GREAT LAKES

MANAGEMENT PROBLEMS

SERIES

NATURAL RESOURCES MANAGEMENT IN THE GREAT LAKES BASIN

BY

JAMES ARTHUR BURKHOLDER

Cornell University
Ithaca, New York

NEW YORK STATE SEA GRANT PROGRAM

99 WASHINGTON AVENUE

ALBANY, NEW YORK 12210

MAY 1973

NATURAL RESOURCES MANAGEMENT IN THE GREAT LAKES BASIN

by

James Arthur Burkholder

Cornell University
Ithaca, New York

A Member of the New York State Sea Grant Program -
A Consortium of the State University of New York and Cornell University

The work upon which this report is based and its publication and distribution were supported by funds provided by:

The New York State Sea Grant Program, United States Department of Commerce, National Oceanic and Atmospheric Administration;

The United States Department of the Interior, Office of Water Resources Research, as authorized under the Water Resources Research Act of 1964, as amended; and

The Institute of Water Resources, U. S. Army Corps of Engineers.

FOREWORD

One of the major tasks before us as we move into the end of the present century is bridging the gap that persists between the generation of new knowledge at a rate unmatched in human history and the effective application of this knowledge to pressing social and environmental problems. As population grows, industry and agriculture expand and resource consumption increases, the residuals of production and consumption place ever greater stresses on the physical environment. Nowhere is this more evident than in the Great Lakes Basin.

We in North America have reached that point at which environmental quality has taken its place in the arena of public issues. Citizens are now applying pressures on their governments as a means of defending certain values that had lesser priority in earlier days. While recognizing that a beginning has been made, the facts of the matter are that we are not managing well our natural resources and that progress will continue to be slow and halting unless the requisite political will for some fundamental changes emerges.

There are a number of common factors that account for our inability to respond more effectively to the challenges to managing not only our water and land resources, but other social problems as well. A listing of a few of the more significant factors affecting resource management include: the diffused public interest; differing views about national priorities; inadequate legislation and enforcement; special interest politics; fragmentation of responsibilities within and among governments; and organizational jealousies. These elements operate individually and jointly in ways that seriously impede public programs that are designed to yield effective management of our resources.

There is, however, a more fundamental contributive factor and that is our failure to modernize the institutional structure. The institutional problem is defined as that of determining what kinds of government organizations are needed and how these organizations should be related to each other in order to achieve the most effective management of the natural resources of the Great Lakes Basin at the lowest possible economic, political and social costs. There is, of course, an existing institutional apparatus involving all levels of government in both Canada and the United States. This present structure, however, is not the product of any United States - Canadian long-term plan for the Great Lakes Basin. On the contrary, the

present mix of governmental departments, agencies, boards and commissions simply evolved over the years at a rate and to an extent that were determined by the changing limits of political feasibility in each country.

For the past two years, the Water Resources and Marine Sciences Center at Cornell University has been engaged in a series of studies of the institutional problems in the Great Lakes Basin. Perhaps the most important conclusion of our studies is that the present institutional structure for resource management in the Great Lakes Basin is inadequate and is in need of fundamental revision.

The Cornell project focusing on the institutional problems of the Great Lakes consisted of three related yet distinct research efforts.

The first commenced in early 1971 when a group of twenty graduate students representing a wide range of disciplines investigated the water and related land management problems of the Lake Ontario Basin. The approach of this graduate seminar was to attempt a comprehensive, multiple resource-use investigation which included an examination of the social, economic and political factors peculiar to the Lake Ontario Basin. The objective of the group was to consider the need for, and the formulation of an improved management scheme for Lake Ontario. A background report (350 pages) was prepared and a summary report, The Management of Lake Ontario - A Preliminary Report Proposing an International Management Organization was distributed to the Governors and Provincial Ministers Conference on Great Lakes Environmental Problems at Mackinac Island, Michigan in July 1971.

The summary report concluded, among other things, that the improved management of Lake Ontario (and by extension, all of the Great Lakes) would require either a substantial strengthening of the International Joint Commission or the establishment of an altogether new binational agency to supplant the former in the Great Lakes Basin. The report recommended a joint Canadian - United States study in this matter and, as an interim action, a reference to the International Joint Commission authorizing the Commission to establish on a trial basis a management office with rather extensive coordinative responsibilities for the water and related land resources of the lower lakes region.

The graduate student group sought, in effect, a strengthened binational apparatus, preferably one based on the existing International Joint Commission, authorized to carry out a surveillance and mediation function in the lower lakes.

Surveillance is defined in this instance as essentially an information collection, data interpretation and dissemination role. It is an activity concerned with problem definition. Surveillance includes a continuing responsibility to be aware of problems and alert to future developments. Mediation, on the other hand, encompasses the development of joint programs to attack common problems. It involves also the promulgation of regulations, schedules and uniform standards, along with appropriate means to secure implementation of those regulatory mechanisms.

While some consideration might be given to assigning a joint agency a third function - that of control, particularly in the cases of water pollution or air pollution control, that does not appear to be a feasible direction in which to proceed, at least at the present time. The governments will be better able to determine their positions with respect to vesting a joint body with an effective control function once the Great Lakes Water Quality Agreement signed by Prime Minister Trudeau and President Nixon in April 1972 has had time to operate and be evaluated.

The second phase of the Cornell project began in late 1971. In order to further test the tentative findings of the graduate student group and also to encourage a binational focus on the problem, plans were laid for a six-month seminar comprised of interested faculty from universities in Canada and the United States.

A Canada- United States University Seminar was formed by various faculty from some twenty universities and colleges in Canada and the United States. The Seminar met in three formal sessions during the period December 1971 - June 1972. Using the information and data assembled by the Cornell graduate student group as a starting point, the Canada - United States University Seminar took up the question of improving the two countries' capabilities for managing the water and related land resources of the Great Lakes. A principal objective of the faculty group was to produce a report which would promote discussion in both countries on the problems of the Great Lakes. Another purpose was to set forth in general terms the available alternatives for improving the management of the water and related land resources of the Great Lakes Basin.

A final report of the Canada - United States University Seminar has been written and the findings (1) indicate that there is a need for a modified international arrangement to cope more effectively with the existing and emerging resource-use problems affecting the Great Lakes Basin, and (2) present three alternative institutional approaches as possible guides for further discussion and debate in

Canada and the United States.

The third phase of the Cornell research effort on the Great Lakes Basin consisted of an attempt to develop further the idea of a binational management office with wide coordinative responsibilities for the Lake Erie and Ontario Basins. Concurrently with the Canada - United States University Seminar (December 1971 - June 1972), a second graduate student group at Cornell University investigated, under the guidance of Professors Leonard B. Dworsky, C. Donald Gates and David J. Allee, selected elements of a hypothetical joint management office. As part of this effort, ten graduate students completed seven theses for advanced degrees, together with three research papers on some facet of a joint regional management office.

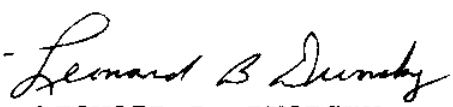
The type of joint office conceptualized is one designed to carry out a coordinative role in the management of a wide range of resource-use problems. The list of such problems used in the investigation included: water quality; municipal/industrial water supply; agricultural water supply; lake level control; hydropower; flood control; navigation; shoreline erosion; fish and wildlife protection; water-based recreation; solid waste disposal; air quality; economic development; agriculture and transportation.

In our attempt to simulate a Great Lakes operations office jointly established and operated by Canada and the United States, we endeavored to examine a selected number of those problems which both the designers of such an office as well as those who are ultimately charged with its direction would be obliged to address.

An obvious initial consideration, for example, would be the structure and functions of a modified joint agency. This topic is dealt with in Natural Resources Management in the Great Lakes Basin by James A. Burkholder. A primary task of an operations office would be the collection, interpretation and dissemination of data and information pertaining to the Basin. This important area is treated in An Information System for the Management of Lake Ontario by Dale Reynolds. The role of public participation in the activities of the proposed Basin operations office is examined in detail in Public Participation in Water and Land Management by Arvid L. Thomsen. Demographic trends and problems are traced on a national scale and then examined with respect to the Lake Ontario Basin as a case study in Toward a National Population Redistribution Policy: Some Policy Issues by Lawrence W. Saunders. The problems of

water quality management of a lake basin are considered in Opportunities for Water Quality Management: A Case Study of the Lake Erie Basin by Ralph P. Meckel. Special problems of environmental quality management along an international boundary are the subject of Environmental Management of the Great Lakes International Boundary Areas: A Case Study of the Niagara Urban Region by Donald R. Kisicki. The opportunities and problems associated with Federal and state grants for wastewater treatment facilities are discussed in two case studies in Cost Sharing in Water Pollution Abatement Facilities - Some Economic and Political Consequences by James M. Foster. Land use management as an integral part of the overall planning process is the subject of a paper Land Management in the Lake Ontario Basin by James M. Wolf. In his paper entitled Management of the Biological Resources of the Lake Ontario Basin, Douglas M. Carlson provides a comprehensive survey of the biota of the lake basin as well as an assessment of present conservation management practices. Finally, in his paper Management of Water Supply, Navigation, and Power Programs, Martin J. Murphy focuses on those water uses in the Lake Ontario Basin and the potential role of a joint operations office with respect to municipal water supply, navigation and hydropower in a new institutional framework.

These papers, of which this by James A. Burkholder is one, are offered with the hope that they will contribute usefully to the improved management of the Great Lakes of Canada and the United States.



LEONARD B. DWORSKY
Director,
Water Resources and Marine Sciences Center
Cornell University
January 1973

BIOGRAPHICAL SKETCH

The author was born in Muskegon, Michigan on October 27, 1942. He grew up and attended the St. Francis schools in Traverse City, Michigan, thereafter attending the University of Detroit, graduating in 1965 with the degree of Bachelor of Civil Engineering.

While in his last three years at the University of Detroit, Mr. Burkholder was employed as a civil engineering trainee with the U. S. Army Corps of Engineers - Detroit District. Following graduation he continued with the Detroit District, since then serving in various capacities.

In September, 1971, he entered Cornell University under the Corps Fellowship Training Program for a year of graduate studies in water resources planning and management, returning to the Detroit District in September, 1972.

Mr. Burkholder is a registered professional engineer in The State of Michigan.

ACKNOWLEDGMENTS

I am grateful to the United States Army Corps of Engineers and its Water Resources Center for the opportunity to extend my education through their Planning Fellowship Program. I further express my gratitude to Mr. Achiel E. Wanket for his assistance leading to my selection from the Detroit District.

I thank Professor Leonard B. Dworsky, Chairman, and Professor Charles D. Gates for their advice and guidance as members of my thesis committee.

Lastly, but most important, I thank my family for the type of support which only they could provide and for the sacrifices they made with the disruption in their normal life due to my studies. My special thanks go to my wife Barbara for her assistance and understanding. The many long and late hours which she spent typing and retyping the drafts for this paper greatly eased my burden. Her continued assistance was most appreciated.

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF CHARTS

CHAPTER I

INTRODUCTION

More than thirty million people live within the Great Lakes Basin, an area of about 300,000 square miles, of which nearly one-third, 95,000 square miles, is lake surface.[1] Overall, the central Great Lakes system has been subjected to many uses and forms of development by this ever-increasing mass of people which surrounds it. For many years now, signs of the continued pressure of rising populations and concomitant development have become more evident in terms of decreasing environmental quality, notably in the lower portions of the Basin. A rising dilemma is how to continue to utilize this vast natural resource to serve human needs, while maintaining its value and usefulness, as it is truly an irreplaceable system.

The following identifies factors which have led to the level of development and present conditions in the Great Lakes.[2]

> A basic but essentially unwritten policy has guided this transformation (growth of the Great Lakes Region). That policy can be exposed by two words; "development" and "freedom." The lakes have been looked upon as a great, essentially unlimited, resource to be used. The main question of public policy appears to have been; "What will speed the development potentials of the Great Lakes?" A policy of "freedom" also seems to have been accepted as the chosen instrument to encourage development. A host of independent agents (i.e., individuals, industries, and the public) have feasted their appetite for convenient transportation, power, abundant water supplies, and recreation. The people of the Basin individually and collectively have used the lakes as the ultimate receptacle for their domestic, industrial, and now their general environmental waste.

It is predicted that the Great Lakes Basin population will approach sixty million by the end of the century.[3] Visualize the ultimate fate of the Great Lakes if current trends of deteriorating environmental quality continue,[4] particularly in light of the predicted doubling of population within the Basin. A seemingly infinite level of demands are being placed on the Great Lakes, which is in turn a finite natural entity. One can develop some feeling for the variety and scope of the demands and subsequent management tasks which must be met within the Great Lakes system from the following list:[5]

-Water Quality and Pollution Control
-Municipal and Industrial Water Supply
-Agricultural (irrigation) Water Supply
-Lake Level Control
-Hydro-power
-Flood Control
-Navigation
-Fish and Wildlife Protection
-Water-based Recreation
-Solid Waste Disposal
-Air Quality
-Economic Development
-Agriculture
-Transportation
-Governmental Problems

The last item on the list has particular significance. "Governmental Problems" must be recognized as the basic concern

which encompasses each of the areas of interest listed before it, i.e., natural resources management has been assumed as a fundamental task of government(s) and their system of institutions. The underlying problem is that less is known and understood about creating successful resource management institutions and intergovernmental arrangements than about any other facet of natural resource management.[6]

The basic situation is that problems in natural resources management, such as have been identified in the above list, as well as those which remain to be identified, will require a combination of technical/institutional solutions or will at least have technical dimensions, the resolution of which will be institutionally dependent.[7] At the same time the principle resource management difficulties in the Great Lakes Basin are not due to a lack of adequate technology to deal with the problems. Recent studies, which look primarily to the Basins' water resource, pinpoint government institutional and policy issues as being at the heart of present management difficulties.[8] Technology to control the problems is generally well in hand compared to the ability to manage its application.

Resource management within the Basin involves institutions with varying authorities and jurisdictions at all levels of government ranging from international commissions to localized special districts. It is the contention of this paper that the overall effectiveness of the resulting management scheme is doubtful. This is a matter which necessarily involves consideration of present and prospective institutional arrangements

between two sovereign nations -- Canada and the United States. In this vein the objective of this paper will be to examine the Basin-wide (international) Great Lakes resources management situation and identify a course of action to improve management of the two countries greatest common natural resource - the Great Lakes System.

Chapter Two will identify the present conditions which suggest that recommendations calling for reorientation of existing institutions and/or development of new institutional concepts for resource management in the Basin, merit consideration. The first part of the Chapter will discuss the general United States-Canada relationship and the prospects for intergovernmental cooperation between the two countries in the Basin-wide context. The latter part of the Chapter will discuss the prominent resource management concerns of the Basin. Five areas of concern; air quality, fisheries, lake levels, navigation and water quality, are presented as the specific cases supporting consideration of a broader integrated bilateral effort in resources management for the Great Lakes Basin.

Chapter Three starts with a brief review of institutional options for comprehensive resources management for the international Great Lakes Basin. This section sets the framework for consideration of joint Canada-United States institutional arrangements in illustrating the range of choices for bilateral organization. In the second part of the Chapter the International Joint Commission (IJC) emerges as the organization

which offers firm possibilities for an expanded role in Great Lakes resource management.

Chapter Four takes a closer look at the IJC, in three stages. The initial portion simply identifies the IJC and its overall functions and responsibilities as outlined by the Boundary Waters Treaty of 1909 and utilized by the two governments. The second part briefly reviews the IJC's institutional status within the Great Lakes Basin, its significant activities having been covered in connection with the discussions on the five areas of concern in Chapter Two. The concluding portion is an assessment of the IJC with specific comments as relates to proposed expansion of its role in resources management for the Great Lakes system.

The final Chapter sets forth a two-phase plan for creating a comprehensive natural resources management arrangement within the IJC framework. Phase I is suggested as a possible next step to be taken by Canada and the United States to initiate development of the desired integrated management arrangement which could cope with Great Lakes problems. Phase II is a more fully developed model judged as providing the minimum features which the two governments should eventually settle for in managing their common resources in the Great Lakes Basin.

FOOTNOTES AND REFERENCES

Chapter I

1. Great Lakes Basin Commission, Great Lakes Basin Framework Study, Appendix No. 20, Federal and State: Law, Policies, and Institutional Arrangements - State Sections, Draft No. 2; July, 1971, p. X.

2. Ibid.

3. Ibid.

4. * The reports and articles on deterioration of the Great Lakes are too numerous to document, however, good examples of the general concern are found in the Congressional Record, e.g., Congressional Record - House, February 9, 1972, pp. H1020-1023; "The Death of the Great Lakes" report by Congressman Mikva (Illinois) on all types of pollution in the Great Lakes and the gap between the administrations words and actions (funds) in the area of environmental protection. Four private supporting articles were also inserted in the Record.

5. L. B. Dworsky, D. J. Allee and C. D. Gates. The Management of Lake Ontario - A Preliminary Report Proposing an International Management Organization; Cornell University Water Resources and Marine Sciences Center, Ithaca, New York. Publication No. 36, July, 1971, p. 7.

6. F. A. Butrico, C. J. Touhill, and I. C. Whitman. Resource Management in the Great Lakes Basin; Battelle Memorial Institute; Heath Lexington Books, D. C. Heath and Company; Lexington, Massachusetts, 1971, p. 4.

7. Ibid.

8. * See Robert D. Hennigan. "Effective Water Quality Management: Impossible Dream or Attainable Goal?" Proceedings Thirteenth Conference on Great Lakes Research; State University College, Buffalo, New York, April 1-3, 1970, Part I, pp. 149-155. Also see 5 and 6 above.

CHAPTER II

THE GREAT LAKES SITUATION

The Great Lakes "situation" is viewed as the present state of the Great Lakes Basin's natural resource base as affected by the activities of two countries which share it. To understand the Great Lakes "situation" one should be somewhat familar with the basic Canada-United States relationship. The cooperation of these two countries is essential to any meaningful action on Great Lakes natural resource management concerns. Following sections will focus on this point in (1) discussing general factors which provide the basis for intergovernmental cooperation and (2) addressing the specific resource management concerns which support the case for greater bilateral attention. Before this, it may be of benefit to review some even more fundamental concepts or organization which lead to vesting sovereign governments with the authorities and responsibilities to represent their publics.

The Role of Government

Individuals organize to facilitate attainment of social objectives, i.e., common social goals which cannot be reached individually, such as general welfare, security, social and economic stability. "A society establishes certain very general values through its basic institutional structure, and attempts to bring about some conformity between these general values and the organizational values of various groups that

exist within it."[1] A dimension of the factors leading to organization, particularly relevant where natural resources are involved, develops from common property conditions of use of the so-called "free goods," notably air, public land and water resources. For example, the list of fourteen concerns presented in Chapter I identify areas of human activity and/or situations which must be managed. Otherwise, uncontrolled use may, or already has resulted in violation or misuse of all three "free" common property goods when judged in terms of socities general welfare. This is an almost inevitable situation, as man left to his own individual devices tends to follow an economic-exploitive ethic, which in turn leads to an aspect of what Garrett Hardin has identified as the "tragedy of the commons"[2] (unrestrained freedom to utilize common properties leads to inevitable overuse). Organization - government, can serve to prevent this "tragedy." Hardin sees this as a necessary function of government: "until exploitation is controlled by government action, additional users tend to be continuously attracted to the commons."[3] In short, governments have an obligation to control "development" and "freedom" in the use of the common property goods - common air, land and water resources.

Government as we know it now is a broad array of organizations. Three basic levels of overview and control have emerged: local, state/provincial and federal governments. Each of these levels of government, and more specifically, the proliferation of institutions which make them up, work within defined

authorities and boundaries, i.e., jurisdictions. However, human activities and/or their effects (e.g. environmental pollution in general) often transcend the authorities and boundaries of one or more of the standard governmental units, which then lack the means to control their jurisdictional function. Moreover, spillovers and overlapping conditions render the allocation of resources and the augmentation of responsibilities within individual jurisdictions generally inefficient. Under such conditions interjurisdictional collaboration and cooperation become advantageous and often necessary to meet overall constituency needs, i.e., to attain general public objectives and social goals. Mutual advantage is then the basis for intergovernmental relations (any formal or informal contact between two or more government units[4]) and any subsequent integration or institutional arrangements.

Intergovernmental Cooperation

The deteriorating state of their common Great Lakes resource strongly suggests that the governments of Canada and the United States examine the potential for extension of their bilateral relations to safeguard their countries mutual interest in this great natural body. The pervasive nature of resource management-general environmental problems, which subsequently involve two separate national jurisdictions, suggests four factors which must be present and/or considered to successfully achieve the intergovernmental cooperation needed to deal with the common problems.

(1) Common interest normally generated by spillovers between jurisdictions, i.e., where action or inaction within one jurisdiction has effects in other jurisdictions and/or where there is joint utilization of a natural system which is not confined within individual political jurisdictions.

(2) Common goals which evolve from agreement on points of common interest conceived to make all parties better off, i.e., perceived gains expected to exceed the losses to involved parties. Should not be thought of as requiring complete conformity or uniformity of action or principles, but as involving agreed upon measures of variation and accomodation for the greater common good.

(3) No viable alternative. A new cooperative arrangement is seen as necessary, i.e., there are no existing mechanisms or relationships geared to, or capable of, achieving the desired common goals. Alternative schemes or actions, short of a new cooperative arrangement, may be inadequate, unrealistic, or just not feasible.

(4) Will to cooperate is essential. This is the critical factor, sometimes taken for granted, which includes the political dimension and involves a synthesis of the above three points leading to the realization that coordination and cooperation is fundamental to attainment of joint purpose and common goals.

Management of the resource base in the Basin is presently shared by a multitude of federal, state, provincial and local jurisdictions. The potential for considerable fragmentation of

effort is quite apparent in this area which is part of the political system of two federal, eight state and one provincial unit of government. The multiplicity of jurisdictions with interests in the Great Lakes Basin complicates any concept for coordinated management of the natural resources in the Basin. The fundamental issue falls to the fact that the Great Lakes Basin is shared by two separate and sovereign nations, each quite determined to remain in charge of its own affairs. Any agreement for coordinated management of the Basin will initially rely on commitments at the national levels. Therefore, consideration of natural resources management in the Great Lakes Basin, in terms of the above framework for intergovernmental cooperation, will focus on the bi-national character of the overall system. It should not be construed that intergovernmental relations below the national level are not both important and necessary, for they are. Their involvement and interplay is essential to the overall scheme. However, the pressing issues revolve about the international nature of the Great Lakes system.

There are two facets to be considered. First, what are the present conditions which indicate that intergovernmental cooperation is really necessary and/or appropriate? Examination of the common interest, common goal and alternative action factors will provide the basis for a positive judgment on this point. The second facet involves the feasibility of meaningful intergovernmental cooperation, and more specifically, the degree of cooperation possible. Review of the

"will to cooperate" factor should illustrate that there is a sound base and need for further bilateral cooperation.

Common Interest

There are obvious grounds for common interest. The Great Lakes Basin, which is made up of Lakes Erie, Huron, Michigan, Ontario and Superior, their interconnecting channels, tributaries and drainage areas is a common pool resource shared by Canada and the United States. The inherent complication with this arrangement can be identified as lack of geographic integration, i.e., the established national jurisdictions of Canada and the United States cut across a natural system with natural boundaries which do not acknowledge these political jurisdictions. The natural regimen of the Great Lakes system dictates the basic patterns of interaction within and does not recognize man's artificial political barriers. So, for all practical purposes, the Great Lakes system is the joint property of Canada and the United States, with any significant actions or consideration affecting the system having international implications.

Common Goals

The reports on deterioration of the Great Lakes are too numerous to document.[5] The quality of their waters, particularly in Lake Erie, parts of Lake Ontario and the lower portion of Lake Michigan, have been seriously impaired to the point of being offensive and liable to cause injury to general health and well-being.[6] Their condition will continue to deteriorate

at an increasing pace if measures are not taken to control the forces of "development" and "freedom", which are overtaxing their natural assimilative capacities.

