

Great Lakes Diversions and Consumptive Uses

A Report to the Governments of the
United States and Canada under the 1977 Reference

January 1985

EXECUTIVE SUMMARY

Introduction

The Great Lakes, their connecting channels and the St. Lawrence River have been the key to the development of the industrial heartland of North America, providing economical and efficient transportation; low-cost hydro-electric power; abundant water supplies for domestic, agricultural and industrial needs; and for depositing municipal and industrial discharges. Estimates of economic activity in 1975 amount to some \$155 billion in the United States portion of the basin and some \$27 billion in the Canadian portion. In addition to their economic and social value and the contribution the Great Lakes make to the quality of life of the citizens of the basin, their environmental value is incalculable, containing as they do numerous species of mammals, reptiles, birds, fish and plants.

The basin's abundant water supply has largely been taken for granted, for the lakes are the largest freshwater chain in the world and store about one-fifth of the world's fresh water. Serious disputes have not arisen between the United States and Canada regarding the use of this shared resource, even though all of the water the basin contains is currently being utilized in some way. There is in effect no 'surplus' resource, but rather competition among users. Yet if demands on the resource increase, the competition among users, both domestic and international, will do likewise. It is appropriate, therefore, to examine existing and potential activities that have or could have a significant impact on the supply and consequently the sharing of the resource.

This Report of the International Joint Commission concerning diversions and consumptive uses of Great Lakes water has been prepared in response to a reference from the Governments of Canada and the United States, dated February 21, 1977, and continues the Commission's long involvement in Great Lakes water quantity issues, which first emerged through concern about lake levels. The Commission established the International Great Lakes Diversions and Consumptive Uses Study Board (the Study Board) to conduct the required technical investigations.

The Commission's Report on the reference is in two parts. Part One examines the effects of existing diversions, the potential to improve extremes in Great Lakes levels by changing existing diversion flow rates, and existing and projected consumptive uses in the Great Lakes basin. Part Two provides a broader and more appropriate context within which to address the longer-term prospects for the use of Great Lakes water.

Part One: Diversions

The Commission reviews the existing diversions at Long Lac, Ogoki, Chicago, and the Welland and New York State Barge Canals. The review shows that the diversions at Long Lac, Ogoki, Chicago and the Welland Canal have produced changes in Great Lakes levels and outflows, though the hydraulic effects are small in relation to the natural ranges on the lakes. The New York State Barge Canal diversion has no hydraulic effect on any of the Great Lakes. The diversions have also increased the long-term mean outflows from each lake, but the current regulation plans for Lakes Superior and Ontario have been designed to accommodate these diversions.

The Commission finds that while each diversion has been analysed to the extent possible within the constraints of the investigation, the information available is insufficient to draw any cumulative basin-wide economic or environmental implications. For many reasons discussed in the Report, the economic analysis must be treated with caution as a basis for decision-making.

With respect to the existing diversions, the Commission notes that there is a history of consultation and a recognition of the legitimate interests of both countries that has, regardless of legal considerations, by and large been reflected in mutual co-operation and concern. Nevertheless, there are several matters regarding existing diversions, both large and small, that might usefully be examined by Governments. For example, the Commission finds that although most data on existing major diversions are reported regularly to both Governments, through the Commission or otherwise, this does not appear to be the case for small diversions. In addition, the international requirements under the 1909 *Boundary Waters Treaty* with respect to both large and small diversions of boundary waters are not explicit, nor is any consistent practice followed.

The Report examines the Increased Lake Michigan Diversion at Chicago Demonstration and Study Program authorized by the U.S. Congress in October 1976. The study portion of the program resulted in several computer model simulations of large diversion increases; they determined that such increases were not economically justified. The demonstration part of the program was never funded and no actual demonstrations were conducted. The Commission finds that there are now no sponsored or approved new or changed major diversions in the basin.

With this in mind the Commission suggests that in planning for the future Governments develop policies that would provide adaptive mechanisms for dealing with change and the unexpected. The Commission believes that this process will be evolutionary in nature, similar to the process that has emerged in addressing the issue of Great Lakes water quality. In this regard the Commission expects Governments will engage in water quantity discussions well in advance of and separate from the formal review of the 1978 *Great Lakes Water Quality Agreement*, and the Commission supports these early initiatives. It may also be useful for Governments to incorporate as they deem appropriate the relevant observations and conclusions of this Report at the time of the review.

The Commission notes that several anticipatory initiatives have already been or are being undertaken by the Parties and jurisdictions in the Great Lakes basin. The Commission believes that all these discussions and studies are important and relevant and should be encouraged, for they are all clearly germane to the issue of the diversion and consumptive uses of Great Lakes basin water.

Recommendations

Based on the foregoing considerations and conclusions, the Commission's response includes the following recommendations, which the Commission believes will assist Governments in effectively addressing future considerations regarding the use of Great Lakes water:

1. Regarding the general aspects of diversions and consumptive uses –
 - a) Governments establish a bilateral data committee, separate from the Commission, to monitor all existing diversions and consumptive uses in the Great Lakes basin and publish data as appropriate, but no less frequently than biennially. This committee would also recommend appropriate additional research and monitoring efforts that would be necessary to develop the methodology and data to derive a more accurate estimate of existing consumptive uses in the Great Lakes basin. The committee's report should be made public.
 - b) Governments authorize the establishment of a bilateral task force on diversions and consumptive uses, either by a reference to the Commission or otherwise. The task force would be created periodically, but no less frequently than every five years, and would update previous consumptive use projections, assess the impacts of those projections, review the potential for new or changed diversions, and make appropriate recommendations.
2. Regarding existing and future small diversions, Governments institute surveys on both sides of the border to identify and quantify existing and proposed small diversions and establish a mechanism whereby information is made available to the bilateral data committee.
3. Regarding the management of existing diversions to ameliorate high and low levels –
 - a) Governments not consider under present conditions the further management of Great Lakes levels and outflows through the manipulation of existing diversions.
 - b) Governments take steps to ensure that better coastal zone management practices are followed to help reduce flood and erosion damage along the Great Lakes shoreline.
4. Regarding federally, state or provincially sponsored or approved new or changed diversions –
 - a) Governments resolve the questions discussed in Chapter III of this Report.
 - b) Governments engage in a process of notice and consultation before additional new or changed diversions are approved.
5. Regarding the broad aspects of this report, federal, state and provincial governments undertake appropriate measures to inform the public of the results of this study and to initiate an educational effort directed toward better understanding of the nature and effect of consumptive uses.

ommendations. Governments should agree to consult on each task force report. The task force would use information from the bilateral data committee, as well as other sources, and would build on the existing methodology developed in each country. The task force should have available to it pertinent social, economic and demographic data both within and outside the Great Lakes basin context, but would likely need to concentrate initially on the principal water use sectors of power and manufacturing. Membership on each task force would be determined by the nature of the primary issues at that time.

- c) Governments institute a co-operative review of current public policies at the federal and state/provincial levels to identify those having an effect on consumptive uses and to examine any that appear to have a significant potential for reducing such use.
- d) Governments, taking into account the existing and possible future diversion of water into the Great Lakes, consult on the status of waters so diverted.

