies and various stakeholders, have launched a major effort to develop a decision support system for the management of the Great Lakes. When complete, water managers will have an array of information – analytical papers on, e.g., water resources, consumptive use, modeling; literature reviews and bibliographies on, e.g., water balance, consumptive use and ecological impacts; and summaries of workshops on diversions and flow accounting, scenario evaluation and resource improvement standard – that has been prepared by staff and reviewed by technical committees, a project management team of state/provincial water officials and stakeholders. GLC will make final products available to the public on the internet. The target date for a report on early efforts is October of 2002.

The effort now underway at GLC will result in a substantial expansion of the current knowledge base on water supply and use. It will be important for states and provinces to sustain the effort. In this regard, the GLC's annual report on water use and consumption serves as a kind of "canary in the mine" as evidence of the commitment in the states and provinces to proper water management. If GLC is able to resume the production of its annual reports, can begin to identify concrete reasons for yearly changes in data, and can work with the states and provinces to identify trends, it might indicate that public officials have significantly stepped up their level of commitment to protect the waters of the Great Lakes. For the annual report to become an effective tool, states and provinces must not only regularly collect and submit data, they must also intensify and improve measurement, refine estimates, and validate consumption coefficients. Something along the lines of the structure created for the current effort – staff/contractor, technical committees, project management team, stakeholder advisory council – might be a useful long-term tool to help ensure that the commitment we see now lasts.

As indicated, the joint project between Environment Canada and Ontario, which is scheduled to run until 2005, should provide valuable information about water use in Ontario. Information from this effort is already being fed into the state/provincial effort underway at GLC. Changing the USGS's National Water-Use Information Program, while not directly a response to the Commission's 2000 report, is a positive step if the changes lead to greater accuracy for data collected in the Basin, but NWUIP could cease to be effective because of lack of interest and support at both the federal and the state levels. The program provides valuable information to water managers and deserves support. A similar comment could be made about national water use surveys in Canada.

From its examination of the GLC's 1998 data on withdrawals and consumption, the Task Force was unable to identify any significant new developments that would necessitate significant changes to the description of water use in the IJC's 2000 report. Demand forecasting, while interesting, will remain of limited use unless states and provinces improve measurement and data collection, and begin to identify real trends in their historical data.