The goal of both Canada and the United States is, or should be, prevention of irreversible damage to, and ultimate preservation of the value of the natural Great Lakes system, while it serves human needs. This is a very broad objective which must entail an almost equally broad task, i.e., substantially complete and effective natural resource management in the Great Lakes Basin. To achieve this end the two governments will need to involve institutional arrangements suited to the task of achieving some form of geographic integration. The interdependencies of the forces that cause the problems in the Great Lakes system (within their natural boundaries) and the processes (within their political jurisdictions, including the interaction between jurisdictions) necessary to their solution, must be recognized and coordinated or integrated into a common management scheme.

The need for centralized guidance of a multitude of jurisdictions in both countries appears essential to realization of any meaningful coordination of common programs and activities. One system or unit or organization overlooking the complete scope of problems would seem desirable. Ideally, this institutional arrangement would also possess the authority and means to deal with the full range of problems, both for the present and over the long run. Without a superior governmental authority the form of any such meaningful arrangement is in

doubt. This is precisely the present situation and problem in the Great Lakes Basin.

A comprehensive management organization for the Great Lakes is viewed as an unlikely action due to the inherent complexities of international relations. This opinion is acknowledged but to those who hold it, it must be said that it is time to at least consider the consequences of not moving toward this end. The following section will pick up this point in more detail through closer examination of the needs for new arrangements.

No Viable Alternative

Clearly, Canada and the United States have a common present and future stake in the Great Lakes. It should be equally clear that neither nation can manage the total system without the cooperation of the other. The nature of the system is such that it must be treated as a single entity and cannot be managed in sections defined by artifical boundaries (real political boundaries but artificial in a physical sense).

Management of the resources base in the Great Lakes Basin has already been identified as involving a multitude of federal, state, provincial and local jurisdictions. Simple identification of the many legal jurisdictions and organizations with a stake in the natural resource field is a formidable task in itself. The Great Lakes Basin Commission partially addressed this task in preparing an extensive list of the various levels of interest and involvement in water in the

Great Lakes Basin. Their list published in July, 1968 included 250 organizations with direct interests in water in the Basin at that time. Listed were four international organizations, nine major Canadian organizations and on the United States side broken down at the federal and state levels; fifty-two federal, eight regional, seventy-four state, two federal-state, and four major city, government-type organizations. In addition, thirty universities, twenty-nine associations, twenty industry groups and eighteen special interest groups with significant interests in water in the Great Lakes Basin were included in the United States list.[7] Now impose an even greater number of local jurisdictions and special interests upon the above array of federal and state/provincial organization and the reasons for identifying the Great Lakes Basin as a "fragmented entity"[8] becomes increasingly apparent. This fragmentation may not be bad in itself. The basic question that must be asked is: "What is not now being done that should be done?"[9] or, stated in another way: What is happening that should not be happening?

It is not difficult to identify existing conditions that are certainly not desirable. The most significant present concern in the Great Lakes is water pollution. Quite clearly efforts at water quality management have not been effectively dealing with this problem. For example, Article IV of the 1909 Boundary Waters Treaty between Canada and the United States stated that the boundary waters should not be polluted on either side to the extent that health and property in either country would be injured. The 1918 International Joint Commission reports to the governments on water pollution,

which were prepared in response to a joint reference under the treaty, described widespread contraventions within the international waters of the Great Lakes which still exist in 1972, and more problems have been added.

Now, over fifty years after the undesirable conditions were first identified, negotiations between Canada and the United States, to deal more effectively with water pollution on the necessary international level have been completed. The Great Lakes Water Quality Agreement signed by Premier Trudeau and President Nixon on April 15, 1972 is designed to lead to adoption of common water quality objectives and the development and implementation of cooperate programs and other measures. The International Joint Commission has been assigned new special responsibilities and functions to assist implementation of the Agreement.

This action on the part of the governments should be applauded, but not considered completely adequate. Air and land are integral components of the total Great Lakes Basin natural system, with the water; these interrelationships merit a comprehensive viewpoint. Environmental studies clearly imply that air, land and water within environmental entities such as natural drainage basins should be managed within the context of some "designed future" and by institutions which can carry out regional inventory, planning, development, utilization and management of the natural resource base in a manner recognizing the reality that the air, water, and land resources are integrally the environment which surrounds us all.[10]

Flagrant water pollution has prompted the two governments present efforts in the water quality field. However, the agreements do not address the full range of current concerns in the Great Lakes Basin. Must we wait until each problem reaches crisis proportions, as with water pollution, before such conditions are recognized and dealt with?

Vast population increases and concomitant development spurred by rapidly advancing technologies have been instrumental in creating environmental changes within the Great Lakes Basin which have outdistanced the capacity to control them. Future options are being closed off by the present inabilities of our management system to guide these changes. The danger is that some adverse changes can be irreversible. Times, with advancing technology, have changed drastically; the institutions have not.[11]

The Great Lakes region is in need of improved institutional arrangements to safeguard and maintain the value of its vast natural resource base in the face of continued population growth and concomitant development. Discussion of Great Lakes management concerns, which specifically illustrate present institutional inadequacies and support the move toward a more integrated and comprehensive bilateral management effort are included in the section "Management Concerns," hereinafter. However, a question which should be addressed first, is that of the political reality of institutional change, and more specifically the degree of change, both desired and feasible, from the political standpoint.

Will to Cooperate

In order to assess this factor it is necessary to review the general character of the relationship between Canada and the United States. This review will rely heavily upon two sources:

(1) The June, 1965 statement of the two countries, "Principles for Partnership," prepared by two experienced observers: A. D. P. Heeney, Canadian ambassador to the United States in 1953-1957 and 1959-1962; and Livingston T. Merchant, United States ambassador to Canada in 1956-1958 and 1961-1962.[12]

(2) "Canada and the United States" by Gerald M. Craig (1968).[13]

Heeney and Merchant saw mutual understanding of the basic characteristics of the Canada-United States relationship as directly affecting the possibilities for cooperation in general.

> The feasibility of working out acceptable principles to govern or guide the behavior of our two countries in their dealings with one another must depend upon the possibility of agreeing on the principal facts. In other words, there must be, on both sides of the border, a common appreciation of at least the main features of the relationship.[14]

The will to cooperate in working out mutually acceptable solutions or accommodations to common problems on any level relies upon a wider and deeper understanding of their origns in both countries.

"Canada and the United States are, in Churchill's phrase, 'mixed up together' more than any other two countries on earth so that the similarities in their 'ways of life' often lead

observers to erroneous conclusions."[15] There are important similarities and differences which must be both understood and accepted for the successful working of a partnership.

Similarities - Evidence of the high level of mutual involvement between the peoples of the two countries is considerable. Both sides have taken good advantage of the open border. There are close links in religion, in all the professions, in business, labor, education and in the arts, with patterns of organization and exchange straddling the boundary. Of basic significance is the incalculable network of personal and family connections. The number of Americans residing in Canada is quite substantial; and there are few Canadians (at least in English-speaking Canada) who do not acknowledge some close American relative by blood or marriage. It follows that there would be a considerable degree of cultural involvement. The influence of the United States is particularly significant in this area due to the preponderance of television and radio programs and publications that stream northward with no natural barriers, except in French Canada. "There is an American dimension to nearly every topic discussed in Canada."[16]

Canadians and Americans are also each others best customers. It is well known that Americans have extensive investments in the Canadian market, which have played a significant role in the growth of Canada's economy with considerable benefit accruing to the United States economy. However, it is not as well known that there is also a considerable flow of Canadian funds into the United States. "On a per capita

basis - though not of course overall - Canadian investment in the United States exceeds the American investment in Canadian business." In short, "the financial and commercial stakes of each country in the other are high."[17]

Differences - Overall there are numerous interchanges between Canada and the United States which result from, and reflect the fundamental ties between them. But, as noted earlier, there are also important differences which must be recognized to understand the complete relationship. The most conspicuous differences between the two countries is the disparity in population, total wealth, power and the responsibilities that go with it. This disparity is striking by every material test other than geographic extent, and possibly undeveloped resources, the consequences of which are among the most difficult features in the relations between the two governments and their peoples.[18] The high level of mutual involvement complicates the problems arising from this fundamental disparity. The capacity of the United States to harm or benefit Canadian interests is in general greater than that of Canada to affect the American status quo. Canadians are more conscious of the situation than Americans, with many convinced that Canada is too dependent on the American economy and influence. As an end result, "no way has been found yet to depoliticize the larger financial and economic aspects of Canadian - American relations."[19] Of course divergent political postures can seriously impair cooperative efforts, proposed or existing.

There are other more basic differences which have their roots in history. The foremost in this context is that the United States has developed from a multi-cultural background as a basically uni-cultural "American" society, while Canada was founded and persists upon a partnership of two dominant culturals (English and French). Canada's bi-cultural partnership is showing signs of increasing strain in recent years and the two national groups do have different attitudes toward American influences. This has definite implications in terms of United States - Canada relations. The different attitudes are reflected in the comment: "the danger from the United States to English-speaking Canada is that of cultural absorption, while for French Canada it is cultural destruction."[20]

The political traditions and institutions, which are a strong element in national character, are also quite different in the two countries. The parliamentary system in Canada and the United States congressional system illustrate key institutional variations. Canadians, raised in the tradition of parlimentary government, find it difficult to appreciate the practical consequences of the division of powers, and creative federalism-concepts, basic to the American system of government.

Cooperation - The true measure of the two countries' relationship lies in the existing levels of bi-lateral cooperation. The fact is, a procedure or apparatus has been established for almost every kind of Canadian - American business to deal with the thousands of questions of common

concern. "The level of cooperation is so efficient and so constant that the general public is scarcely aware of its existance."[21]

From all indications the interdependencies of the two countries is growing. The direct and inevitable result of the great and growing interaction between the countries has been an increase in the actual and potential occasions for disagreement and friction. For the most part continued cooperation has not been automatic; or seldom easy. The partnership functions as well as it does only because of a constant and continuous effort to make it work. This was illustrated in President Nixon's visit to Canada on April 14-15, 1972 to "shore-up" sagging relations. The following statements made by Premier Trudeau and President Nixon in speeches delivered in Ottawa, set the tone of present relations.

> Premier Trudeau - For several decades Canada's friendship "has been taken for granted by the United States." That friendship will continue "but it is not regarded by us as negotiable."[22]

> President Nixon - "Let us recognize once and for all that the only basis for a sound and healthy relationship between our two proud countries is to find a pattern of economic interaction which is beneficial to both our countries - and which respects Canada's right to chart its own economic course."[23]

In other parts of his speeches, President Nixon acknowledged that Canada and the United States are different, not just separate nations - a very important point in the eyes of most Canadians.

The "will to cooperate" is inherent in the Canadian - United States relationship. There is mutual advantage to be

derived from development of an increasingly effective working partnership between the two countries. Heeney and Merchant concluded their statement "Principles for Partnership" as follows: "In conclusion, we find the evidence overwhelmingly in favor of a specific regime of consultation between the two governments. We are also convinced that there are large opportunities for mutual advantage in the extension of the partnership of our two countries. Not only is the relationship unique but Canadian-American mutual involvement and interdependence grow daily more evident. For our part, we are satisfied that the process can be as mutually rewarding as it is inevitable." However, if the bi-lateral relationship is to continue to be constructive and fruitful, both countries should be prepared to examine existing hindrances to cooperation and exploit acceptable opportunities to adjust existing arrangements or embark on new joint undertakings for mutual benefit. It is in this vein that each country need direct their interest to their greatest common resource - the Great Lakes system.

Management Concerns

All water, air and related land problems of the Basin would be, in varying degrees, legitimate areas of concern for the perceived bilateral Great Lakes management arrangement.[24] Recall the fourteen areas of concern identified at the start of this paper.[25]

-Water Quality and Pollution Control

-Municipal and Industrial Water Supply

-Agricultural (irrigation) Water Supply

-Lake Level Control

-Hydro-power

-Flood Control

-Navigation

-Fish and Wildlife Protection

-Water-based Recreation

-Solid Waste Disposal

-Air Quality

-Economic Development

-Agriculture

-Transportation

A number of the fourteen elements listed are already subject to some measure of bilateral effort under existing Canada-United States commissions, namely, the International Joint Commission (IJC) and the Great Lakes Fishery Commission (GLFC). The IJC has international boards directly involved in air quality, water quality and lake level control. Of course fishery concerns are addressed by the GLFC. International commission attention to these four interest areas attests to their prominance as formally recognized bilateral concerns.

Basin resource management strategies are tending toward an integrated, multipurpose, multimeans (as comprehensive as possible) effort. Comprehensiveness, in such matters as policy formulation, planning, research and program development offers opportunities to appraise a wider range of alternatives to meet broader public goals. However, the fact remains that

there is today no unified national or international program that can consider the many Great Lakes problems, or even the above three formally recognized problems, in addition to that of water pollution, with any reasonable degree of comprehensiveness.[26]

At this point the realities of achieving any international agreement must be recognized. The inherent complications of intergovernmental relations (federal through local as well as international) and the controversial aspects of some issues preclude agreement on common Canadian-American objectives and programs in all fourteen areas of concern. While a common effort in all areas is not conceivable, or may not even be appropriate at this time, there should be agreement that the single-purpose approach in managing Great Lakes problems is also no longer appropriate. The many concerns are fundamentally interrelated through their effects on the Great Lakes ecosystem and should be considered inseparable in any discussion of the problems of the system. For example, flow and regulation control (lake level control) activities directly affect hydropower and navigation interests, with implications for many other concerns such as flood control and water-based recreation (shoreline interests). Water supply, fish and wildlife, and recreation needs should be taken into account in establishing water quality standards. Such ancillary factors as industrial and municipal development and related capital intensive development programs, as well as population distributions will have a direct bearing on application of, and must also be considered in, developing air and water quality standards.

Recognizing the value and appropriateness of an integrated comprehensive approach, and in the interest of improving common management efforts, both Canada and the United States should be amenable to considering a comprehensively oriented bilateral management arrangement. However, the integrating process must start at a reasonably manageable level. The principal areas of bilateral concern, which already have a considerable background of joint activity upon which to build the desired comprehensive framework, could be assumed as the core responsibilities to initiate the process. Air quality, fisheries, lake level control, navigation and water quality are seen as these principle Great Lakes concerns which should be considered as special functional responsibilities of an integrated bilateral arrangement. In following sections the specific factors which indicate the appropriateness of including each of the five fields of concern is discussed. A common factor will necessarily be that each individual area of concern cannot be properly left out of any comprehensively oriented bilateral arrangement addressing present-day Basin-wide resource management concerns.

It should not be construed that concerns outside of the five areas cited (i.e., other potential problems or influences affecting the Great Lakes) are to be ignored. The overall management arrangement must have the flexibility and capability to identify and address emerging problems. As significant system concerns materialize they too should be appropriately addressed as special functional responsibilities of the perceived international Great Lakes management organization.

Air Quality

Air pollution has both basin-wide and international implications. While air quality problems may not be arbitarily isolated by either political (international, national....) boundaries or basin boundaries, they should be recognized as part of the overall system of natural interactions to be considered for proper management of the total Great Lakes resource. There is evidence that air quality affects and interacts directly with the quality of the Great Lakes. The processes and inputs at the air-water interface are not well known, but it has been shown that the chemical composition and nutrient input from precipitation is significant for most lakes. Studies on rain over Lake Michigan and near Lake Ontario (Hamilton, Ontario) identify precipitation as a major contributor of nutrients and chemical substances.[27] Overall, the chemical composition of precipitation is a direct function of air composition; hence, air quality and air pollution exert a direct influence, through precipitation, on the chemical composition and water quality of the lakes. However, the primary bilateral air quality concerns within the Great Lakes region focus at the frontier areas. In the heavily populated and industrialized reaches of the St. Clair-Detroit and Niagara Rivers, air pollution is at times offensive to the point of being of common concern across the international boundary, rivaling, if not exceeding, the concern for water quality. A conclusion of the Joint Air Pollution Study of the St. Clair-Detroit River Areas conducted by the St. Clair-Detroit Air Pollution Board of the IJC was

that: "Transboundary and local pollution both exceed the level that is detrimental to the health, safety, and general welfare of citizens, and to property on the other side of the international boundary."

The IJC first became involved in water quality matters through a January, 1949 reference from the two governments. This reference limited them to inquiring into and reporting upon the extent and sources of air pollution in the Detroit-Windsor vicinity with respect to smoke from ships on the Detroit River. In September, 1966 the Commission received a broader reference concerning air pollution in the vicinity of Port Huron-Sarnia (St. Clair River) and Detroit-Windsor (Detroit River). This second reference did not limit inquiries to vessel discharges but asked the Commission to establish if the air was polluted on either side in quantities detrimental to public health, safety or general welfare of citizens or property on the other side of the boundary. And, if so, they were to determine the sources and extent of pollution and recommend the most practical remedial measures and their estimated costs. The International St. Clair-Detroit Air Pollution Board was created in November, 1966 with federal, provincial and state officials as members, to carry out the subsequent studies and investigations in the specified areas. An International Air Pollution Advisory Board was created at the same time to take note of air pollution problems in all other boundary areas, which may come to attention, from any source and to draw such other problems to the government's

attention. The St. Clair-Detroit Board's report cited above, was transmitted to the Commission in January, 1971. The official Commission report to the two governments is to be issued by late 1972.

While air pollution does not generally demand the same attention as water pollution issues in the Basin, "the control of transboundary air pollution is an obvious and necessary function of any institutional apparatus set up to manage the water and related air and land resources within the Great Lakes region."[28] The IJC is available to address transboundary air pollution problems; however, there are a number of basic weaknesses in these present arrangements. First, is the excessive length of time involved in investigatory studies. The above mentioned IJC study will have taken approximately six years once completed. Following this the IJC will have no power over implementation of its recommendations. The above cited board report issued recommendations to the State of Michigan and the Province of Ontario for abatement action. The final Commission report can do little more than repeat the recommendations, and urge the federal governments to support their implementation. The entire effort will be meaningless unless the federal, state and local levels of government enact effective parallel legislation for implementation and enforcement. Such action may follow, but there is no ready assurance that both sides will comply. Moreover, the IJC is unable to initiate further investigations to make further recommendations without specific joint reference from the two national governments.

Establishment of common air quality objectives, particularly for the frontier areas, would seem as appropriate as the recent United States-Canada agreement on common water quality objectives (Great Lakes Water Quality Agreement). In their report the St. Clair-Detroit Air Pollution Board called for the respective air pollution control agencies of the two countries to establish uniform air quality standards, cooperate to control transboundary air pollution from existing sources and to prevent creation of new sources of transboundary air pollution. There is no apparent reason why this advice cannot be followed, at least to the point of agreement on broad air quality objectives in the very near future. "It is submitted that the law as it is developing in relation to water pollution has equal application to cases of air pollution. In their nature there is little difference between the two types of pollution. Both result from human conduct, both may result in serious health and economic injury and both move freely across boundaries and are difficult to identify in their sources where there is a concentration of population and industry on both sides of an international boundary."[29] However, successful coordination and implementation of joint air quality objectives would call for surveillance and oversight activities. The St. Clair-Detroit Board recommended that the control agencies in both countries report semi-annually to the Commission their progress in achieving compliance on abatement programs and annually the ambient air quality existing in their jurisdictions. The IJC boards and the Commission

itself are not geared to handle this type of function; a permanent office similar to that to be provided for water quality matters would appear appropriate.

In any event, in order for transboundary air pollution problems to be effectively resolved in the Detroit-Windsor and other high potential areas such as the Niagara Frontier, new bilateral arrangements need be developed. The perceived Great Lakes management organization could provide the mechanism for needed coordinated implementation of common programs and correctly integrate air quality concerns within a more comprehensive basin-wide research and planning framework analyzing all significant resource management concerns.

Fisheries

International response to the problems of the Great Lakes fisheries includes a history of study commissions and high level conferences dating back to the 1800's; culminating in 1955 when Canada and the United States co-ratified the Convention on Great Lakes Fisheries thereby establishing the Great Lakes Fishery Commission (GLFC). A treaty proposed in 1946 set the specifications for the organization but United States legislators opposed granting regulatory powers to a joint commission until 1955.[30] The Commission, consisting of four representatives from each country, was delegated powers to set regulation on season, gear, catch, quotas, and to conduct research, carry out any needed stocking programs, compile data, and develop a comprehensive plan for effective management of the fishery resource of the Great Lakes with a goal of maximum sustained yield.

The intense depradation of the Great Lakes fisheries by the sea lamprey gave final impetus to creation of the GLFC. It is not surprising then that the principal efforts of the Commission have been directed towards control of the lamprey. In addition to bringing the lamprey populations under control the Commission has made progress in central data collection to improve statistics on commercial and sport fisheries in the Great Lakes.[31]

The Commission's other activities have included direction or assistance in formulating and coordinating biological and economic research programs, but until only recently most research was not well coordinated and tended to concentrate on isolated segments of the aquatic problem. Stocking problems are discussed at GLFC meetings, but there has been no big break-throughs toward cooperation in a planned program aiming for a restructured ecosystem.[32] Also, the Commission has failed to develop a comprehensive fisheries management plan for the Great Lakes.

There are still too many unknowns about the lakes, unknowns about the success of the fishes introduced, and unfortunately but realistically, there are a number of vested interests (commercial and recreational/sport), which have retarded agreement on consistent lake-wide, let alone basin-wide programs.[33] As a result there is a noticeable lack of uniformity and comprehensiveness in fishery legislation in the Basin in spite of the fact that no less than twenty-seven study commissions and high level conferences since 1875 came to the

same conclusion - that no progress would be made in halting the decline of fish populations until they were subjected to uniform federal and international control throughout their ranges.[34]

Overall the Great Lakes fishery resource has not fared as well as might be expected. In the words of Harold C. Frick in Economic Aspects of the Great Lakes Fisheries in Ontario "....although the Commission (GLFC) has been an instrument of international cooperation in formulating and pursuing common objectives, such as lamprey control, only a little has been accomplished so far in coordinating and rationalizing the management of the Great Lakes Fishery."[35]

A common contention is that the GLFC has not had sufficient bilateral support to make an appreciable dent in the confusing crazy-quilt of laws and directives presently regulating fishing concerns on a true basin-wide (international) scale. And of course there is no other organization specifically constituted to address fishery concerns on a true basin-wide (international) scale. The IJC does have basin-wide jurisdiction, and its studies and deliberations do acknowledge fisheries interests. However, there appears to be a significant lack of communication between the GLFC and the IJC. At present the split division of interests, with the IJC studying habitat degradation, as related to such concerns as lake levels and water quality, and the GLFC largely concentrating on species rehabilitation, tends to hinder the development of any effective comprehensive bi-lateral plan for fishery management.[36]

As the complexity of the Basin increases, the inadequacy of agencies and groups that have been restricted to limited and narrowly defined roles will become increasingly noticeable. This is especially pertinent to fishery concerns as successful management of the fishery resources of the region will require new approaches that involve coordination with many of the other activities in the Basin. The perceived Great Lakes management arrangement could incorporate bilateral fishery concerns in with the other primary and lesser resource related concerns of the Basin; properly involving fishery interests in the comprehensive planning and research efforts required to formulate the long-awaited bilateral management plan needed for effective action on basin-wide fishery concerns.

Lake Level Control

The objectives of regulation of the Great Lakes are to provide as nearly as may be, a range of levels on the lake acceptable to various interests while maintaining satisfactory down-stream level and flow conditions.[37] The interests affected by variations in the levels and outflows of the Great Lakes are considered in three general categories: the shore property interests, the navigation interests and the power interests. Shoreline interests include permanent and seasonal residents, water recreation activities, port facilities, domestic water supply and sanitation and industrial cooling water supplies and are benefited by moderated fluctuations in lake levels, as they are adversely affected by extreme high and low water levels.

Navigation interests include those involved in commercial shipping on and through the lakes and connecting channels. Recreational boating must be considered in this group which is generally best served by high lake levels. Power interests are the hydro-electric power developments which utilize outflows from the lakes and are benefited by maintenance of minimum flows as large as feasible, particularly during periods of high system loads.

Under the most favorable conditions regulation of the lake levels cannot be such as to insure each water user interest throughout the system the levels and flows best suited to his particular needs. "However, rules are conceivable, that, if applied in relation to the supplies received by the lakes, will provide levels and flows that would result in generally beneficial conditions without unacceptable adverse effects on any interest."[38]

"Within the last several decades, three cycles of serious water level and flow conditions have been experienced on the Great Lakes -- the low waters of the thirties, the high waters of the early fifties, the extreme low waters culminating in 1964 and again high water levels in the past several years on Lakes Superior and Erie. Each had a devastating impact on the water economy and the water user interests of the Great Lakes Basin in the period of its occurrence."[39]

Of course the impacts are of concern, in both Canada and the United States. The historic Boundary Water Treaty of 1909, which created the IJC, was formulated in a large part to deal

with obstructions and diversions of boundary waters which would affect the natural level or flows of the boundary waters on the other side. A number of international technical boards have emerged as the IJC mechanisms for dealing with certain areas of regulation of the Great Lakes. There are currently three Great Lakes control boards: The International Lake Superior Board of Control; the International Niagara Board of Control; and the International St. Lawrence River Board of Control. There are also two boards of investigation: The International Great Lakes Levels Boards and the American Falls International Board. In addition, there are two bilateral committees and a study group outside of the IJC, but indirectly familiar with the IJC work on lake levels and flows through common association of group members with the IJC boards; they are the International Niagara Committee, the Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data, and the Great Lakes Study Group.

Lake Superior water levels and outflows through the St. Marys River have been regulated by the Lakes Superior Board of Control since 1921. Lake Ontario outflows through the St. Lawrence River have been coordinated to regulate Lake Ontario water levels since 1960 by the St. Lawrence River Board of Control. The Niagara Board of Control supervises operation of remedial works, provided in the Niagara River under the 1950 Treaty between Canada and the United States, to allow maximum power diversions while maintaining the upper

Niagara River water levels for navigation and shore property interests and Treaty flows over the Falls for scenic purposes. The American Falls International Board, created in 1967, has undertaken studies on the conditions of various sections of Niagara Falls to establish measures to preserve and enhance the beauty of the Falls. The International Great Lakes Levels Board is involved in the Great Lakes Water Levels Study (GLWLS), a large scale study which is to address a wide range of Great Lakes concerns in considering the advisability of further regulation of the Great Lakes.

The GLWLS is the weathervane for future lake level activities. It was initiated in response to a joint reference of October 1964 requesting the IJC to study the various factors which affect the fluctuations of the Great Lakes water levels and determine whether, in its judgment, action would be practicable and in the public interest from the point of view of both governments for the purposes of bringing about a more beneficial range of stage for, and improvement in: (a) domestic water supply; (b) navigation; (c) water for power and industry; (d) flood control; (e) agriculture; (f) fish and wildlife; (g) recreation; and (h) other beneficial public purposes.[40] To accomplish the study the Board created a working committee which in turn directs six subcommittees in preparation of data and studies pertinent to the Board's report. Three of the subcommittees' functions are to determine the effect of regulation on shore property, power, and navigation interests. A fourth subcommittee is assigned the task of

developing regulation plans and a fifth to make studies of the regulatory works which would be required for the various regulation plans under consideration. The sixth subcommittee was formed to prepare guidelines for, and supervise preparation of the extensive report to the Commission. Pertinent United States and Canadian federal and provincial agencies are represented in all levels of the study. There is no direct state membership on the Board or its committees due to the number of states that would be involved. In lieu of actual membership the governors and agency representatives are kept informed through subcommittee meetings and direct correspondence and are invited to participate in the studies, if they desire.

It would appear that lake level concerns are being adequately considered under present international arrangements. However, there are several related factors which suggest that the perceived integrated management approach would better suit present and future lake level and related considerations. They evolve from the study completion time factors which in turn affect future lake level control and study activities.

The two governments requested that the GLWLS be completed by the IJC as soon as practicable. Initially the Lake Levels Board set October 1970 for presentation of their report to the Commission. While the most competent agencies available in both countries have been involved the final report date has been extended a minimum of three years to October 1973. A yeomans effort will be needed by all involved parties to prevent further extension of this submission date.

The GLWLS is very important to present and future development in the Great Lakes, yet, it will take approximately a decade to complete. It is only a feasibility study; conceivably many more years would be needed to complete any detailed studies recommended. In short, while the IJC board system can assemble all the necessary technical expertise, the associated study time factors are excessive tending to make study completions even more difficult. Over the period of a decade new developments (natural and man-made), discoveries and technology can change some aspects of the original problems. This has happened in the GLWLS where in the original phases the key problem was considered extreme low water levels such as those of 1964, the year of the reference. Since that time the majority of complaints have been in regard to high water levels; in addition, the emphasis on ecology and environmental quality has emerged since 1964. Timely completion of the report (five years at the most) would have allowed a fresh new assessment of original conclusions, rather than a "rehashing" of tentative solutions and conclusions necessary due to even minor shifts in study emphasis which are sure to occur in the course of a study of such length.

There are further implications for future consideration of lake level concerns. The requirement for management of the Great Lakes water levels as a system will be a definite conclusion of the GLWLS.[41] Moreover, "the two governments have agreed that when the Commission's report is received they will consider whether any examination of further measures which

might alleviate the problem should be carried out, including extending the scope of the reference.[42] It is unlikely that bilateral lake levels studies will terminate following completion of the GLWLS. Beyond this more complex detailed regulation studies and bilateral programs appear to be inevitable. Clearly the IJC board system as presently constituted is not well suited to readily accommodate the conceivably more complex tasks and bilateral arrangements for future lake level considerations. New supporting arrangements to follow through on jointly adapted programs, providing the desired capability and continuity to coordinate and expedite further bilateral programs and studies, will be in order. With the GLWLS nearing completion, a serious review of present arrangements by the two governments would be appropriate.

Navigation

While navigation concerns are in many respects linked quite closely to lake level control there are other distinct issues necessarily involving both Canadian and American interests, which merit special attention.

Modernization of the Great Lakes navigation facilities is a major matter for both countries. There is little doubt that changes will be necessary if the Great Lakes navigational system is to continue to meet the needs of the region. However, a key issue that has yet to be resolved is the distribution of the costs among the various users and beneficiaries of the improvements.

Another pertinent bilateral question concerns extension of the navigation season into the winter ice-season. Increased traffic in winter navigation poses safety and pollution concerns. The possible methods for ice break-up: prevention of ice formations by increasing flow through channels, local discharge of thermal power plant effluent, mixing of thermal layers by air bubbling and ice-breaking, also involve varying potentials for environmental hazards and possible conflicts with other uses of the lakes.[43]

Increased activity in highway and residential construction and more intensive use of some agricultural land have accelerated sediment deposits in small bays.[44] This necessitates increased maintenance dredging in both deep craft and small craft harbors. This increasing need for maintenance dredging and the seemingly continuous demand for channel improvements for larger and larger ships have produced problems of spoil deposition, hydrologic change and modification of aquatic habitats. Recent emphasis on environmental quality and non-disturbance of natural-settings generally conflicts with past spoil disposal practices and proposals for further channelization and harbor development. Changes in lake biology have resulted from waterway developments providing avenues for exotic species to expand their territory. For example, the Welland Canal allowed the lamprey and alewife to circumvent Niagara Falls and enter Lake Erie and the upper Great Lakes. There have been no other single developments within the Basin which have had such an impact on the Great Lakes fishery.

As one delves deeper into navigation related problems the multi-issue nature of the bilateral concerns become increasingly apparent. The most recent example is the Water Quality Agreement (April 1, 1972) wherein five of the eight annexes to the Agreement have direct implications for shipping and related navigation interests. Annexes three, four, and five outline measures for abatement and control of pollution from shipping sources by setting forth principles for vessel design, construction and operation (Annex Three), control of vessel discharges (Annex Four), and abatement and control of pollution from shipping sources (Annex Five). Annex Six concerns abatement and control of pollution from dredging activities and Annex Eight provides for maintenance of a joint contingency plan for use in event of a discharge of the imminent threat of a discharge of oil or hazardous pollution substances.

The emerging navigation problems and needs of the Great Lakes - St. Lawrence Seaway are well known. The United States Congress has authorized a number of major studies directed to solution of navigation problems. These are: (1) The Great Lakes De-Icing Study; (2) Lake Erie-Lake Ontario Waterway (All-American Canal) Study and (3) The Great Lakes Connecting Channels and Harbors Study. Canada has made a continual effort in studying and improving the Welland Canal and they too have started Great Lakes de-icing studies somewhat paralleling United States efforts. There are also formal joint efforts. The IJC's Great Lakes Water Levels Study, discussed in the previous section, has a navigation subcommittee. The Water Quality

Agreement Annexes indicate the involvement of some aspects of navigation issues in water quality programs. The St. Lawrence Seaway Development Corporation (United States) and the St. Lawrence Seaway Authority of Canada are jointly coordinated navigation (and hydro-power) development entities presently engaged in a study on the need, and possible means of providing increased Seaway capacity. However, their jurisdiction ends at Lake Erie, and with their locks situated in the St. Lawrence River, their interests are concentrated outside the Great Lakes Basin.

While all parties generally acknowledge that nothing short of a basin-wide viewpoint is appropriate for the planning and program development activites called for, the fact remains, there is no formal Canada-United States group specifically addressing the full scope of basin-wide (international) navigation issues. As with other common ground issues in the Great Lakes region, there are exchanges across the boundaries as the respective United States and Canadian interests attempt to be comprehensive in unilateral navigation studies, such as those identified above. And of course the lake level studies and water quality activities funneled through the IJC generally acknowledge the aspects of navigation pertinent to their concerns. However, unilateral studies, a navigation subcommittee on a bilateral water levels study, and annexes to a bilateral water quality agreement surely do not provide an adequate forum for consideration of the full range of important Great Lakes navigation concerns.

Navigation questions pose some of the most pressing present and future economic issues facing the Great Lakes region. Billions of dollars of direct United States and Canadian federal investment will be required if future navigation improvements are to be kept in step with projected growth of waterborne commerce desiring use of the Great Lakes-St. Lawrence Seaway system.[45] Clearly, national and international policy decisions need be made regarding future navigation developments in the Great Lakes. And what is the present situation? Great Lakes navigation concerns are jointly considered by Canada and the United States ancillary to lake levels and water quality issues. A direct reference for a comprehensive study of navigation concerns could be directed to the IJC by the two governments, but they have not done so. It would seem that navigation issues merit more direct and intensive bilateral consideration than presently accorded.

Without question any comprehensive management arrangement for the Great Lakes Basin would necessarily pay particular attention to navigation issues. Such an arrangement could at the same time provide the joint forum and coordinating mechanism clearly needed to study and advise the two governments on future navigation developments.

Water Quality

The concepts for comprehensive basin-management evolved from concerns for the water, for within a basin the significant resource management concerns generally revolve around use and

protection of the water resource. The fundamental relationship of water quality matters to any basin-wide management scheme needs little further explanation.

Water quality is of course the most prominent present concern within the Great Lakes system. The executive Agreement on Great Lakes Water Quality (April 1972), with the attached Annexes and references, summarizes the present status of water quality conditions within the lakes and the bilateral commitments to improve overall conditions. The Agreement is an encouraging sign of the common recognition of Great Lakes problems and the need for new bilateral agreements and modified institutional arrangements. It recognizes the advantages of the IJC board system and extends its use in creation of the larger Water Quality Board and addition of a Research Advisory Board. However, the Agreement also breaks new ground by including provisions for the IJC to establish a permanent office in the Great Lakes Basin, jointly staffed to assist administration of the new surveillance and oversight responsibilities in Basin-wide water quality matters.

The preceding sections identify other pressing Great Lakes resource management concerns which appear to have similar needs for more positive joint administrative and joint coordinative mechanisms. It has also been illustrated in the preceding discussions that all resource concerns are fundamentally interrelated and should be considered in that

context. The basic premises of the Water Quality Agreement could then be utilized and expanded upon to formally integrate a broader range of common concerns (specifically water quality plus air quality, fisheries, lake levels and navigation), and activities (comprehensive information collection, planning and research to support policy and management recommendations).

The success of the IJC's new water quality arrangements in administering their responsibilities under the Water Quality Agreement, is sure to have significant influence on the possibilities for greater bilateral cooperation in multipurpose resource management arrangements for the Great Lakes Basin. Overall, future integrated management efforts in the Great Lakes region will depend upon inclusion of water quality concerns and management experiences to set the framework for more natural resources management arrangements.

FOOTNOTES AND REFERENCES

Chapter II

1. Herbert A. Simon. Administrative Behavior, Second Edition, The Free Press, New York, New York, 1957, p. 113.

2. Garret Hardin. "The Tragedy of the Commons," reprint from Science, Volume 162, pp. 1243-1248.

3. Ibid. p. 1244.

4. University of Illinois, Water Resources Center; WRC Research Report No. 18, "Intergovernmental Relationships in the Administration of Water Resources," Urbana, Illinois, September, 1968, p. 2.

5. See Reference 4, Chapter I.

6. * See conclusions of the International Joint Commission report, "Pollution on Lake Erie, Lake Ontario and the International Section of the St. Lawrence River." Question one concerning water pollution was answered as follows: "The Commission finds that the waters referred to in the question (see title) are being seriously polluted on both sides of the boundary to the detriment of both countries and to the extent which is causing injury to health and property on the other side of the boundary."

7. * The listing understandably concentrated on the United States side as the GLBC is not an international organization.

8. Norman Pearson. "Alternative Institutional Arrangements for Multipurpose Resources Management." Working Papers - Second Meeting, Canada-United States University Seminar on Institutional Arrangements for the Integrated Management of the Water Resources of the Eastern Great Lakes; Cornell University, Ithaca, New York, March 1-3, 1972, p. 1.

9. Lyle E. Craine. Preliminary Draft Report to the Great Lakes Basin Commission on Institutional Arrangements for the Great Lakes; January 22, 1972, p. II-1.

10. Op. Cit. 8, p. 3.

11. Robert D. Hennigan. "Effective Water Quality Management: Impossible Dream or Attainable Goal?" Proceedings Thirteenth Conference on Great Lakes Research; State University College, Buffalo, New York, April 1-3, 1970, Part I, pp. 149-155.

12. A. D. P. Heeney and L. T. Merchant. "Principles for Partnership - Canada and the United States," reprint from The Department of State Bulletin, August 2, 1965.

13. Gerald M. Craig. Canada and the United States; Harvard University Press, Cambridge, Massachusetts, 1968.

14. Op. Cit. 12, p. 2.

15. Ibid. p. 4.

16. Op. Cit. 13, p. 317.

17. Op. Cit. 12, p. 3.

18. Ibid. p. 5.

19. Op. Cit. 13, p. 316.

20. Op. Cit. 12, p. 4.

21. Op. Cit. 13, p. 315.

22. "No U. S. Domination, Nixon Tells Canada." The Ithaca Journal, April 15, 1972, p. 1.

23. Ibid.

24. Canada-United States University Seminar on Institutional Arrangements for the Integrated Management of the Water and Land Resources of the Eastern Great Lakes; Draft Seminar Report - Third Meeting, York University, Toronto, Ontario, May 31-June 2, 1972, p. 12.

25. * Governmental, i.e., institutional, problems, excluded from this list, are the basic concern of this paper.

26. L. B. Dworsky, D. J. Allee and C. D. Gates. The Management of Lake Ontario - A Preliminary Report Proposing an International Management Organization; Cornell University Water Resources and Marine Sciences Center, Ithaca, New York. Publication No. 36, July, 1971, p. 2.

27. J. P. Bruce, R. K. Lane and H. S. Werler. "Processes at the Air-Water Interface," Proceedings 11th Conference Great Lakes Resources, 1968, p. 269.

28. Canada-United States University Seminar on Institutional Arrangements for the Integrated Management of the Water and Land Resources of the Eastern Great Lakes; Working Papers - Second Meeting, Cornell University, Ithaca, New York, March 1-3, 1972, p. 103.

29. Fredrick J. E. Jordan. "Recent Developments in International Environmental Pollution Control," McGill Law Journal, Volume 15, No. 2, 1969, p. 289.

30. D. C. Piper. "The International Law of the Great Lakes, A Study of Canadian-United States Cooperation," Duke University Commonwealth Studies Center, 1967.

31. Douglas M. Carlson. "Management of the Biological Resources of the Lake Ontario Basin," unpublished class paper, Cornell University Water Resources and Marine Sciences Center, Ithaca, New York, June, 1972, p. 22.

32. Ibid. p. 12.

33. Ibid. p. 1.

34. Op. Cit. 28, p. 87.

35. H. C. Frick. "Economic Aspects of the Great Lakes Fisheries of Ontario," Fishery Resource Board of Canada Bulletin No. 149, 1965.

36. Michael K. Heiman. "Management of the Great Lakes Fisheries," unpublished class paper, Cornell University Water Resources and Marine Sciences Center, Ithaca, New York, December, 1971.

37. Great Lakes Basin Commission. Great Lakes Basin Framework Study, Appendix No. 11, Levels and Flows, Draft No. 2, Vol. 1 of 2, January, 1971, p. 11-3.

38. Ibid. p. 11-153.

39. Ibid. p. 11-160.

40. Reference to the International Joint Commission on Great Lakes Levels, October 7, 1964.

41. Op. Cit. 36, p. 11-360.

42. Op. Cit. 39.

43. Op. Cit. 28, p. 81.

44. Ibid. p. 83.

45. Great Lakes Basin Commission, Great Lakes Basin Framework Study, Appendix No. 9, Navigation, Vol. 1 Commercial, Draft No. 1, January, 1971, p. 239.

CHAPTER III

OPTIONS FOR INSTITUTIONAL CHANGE

To create a better United States-Canadian institutional arrangement for natural resources management in the Great Lakes Basin there must be some identification of the significant options for change. Pearson of the University of Guelph, Ontario developed such a study in conjunction with his participation in the "Canada-United States University Seminar on Institutional Arrangements for the Integrated Management of the Water and Land Resources of the Eastern Great Lakes."[1] A brief summary of his study provides the necessary review of the institutional options pertinent to the Great Lakes situation.

Pearson examined the major classes of institutional alternatives and a range of possible bilateral institutional concepts to develop the background for the process of institutional improvement. He first defined the main kinds of institutional arrangements capable of providing multi-purpose resources management concluding that all functions must necessarily be capable of being carried out in one of the following ways:[2]

(a) within the existing context

(b) by an extension of some existing arrangement

(c) by new bilateral agreements

(d) by an international pooling of resources or an economic union

(e) by a supra-national arrangement

(f) by political and administrative unification, integration or federation.

Option (a) should be ruled out as it is limited by the unlikelihood of any regression to previously manageable states. Option (f) is immediately excluded as any arrangement must necessarily respect the political integrity of both Canada and the United States. Option (e) could be excluded for the same reason. Each of the remaining three options offer some possibilities with options (b) and (c) or some combination thereof, presenting the more likely opportunities for new institutional arrangements in the Basin.

The options represent very general categories and are meaningful only as an initial framework in an evolutionary thought process toward institutional reform. Pearsons' next step was to briefly examine a number of possible concepts, derived primarily from existing arrangements, to further develop a setting for identifying reasonable alternatives that fit within these categories. The concepts which he identified are:[3]

(1) The Informal Working Arrangement

(2) The Specific Problem Task Force

(3) The Resource Development/Management Agreement

(4) The Advisory Expert Council or Group

(5) The Conservation Authority

(6) The Regional Development Agency

(7) The Advisory Planning Body

(8) The Permanent Research Agency

(9) The Regional Government

(10) The Monitoring Service

(11) The University of the Great Lakes

(12) The Great Lakes Parkway

(13) The Police Force

(14) The Construction Agency

(15) The High Authority

(16) The Columbia and Mexico - U.S.A. Border

(17) The Parlimentary Association

(18) The Seaway

These eighteen concepts cover a wide range of features which might be incorporated into a new institutional arrangement for resource management in the Great Lakes Basin. From these concepts Pearson extracted what he refers to as the major classes of institutional alternatives. Each of these eight alternatives were offered as viable models for achieving some measure of comprehensive resources management in the Great Lakes Basin. With abbreviated description and approximately in the order of increasing complexity, they are as follows:[4]

(1) The Inter - State - Provincial Compact is seen as an agreement between international technical committees with simple commitments to carry out certain environmental management functions.

(2) International Joint Commission with extended authority, presumably involving amendment or supplements to the Boundary Waters Treaty of 1909 to place all aspects of environmental management on an equal footing (i.e., air, land and water), giving the IJC direct responsibilities, financial support and some reasonable level of authority to implement its findings and recommendations.

(3) The Advisory Planning Board is envisioned as a replacement for, or supplement to, the International Joint Commission serving as an over-all international planning agency advising the senior governments in the Basin.

(4) The Special Purpose Board of Management is seen as an alternate which would depend on rewriting the Boundary Waters Treaty on the basis of agreed on basic objectives and commitments for particular actions, within a defined time span, on those aspects of environmental management of air, land and water resources which affect the total Basin. A Great Lakes Management Board would be created with specific delegated powers and a clearly defined task set by the Treaty.

(5) The International Planning Commission would be modeled after the United States Great Lakes Basin Commission including a Canadian equivalent and extended to a more comprehensive role of environmental management and air-land-water planning for the entire Great Lakes Basin.

(6) The International Resource Management Corporation would be modeled after the idea of the St. Lawrence Seaway Authority with control of funds committed by Treaty.

(7) The Bilateral Authority is seen essentially as a multi-purpose agency set up by Treaty to be similar to the Conservation Authorities in Canada or the Tennessee Valley Authority.

(8) The Supra-National Authority would basically involve deliberate sacrifice of national independence of action to a Basin entity which then has a degree of autonomy and power to act in the total common interest of the Basin.

These alternatives range from the least formal level to creation of a particular and new kind of authority. A quick examination reveals that application of any of the alternatives, with some adjustments, offer definite possibilities for improvement over existing arrangements (or the lack of existing arrangements). The ultimate might be to create a comprehensive management arrangement which only alternative eight, a supra-national authority, could be expected to match. However, this option, as well as alternatives six and seven, imply creation of a more independent organization than may be politically palatable. On the other hand it is doubtful that any of the first five alternatives, by themselves, could adequately encompass the desired management activites and functions, short of a very broad interpretation of each option. It appears however, that some combination of the concepts contained in the first five alternatives could satisfy the resource management needs and pass the test of international relations.

Each alternative recognizes the need for greater bilateral comprehensiveness. However, the more significant common thread (with the possible exception of alternative five) is the implicit and/or explicit involvement of the Boundary Waters Treaty of 1909 and the institution it created, the International Joint Commission. This implys that these related instruments may hold the key to any meaningful proposal for resource management within the Great Lakes Basin.

The potential broadness of the Boundary Waters Treaties reference procedure and the relative success of the IJC over the past sixty years can hardly be ignored. Also, recall the rather extensive role of the IJC in four of the five special functional areas suggested for inclusion in an integrated management scheme.

The IJC possesses the basic characteristics which suggest that this institution has the potential for an expanded role in the overall natural resource managemet scheme in the Great Lakes Basin. The IJC has the framework for a comprehensive view of the Great Lakes area and is considered, by most all standards, to be a successful venture in international relations. Also, the IJC has public credibility and the confidence of the governments. A drawback may be that it has had a rather comfortable, isolated existence with its tasks limited to mediation and specific technical studies. However, these are no small tasks on an international level; the IJC's achievements in handling numerous

complex international problems (as of July 1972 the IJC had received a total of ninety-four dockets - fifty-eight applications and thirty-six references) have been considerable. While the flexibility and potential of the IJC has not really been tested it should be recognized that shortcomings of the arrangement are basically attributal to the limitations placed upon the organization by the Boundary Waters Treaty, and the subsequent lack of references on given matters, and not the IJC's inability to manage assigned responsibilities.

The ultimate question, and subsequent features of it, are well put at the conclusion of a working paper on the IJC prepared for the third meeting of the above cited Canada-United States Seminar. To recapitulate:

> "Does the IJC have a potential role in an integrated management scheme for the Great Lakes? The answer is probably yes. Some of the basic questions which will have to be addressed include: (1) is the experience gained in sixty years of an IJC a valid guide to what would happen to an organization suddenly thrust in the limelight and controversy of public decision-making?; (2) should the IJC continue to serve its present role, merely complementing a new agency created especially by treaty to coordinate integrated management of the Great Lakes?; and (3) if a new agency is charged with these responsibilities should it have exclusive jurisdiction or should it share responsibility in some way with the IJC?"

The Canada-United States Seminar participants contemplated such questions in pursuing the main purpose of the Seminar which was "to (1) determine whether there should be changes in the management of the Great Lakes and (2) if so, to formulate recommendations about how these might be accomplished."[5]

They quite definitely concluded that a modified international arrangement for the Great Lakes area was needed to more effectively meet older existing problems and, more importantly, to be prepared in advance to meet emerging problems about which people and their governments can take action.[6] Three alternatives which might be considered for improvement in the management of the water and land resources of the Great Lakes Basin were tentatively identified by the Seminar.[7]

> " - The first would seek to improve management by establishing organizational improvements within the existing International Joint Commission.
>
> - The second would seek to improve management by establishing organizational arrangements separate from the International Joint Commission.
>
> - The third would seek to develop strengthened management by developing closer relationships among existing federal, provincial (state) and regional governments, using the International Joint Commission for progress evaluation, management and coordination of information, and liaison with operating and research agencies."

While all three alternatives are to be presented in the Seminar's summary report, the concensus of the participants called for a melding of alternatives one and three. In short, the Seminar recognized: (1) the relatively successful record of the IJC which strongly suggests that this institution provides an excellent base for the desired integrated management structure in the Great Lakes Basin, and (2) the need to link such a central body, as a reconstituted

IJC, to both countries existing levels of government and their respective supporting agencies, presently involved in regional (including water-basin) resources development, who must be ultimately relied upon to support and/or carry out joint tasks and programs. If not an accurate synopsis of the general seminar views, it remains as this writer's personal assessment.

Under a less complex set of conditions than exists today, it took approximately two years (1907-1908) to negotiate and draft the Boundary Waters Treaty signed on January 11, 1909. It then took until January 10, 1912, or approximately five years time overall, before the IJC first met. Conceivably, the potential complexities of forming a substantially new international organization (outside the IJC), would take as much or more time today. However, the possibilities for reconstituting the IJC should be more immediate with the advantage of minimizing disruptive effects on existing agreements and institutional arrangements. A completely new international treaty would not be required; the IJC has a well defined foundation in law - the Boundary Waters Treaty of 1909. It is believed that the necessary institutional realignments could be effectuated by amendment to existing treaties (notably the Boundary Waters Treaty), and/or executive agreement between the two federal governments. Any extension or modification of the 1909 Treaty and the Water Quality Agreement to cover

additional areas of mutual interest would be expedited by further use of the IJC and its existing channels of communication.

Suggesting that the IJC's function be extended to encompass new areas of bilateral interest and concern is not without precedent. The most complete and authoritative study of the entire range of Canadian-United States relations that has appeared in recent years was the 1965 report entitled Canada and the United States-Principles for Partnership authored by former Ambassadors Livingston T. Merchant of the United States and A.D.P. Heeney of Canada. While the emphasis of the report is on the economic issues between the two countries, Ambassadors Merchant and Heeney address themselves to nearly every significant aspect of the bilateral relationship. In their section entitled, "Machinery for Consultation", the authors consider (section 45) the International Joint Commission. Ambassadors Merchant and Heeney described the Commission as "one which has been of continuing importance to both countries since its establishment" and as a "unique institution" with "a solid foundation of law and precedent" and a "long and successful record in the disposition of problems along the boundary" which "justify consideration of some extension of the Commission's functions". They accordingly recommend that the two Governments "examine jointly the wisdom and feasibility of such a development".[8]

Three months after the Merchant-Heeney report was made public, ten Republican House members inserted into the Congressional Record their own statement on United States-Canadian relations.[9] The House members were willing to be more explicit in sketching out a wider role for the IJC than were Ambassadors Merchant and Heeney. They recommended negotiations to broaden the Boundary Waters Treaty of 1909 and expansion of the authority of the IJC. Among their recommendations were (1) inclusion of Lake Michigan in the definition of boundary waters (Section 15); (2) for the IJC to be empowered to make recommendations relating to continental development of water and energy resources (Section 16); (3) for the IJC to constitute a permanent institutional location for international discussion of technical foreign policy differences which arise between the two nations (Section 17); (4) that the IJC studies on water level and pollution of the Great Lakes be given immediate priority emphasis by both countries (Section 18); and (5) that the IJC should have a leading role in fulfilling "the obvious need for comprehensive advance planning in the development of water resources" (Section 19). No action was taken to expand the IJC's role subsequent to these reports, however they do reflect the degree of credibility and respect that the IJC commands with seasoned diplomats and legislators familar with its history of successful performance. Certainly in consideration of any

new management scheme for the Great Lakes, both the future role of the IJC and the IJC experience are directly and inescapably relevant.

FOOTNOTES AND REFERENCES

Chapter III

1. Norman Pearson. "Alternative Institutional Arrangements for Multipurpose Resources Management;" Working Papers - Second Meeting, Canada-United States University Seminar on Institutional Arrangements for Integrated Management of the Water Resources of the Eastern Great Lakes; Cornell University, Ithaca, New York, March 1-3, 1972.

2. Ibid. p. 5.

3. Ibid.

4. Ibid. p. 10.

5. Canada-United States University Seminar on Institutional Arrangements for the Integrated Management of the Water and Land Resources of the Eastern Great Lakes; Draft Seminar Report - Third Meeting, York University, Toronto, Ontario, May 31-June 2, 1972, p. 24.

6. Ibid. p. 3.

7. Ibid. p. 6.

8. Livingston T. Merchant and A. D. P. Heeney. Canada and The United States - Principles for Partnership, June 28, 1965, Department of State Bulletin of August 2, 1965, GPO; Washington, D. C. Note: Ambassador Heeney was at the time serving as Chairman of the Canadian Section of the IJC; he was in this capacity during the years 1962-1970.

9. Congressional Record, September 28, 1965, pp. 25394-25401. House Report Members - Reps. Tupper (Me.), Ellsworth (Kans.), Frelinghuysen (_.J.), Horton (N.Y.), Mathias (Md.), Morse (Mass.), Mosher (Ohio), Reid (N.Y.), Robison (N.Y.), and Smith (N.Y.).

CHAPTER IV

THE INTERNATIONAL JOINT COMMISSION

The Boundary Waters Treaty of January 11, 1909, unique in the history of Canada and the United States, provided for an unusual international body, which remains so today - the International Joint Commission.[1] The purpose of the Boundary Waters Treaty is set out in the preamble:

(1) "to prevent disputes regarding the use of boundary waters;"

(2) "to settle all questions which are now pending between the United States and the Dominion of Canada involving the rights, obligations, or interests of either in relation to the other or to the inhabitants of the other along their common frontier;" and

(3) "to make provisions for the adjustment and settlement of all such questions as may hereafter arise."

Article VII of the Treaty created the IJC.

> "The High Contracting Parties agree to establish and maintain an International Joint Commission of the United States and Canada composed of six commissioners, three on the part of the United States appointed by the President thereof, and three on the part of the United Kingdom appointed by His Majesty on the recommendation of the Governor in Council of the Dominion of Canada."

Although there is a separate three-man section from each country, they are not meant to function as national delegations acting under instructions from their respective

governments. The concept of the treaty negotiators was formation of a unitary body composed equally of Canadians and Americans seeking common solutions in the joint interest and, most important, in accordance with the agreed "roles or principles" set out in the treaty.[2]

The Commission assumes a number of different roles under the Treaty of 1909.[3] Articles III, IV and VIII give the Commission a judicial role in requiring their passing upon applications for approval of works that affect water levels and flows in the other country. Under Article IX the two governments may call upon the services of the Commission as an investigative, recommendatory and administrative body. The Commission was given a specific administrative function under Article VI of the Treaty, in relation to measurement and apportionment of water use for irrigation and power in the St. Mary and Milk Rivers (State of Montana and the Provinces of Alberta and Saskatchewan). A special feature of the Commission is that it can also be utilized by the two governments, with legislative consent, as an arbitral court on any question or matter of difference "referred for decision" (Article X), however, the Commission has not been called upon to exercise such powers.

For all practical purposes the Commission's <u>responsibilities under the 1909 Treaty</u> as layed out in the IJC's "Rules of Procedure" fall into two general categories. First are the judicial responsibilities of the Commission to approve or

disapprove all proposals for use, obstruction or diversion of the boundary waters, either by the two governments or by private persons, which would affect the natural levels and flows, with the power to require suitable and adequate provisions against injury of any interests on either side of the boundary. Proposed projects are termed "applications," filed with the IJC by public agencies, private corporations, or individuals. All necessary information and data required for the Commission's elaboration of an application must be provided by the applicant. The treaty provides that all parties interested in the Commission's application proceedings be given an opportunity to be heard. For this purpose public hearings on applications are held after which the Commission hands down its "order," concerning the project proposal, which is final.

The second major duty of the IJC, which is becoming the major work of the Commission, is to investigate, report and make recommendations to the two governments on various questions that either may wish jointly or individually to refer to the Commission. For these "references" the Commission, as authorized, appoints an international technical board to make a thorough investigation and submit a written report of finding to the Commission. Upon receipt the Commission normally makes the boards study available to all interested parties in both countries and schedules public hearings. Finally, the Commission considers and compiles

all the evidence received from all sources and formulates its own report for submission to the governments. Neither government is bound by the reports or recommendations of the Commission.

A third important area of the IJC's regular activity has emerged out of the exercise of its functions in dealing with "applications" and "references." "This is the continuing supervision of the works it has approved under its delegated powers and the surveillance of action resulting from its recommendations."[4]

As of July 1972 the Commission had received a total of ninety-four dockets - fifty-eight applications and thirty-six references. These represent a considerable amount of effort over some sixty years of the Commission's existence. However, the Commission has not had to maintain a large technical staff to carry on its functions. This is due to a unique feature of its procedure wherein it derives the power to select and deploy the most experienced and competent officials in the agencies of both countries in "international boards," composed equally of Americans and Canadians.

The regular activities of the Commission on the problems in which it is generally involved, and the corresponding "international boards," presently fall into three categories. First there are control activities, second, investigative activities and finally surveillance activities. Chart I outlines the basic structure of IJC (July 1972).

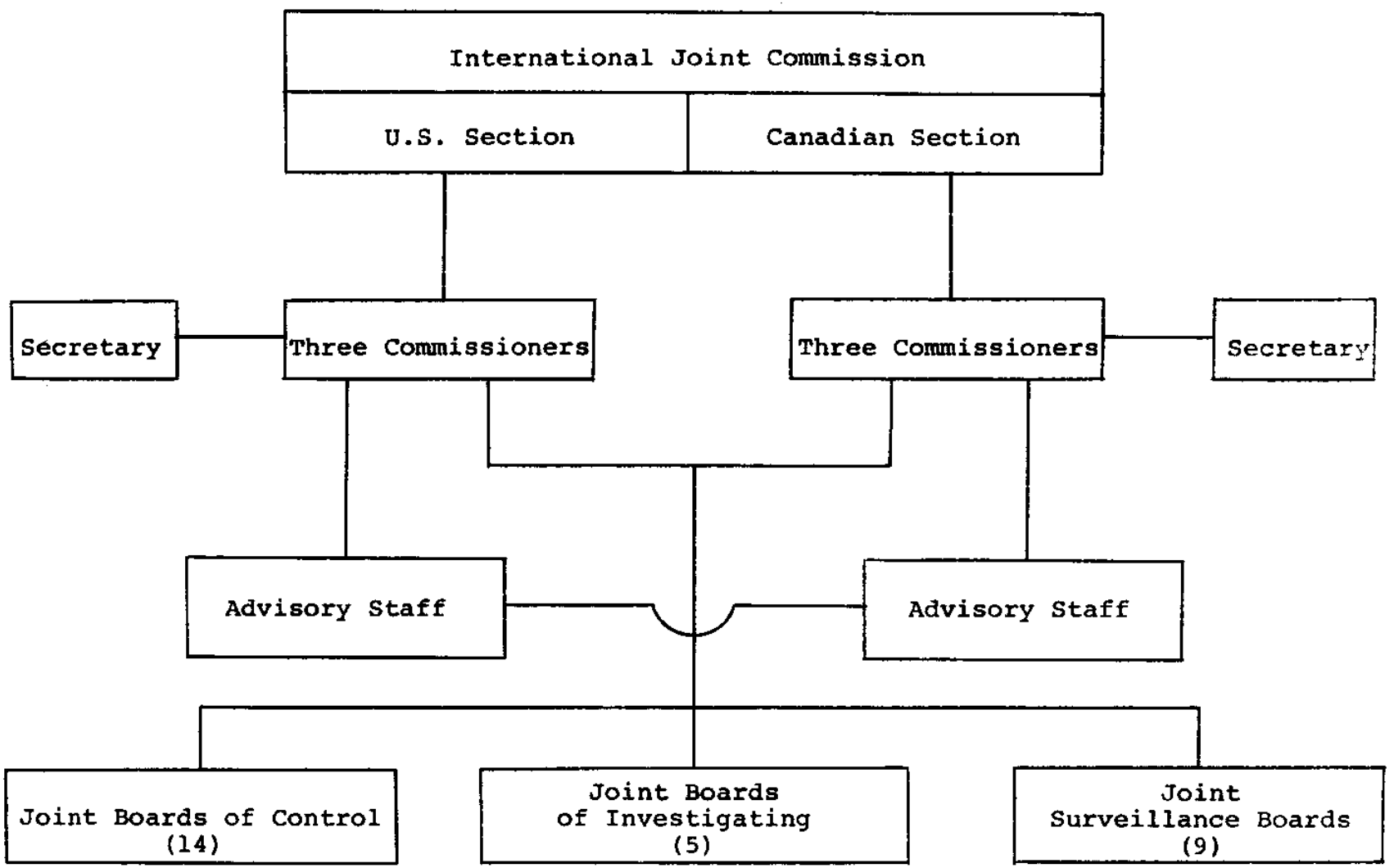


CHART I

THE INTERNATIONAL JOINT COMMISSION (July 1972)

Control activities are required for a number of cases where the Commission, having issued an order of approval, must keep in touch with the situation to ensure that operation of the approved works or program continues to be in accord with such order. "Orders of Approval" have been issued relating to such diverse works as log booms in the Rainy River, and the works required for the development of hydro-electric power in the international section of the St. Lawrence River and subsequently used to regulate the levels and outflows of Lake Ontario. The administrative duties given the Commission to appropriate flows in the St. Mary and Milk Rivers under Article VI of the Treaty, are somewhat equivalent, in fact, the Commission-directed officials involved are considered as an International "Board of Control". As of July 1972 there were fourteen "Board of Control" as follows:

International Lake of the Woods Board of Control; Docket 3.

International Lake Superior Board of Control; Dockets 6 and 8.

Accredited Officers for the Apportionment of the St. Mary and Milk Rivers; Docket 9.

International St. Croix River Board of Control; Dockets 10 and 11.

International Lake Champlain Board of Control; Docket 38.

International Prairie Portage Board of Control; Docket 40.

International Souris River Board of Control;
Docket 41.

International Columbia River Board of Control;
Docket 44.

International Skagit River Board of Control;
Docket 46.

International Osoyoos Lake Board of Control;
Docket 49.

International Niagara River Board of Control;
Docket 62.

International St. Lawrence River Board of Control;
Docket 68.

International Kootenay Lake Board of Control;
Docket 70.

International Pembina River Board of Control;
Docket 76.

The IJC has investigative activities on those problems under study pursuant to references from the governments, where final reports have not been submitted. The letters of referral from the governments almost invariably state that the governments will assist the Commission, upon request, by making available the services of engineers and other specially qualified personnel of the government agencies as well as the information and technical data acquired by such agencies.[5] The Commission has made liberal use of these authorizations to assemble technical "Boards of Investigation" to engage

problems ranging from the international tidal power potential of Passamaquoddy Bay on the Atlantic coast to the water resources of the Columbia River in the west, and from preservation of the scenic splendors of the falls at Niagara to emission of smoke by ships plying the Detroit River.[6] The five active IJC "Boards of Investigation" as of July 1972, are as follows:

International Roseau River Engineering Board; Docket 26.

International Souris - Red Rivers Engineer Board; Docket 58.

International Great Lakes Levels Board; Docket 82.

American Falls International Board; Docket 86.

International Point Roberts Board; Docket 92.

Finally, there are surveillance activities on problems where the Commission has reported and made recommendations and the governments in accepting them, have given the Commission a continuing role in their implementation. International "Surveillance Boards" are thereby created when authorized by the government. The surveillance activity came into play principally to give the Commission a continuing role in securing abatement of boundary water pollution. As of July 1972, there were nine "Surveillance Boards" as follows:

Advisory Board to the International Joint Commission on Control of Pollution, Lakes Superior-Huron-Erie Section; Docket 54.

Advisory Board to the International Joint Commission on Control of Pollution, Lakes Erie-Ontario Section; Docket 55.

Advisory Board of Control of Water Pollution, St. Croix River; Docket 71.

International Rainy River Water Pollution Board; Docket 73.

International Red River Pollution Board; Docket 81.

International Lake Erie Water Pollution Board; Docket 83.

International Lake Ontario-St. Lawrence River Water Pollution Board; Docket 83.

International Air Pollution Advisory Board; Docket 85.

International St. Clair-Detroit Air Pollution Board; Docket 85.

The various boards keep the Commission regularly informed of their activities by means of annual, and for some detailed studies, semi-annual progress reports. Upon completion of directed studies boards submit a final report to the Commission. Where problems of a critical nature are involved, e.g., water pollution, interim reports may also be filed with the Commission. The costs of preparing these reports including the salaries of board members and other costs of board investigations and activities are paid ordinarily by the two governments, who make funds available for the purpose through the Commission or through the departments or agencies providing the technical assistance.[7]

The IJC In The Great Lakes Basin

Roughly half of Canada and the United States 2200 miles of common waterway boundary lies within the Great Lakes Basin. However, as the two countries greatest shared resource this vast reservoir of fresh water (95,000 square miles) naturally commands a much greater proportion of their combined attention, than is reflected by the number of miles of common boundary therein. Over the past decade, the two governments attention on Great Lakes concerns has intensified as evidenced in the ever increasing IJC workload on Great Lakes matters. The IJC's Great Lakes water pollution and lake level studies are examples of some of the most extensive studies of their kind ever undertaken, anywhere.[8] Continued emphasis on the Great Lakes system is predictable as the land mass of the Basin continues to develop and the need and possibilities for safeguarding and maintaining the value and usefulness of this vast natural resource becomes more apparent.

In the lists of international boards in the previous section are included eleven boards with jurisdiction in the Great Lakes Basin. As explained hereinafter this will change as of October, 1972 subsequent to provisions of the Water Quality Agreement of April 15, 1972.

Two of the eleven boards are involved in air pollution matters; they are: the International St. Clair-Detroit Air Pollution Board and the International Air Pollution Advisory Board. Five boards address lake level matters; the International Lake Superior Board of Control, the International Niagara Board of Control, the International St. Lawrence River Board of Control, the American Falls International Board and the International Great Lakes Levels Board. The activities of these air quality and lake levels boards were identified in the discussions on the respective subjects in Chapter II.

Prior to the Water Quality Agreement (April 1972) there were four active Great Lakes water pollution boards; two of the boards covering connecting channels areas, one for Lake Erie and one for Lake Ontario and the International Section of the St. Lawrence River. The connecting channels areas, namely, the St. Mary River, the St. Clair-Detroit River, and the Niagara River were handled by the two Advisory Boards to the International Joint Commission on Control of Pollution - the Lake Superior-Huron-Erie Section and the Lake Erie-Ontario Section. The two lake boards, which prepared the joint summary report ultimately leading to the Water Quality Agreement, are the International Lake Erie Water Pollution Board and the Lake Ontario-St. Lawrence River Water Pollution Board. There is little use in further discussing these boards as in October, 1972 they are to be terminated with their functions assumed by the new Great Lakes Water Quality

Board. The new Water Quality Board will become the largest IJC board with a total of eighteen representatives - nine from each country - whose combined purpose is to assist the IJC in the exercise of the powers and responsibilities assigned to it under the Agreement. A Research Advisory Board is also to be established to review research activities concerning the quality of waters of the Great Lakes System. This new Board is to be utilized to provide advice to the Commission and its boards of scientific opinion and to facilitate both formal and informal international cooperation and coordination of research. The Agreement also allows the Commission to establish a regional office to serve the Water Quality Board and assist in the discharge of IJC Agreement functions. This office will be set up in Windsor, Ontario and is to have a full-time staff of approximately sixteen members, eight from each country, when fully operational.[9]

An Assessment of the IJC[10]

Canada and the United States have depended upon the IJC as the only readily available machinery for resolution of common boundary problems for over sixty years. It is doubtful that there will ever come a time when this truly unique institution will no longer be needed. The IJC has faithfully carried out its duties, circumscribed by an instrument drafted within the limits of political acceptability that existed three generations ago. Only this year (1972) has the role of

the Commission been expanded and even then in only one aspect of water resource management.

There is evidence of need for greater bilateral attention to the rapidly developing Great Lakes region if Canada and the United States mutual and individual interests in this area are to be protected and accounted for. Initial involvement of the IJC in any effort to better manage the Great Lakes system is imperative. However, as the discussions on the five major areas of common concern in Great Lakes resource matters indicated, there are weaknesses in the present bilateral approach of which the IJC is an integral part. New agreements with some corresponding modification of the IJC mechanism, as presently regulated by the two governments are required. The following assessment is made to develop a better sense of the overall IJC operating procedure to thereby identify strong points and weaknesses anticipating expansion of the IJC's role in Great Lakes resources management.

Eight criterion will be utilized to facilitate the assessment procedure. They are:

Jurisdiction

Enforcement Power

Administrative Discretion

Flexibility

Fiscal and Staffing Adequacy

Visibility

Accountability

Structural Compatibility

These criterion were adapted from the Cornell University Water Resources and Marine Sciences Center background study on Management of Lake Ontario.[11] Principal features of the criterion are retained from the Cornell definitions to the point of paraphrasing portions of their criterion in the text of this assessment.

The reader should note that the Commission itself is not being directly assessed. Rather, the results of the present methods for dealing with international resources problems as effected through the Boundary Waters Treaty of 1909 and the IJC by the two governments are being examined against eight criterion as a guide for eventually determining what changes in the system might be desired.

Jurisdiction

In its broadest sense jurisdiction refers to the granting of certain specified powers by treaty or executive agreement to a body to enable it to carry out certain administrative responsibilities within a territory, also defined. It refers to the legal basis of the entity, the scope of powers granted, and to the precise areal limits over which these powers and authorities are to be exercised.

The Boundary Waters Treaty of 1909 can be considered a model in international agreements. It has received the firm support of both Canada and the United States throughout its existence. Recall Ambassadors Merchant and Heeney's

description of the Commission as "one which has been of continuing importance to both countries since its establishment" with "a solid foundation of law and preceedent."[12] The present soundness and adequacy of the IJC's legal basis (the Treaty of 1909) is borne out by its "long and successful record in the disposition of problems along the boundary."[13] On the other hand, the IJC's scope of powers are limited by "application" and "reference" procedures to a judiciary and advisory role, relying upon response of the two governments to its recommendations for implementation. This arrangement has potential weaknesses as noted by Jordan in a 1968 paper discussing the limits on institutional arrangements vis-a-vis transboundary pollution problems involving Canada and the United States.[14]

Jordan points out that both countries, since World War II, have turned increasingly to the IJC as the joint agency for handling transboundary pollution problems. He then identifies three major limitations that are placed on the IJC which inhibit its carrying out an effective role in this area. First, the treaty does not grant the Commission specific (or general) jurisdiction over boundary pollution matters. It must await a reference from the two governments, a procedure entailing delays. Second, once it has a reference, the Commission, while it has the ability to draw upon personnel of the governments to conduct its own studies and is authorized to make use of information gathered by other agencies engaged in related studies, has no power to direct or coordinate the research or information-gathering being done by domestic

agencies at the various levels of government, resulting in duplication of activities and lack of communication on means and ends. Third, the IJC lacks the power to give effect to the standards and measures of control which it recommends, following completion of its investigation. Jordan stated that this third limitation may be viewed from two levels. First, the Commission has no powers of compulsion on the federal governments and second, it has no way of imposing its standards on the local governments or individuals causing the pollution. In addition, while the two federal governments may "adopt" the Commission's recommendations, in the absence of legislative enactments to give legal effect to them, "their implementation and enforcement remain academic". The Commission's powers are reduced to those of good will and persuasion.

Professor Jordan correctly rules out the establishment of a supranational pollution control agency as essentially utopian. Instead, he recommends that the two governments "vest the Commission with jurisdiction over all matters of boundary water and air pollution which were having transboundary effects in relation both to initiating the investigation without awaiting a reference and to coordinating the various bodies involved in the study". Also recommended was that the IJC "be empowered to exercise supervision over the implementation of its recommendations by the users of the resource which has been the subject of the Commission's study and be authorized to report offenders to the federal Attorney-General of the appropriate national government with recommendations

for the action to be taken." This procedure, he noted, would first require legislation enabling the attornies-general to launch compliance proceedings. To assure this happening would imply establishing a new treaty provision to the effect that the national governments (and ideally provincial and state governments also) must pass legislation to ensure that the creation, existence and authority of the IJC are rooted in the partcipating jurisdictions uniformly.

The three institutional limitations singled out by Jordan are not significantly altered by the Water Quality Agreement signed by President Nixon and Prime Minister Trudeau on April 15, 1972. The intent of the Agreement is to enable both countries to mount a more effective pollution control program for the Great Lakes. It assigns to the Commission the principal coordinative role in that effort. While the agreement relieves the situation on research coordination by granting the IJC certain new authorities in that aspect, i.e., creation of a Resource Advisory Board, the agreement does not alter the other two fundamental limitations which Jordan identified, i.e., the reference requirement and lack of enforcement authority.

The last aspect of this "jurisdiction" criterion calls for congruity of area and function. In this regard it is an anomaly that the term boundary waters, as defined in the preliminary article of the 1909 Treaty excludes Lake Michigan from the general jurisdiction of the IJC. There is one formal exception. Article I of the Treaty of 1909 does state that

the waters of Lake Michigan, for the purpose of navigation, will be considered as boundary waters. However, Article III of the Treaty, in effect, declares that the IJC has no authority to consider matters relating to the diversion of waters which are not boundary waters. No doubt political factors over-rode arguments for recognition of the overall physical realities, at the time the Boundary Waters Treaty was drafted. Also the authors of the Treaty may not have anticipated the eventual scope of studies undertaken by the IJC in lake levels and pollution control. Diversions from, and pollution in, Lake Michigan directly effect boundary waters and therefor Canadian as well as American interests. The reference extending the IJC's study of water pollution problems to Lake Huron and Lake Superior (accompanied Water Quality Agreement-April 15, 1972) states that "the Commission is requested to include consideration of pollution entering Lake Huron and Lake Superior from tributory waters, including Lake Michigan." Extension of the "boundary waters" to include Lake Michigan would not be an extraordinary or unprecedented step as it is clearly recognized as an integral part of the Great Lakes system. Accordingly, the definition of "boundary waters" under the Treaty of 1909 should be extended to properly include Lake Michigan.

Enforcement Power

Enforcement powers in effect fall under the jurisdiction criterion and were touched upon in the preceding paragraphs.

However, this is a central and sensitive issue which merits a separate discussion.

The basic thrust of this criterion is that an institution granted the responsibilities for administering a program designed to meet certain public objectives, should have the authority commensurate with its responsibilities. In this form the criterion cannot really be directly applied to the IJC arrangement. As the late A. D. P. Heeney, chairman of the Canadian section of the Commission (1962-1970) put it, "the whole philosophy of the Boundary Waters Treaty is quite opposed to the concept of an international body with administrative let alone enforcement authority and functions."[15] The late General A. G. C. McNaughton, also a past Canadian section chariman similarly observed, "the very reason the IJC was not given policing powers, (as had been proposed in the Commission's first report on water pollution - 1918) was to prevent its becoming a super-power with authority beyond that of national authority."[16]

The IJC does not have direct implementing authority. As Heeney also stated, there is "the absence of any mandatory character in the Commissions' conclusions---IJC recommendations become effective only when adopted and carried out by other bodies."[17] The results of this need to rely on "good will and persuasion," is an understandably slow and complicated process of implementation. This can be considered a serious failing of the system in areas of critical concern as discussed in Chapter II (Management Concerns) and addressed by

Jordan on matters of transboundary pollution. (See "Jurisdiction" criterion.)

Should greater powers of persuasion be granted the IJC? And then, could they be reasonably granted the IJC? The two governments may find it advisable to at least seriously consider vesting in the IJC a specific enforcement role in the case of certain critical common resource management problems, such as water and air pollution. Heeney seemed to equate such suggestions to that of advocating creation of a supra-national entity, requiring a "new and radically different treaty."[18] It does not seem that this need be the case; it all breaks down to a question of degree and the limits of political acceptability which are subject to change, over time.

For now, Jordan's suggested approach of authorizing the Commission to formally report offenders to the appropriate federal Attorney General might be considered. A similar approach would be to grant the Commission standing in the courts of the participating governments. Also, authorizing the Commission to file formal charges through the appropriate federal and/or state/provincial enforcement authority might be considered. The weight of a formal "international complaint" would conceivably add effectiveness to national, state or provincial actions, and vice versa.

There appears to be room for improvement in the area of enforcement. Assessment of the results of the Water Quality Agreement programs a few years from now should provide better

insight on this matter. If the time comes for new powers to be granted, surely, the available legal and diplomatic minds of the two governments will want to, and will manage to work within the existing framework of the Boundary Waters Treaty.

Administrative Discretion

This concept is concerned with the difficult task of striking a proper balance between a degree of administrative freedom, which allows effective administration, and requirements for governmental controls. The legal organizational mandate, whatever its source - treaty, executive agreement act of legislature, should allow for administrative capabilities comensurate with an organizations responsibilities and vice versa.

The Boundary Waters Treaty of 1909 is highly regarded as a well understood and precise document. Under the treaty the IJC has not suffered from undue restrictions within the terms of its references and the Commission "decisions" on applications, are accepted as final. In short, the IJC has generally been allowed the latitude necessary to meet its responsibilities in a creditable manner.

There is another aspect of this criterion which should be considered in light of proposed expansion of the IJC's responsibilities in resources management in the Great Lakes Basin. It concerns the achievement of short and long range objectives (e.g., high quality fishery, clean air and water) and the subsequent desposition of planning and operating

functions. Planning offers the means to translate objectives into programs. If an organization is given responsibilities to achieve certain defined objectives it must be allowed to plan, and for best results, that same organization should be provided the follow-thru responsibilities and mechanisms to guide the programs that are approved and made operational, i.e., plans authorized and funded for implementation.

Although not commonly recognized, the IJC has in fact developed into a joint planning mechanism of considerable stature. Eugene W. Weber, a commissioner of the United States Section of the IJC, identified this development.[19]

> "During the first half of its existence the problems brought before the Commission were predominantly applications for approval of specific individual projects along the boundary. In recent years the two governments have taken increasing advantage of the opportunity to use the Commission's procedures for joint advance planning. This has two major implications. First, it is proving possible to find ways of developing and managing water resources so that each country gains net benefits greater than it could by acting independently. Second, it provided a basis for future actions in each country that minimizes the choices of troublesome problems arising in the future."

Under the reference procedure the IJC has undertaken coordination of large scale special purpose planning efforts such as the water pollution (1964-1970) and lake level studies (1964-1973). Recently the IJC was given some follow-thru responsibilities under the Water Quality Agreement based on its "plans" to improve water quality in Lakes Erie and Ontario. While the actual operating activities will be implemented through the respective federal, state and provincial

departments and agencies, the IJC will properly be in a position to "keep tabs" and guide implementation.

These developments illustrate that the two governments have gradually recognized that the IJC offers a suitable means for joint advance planning and operational follow-thru. However, should the two governments continue to rely on present arrangements and administrative processess to utilize this capability? For example, on the water pollution issue, the IJC had to await a reference (1964); it had to depend upon the cooperation of the supporting government officials and agencies (this factor will be discussed under the staffing adequacy and fiscal adequacy criterion); and it was necessary that the governments not only consider acceptance of the recommendations, but then engage in seperate formal negotiations for the new agreements. It was a lengthy process overall. Also, this was the third time around on water pollution matters (previous references in 1918 and 1946). If more expedient and/or positive arrangements had been available, for the water pollution problems were recognized for some time, present problems and the price which must be paid to treat them, would no doubt be less severe.

As described in Chapter II there are other than water quality problems which should also be addressed in a more positive fashion. However, the IJC must assume a generally passive role as it lacks the authority and means to act until it receives a reference from the governments, which then

authorizes the Commission to retain the support of government departments and agencies necessary to investigate a specific matter. The IJC mechanism has the potential to assume a fuller capacity than presently allowed. The IJC's record justifies consideration of extending its function in respect to the Great Lakes. This must involve consideration of a much broader reference, or elimination of the mandatory reference procedure, to place with the IJC sufficient discretionary ability to address emerging problems and readily integrate related planning efforts to identify solutions.

Flexibility

A government entity should be adaptable to meet changing needs. The IJC has shown great facility for adapting to each new task set before it. This adaptation has been largely possible due to the IJC's authority to draft the desired federal expertise to meet its assignments. In spite of this adaptive character the IJC does not fare well under this criterion as a result of the lack of initiatory and implementing authority required for true flexibility.

The IJC is reactive as opposed to initiatory. Its principal tasks, once the organization is set in motion, are coordinative and recommendatory. Its present form and modus operandi are faithful reflections of the carefully written provisions of the 1909 Treaty and the boundary water problems of that era.

We are presently in a new era which requires more flexible arrangements. Resources management in the Great Lakes region could only be fully effective through coordinated planning processes (coordinate United States and Canadian planning efforts) geared to reviewing common problems and addressing new problems as they arise. However, the IJC was not granted a planning role with respect to the boundary waters by the Treaty. Its planning works on a case-by-case basis as a problem becomes severe enough to capture sufficient federal government attention to result in the required reference. The mandatory reference procedure must be adjusted if the IJC is to be utilized to its potential common advantage for both countries.

Fiscal and Staffing Adequacy

It is axiomatic that an organization must have its substantive tasks and related administrative support functions financially supported at an adequate level. Likewise it must be in a position to control the efforts which it undertakes. This requires an adequate professional staff which can supervise and coordinate implementation of all substantive tasks.

When considering the size of the permanent staff and the budget of the IJC sections, the Commission must truly qualify as an anomaly in this bureaucratic world. The United States Section's appropriation request for Fiscal Year 1914 for fixed charges including the salary of three commissioners (all full-time) at $7,500 p.a., one secretary/disbursing

officer at $4,000 p.a., and one clerk/stenographer at $2,250 p.a. as well as travel expenses, office rent, etc. was $42,050. The United States portion of the shared expenses was set at $98,100 for FY 1914. Note: The shared expense request was unusually high that year in order to pay the costs of the investigation of water levels of Lake of the Woods ($19,400).[20]

The permanent staff of the United States Section in July 1972 consisted of three commissioners (two are part-time); an Executive Director; a Secretary; and two secretaries/stenographers with a fixed operating cost of approximately $300,000.[21] While the items covered by the dollar amounts cited for 1914 and 1972 are not necessarily comparable, it can be said, nevertheless, that after taking inflation into account, the cost of operating the United States Section has remained essentially constant during the fifty-eight year period. The staff has increased by two persons, but on a full-time basis, the staff is still the same - five persons. The Canadian Section staff includes a legal counsel, otherwise the staff and budget is comparable.

With the recent executive agreement on Great Lakes water quality (April 15, 1972), the IJC will undergo an expansion of its permanent staff. The United States Section plans to eventually increase its Washington staff to approximately six professionals. The newly authorized regional office, to be located in the Detroit-Windsor area, is to be staffed with

about sixteen professionals, half from each country. The estimated FY 1973 budget for the United States Section, including regional office costs, is $525,000.[22]

The IJC does not maintain a large technical staff to carry out the investigations authorized by reference since it can draw upon the federal agencies of both countries for these purposes. This is a mixed blessing at best. In this case, where the substantive work of the Commission is undertaken by the agencies of the two governments, the work produced is a product of the priorities, constraints, funding and biases of the participating agencies. While the Commission, at the onset of an investigation, has and exercises authority to mark out the scope and terms of the project, this power tends to dissipate in an irreversible manner once the project is firmly in the hands of the technical agencies, since the Commission has no fiscal control or continuous supervisory control over the work done in its name by the agencies. Technically, it can do little more than place its imprimatur on whatever the agencies come up with, whenever they come up with it.

As indefinite as it may seem this system has worked quite well in the past. The government agencies and departments in both countries have made special internal arrangements, setting aside personnel to work principally on IJC matters. However, the Commission has no direct controls, and while admittedly successful in the past, the overall funding scheme is quite haphazard.

For example, the total IJC related United States federal budget figure for FY 1973 is approximately 2.5-3 million dollars. It is difficult to get an exact figure from outside the system; there is no formal central budget. The money will come through various agencies from various sources. The United States Section's direct administrative, payroll and some study related costs will come through the Department of State Appropriations Act; through the Public Works for Water and Power Development and Atomic Energy Commission Appropriations Act funds will be provided for, say, Corps of Engineers and Department of Interior board functions; and from the Agricultural-Environmental and Consumer Protection Appropriations Acts for partial or full support of Environmental Protection Agency board activities. So at any one time there could be three (or more) separate appropriations committees passing on IJC related funds with no formal coordination short of the United States Office of Management and Budget (OMB). The United States Commissioners and staff have little connection with any, but their own State Department budget request. In the United States the IJC basically relies then, upon successful budget response to other agencies requests in behalf of their business. The Canadian system is very similar with all funds passing through their Central Treasury Board. However, the Canadian Section of the IJC has separate department status and it is understood that IJC functions are firmly supported by the government; their funding arrangements seem somewhat more positive than in the United States.

Overall the IJC's staffing and funding techniques have been reasonably adequate. However, where time is an important factor, as it is when contending with serious pollution problems, e.g., Lake Erie water pollution, IJC functions appear to suffer from a lack of financial commitment by the two governments. The time required for completion of the lower Great Lakes water pollution studies and the time being taken on the air pollution studies were discussed in Chapter II. Greater financial commitments on the parts of both countries would no doubt have expedited these lengthy studies. A more recent example of the type of minimal funding commitments made for IJC operations might be those being made to set up the regional water quality office to assist the IJC in discharging its functions under the Water Quality Agreement of April 15, 1972.

At the quarterly meeting of the GLBC on August 14, 1972, Christian A. Herter, Jr., Chairman of the United States Section of the IJC commented that the United States presently has one man and a secretary assigned to the proposed Windsor, Ontario IJC office and that the United States Section has submitted a FY 74 budget request of $400,000; this would provide for a full eight-man U.S. contingent. However, this infers that July, 1973 is the earliest that the funds needed for a full United States staff would be available. With budget appropriations measures seldom being passed before September - November and interim spending normally limited to the previous fiscal year levels for the same period and accounting for

time to settle in new personnel who are to take on new tasks, one might speculate that the United States portion of the office would not be fully operational before spring-summer 1974.

The Agreement calls for a comprehensive review in the fifth year after put into effect. This would be then April, 1976, or only about two years after the office is geared to fully serving its function. Also it is understood that the State Department appropriations committee has a tendency to be somewhat economy-minded in review of IJC budget requests, so even the full $400,000 requested for FY 74 may not be provided, further limiting the potential effectiveness of the United States share of the operation. It appears that a more expedient commitment of funds on the part of the United States at least, would be in order.

If the IJC's role were to be expanded for a Great Lakes management function, an assured funding arrangement and a larger professional staff would be imperative. Direct supervision and control over scheduling and the coordinating efforts would be required to effectively perform the perceived integrating (air quality, lake levels, fisheries, navigation, water quality) management functions. In addition the two countries would need to make a positive commitment to provide continuing financial support. Both countries might be best advised to establish a joint funding arrangement centrally administered by the IJC.

Visibility

This criterion is concerned with an organization's influence, power and prestige in the eyes of the public as relates to its ability to carry out its mission. Certainly the IJC possesses each of these characteristics in the eyes of the relatively few Canadians and immediately concerned with the IJC or particular issues it has handled. However, the IJC, its sixty-year history notwithstanding, is not a public institution that is well known to the general public. The high water levels of the Great Lakes in the early 1950's - low levels in the early 1960's; the Columbia River Basin project and the St. Lawrence Seaway attracted some interest in activities of the Commission. Otherwise few people even know of, let alone know what, the IJC does.

An indicator of public and congressional interest on the United States side of the border in the activities of the IJC is provided by the Congressional Record. In the thirty-two congresses that have been elected since 1910, in only about fourteen instances (in about as many days) in ten congresses has there been any substantive discussion on the IJC or its activities (excluding some infrequent questions raised concerning annual appropriations).

The United States Congress is certainly not alone in paying something less than full attention to the activities of the Commission. The same story is true for academia and for agencies of the executive branch at all levels. It is

especially difficult to understand why so little on the IJC has been generated by the otherwise prolific researchers in the academic community. One explanation might be that the Commission deals, for the most part, in unsensational issues or at least works hard to prevent those issues from becoming sensational. Also, the modus operandi of the Commission and its close interface with the Department of State and the Department of External Affairs effectively isolates it from public participation in the usual sense. Its rules of procedure in some instances preclude public access, e.g., IJC boards may not hold public hearings, this power being reserved to the Commission itself.

The IJC does not work incognito nor does it advertise its existence. In reality it is not staffed or called upon to perform any type of public information service - beyond holding public hearings. The Commission's general anonymity has allowed it to work usually in the absense of political pressure and potentially stifling media interest. It must be borne in mind that one of the original reasons for the establishment of the IJC was to provide a forum which could act to prevent small boundary disputes from becoming major international issues and this worthwhile purpose would have been ill-served by a bilateral tribunal whose actions attracted a high degree of media interest. This still holds true in many respects; however, the questions of public participation in the decision-making process of public agencies

has become a major issue in recent times, especially where environmental concerns are involved.

The dominant activity of the IJC is tending toward the extensive "reference" studies on environmental resources. In regard to these studies the Commission may find a need for greater public contact and interchange in the future with or without an expanded role in the Great Lakes region. This aspect is further discussed in the "accountability" criterion following.

Accountability

This notion is basically concerned with an organization's responsiveness to the needs and will of the people of a region. Public access to the governmental decision-making process is an aspect of this criterion.

From the discussion on the IJC's visibility it can be seen that it is an organization which attracts little attention from a political standpoint. In fact, the IJC has a reputation for being non-political. While it is true that commissioners are appointed at the pleasure of the governments, without legislature approval, and that some appointments have been terminated to make room for individuals considered more deserving by the particular administration in power, this is about as far as the political process intervenes in the functioning of the IJC. It has not been the practice by either country to appoint, as a matter of course, new commissioners whenever a new government is formed. The absence of partisan politics within the IJC has not only facilitated its work,

but it has also enhanced its overall credibility and reputation. All that might be said is that the commissioner positions are at least equivalent to those of senior officers in the (United States) Foreign Service, which requires Senate approval. It would seem appropriate that commissioner appointments, which are presently for an indefinite period, also be subject to Senate confirmation.

International politics is not a significant factor in IJC decisions either. The philosophy of the original negotiators of the treaty was that problems between the two countries were to be resolved "not by the usual bilateral negotiation, but in the joint deliberations of a permanent tribunal composed equally of Canadians and Americans."[23] There was to be majority rule, irrespective of nationality. The Commission has an impressive record of honoring this concept. According to A. D. P. Heeney, Chairman of the Canadian Section (1962-1970) and Matthew Welsh, Chairman of the United States Section (1966-1970), the Commission has divided along national lines or failed to reach unanimous agreement in only three decisions out of a total of some ninety docket cases submitted to the Commission within the purview of the 1909 treaty.[24]

The tradition of impartiality is a valuable asset to the IJC. It should be protected and nurtured in the present context and it should be emulated by any future joint organization established by the two countries.

The IJC was conceived to provide a speedy mechanism for the resolution of complications, mostly minor in nature, that continuously arose between citizens of Canada and the United States and were thus beyond the jurisdiction of ordinary courts. Reference of those matters to the respective State departments lead to long diplomatic correspondence between Washington and London. This latter procedure was unsatisfactory in another way - delays led to arousal of national spirit and prejudice and minor disputes turned into serious controversies. The Commission has done a remarkably good job in serving its purpose. Its long life is not owed to the usual reasons why and how commissions and boards are perpetuated. The IJC has persisted mainly because it has in fact met sucessfully a real need of both countries. Even if the 1909 treaty had been abrogated later, some very similar mechanism would have had to be created in its place.

In the sense of its need then, the IJC has been truly responsive, i.e., accountable to its purpose. General public access to the decision-making process has not been a necessary aspect of the IJC's responsiveness. For its direct decision-making role has been mostly limited to settling "application" questions and maintaining control over its decisions, when needed, through its system of international boards.

"References" ask the Commission to recommend only, the two governments decide. However, the Commission's recommendations for common objectives and joint programs have considerable credibility and are generally accepted on major matters

of great importance and interest in the two countries. And as evidenced under the Water Quality Agreement the IJC is considered essential to meaningful implementation of common programs. Commission studies on air pollution and lake levels are following similar paths.

In these studies and related tasks, which are becoming the major duties of the IJC, the Commission inherently assumes a role of guiding common policy formulation and joint implementing activities with direct effects on the public in both countries. At the same time, under the IJC's present system, the only place for direct public input are the public hearings held following submission of the board reports, in effect, after many of the real decisions have been made. Of course, there is some "built-in" public input in the board reports, as they are prepared by government agencies and officials who are generally sensitive to public sentiment. However, the boards are not allowed to hold public hearings on IJC matters.

While there have been no apparent difficulties with this procedure in the past, it may not be adequate if the IJC's role is to be extended into large scale studies and coordinating programs on more controversial issues than water quality. There was and is much controversy <u>over</u> water quality but there also exists near complete public support on what <u>needs</u> to be done. This is not so with questions on lake levels affecting shoreline interests as opposed to shipping interest, or in fishery matters which have to sport fishery and

commercial fishery factions, and others. In proposing a broader role for the IJC in Great Lakes resources management consideration must be given to developing greater IJC exchange with the general public. This also implies greater visibility for the IJC.

Structural Compatibility

This criterion is not included herein to assess the IJC as presently constituted, but to briefly identify the factors of this criterion which must be considered in proposing new institutional arrangements. This criterion is primarily concerned with the "fit" of a new institution or function with existing institutions. The questions to be asked are: does the new unit focus or diffuse political energies; what are its potential effects on, and prospective relations with, existing governments? The new unit should "mesh" with and augment the horizontal and vertical coordination and cooperation patterns of existing governmental units at all levels. The overall objective is to minimize duplication of work and effort among the various concerned organizations and still see to it that all desired tasks are performed.

The IJC has "fit" into the resource management circles of the agencies and departments of both Canada and the United States for over sixty years. It has involved them in its studies and coordinated their efforts improving overall relations across the boundary. Its "fit" with the agencies

and departments of both countries was a principal factor in concluding that both countries' interests would be best served by broadening the IJC's role in addressing common problems in the Great Lakes Basin. Proposed arrangements are to be directed to capitalizing on this feature, to improve resource management efforts and relations between the two countries as relates to their greatest common resource - the Great Lakes system.

FOOTNOTES AND REFERENCES

CHAPTER IV

1. J.L. MacCallum. "The International Joint Commission", Canadian Geographical Journal, Volume LXXII, No. 3, March 1966.

2. Mathew E. Welsh and A.D.P. Heeney. "International Joint Commission - United States and Canada", Reprint from International Conference on Water for Peace, May 23-31, 1967, p.3.

3. J.C. Chacko. The International Joint Commission Between the United States of America and the Dominion of Canada, Columbia University - Studies in Social Sciences, Hamber 358, 1932, pp. 84-85.

4. Eugene W. Weber. "Functions of the International Joint Commission", Journal of the Power Division, ASCE, Volume 94, No. PO2, Proc. Paper 6236, November, 1968, p. 180.

5. Op. Cit. 1.

6. Ibid.

7. Op. Cit. 2, p. 4.

8. A.D.P. Heeney. "Along the Common Frontier - The International Joint Commission", Canadian Institute of International Affairs, Behind the Headlines, Volume XXVI, No. 5, July, 1967, pp. 11-12.

9.* Taken from comments made by Christian A. Herter, Jr., at Great Lakes Basin Commission's quarterly meeting held at Treadway Thousand Islands Club, Wellesley Island, New York, on August 14, 1972.

10.* Portions of this assessment are drawn from the research and unpublished writing done by Charles F. Swezey, a graduate research assistant at Cornell University's Water Resources and Marine Sciences Center, in connection with the oft-cited Canada-United States University Seminar on the Eastern Great Lakes. His allowance for liberal use of the material is appreciated.

11. L.B. Dworsky, D.J. Allee and C.D. Gates. The Management of Lake Ontario - A Preliminary Report Proposing an International Management Organization; Cornell University Water Resources and Marine Sciences Center, Ithaca, New York; Publication No. 36, July, 1971, pp. 326-336.

12. Op. Cit. 2.

13. Ibid.

14. Frederick, J.E. Jordan. Recent Developments in International Environmental Pollution Control, McGill Law Journal, Volume 15, No. 2, 1969, pp. 279-301.
Note: Member, Faculty of Law, Queen's University. Paper presented at International Resources Law Conference, November 22-23, 1968, held at Queen's University, Montreal.

15. Op. Cit. 8, pp. 16-17.

16. Ibid. p. 17.

17. Ibid. p. 16.

18. Ibid.

19. Op. Cit. 4, p.

20. Congressional Record, February 27, 1913, p. 4175.

21. Bureau of the Budget, The Budget of the United States Government, Appendix, FY 73, p. 675.

22. Ibid.

23. Op. Cit. 2.

24. Op. Cit. 8, p. 7.

CHAPTER V

A FRAMEWORK FOR INSTITUTIONAL CHANGE

The general inventory of institutional arrangements provided by Pearson (Chapter III) assisted in understanding some potential patterns for resources management in the Great Lakes. Out of these patterns expansion of the International Joint Commission's role in Great Lakes natural resource management activities can be identified as offering viable and immediate prospects for bilateral action. However, it is an oversimplification to approach the institutional solution as a matter of choosing from among a series of prefabricated institutional forms. Instead, the more fundamental approach is a matter of designing a custom-built structure, one that is responsive to the particular circumstances it is to serve, and one that may never be appropriately replicated".[1] Pearson came to this very conclusion at the end of his study of the institutional options, wherein he identified the functional approach as the proper way to custom-build the desired institution for resources management in the Great Lakes Basin.[2]

> Rather than depend on abstract electicism, it is clear that the functional approach, of seeking to identify the key objectives, derived functions, objective criteria, and specific tasks can be used to design a new king of institution to serve the particularly difficult management problems of the total Basin, and to be feasible in the existing constitutional, political, social and cultural setting.

In this vein, the functions for which bilateral organization is needed and could provide to better manage the Great Lakes resource will be considered in this Chapter. From the normative framework to be developed herein, and the assessment of the IJC from Chapter IV, specific organizational proposals can be developed and will be presented in Chapter VI.

A Basin-wide Resource Management Arrangement

The frequently used and related terms "management arrangement," "management institution" or "management organization" describe an unknown quantity without definition. For the purposes of proposing a new Great Lakes resources "management arrangement" the terms are meant to identify a joint (Canada and the United States) arrangement designed to serve as the locus of coordination and recommendatory guidance, to an extent that could be mutually agreed upon, on those public programs and private activities which affect the water and related land and air environments of the Great Lakes Basin.

In general, two basic roles would be assumed; that of coordination and oversight (surveillance and guidance). The coordination role could include, as mutually agreed, active coordination of policy formulation (setting commong objectives) information collection, research, planning and implementing (common programs) activities with a view toward reducing duplication and inconsistencies, and identifying gaps. The

oversight role would consist of evaluating common objectives and all phases of joint programs to measure their effectiveness and guide changes in them as appropriate. This role can also be considered one of "watchful care" of the Basin which implies a continuing responsibility to be fully aware of Basin problems and alert to developments. Accordingly the perceived arrangement must be allowed reasonable flexibility as needed to anticipate emerging and future problems of the Basin, to plan for them, and assist in the coordination of programs designed to ameliorate them. Either much broader references or freedom from the restrictions of the mandatory reference procedure now imposed on the IJC, would be needed.

While its major functions are coordination and oversight, the two national governments may consider it advisable to vest in this arrangement, specific enforcement powers in the case of certain critical resource management problem areas, e.g., water and air pollution. The general types of tasks which the arrangement might readily assume are discussed in some detail hereinafter. However, to avoid misinterpretation of the scope of these proposed tasks and of key notions relative to the international character of the IJC under the management arrangement being proposed, it is important to state what it definitely is not to be.

The IJC is not to become a supranational bureaucracy placed over (or even among) the existing three levels of government. It is not intended to displace any level of

government; its tasks would be to integrate and supplement existing federal, provincial and state organization for Great Lakes management, not replace it. Finally, it is not intended to become a project justifying, program-administering agency nor a regulatory agency on an international level. The major impact of the proposal on existing institutional arrangements would be at the international level the IJC itself, of course, and the Great Lakes Fishery Commission (GLFC) - and at the regional or interstate level, for example, the Great Lakes Basin Commission (GLBC).

A fourth level of government is not being proposed. Neither nation's sovereign powers are to be bargained away to an independent third body. Rather what is being proposed is development of an institutional arrangement, with the IJC as the institutional basis, for responsible coordination of existing authorities and national interests in situations involving natural systems, which cannot be fully dealt with by either country on an individual basis, but definitely warrents their combined attention.

Basin-wide Tasks

For an effective basin-wide management function in the Great Lakes Basin there are five tasks seen as proper responsibility of the bilateral arrangement. They are:

(1) Basin-wide Policy Guidance

(2) Coordinated Information System

(3) Coordination of Research

(4) Coordinated Planning

(5) Operational Coordination

These tasks are not being adequately accomplished under existing arrangements for resources management in the Great Lakes simply because there is no existing institution possessing both the Basin-wide (international) perspective and Basin-wide authority necessary.

Basin-wide Policy Guidance

The introduction of the "Water Quality Agreement" cites that the governments of Canada and the United States are "convinced that the best means to achieve improved water quality in the Great Lakes system is through the adaption of common objectives, the development and implementation of cooperative programs and other measures....." The logic of this statement should be extended beyond water quality concerns to encompass a broader range of common natural resource problems and issues relative to the Great Lakes region.

Basic to any joint effort to confront common resource management problems within the Basin are agreements on common objectives which must in turn be translated into coordinated solutions. As described in Chapter II there are several significant concerns in addition to water quality matters, which merit greater and/or more expedient bilateral consideration in the face of continued development around the Basin. However, each concern is integrally related to the other and

to water quality; a case-by-case treatment would not be appropriate or efficient. What would be desirable is integrated bilateral consideration of all significant concerns at the policy planning level in a manner paralleling comprehensive basin planning approaches being pursued in other areas within each country. To accompolish this, a joint forum must be provided with the authority to interphase and coordinate the policy planning processes in both countries. Accordingly, the bilateral representative for Great Lakes resources management, the IJC, should be allowed to participate in national, state/provincial policy planning processes that effect to a substantial degree the resources of the Great Lakes, providing an invaluable "Great Lakes view" in these processes. In certain critical management areas, e.g., air quality, fisheries, lake levels, navigation, water quality, the Great Lakes unit could take, as mutually agreed, an active part in coordinating and guiding governmental policy-formulation activities in the Great Lakes region. This process has already been initiated through the IJC under the Water Quality Agreement. The Great Lakes policy unit of the IJC would advisably be allowed as much latitude as possible in formulating policies to establish new programs and administer its basic programs assumed under, and clearly defined in the enabling treaty or agreement frame of reference.

Coordinated Information System

Development of a coordinated information system should be a fundamental responsibility of the IJC's Great Lakes management unit. Without such a system, effective joint planning, research and related coordinating and guidance activities would be highly improbable.

The proposed system should not be a center containing the sum of all knowledge generated within the Basin, as the amount of data involved would be so large as to overwhelm the ability to devise a method for using it. The quality of information, i.e., its reliability and credibility is more important than access to great masses of raw data. At the same time the information system must be more than a simple data collection, processing and dissemination system. In addition to basic data, a great deal of vital information exists in forms that are not easily quantifable, such as research and engineering reports and studies, and should therefore be digested into the overall system.

The collection activity should be designed for the specific purpose, data and information needs and capabilities of the users. Of course the principal user would be the IJC's Great Lakes management unit. However, the system should also serve to provide available material to the three levels of the two governments, their operating agencies and departments, and non-government interests of the Basin, as appropriate. Over-all the information system is visualized as involving a

two-way exchange between the existing data and information services in each country and the Great Lake information unit which is to be an integral part of the IJC management arrangement. Government entities are seen as the principal raw data and information sources, but such non-governments sources as universities and private publications can also be very important contributors, particularly in research areas.

While the primary joint management concerns to be addressed may be limited to five areas; air quality, fisheries, lake levels, navigation and water quality, the working information base should encompass pertinent data and information for the full range of concerns relating to resource-use and development in the Great Lakes region. This is particularly essential for meaningful planning and policy formulation, as these activities rely on having the "complete picture" on developments and trends affecting the Basin. For example, economic data, including such items as population densities and distributions, natural resource and related production inventories, and social and cultural attitudes on aesthic considerations, and economic development, are factors which must be taken into account in basin-wide planning and policy formulation activities. This type of information is not readily available on a basin-wide scale at this time. Maintaining an up-to-date inventory of institutions and groups involved in areas affecting the Great Lakes resources, along

with organizational structures and studies and reports available, would also be a legitimate and much needed function of the information system.

A large central computer system would not be essential to the system's function. Remote terminals with access for input (storage) and output (retrieval) to existing central computer units in each country may be preferred, particularly from an economic standpoint. For practical purposes however, at least a small computer operation for compilation and identification of sources and preparation or interpretation of data and information from outside units, may be necessary. The goal is to place the Great Lakes office in a position to readily locate and utilize the full range of information needed to facilitate its Basin-wide operations.

The information system should also support a basin-wide public information function. The information center of the Great Lakes unit could collect pertinent information on developments around the Basin from its surveillance functions, from its government contacts in both countries and as generated by other elements within the IJC, i.e., the policy formulation, research and planning units. Information of public interest could then be disseminated throughout the Basin in a monthly publication and/or special notices as appropriate. The system should be open to exchanges with all interests within the Basin as a potential device for two-way communication with these interests. This should legitimize

the arrangement's function in the eyes of the public, increase the units perceived and actual accountability, and provide for a continuing "reading" on the Basin-wide values, needs and desires of the public.

Coordination of Research

The dynamic economic growth and related changes in the Great Lakes region will continue to generate increasing conflicts of interest among uses and users of available resources and place ever-greater stresses on efforts to maintain a high quality natural environment. At the same time such tenuous questions as how social, economic and political characteristics of the Great Lakes region significantly influence the nature and the extent of demands placed upon the environmental resources (i.e., the natural system), and the approaches toward effective management which may be most feasible, are largely unanswered. The precise nature of these influences on air, land and water resources are for the most part not well understood.

What is not well understood is difficult to deal with. What should be sought then is the knowledge which would provide the best possible understanding of the complete Great Lakes system, i.e., the natural system, including air, land and water; the interrelationships between these natural features and how they effect and are affected by economic and cultural development in both Canada and the United States.

Logically, it will take a bilateral effort to achieve even a reasonable level of knowledge and overall understanding of these interrelationships.

At present there is considerable research oriented principally to the study of the physical properties and characteristics of the Great Lakes system. Practically every major Canadian and American university within the Basin has some type of Great Lakes research program underway. The many government agencies and departments of both countries with jurisdiction and resource interests in the Great Lakes area not only support the bulk of on-going research, but conduct Great Lakes oriented research programs in their own laboratories and regional offices. There are coordinated international efforts, the International Field Year on the Great Lakes is such a special effort organized for concentrated hydrologic research on Lake Ontario; it is also intended to provide information of Basin-wide value. There are joint studies underway which coordinate United States - Canada participation through the two international commissions with interest in the Great Lakes, the IJC and GLFC. In addition, there are specific attempts being made to coordinate research activities on a Basin-wide scale through such bilateral organizations as the Great Lakes Study Group and the International Association for Great Lakes Research.

With all the apparent research activity one would still be hard pressed to find anyone familar with the Great Lakes

research question who might consider present arrangements adequate. For it is unlikely that the collective effort of the identified groups, in combination with any other less formal exchanges that may exist, satisfactorily complete the desired coordinating task. That more then a single coordinating group is involved suggests the lack of comprehensiveness and integration of effort of any one group. There is no single source which can identify all significant on-going research concerning the Great Lakes area, let alone that which has been completed or is being proposed. Furthermore, it is not difficult to get a concensus opinion among those familiar with the present status of Great Lakes research that there are large gaps in our knowledge of the Basin which are not being filled under present arrangements.

The view was expressed and supported in a working group of the Third Meeting, Canada-United States University Seminar on the Great Lakes[3] that coordinated United States-Canada research (the only type which can provide a realistic Basin-wide perspective), now gets by on a good will approach and natural scientific curiosity. This scientific curiosity sees the need for research and provides the inertia to continue joint research programs, not tending to be inhibited by political boundaries. This seems an unsure way of coordinating joint research efforts.

The Water Quality Agreement provides for better coordination of Great Lakes research. However, the research advisory board to be established is to coordinate and advise

on research activities in both countries as relates to Great Lakes water pollution only. Precisely how the board is to function and its relationships with the above mentioned coordinating groups is not known as yet.

Creation of the international Research Advisory Board is a commendable step. It represents a maturing bilateral relationship which recognizes the value and need for coordinated research on Great Lakes water quality concerns. However, as important as water quality research may be at this time there are many other areas for potential research which merit similar bilateral attention. Research in such areas as the behavioral/environmental field are in shortest supply; and when speaking in terms of environmental studies more than just water quality must be considered. The broadest possible spectrum of research concerns should be open for bilateral review and action.

A Basin-wide research function organized to provide the expertise to review the present state of knowledge on the Great Lakes and related systems, to pinpoint the major gaps in our understanding of the total system would be of great benefit to both Canada and the United States. The proposed Great Lakes unit of the IJC could best provide this service. With coordinating and guidance responsibilities should go some means (authority and/or funds) to stimulate continuation of needed research and redirect and initiate new research to fill

in the gaps of desired knowledge, i.e., advise and guide needed continuing research and initiate necessary research that would not likely get started in any other way.

Research is especially important for long-term planning and management. As such, the research function should be expected to play an important role in supporting both the planning and policy formulation activities. The information system would of course be closely involved with the research function.

Coordinated Planning

Coordinated planning on a comprehensive level is seen as a key to any continuing Basin-wide function; one that only a binational arrangement can provide for the Great Lakes Basin. Bilateral objectives provide the premise for joint planning, i.e., planning is needed to translate common purpose into appropriate joint programs for action. The proposed IJC Great Lakes arrangement should have a planning capability; the following will prescribe the desired features of Great Lakes planning role.

Dworsky has stated that "ideally, the characteristics of the planning process include (a) the coordinated collection of all possible facts on the problems or issues; (b) the analysis of these facts in an objective setting; (c) the development of alternative solutions as guides to decision-making bodies in determining courses of action; and (d) the

appraisal of results in implementing the plan and the initiation of review, modification, and updating of the plan to meet future developments."[4]

Of course there are a number of constraints that operate to make less than optimal this ideal planning process just described. Writing in terms of water quality management, Dworsky identified such existing and potential limiting factors as: lack of enabling legislation to plan comprehensively; appropriation limitations which in reality set the scope of planning efforts regardless of need; limited technology and/or rapid new technological innovations which may make rigid long-term plans unrealistic; the difficulty in making economic projections in the detail useful for planning purpose; the changing character of waterways and related natural systems due to continuous public and private development; and the continuing development of a vast quantity of new products many of which may have significant impacts on natural systems both in production and/or in use. One more limiting factor, possibly the principal constraint in terms of planning for the entire Great Lakes system, is the sharing of responsibilities for natural resource management between several levels of government, in not just one but two countries, i.e., constraint of intergovernmental plus international relations. It is to deal with this last constraint that a bilateral management arrangement is being proposed.

Undoubtedly, the "ideal" planning unit cannot be created, however, the four characteristics defining it provide a valid

and useful framework from which to develop a planning function. Accordingly these characteristics will be drawn upon in the following discussion to identify a proper Basin-wide (international) planning role for the IJC's Great Lakes management arrangement.

Characteristic (a) calls for the coordinated collection of all possible facts on Great Lakes problems and issues. The comprehensive data and information collection function of the Great Lakes "Coordinated Information System" (Task 2), is conceived as providing for this basic requirement of the planning process. Conversely, part of the planning function should be definition of required information for its function and those it is to support, principally the policy formulation and assumed program implementation activities, as needed.

The second "ideal" characteristic (b) would call for analysis of all pertinent data and information to clearly identify present, developing and potential problems facing the Great Lakes system in an objective setting. Objectivity is a key word. It is difficult to visualize how a reasonable measure of objectivity could be provided on bilateral Great Lakes problems and issues by other than a joint United States-Canadian planning group. The IJC planning unit should provide equivalent United States and Canadian positions to be filled by individuals competent to assimilate and coordinate, as appropriate, the relevant planning material of both countries.

To satisfy the analytical function the planning unit should be in a position to identify specific impacts of existing problems and to identify, as well as possible, probable effects of perceived problems and proposed new developments impinging on the Great Lakes system. In addition, the Great Lakes "planners" should be able and allowed to develop possible alternative solutions to existing and perceived problems and to recommend alternative courses to proposed developments in both countries, if and as appropriate (subject to mutual agreement). Identification of possible tradeoffs, both short term and long term, for the alternative courses of action is inherent in all cases. The fundamental objective here should be to prevent and/or mitigate impacts on the Great Lakes system.

Since the basic issues will often involve the weighing of varying economic factors against corresponding environmental impacts, basin-wide analysis similar to the Environmental Statements required by NEPA might be employed to good advantage. The sum total of the analytic effort is to provide guidance to decision-making in determining the actual courses of action (characteristic c).

In order to facilitate an anticipatory planning approach which emphasizes anticipating needs for policy determination and the development of policy guidelines, a comprehensive base plan should be prepared for the entire (international) Great Lakes Basin. There are examples of the type of needed planning process, with necessary legislative basis for

comprehensive interjurisdictional framework planning, in both Canada (federal/provincial) and the United States (federal/state).

In Canada the Okanagan Basin Study is a joint federal/provincial planning effort initiated with the "Canada-British Columbia Okanagan Basin Agreement" of October 29, 1969. This agreement between the government of Canada and the government of the Province of British Columbia covers all aspects of water resources in the Okanagan Basin, and specifically states the purpose of the study is "to develop a comprehensive framework plan for the development and management of water resources for the social betterment and economic growth in the Okanagan Basin."[5]

Since Okanagan agreement, the Canada Water Act of September 30, 1970 was enacted. This Act provides a ready legislative platform for cooperative federal-provincial planning ventures like the Okanagan Study, where it is agreed "that the restoration of quality or the preservation of it in a particular basin or coastal strip is of concern to both governments" (federal-provincial).[6] In describing the planning process the Act calls for the formulation of "comprehensive water resource management plans including detailed estimates of the cost of the implementation of those plans and of revenues and other benefits likely to be realized from the implementation thereof based upon examination of the full range of reasonable alternatives and taking into account

views expressed at public hearing and otherwise by persons likely to be affected by implementation of the plans."[7] Joint federal-provincial basin boards can be set up under a formal agreement to supervise broadly based planning committees.

There is an immediate example of the desired type of interjurisdictional framework planning effort in the United States with the United States Great Lakes Basin Framework Study. This study is conducted under direction of the Great Lakes Basin Commission (GLBC), a federal-states agency created under Title II of the Water Resources Planning Act of 1965. The GLBC has work groups and task forces much as the Canadian process briefly described above provides for planning committtees. The comprehensive framework planning approach developed in both countries are quite similar. It would not appear that difficult to meld and extend the principles and processes familar in each country to provide for the Basin-wide (international) framework plan.

The basin-wide planning function should further provide that the bilateral planning unit be authorized to serve as the principal coordinating unit for federal, state/provincial, interstate, local and nongovernmental plans for the development of water and land resources in the Great Lakes Basin. Only in this way could the true basin-wide viewpoint be adequately developed by the international group.

Characteristic (d) refers to the review and up-dating of plans. Need it be said that this is essential to keep an organization's policy-making function current and effective. A built-in flexibility is needed here. Without the authorities and capability to initiate new efforts and/or adjust original plans, a useful planning function could not be continued. In general the planning function must be given the latitude and means to provide the necessary support for sound policy and management decisions within the IJC's Great Lakes units defined scope of coordinating, implementing and guidance responsibilities and authorities. This has significant implications for translating bilateral plans into action, a facet which will be discussed under the final criterion, "Operational Coordination."

Operational Coordination

Canada and the United States' mutual agreement to some measure of integrating objectives, joint policy formulation and coordinated research and planning would mean very little unless the concepts for these activities can be translated into viable implementing programs. This criterion then, concerns the general augmentation of bilateral programs for improved resource management in the Great Lakes Basin, and involves a melding of many of the concepts discussed in the previous four tasks.

It must be assumed that each country will be reasonably prepared to carry out programs to fulfill their respective agreement or treaty obligations. However, some joint mechanism, with responsibilities for assisting in implementation of agreed upon programs and other measures is still needed. There can be no assurance that joint efforts will, or are serving achievement of preconceived bilateral objectives without a coordinated monitoring or surveillance function. The results of original programs must be analyzed and reported upon with recommendations for new and/or revised programs as appropriate. The total arrangement must have a designed flexibility to permit continuous review and change in approaches when needed to meet new problems, to incorporate new objectives and to utilize new scientific findings and developments in technology as these emerge. The IJC's Great Lakes management body is the intended instrument for facilitating this necessary common effort.

These are not completely new ideas. The "Water Quality Agreement" has just recently given the IJC a number of responsibilities and functions to supervise implementation of the "Agreement" and to assist the two countries in their efforts to restore and protect the Great Lakes water quality. Generally, the Commission is to monitor the success of agreed upon pollution abatement programs, make recommendations for new programs and make regular reports to the governments and the public. Specific responsibilities and functions accepted by the two governments include:

Authority to establish regional office and other subordinate bodies

Advice and recommendations to governments

Data collection, analysis and dissemination: water pollution

Data verification authority

Research coordination

Coordination assistance for joint activities

Reporting on program effectiveness

Annual reporting to governments: program progress

Special reports to governments and public

Comprehensive review after five years

It is proposed herein to extend and expand this pattern set by the Water Quality Agreement, to specifically lump concerns relating to air quality, fisheries, lake levels and navigation with water quality issues into a more comprehensive and integrated management effort.

While a new arrangement may directly address only the five areas, ancillary concerns, for example, recreation and agricultural water supply (irrigation) and such others as were included in the list of fourteen presented early in this paper, should not be ignored. Even though agreement to common objectives on other than the five mentioned concerns is unlikely, since the issues are either essentially local, except possibly in the frontier areas, e.g., municipal and

industrial water supply and solid waste disposal, or are just too complex and/or nationally controversial for bilaterial action, e.g., economic development and government organizational difficulties (at and between the three levels of government in each country), they should be recognized by an overall surveillance function (information and data collection) and reasonably accounted for in the comprehensive research and planning functions. This is necessary for detection and continued monitoring of the significant overall trends in resource-use and socio-economic development within the Great Lakes Basin. Only with such salient information can the perceived bilateral policy formulation function properly serve its purpose which is to: (1) advise both countries on common objective programs, standards, time schedules and funding for natural resource management directed to preventing further deterioration of, and subsequently restoring the overall natural quality of the Great Lakes system and (2) to coordinate bilateral programs and implement jointly delegated responsibilities and operations, e.g., surveillance programs, joint research, mutual enforcement and others as agreed.

There is another important aspect of the bilateral operations that must be understood - the relationship of the IJC management arrangement with the existing resource management authorities in both countries. While the comprehensive basin-wide approach can be the key to effective natural resource

management within a basin, it is inconceivable that a single basin-wide institution could effectively operate on its own (or that it should), particularly in a region the size of the Great Lakes Basin. "No basin agency, no matter how authoritarian, can supplant existing jurisdictions of general government nor replace their legitimate interests and responsibilities regarding the lakes."[8]

Certainly, creation of any new institution or institutional re-arrangement must take cognizance of existing institutions and authorities. The importance of recognizing, and integration with, existing jurisdictions, in this case federal, state/provincial departments and agencies in particular, cannot be overemphasized. Tasks which are or could be adequately performed by the existing authorities in both countries "should not be duplicated or superseded; only those functions for which there is a present or clearly exhibited need for added attention should be assigned a new institution".[9] This has been the precise purpose for identifying the five tasks presented hereinbefore - to outline needed (not being adequately provided) resource management related functions for the Great Lakes region. An objective of the perceived bilateral arrangement is to minimize duplication of work and effort among the various concerned organizations and still see to it that all desired tasks are performed.

From a normative point of view the IJC's new Great Lakes unit must then be geared to focusing not diffusing administrative and political energies. It must, to the extent possible, fit into and augment the horizontal and vertical coordination and cooperation patterns of existing governmental units at all levels.

FOOTNOTES AND REFERENCES

CHAPTER V

1. Lyle E. Craine. Great Lakes Basin Commission - Interim Report on Institutional Arrangements, "Guidelines for the Study", October 21, 1971, pp. 4-5.

2. Norman Pearson. "Alternative Institutional Arrangements for Multipurpose Resources Management;" Working Papers - Second Meeting, Canada-United States University Seminar on Institutional Arrangements for the Integrated Management of the Water Resources of the Eastern Great Lakes; Cornell University, Ithaca, New York, March 1-3, 1972, p. 27.

3. Canada-United States University Seminar on Institutional Arrangements for the Integrated Management of the Water and Land Resources of the Eastern Great Lakes; Draft Seminar Report - Third Meeting, York University, Toronto, Ontario, May 31 - June 2, 1972.

4. Roy F. Weston, Frank J. Trelease, Leonard B. Dworsky, and Loring F. Oeming. "Water Quality Management - Legal, Technical, and Administrative Aspects", Water Pollution Control Federation Journal, Volume 36, No. 9, September, 1964, p. 1092.

5. Okanagan Basin Study - Information Brochure, prepared by the Okanagan Study Committee, Canada - British Columbia Okanagan Basin Agreement, January 1971, p. 1.

6. E. Roy Tinney. "The Canada Water Act - A Vehicle for Action", Optimum, Bureau of Management Consulting, Ministry of Supply and Services, Government of Canada, Ottawa, Volume 2, No. 1, 1971, p. 42.

7. Ibid. p. 39.

8. Op. Cit. 1.

9. Ibid. p. 6.

CHAPTER VI

AN INTERNATIONAL GREAT LAKES MANAGEMENT ARRANGEMENT

Having settled upon expansion of the IJC's role as offering the best opportunities for Canada and the United States to cause needed improvements in bilateral arrangements for managing their common Great Lakes and related resources; and having identified the characteristics, functions and tasks the desired Basin-wide arrangement could properly embrace; the task is now that of fitting the many pieces together into a viable institutional proposal.

To start, this matter of designing an international management arrangement for the Great Lakes region might be put in correct perspective. It has already been recognized that a complete international institutional arrangement encompassing the full range of desired management functions (desired from the resource management efficiency - total environmental quality control standpoint) could not likely be created at the onset - only five of a potential fourteen possible areas of concern (identified in Chapter I) are initially proposed as direct functional responsibilities for the new arrangement. It would be equally naive to think that all of the concepts, characteristics and functional criteria outlined in previous sections, could be directly incorporated into a "full blown" management arrangement. An incremental development to the politically feasible ultimate, whatever that may be, better identifies the tact and processes which might be applied.

While recognizing the reality of "incrementalism," tokenism must also be avoided. Early substantial revision of present institutional arrangements, centered on the IJC, is advocated. Two phases which identify suggested stages of a more meaningful Great Lakes management arrangement are outlined hereinafter.

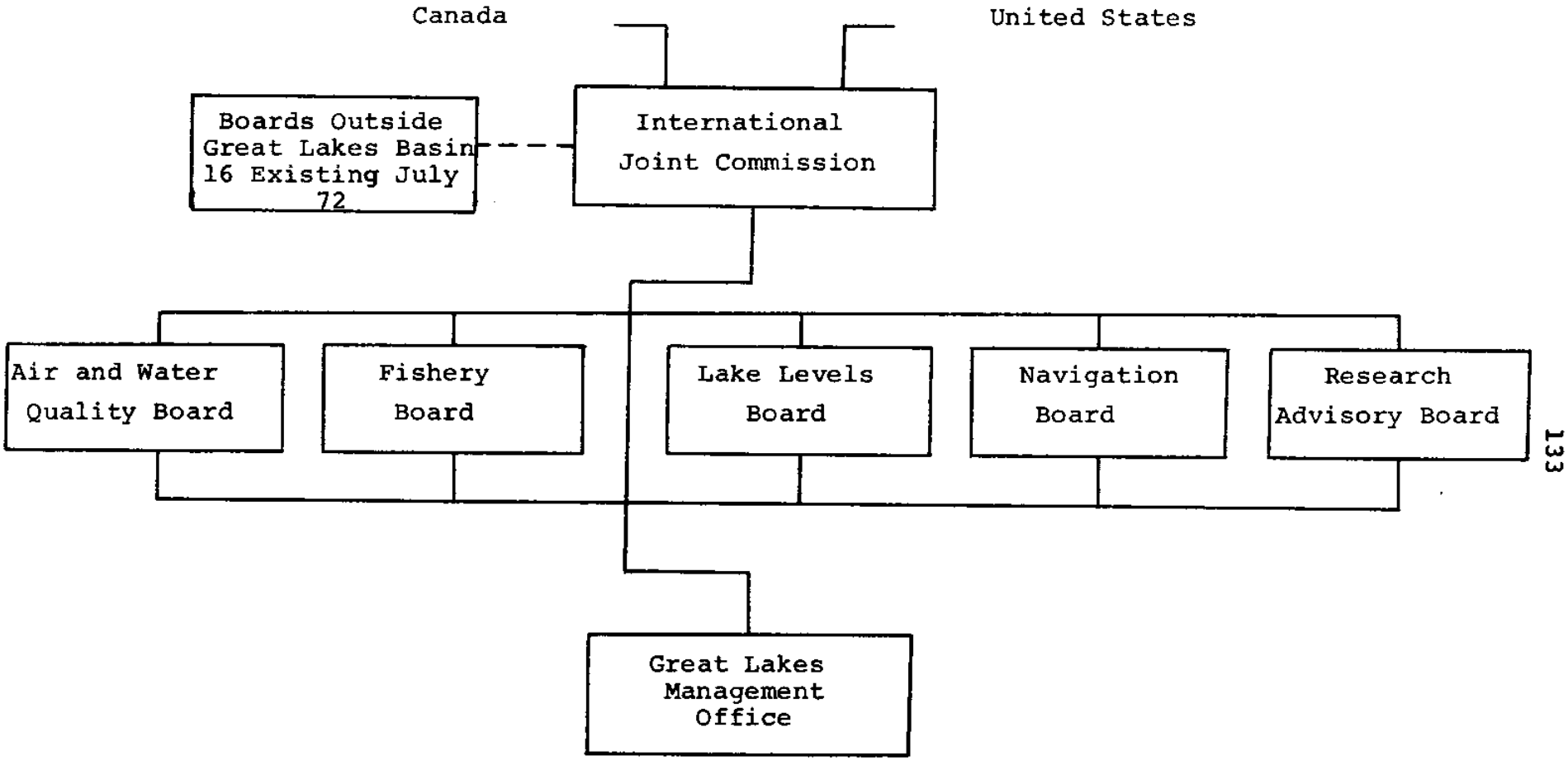
The Phase I arrangement is suggested as the next step which might be taken by the two governments. Phase II identifies a more complete arrangement and is offered as an eventual goal of Canada and the United States in providing for bilateral resources management in the Great Lakes Basin. The first stage organization plan entails significant but less drastic changes than embodied in the more structured Phase II proposal and is principally offered to get the overall reorganization process underway.

The joint policy formulation, information collection, research, planning and general management operations outlined in Chapter II would be full developed by Phase II. Phase I will incorporate each of these desired features, but at understandably less developed levels of organization. The five special areas of concern: air quality, fisheries, lake levels, navigation and water quality are included in the Phase I plan to set the framework for transition to the Phase II organization. In both cases the IJC's international border responsibilities outside of the Great Lakes Basin would remain unaffected.

Organization charts are used to introduce each phase for lack of a simpler method of familarizing one with the proposals. However, these charts serve only an illustrative purpose, to orient the reader for subsequent discussions; the actual structural and administrative details could take any number of different forms. For this reason the reader should concentrate on the concepts introduced and not structural anomalies.

Phase I

A key to the IJC's past success has been its liberal use of authority to select government officials and assemble them into "international boards" composed equally of Americans and Canadians acting as one body under joint chairman. Prior to the Water Quality Agreement there were a total of twenty-eight such boards serving one of three basic functions; control, investigation or surveillance. The board procedure was extended under the Water Quality Agreement wherein the Great Lakes Water Quality Board is to replace the four boards formerly concerned with water pollution. The point to be made is that the "international board" procedure has proved quite satisfactory in the past and it is still viewed as a viable device for joint efforts. Resistance to a complete change from the board system could be expected.[1] For this reason a modified board system for Great Lakes concerns is proposed in this initial phase. Chart II outlines the proposed Phase I organization



133

Chart II

Proposed IJC/Great Lakes Arrangement

Phase I

As noted, in Phase I, the scope of overall IJC responsibilities would be significantly broadened to assume the comprehensive character and viewpoint which is needed for a more complete basin-wide resources management role. However, there are few completely new organizational concepts involved. Existing boards directly concerned with air and water pollution are to be combined into a single board; boards presently involved in control of, or studies on, lake levels and flows are to be merged into one board; the fishery and the navigation boards are the only really new additions. The Research Advisory Board is to be a comprehensive multi-discipline extension of the board of the same title being set up under the Water Quality Agreement, but presently limited to dealing with water quality research only.

The bulk of the technical advisory responsibilities would remain with the boards of Commission selected officials. Staff support would be provided by a Great Lakes Management Office (GLMO), which can be viewed as an extension of the impending water quality office. The GLMO is seen as the IJC's administrative arm for the overall Great Lakes management effort. A restructuring of the boards and formation of the GLMO would necessarily be accompanied by some adjustments in the joint Commission and a build-up of its central staff.

The specific functions outlined in Chapter V, incorporated to the maximum extent mutually acceptable, would

be accomplished with a combined effort of the central Commission, the GLMO and the five management boards shown. The Basin-wide policy guidance activities would be a primary function of the Commission. Development of a coordinated information system would be assigned the GLMO. The coordination and guidance of Great Lakes research efforts would primarily be the task of the Research Advisory Board. Coordinated planning, including initial development of a comprehensive framework plan, would be centered in the GLMO with Commission direction and board support. Operational coordination, focusing on the administration of joint programs in the five key management areas, as well as support of the policy-making, information, planning and research functions of the other units, would rely heavily upon the individual boards for their specialized guidance with administration and reporting requirements accomplished by permanent staff in the GLMO, under board and Commission direction, as appropriate.

Basic Adjustments

The IJC would become for a time (Phase I) the primary Great Lakes policy unit with general Great Lakes responsibilities as described under the Basin-wide task "Basin-wide Policy Guidance" in Chapter V. For the Commission to properly assume its new roles of identifying grounds for recommending new bilateral objectives and policy in managing the Great Lakes natural resources, there must be a number of adjustments made to equate its capabilities with the broadened responsibilities.

Foremost, the IJC need be freed from the present treaty constraint of acting only when a matter is referred to it by both countries, for its Great Lakes jurisdiction. The IJC should be allowed the initiatory authority needed to readily address and identify emerging problems and bring them to the attention of the two governments in advance of crisis, rather than subsequent to it. The authority to create new technical boards in addition to the five initial boards, to consider emerging concerns, should be a feature of the IJC's initiatory capabilities. As the two countries proposed Great Lakes policy unit, the IJC should be allowed to participate in national and state/provincial policy planning processes that effect to a substantial degree the resources of the Great Lakes, providing its invaluable "Great Lakes view" to influence these processes. In the five special areas of concern considered particularly important to the future of the Great Lakes, the IJC should be given an active part in coordinating bilateral policies and joint programs, as mutually agreed, extending somewhat the principles initiated under the Water Quality Agreement. The IJC should also be allowed as much latitude as possible in formulating policies to establish new programs and administer its basic programs. In regard to general jurisdiction, Lake Michigan and its drainage area should formally (by amendment to the Boundary Waters Treaty) be included within the international Great Lakes Basin. Conceivably all such matters would be carefully defined by the enabling treaty amendments and for executive agreement.

The Commission would be in the position of guiding and answering for the activities of its board operations. This responsibility along with additional activities related to directing development of the comprehensive framework plan and monitoring a basin-wide information system and research effort, through its new subordinate units, would require the Commission's continued attention. It is apparent that the overall workload of the Commission and the demands on its central staff (outside of the GLMO) would be considerably greater than at present. Therefore, it would be imperative that a number of structural/administrative changes in the Commission accompany the overall increase in responsibilities.

Structural/Administrative Changes

1. Increase the present membership of the Commission from six to eight, four from each country, with all commissioners (not just the co-chairman) accorded full time status. The fourth commissioner would come directly from the Great Lakes Fishery Commission. Discussion of this proposal, which involves merging the GLFC into the IJC board structure, is covered in the section on the "Fishery Board" hereinafter.

2. The commissioners should be appointed to fixed terms, staggered to insure that there are at least two experienced commissioners from each country on hand at all times. The commissioners would still be appointed by

their respective chiefs-of-state, however, as is not necessary at present, their appointments should be subject to confirmation in the appropriate manner by their respective national legislatures. The positive role which is to be assumed by the IJC should be an important criterion in selection of the commissioners.

3. The Commission sections would need be provided additional staff to carry out their perceived new functions. Creation of a central bi-national staff serving the entire Commission's Great Lakes function might be considered. This would be in addition to the GLMO, which would be in effect the IJC's subordinate basin or regional office for the Great Lakes Basin.

4. The IJC should be empowered to hold hearings on all matters within its purview; not just direct reference matters. At the same time the IJC, primarily through the GLMO, should assume the responsibility for keeping non-government as well as government interests impartially informed on Great Lakes natural resource related matters as appropriate. This could involve less formal, regular public information meetings at sites all around the Basin, similar to those now being conducted by the U.S. Great Lakes Basin Commission in connection with completion of its Great Lakes Basin Framework Study. (The Great Lakes boards should also be allowed to hold public hearing for their studies.)

5. The IJC should be provided ready access to the court systems of both countries in enforcement cases, as appropriate, and other matters that may arise from operations of the GLMO and the Great Lakes boards.

The Great Lakes Management Office (GLMO)

The policies and programs developed by the IJC, which would presumably be within that body's treaty frame of reference with regard to improved resources management in the Great Lakes Basin, would be carried out by the Great Lakes Management Office (GLMO). The GLMO would be a full time operation with permanent facilities situated near the geographical center of the international Basin, likely in Windsor, Ontario where the IJC's regional water quality office is to be located. This would be a jointly staffed office with half of the supervisory and supporting staff drawn from each country and directed under arrangements agreed upon by both countries.

As previously indicated the primary function of the GLMO would be to administer IJC directed resource management activities within the Great Lakes region. This would call for close ties between the GLMO and the Great Lakes boards. Accordingly, each board could be assigned GLMO personnel, knowledgable in the boards specific operations, to act as a secretariat handling the general administrative tasks connected with implementing, coordinating and reporting on board activities. Each board would have the delegated IJC

responsibility for continuing joint programs in their field, e.g., the fisheries board would direct the lamprey control programs as had been done by the GLFC; the lake levels board would be directing all of the regulating activities for Lakes Ontario and Superior. The GLMO staff would also assume the related administrative tasks of assembling the technical data and information generated within the board, for continuing appraisal of the ongoing joint programs. Such arrangements should in turn allow the board members more time to devote to their substantive tasks, form a more positive link between the boards and the Commission than presently exists, and overall streamline each board's operations by administratively reducing the time needed to prepare and finalize board reports and to subsequently implement approved recommendations. The GLMO would have a somewhat different role to play in support of the Research Advisory Board. Some possible arrangements relating to coordinating Great Lakes bilateral research efforts will be discussed in the section on this board hereinafter.

Beyond the board related functions the GLMO is seen as the IJC unit having specific responsibilities for developing a complete information collection and dissemination system consistent with the format discussed in Chapter V - "Coordinated Information System." Recall that a somewhat related task would be maintaining a Great Lakes public information system open to two-way exchanges of information

on Great Lakes Basin matters. The public information role of the GLMO could provide the new Great Lakes management arrangement the visibility and recognition it should receive as the intended bilateral forum for Basin-wide guidance of both Canada and the United States common interests and responsibilities in the Great Lakes system.

The remaining major function to be centered in the GLMO is that of coordinating comprehensive Basin-wide resources planning. A basic purpose of this planning function would be to meld the inputs of all interests and their probable activities affecting the Great Lakes resource-base into a meaningful bilateral framework plan which, once developed, should reflect the mission of, and be reasonably adhered to by resource management agencies across the Basin.

As stated in Chapter V - "Coordinated Planning," the United States through its GLBC has a framework plan underway for the United States portion of the Great Lakes Basin. Under the Canada Water Act, Canada could set up a similar mechanism to plan for their portion of the Basin. However, what is really called for is a combined (international) planning function, i.e., the GLBC and a Canadian counterpart merged into a single planning effort. This is not meant to imply that the bilateral planning effort should or need wait until a Canadian counterpart to the GLBC has been created, for it would be preferable to go directly into the international scheme.

The Great Lakes Basin Commission's Framework Study does provide the base from which to expand into a truly Basin-wide plan. Accordingly it is proposed that the GLBC, its staff and library of materials, be incorporated into the GLMO as the central part of the United States portion of the bi-national planning staff. The GLBC contacts and experience in preparation of their framework study for the United States portion of the Great Lakes Basin would be a definite asset to initiation of the international planning function. Independent continuation of the GLBC or any Canadian counterpart would be of no advantage and might in fact deter the more meaningful international planning function. The same planning duties and coordinating authorities accorded the United States GLBC or a Canadian Great Lakes Basin joint board, as could be created under the Canada Water Act, would properly fit into the IJC's GLMO.

The planning unit within the GLMO would be called upon to recommend long-range schedules of priorities for the collection and analysis of data. This unit would lay out for the high level decision-makers in the IJC (the Commission) and the two governments, bilateral alternatives for proposed development and solution of system problems based on comprehensive Basin-wide considerations. Overall the planning unit of the GLMO would play the key role in keeping the IJC's total and impartial "Great Lakes viewpoint" in step with the Basin-wide developments.

The Great Lakes Boards

International boards would remain the essential technical units of the IJC's Great Lakes arrangement. The basic reasoning for including the five areas of concern, now proposed to be covered by the Great Lakes boards, was discussed in Chapter II. The advisability of integrating these bilateral areas of concern into the IJC structure is generally assumed at this juncture. Some additional details on what the creation of each of the five Great Lakes boards involves, follows.

Air and Water Quality Board. Subsequent to the Water Quality Agreement there is to be a single Great Lakes Water Quality Board having wide representation with state, provincial and federal members. For air pollution matters there are two existing boards: The International St. Clair-Detroit Pollution Board and the International Air Pollution Advisory Board. However, consideration of international Great Lakes air quality and water quality matters would seem best accommodated as a common board effort in the IJC's new Great Lakes arrangement.

There are a number of similarities in air and water pollution control problems wherein analogous procedures could be employed to coordinate common programs being administered, for the most part, by the same agencies in both countries. Also, the pervasive nature of air quality concerns suggests that they be considered in the broadest available forum. The Water Quality Board, the largest of

all IJC boards which will have eighteen members, with representatives from both federal governments, the Province of Ontario and all eight Great Lakes States, automatically provides this broad forum.

While water quality concerns can be expected to demand the greater attention for some time to come, the merger of air and water concerns should not hamper specific consideration of either air or water quality problems. Air quality problems should also receive the broad attention recently accorded water quality concerns by the Water Quality Agreement. Subjecting air quality matters to the scrutiny of the same broad forum should suit this purpose. If there is difficulty in the idea of selecting a single state representative for air and water quality matters, alternate representatives could be used.

Fishery Board. There is an immediate dilemma created with suggesting that the IJC's Great Lakes management arrangement include a fishery board. On the one hand it should be recognized (see Chapter II) that any comprehensive management effort must directly address fishery concerns and include fishery interests in decisions affecting the Great Lakes system. A separate fishery board would suit this need. On the other hand, how could an IJC fishery board do a proper job short of merging the GLFC and its activities into this proposed board, as part of the overall IJC Great Lakes management structure?

Conceivably the IJC Fishery Board could act simply as a direct liason between the GLFC and the IJC structure. This may be the way to initiate the eventual transition, however, there appears to be little advantage in keeping the central focus of fishery concerns outside of the proposed comprehensive policy, planning and research efforts of the IJC's Great Lakes structure. Better the GLFC responsibilities, authorities and programs be merged into an IJC Fishery Board as soon as practicable.

One can be quite certain that the GLFC, and those individuals and agencies which have a primary interest in their present activities, would not favor any proposals for merger into the IJC organization, i.e., they certainly must favor having their separate international forum, which both in theory and in practice is an international equivalent to the IJC. In this vein any proposal to transfer the GLFC function to a Great Lakes board would appear a misplaced rebuff of the GLFC and associated fishery interests. This is hardly the case. The intent here is not to subject fishery interests and concerns to IJC direction simply to add to the proposed management organizations power and prestige, but to improve international consideration of fishery issues with their inclusion as integral concerns of the comprehensive management arrangement being proposed. If fishery matters are not a direct assignment of the total management effort it seems unlikely that the Great Lakes fishery would receive the attention that it merits.

With merger of the GLFC into the Great Lakes board structure the Commission (IJC) should be expanded from three to four members from each country. The new fourth member could be the former Great Lakes Fishery Commission Chairmen from each country. Continued representation of an individual knowledgable in fishery matters could be assured by amendment to the Convention on Great Lakes Fisheries co-ratified in 1955, and the Boundary Waters Treaty of 1909, specifying that one of the IJC commissioners from each country have credentials consistent with those followed in selection of present Great Lakes Fishery Commission members. Having a fishery representative on the Commission should in no way inhibit its continuing function outside of the Great Lakes area, however, if considered inappropriate, the fourth Commissioner's jurisdiction could then be limited to Great Lakes Basin matters.

The remaining six fishery commission members (three from each country) could be directly transferred to the Great Lakes Fishery Board with additional members selected if and as deemed appropriate. The Fishery Board would maintain its agency contacts to function as has the GLFC, subject to the policy guidance in substitutive matters by the Commission (IJC). The present administrative staff of the GLFC could be incorporated into the IJC central staff and/or the GLMO, as appropriate. This is significant for the international fishery managers would then have

more direct and immediate access to the full range of Great Lakes data and information which, from all indications, is not the present case. (See Chapter II, "Fisheries")

The GLFC-IJC merger is one of the most striking proposals made for the Phase I re-organization. Amendments to two existing treaties would be involved. However, such amendments as are called for, should not be of a highly controversial nature when considered in light of the potential improvements in overall natural resources management, as well as fishery resources management, for the Great Lakes.

Great Lakes Levels Board. This board would naturally evolve from the present International Great Lakes Levels Board in combination with the other IJC control and advisory boards concerned with levels and flows. The resulting single board would then encompass the functions and responsibilities of the Great Lakes Levels Board and the remaining boards, namely, the International Niagara River Board of Control, the International St. Lawrence River Board of Control, the International Lake Superior Board of Control and the American Falls International Board.

As for the other Great Lakes boards, the GLMO would provide administrative support thereby eliminating the need for board committees such as the report committee of the present Great Lakes Levels Board. The exchanges of data and parallel calculations now handled in the agencies of the control board members could also be assumed by

GLMO staff assigned to the new central lake levels board. Overall efficiency and effectiveness should be improved while relieving the supporting agencies of their relatively rudimentary-type, board related tasks.

There are three international groups presently outside of the IJC board system that are also closely involved with Great Lakes lake levels matters. These groups are the International Niagara Committee, the Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data and the Great Lakes Study Group. It would be proposed that the materials, studies and general activities of these three groups be incorporated into the central Great Lakes Levels Board, the Research Advisory Board and the GLMO, as appropriate. A number of loosely-knit groups collecting and generating data would tend to detract from any central effort. If the more meaningful comprehensive central information and research efforts of the GLMO and the Great Lakes boards are to be successful, the primary users and generators of Great Lakes data and information, now enlisted in the above mentioned informal coordinating groups, should support use of, and thereby rely upon the IJC's central system. Bilateral agreements covering the IJC's new Great Lakes management role could direct federal agencies and departments to use and contribute to the GLMO central information system and research efforts in lieu of continuing support of diffuse special interest

efforts. This would facilitate the IJC's Great Lakes function and provide better service to the agencies and departments than now exists due to the lack of an adequate central information arrangement.

Navigation Board. As discussed in Chapter II there is no basin-wide (international) group specifically focusing on the many aspects (economic, environmental, social) of navigation related concerns. The proposed Great Lakes Navigation Board would assume this missing role, formally involving navigation interests and issues with the other natural resource related concerns of the Basin. The Navigation Board could evolve, at least in part, from the Navigation Committee of the present International Great Lakes Levels Board. "Continued study of traffic growth and traffic patterns, technology and competition is necessary in planning for Great Lakes navigation."[2] Such input should properly be included in the contemplated comprehensive planning effort of the GLMO. The Navigation Board is needed to give specific attention to keeping abreast of such matters through developed contacts with the government and nongovernment navigation interests in both countries. Also, "the future improvements of the Great Lakes-St. Lawrence Seaway are to a large degree dependent on the probable legislative attitude of both countries, toward the need for a vital waterway system, the regulation of transportation by both governments, and

the toll system and legal and tax structures."[3] For the IJC to assume a meaningful role in identifying potential common objectives and recommending joint policy, such navigation related issues must be accounted for. The Navigation Board would provide the needed special assistance to properly advise the Commission and thereby give to navigation issues the specific bilateral attention which these large scale concerns merit.

Research Advisory Board. As noted previously the proposed Great Lakes research advisory board (GLRAB) is conceived as a comprehensive extension of the Water Quality Agreement's "Research Advisory Board." Specific functions and responsibilities applied on a comprehensive scale would be consistent with those defined in the reference to the IJC for establishment of the water quality research board. (Accompanied WQA - April 15, 1972) These are:[4]

(a) To review at regular intervals these (Great Lakes Basin) research activities in order to:

(1) examine the adequacy and reliability of research results, their dissemination, and the effectiveness of their application;

(2) identify deficiencies in their scope, and inadequacies in their funding and in completion schedules;

(3) identify additional research programs for which international cooperation will be productive;

(4) identify specific research programs for which international cooperation will be productive;

(b) To provide advice and consolidations of scientific opinion to the Commission and its boards on particular problems referred to the Advisory Board by the Commission or its boards;

(c) To facilitate both formal and informal international cooperation and coordination of research; and

(d) To make recommendations to the Commission.

The GLRAB would be made up of Commission appointed government members, academics, professional researchers and scientists with individual qualifications suited to the important tasks of the board. A principal task of the board would be a comprehensive review of the state of knowledge on the Great Lakes resource matters pertinent to adequately understanding, and thereby better managing, the overall system and mans influences on it. This would involve an extensive study by the best available person or group of persons suited to this task. For this initial review effort it would be advisable that the GLRAB retain the necessary person(s) on a full time basis to be placed as GLRAB staff within the GLMO.

The GLRAB would be administratively supported by the GLMO, as with the other boards. There would necessarily be a close interface with the information center of the GLMO and it could be expected that the GLRAB's contribution to the Commission's Great Lakes planning and policy formulation roles would be substantial. Regular exchanges with governmental and intergovernmental groups, universities

and private research organization could be expected as necessary for the board to satisfy its analysis, assessments and recommendatory activities.

Phase II

The perceived second phase organization structure is shown on Chart III. Note that there are two major changes from Phase I plan - insertion of a Great Lakes Basin policy unit and addition of individual basin field offices. The board system would remain basically as is; there would be some adjustments in GLMO and Commission activities due to the addition of the new units. These will be discussed in the paragraphs identifying the new units hereinafter.

The timing for transition to the Phase II plan is certainly indeterminate at this point. However, it is suggested that an appropriate time might be once the international Basin-wide framework study initiated in Phase I has been substantially completed.

This framework study should have established a "Basin-Plan," conceivably setting the groundwork for bilateral agreements on common objectives, associated cooperative programs, related implementing features and other matters pertinent to the overall resources management function undertaken by the IJC's Great Lakes units. Policy guidelines and bilateral administrative and operating procedures should be reasonably established at this point in time. The major coordinating and review efforts associated with

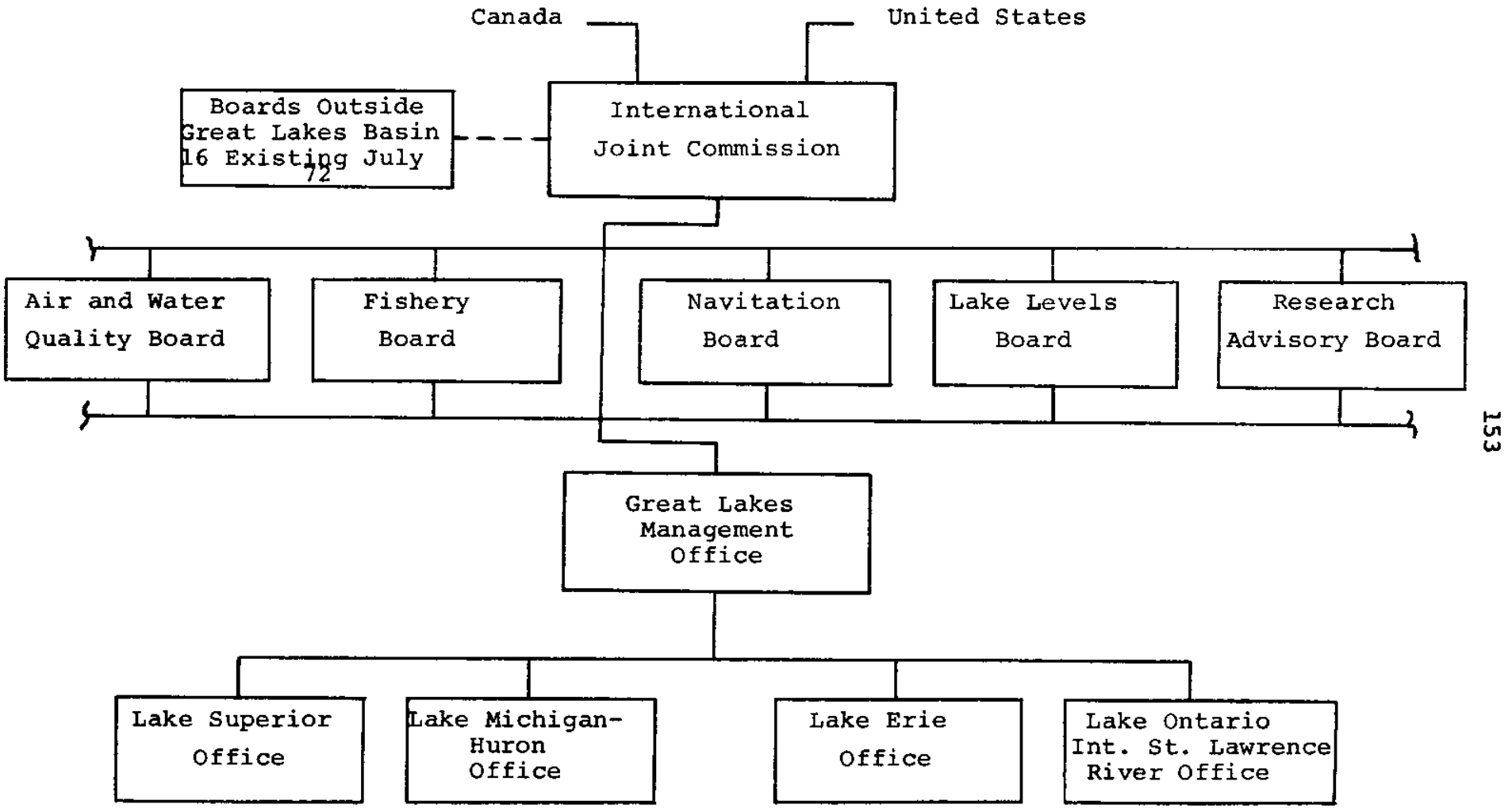


Chart III

Proposed IJC/Great Lakes Arrangement

Phase II

implementation of common programs on a broad range of concerns should be getting underway in accordance with mutual approvals by the two governments on sections of the "Plan." Interim measures in pressing areas of concern (e.g., water quality - initiated under the Water Quality Agreement), would be at stages where regular review and critical assessments would be in order. Note, under terms of the Water Quality Agreement, the effectiveness of Agreement objectives and related measures are to be comprehensively (critically) reviewed in the fifth year following the Agreement and thereafter upon request of either government.

Overall, the IJC's Great Lakes management function should be getting into "full-swing" as the two governments act on recommendations of the "Basin Plan." Additional organization would be called for to facilitate effective operation in the critical task areas - policy formulation, guidance and coordination of bilateral operations. The proposed Great Lakes Basin policy unit could assume the bulk of continuing policy and oversight functions and the regional offices could administratively facilitate the GLMO's coordinating and review activities.

The primary functions of the overall Phase II organization would remain to be coordination and overview as in Phase I. The new units should provide increased flexibility and better integration into the Basin community which should improve overall response to the full range of resource management concerns within the Basin.

The Great Lakes Basin Policy Unit

The new policy unit is conceived as a joint Canadian-United States body which would absorb the Commission principal coordination, recommendatory and general oversight activities assumed under Phase I. The Commission would retain primary responsibility for policy recommendations to the two governments and overall management direction, however; it should be expected that once the new unit was functioning smoothly, Commission compliance with the units decisions would be fairly automatic. An additional treaty amendments would be desirable to establish the Great Lakes Basin policy unit and clearly define its function and also the type of representation to be included in its membership.

The policy unit should provide for representation from the federal, state and provincial governments (conceivably agency and/or department heads) with members representing the residents of the basin of both countries also included. This would provide a wide representation of interest, appropriate to the unit's functions.

The balance of representation on the policy unit is important. Settling on the number for such a unit can also be very difficult. Craine's preliminary studies for the Great Lakes Basin Commission on institutional arrangements for the Great Lakes,[5] considered creation of such a unit for the United States portion of the Basin only. His preliminary explorations led him to suggest the

possibility of a policy council of thirty-five members, "eight of whom represent the eight states, eight federal representatives and nineteen public representatives distributed among the states roughly in proportion to the population of the basin."[6] Extending this over the entire Great Lakes Basin, with Canada having equal representation, a policy unit of seventy members would be required. Such a large number of representatives might tend to dilute the role, visibility and subsequent individual commitment of the members, hampering effective decision making.

At the other extreme a minimum of three members from each country is possible, one from each of the three groups (federal and state government and residents of basin - this last group includes local government, general public ...). However, it seems that it would take more spokesmen to effectively cover the entire Basin. A total of twenty members, ten from each country, may be more appropriate.

The ten representatives from the United States could include three from the states, three federal representatives and four resident representatives. The three federal representatives could be designated by the appropriate chief executive in each country. There may be some question on how to limit state representation to three, when there is an aggregate of the eight states. Eight equal state representatives are not required or really appropriate, as each state does not necessarily merit an equal voice.

Clearly the interests of each state in the Great Lakes system is far from equal, e.g., Michigan is almost completely surrounded by the Lakes and Pennsylvania has but a fraction of the Great Lakes shoreline (approximately fourty miles) and drainage area. Each states' voice in relation to the other could be weighted by percentage of the total shoreline, drainage area, or Basin population affected, or some agreed combination thereof. In addition, having eight states share three representatives should promote greater interstate communication and cooperation at earlier stages in the Basin-wide policy process. The Great Lakes Commission, which is an interstate group established in 1955 under a Great Lakes Basin Compact, could serve as the forum for selecting the three state representatives.

The four "resident" representatives could be readily selected by the Commission subject to confirmation of the major elected representatives with Great Lakes jurisdiction. On the United States side the selections could be subject to approval of a forum of Federal Congressmen (Senators and/or Representatives) from the eight states. In Canada the Provincial Members of Commons could confirm the four general representatives. In time, if desired, appropriate arrangements could be made for direct election of the resident policy unit members by the voting public within the Basin.

The terms of all policy unit positions should be set at a four year minimum. All decisions would require a simple majority vote by the policy unit members.

Regional Offices

There would be no basic change in the GLMO except for such internal reorganizations as may be necessary to formally link with its new regional offices. The central information system and primary Basin-wide planning function would remain intact. Primary administrative functions such as personnel administration, budget preparation, supply and fiscal control would also remain centered in the GLMO.

The regional offices are seen as simple extensions of the GLMO into the individual basins (Lake Michigan - Huron is hydrologically speaking, a single basin and for this proposal is considered accordingly). As such, each of the four regional offices would be located as best suits the GLMO function in the respective Lake basins. Their principal function would be to provide for closer coordination and surveillance of operational programs within the IJC's jurisdiction and to provide for "grass roots" public access and dialogue therewith, by serving as regional information collection and dissemination points.

Continuation of the Board System

It must be noted that the five technical boards, and any others that may be created during Phase I, are to remain intact. They provide the principle and invaluable contacts with both countries government agencies and departments and all their data and expertise. The permanent IJC/Great Lakes units should have bi-national staffs of

high caliber administrators and technical professionals tending to an interdisciplinary mix. However, it is inconceivable that the IJC's Great Lakes arrangement could or should operate without the outside government organizations. The permanent GLMO and regional offices units are seen as being staffed and operated in as compact and efficient fashion as the review assimilation and coordination functions of these units will allow. Beside the fact that the technical expertise is readily available in the two countries, the considerable staff that would be required to replace the board and agency functions would not be appropriate on an international level. It can be expected that the cooperating agencies and departments in both countries would maintain regular staffs available principally to serve IJC/Great Lakes related services as such positions presently exist. Funding arrangements to support the overall IJC/Great Lakes function have a bearing on staffing and study procedures. These aspects which apply equally to the Phase I proposals are addressed in the following section.

Administrative - Financial Implications

Both the Phase I and Phase II plans outline a significant expansion and extension of the IJC's role in natural resources management for the Great Lakes Basin. A full time Commission, a larger central and a regional staff, and new functions and tasks are called for. In short, there are immediate implications for financing and administering the considerably greater bilateral efforts of the IJC.

The reader is referred back to the assessment of the IJC "Fiscal and Staffing Adequacy," in Chapter IV. The conclusion of this assessment was that if it were agreed to expand the IJC's role, in such manner as has been proposed hereinbefore, a joint funding system centrally administered by the IJC, would be advisable.

A coordinated budget request for the United States share of the total IJC commitment would be a primary requirement. Recall that the preceding proposals involve not only the IJC but organizational incorporation of the GLFC and the United States GLBC. In the United States, the FY 1973 federal budget for the United States share of the GLFC is approximately $1,850,000[7] (as compared to the IJC's $525,000). The FY 1973 federal budget for the United States GLBC is $400,000,[8] however, there is also a considerable total state contribution which would properly become a federal cost under the IJC/Great Lakes plan. The overall funding system in the United States would become even more haphazard than described in Chapter IV, with the proposed mergers; the practicality of continuing such a system, without adjustments, is questionable at best.

It is suggested that as a minimum the United States IJC/Great Lakes Basin total budget share could be coordinated through the Water Resources Council similar to the procedure on federal funding for the United States GLBC at present.

A further improvement would be to have the United States Section of the IJC solicit the funding needs of the cooperating agencies and departments and submit a single IJC/Great Lakes budget for review by a single appropriations committee. This would be a subject for one of the appropriations committees dealing regularly with natural resources and/or environmental protection matters, e.g., public works committees and not the State Department appropriations committees, once the enabling bilateral agreements had been co-ratified.

As noted in Chapter IV, Canada appears to have a more positive IJC funding process than in the United States, however, they should favor any change that improves the overall (international) funding picture. The overall preferred approach might then be to have fully integrated joint budget with both countries contributing equal shares for bi-national use.

A joint budget would best serve the need of the proposed arrangements for an assured minimum level of funding for direct administrative and study costs. The minimum funding support levels could be spelled out in the organizational agreements. Funds for the technical studies could be readily distributed to the cooperating agencies and departments in each country with simple, inner-agency agreements.

FOOTNOTES AND REFERENCES

CHAPTER VI

1. * Personal interviews with Commission staff from both the United States and Canadian Sections have verified this point.

2. Great Lakes Basin Commission, Great Lakes Basin Framework Study, Appendix No. 9, Navigation, Volume 1 Commercial, Draft No. 1, January, 1971, Synopsis.

3. Ibid.

4. Lyle E. Craine. A Summary Report on Institutional Arrangements For The Great Lakes, prepared for the Great Lakes Basin Commission, January 25, 1972, p. IV-7.

5. Ibid.

6. Bureau of the Budget, The Budget of the United States Government, Appendix, FY 73, p. 675.

7. Ibid. p. 976.

SUMMARY

The Great Lakes of North America represent the largest combined body of fresh-water in the world. Yet there are finite limits to their extent and ability to absorb mans unbridled influences. Under such influences the natural quality of the overall Great Lakes system and related air and land environs cannot be maintained. The present challenge is to stem the tide of deteriorating quality of the Lakes and related air and land resources to retain their value and usefulness in meeting human needs.

In general, the expertise and technology is or could be made available to deal with the phenomenon which threaten the natural system. There is a more fundamental problem, however. It has been identified as the lack of institutional arrangements through which to apply the necessary attention and eventual solutions to Great Lakes system and related problems. Of special significance is that this is a situation shared by two sovereign nations - Canada and the United States. Accordingly the only reasonable solution lies in agreements and arrangements between these two countries.

Arrangements for mutual consideration of common resource problems are not new to Canada and the United States. Of singular importance was creation of the International Joint Commission under the Boundary Waters Treaty of 1909, in recognition of a similar but less complex situation than

exists today. The IJC has compiled an admirable record over its sixty year history, with its efforts in directing studies of water pollution and lake levels in the Great Lakes ranking among the most significant of their kind ever undertaken, anywhere. There is growing support to the idea that this institution may also be the joint organization (with due consideration given to completely new joint arrangements) which could best handle the task of facilitating more effective Basin-wide (international) resource management procedures in the Great Lakes Basin. The analysis in this paper supports this view.

On April 15 of this year, President Nixon and Premier Trudeau signed the Water Quality Agreement giving the IJC new responsibilities and functions to assist Canada and the United States in their expanding efforts to restore and protect the Great Lakes water quality. This Agreement must be applauded. However, it should not be considered the final solution to common Great Lakes problems. There is good reason to believe that each countries' interest could be better served with a broader agreement, integrating a wider range of bilateral concerns, in particular - air quality, fisheries, lake levels and navigation as well as water quality, into a common arrangement. This is seen as the type of arrangement ultimately needed to effectively manage the Great Lakes Basin's resources.

In pursuit of the question of how the IJC might be reconstituted to best suit a comprehensively-oriented,

integrated management task in the Great Lakes Basin, a two-phase plan has been devised. The same basic tasks and management functions are included in both phases with the second phase offering a more developed organization structure.

All new features agreed to by the two governments under the Water Quality Agreement were extended to specifically encompass air quality, fishery, lake levels and navigation as well as water quality concerns. To this, significant new functions, responsibilities and concepts have been added. The use of "international technical boards" would be continued with five single central Great Lakes boards - air and water quality board, fishery board, lake levels board, navigation board and a research advisory board. Regional offices would be utilized - a central administrative office (GLMO) in the first phase with addition of four Lake-basin offices under the second.

The basic roles of the IJC/Great Lakes arrangements would be that of coordination and oversight (surveillance and guidance) in five major tasks areas: (1) a Basin-wide policy guidance function, (2) development of a central Great Lakes Basin information system, (3) a comprehensive research advisory function, (4) a basin planning function, including development of a Basin-wide (international) framework plans (modeled after the GLBC Framework Study) and (5) measures to facilitate implementation and review of joint

programs. Additional significant features of the overall proposals, not specifically listed above, are:

Phase I:

(1) Replace mandatory reference procedure with the initiatory authority to seek solutions to problems under appropriate government guidelines.

(2) Add Lake Michigan to overall IJC jurisdiction.

(3) Expand Commission (IJC) from six to eight members (four from each country), all with full time status.

(4) Merge Great Lakes Fishery Commission into a IJC/Great Lakes arrangement.

(5) Merge the United States Great Lakes Basin Commission into a IJC/Great Lakes arrangement.

(6) Advise creation of a joint budget.

(7) Provide IJC/Great Lakes arrangement access to courts of both countries as appropriate to function.

Added with Phase II:

(8) Creation of a Great Lakes Basin policy unit.

Amendments would need be made in the Boundary Waters Treaty and the Convention on Great Lakes Fisheries treaty agreement, however, the basic framework of both should remain substantially intact. Merging the GLBC and any parallel

Canadian planning function into the IJC arrangement would require some legislative action. Finally, creation of a joint budget would be an appropriate topic for the legislatures in both countries to consider. Without doubt considerable attention would be required in both countries to implement all features of the proposals.

At present the subject of resources management in the Great Lakes is receiving considerable attention in both countries. The Great Lakes Basin Commission is engaged in an institutional study. There are proposals for a United States Federal-State Compact Commission for the Great Lakes Basin, paralleling the form of the Delaware River and Susquehanna River Basin Commissions. The United States-Canada University Seminar referred to frequently in this paper, is now completing a report with their recommendations.

Along similar lines the purpose of this paper has been to identify an institutional arrangement with the capacity to effectively manage the resource base of the Great Lakes Basin. The subsequent results are offered for consideration, as this writer's small contribution to the overall effort.

The commitment of both countries to embark on new joint arrangements is not easily won. However, as each countries awareness of the possibilities for new and generally viable joint ventures increase, the needed support should develop. Hopefully it is only a matter of a short time

before individuals in positions of influence, i.e., members of Parliment, Congressmen, specifically the Canada-United States Interparlimentary Committee, agency and department heads, Chief Executive Staff and of course the IJC itself, see the need for directing greater attention to the subject of jointly managing resource-use and development in the Great Lakes Basin - conceivably through proposals and supporting discussions such as are included in the paper.

Effective bilateral negotiations developed the Water Quality Agreement. It is recommended that the negotiations initiated therein be resumed to consider development of an integrated Great Lakes management arrangement along lines similar to those called for in this paper.

BIBLIOGRAPHY

Agreement Between Canada and the United States of America on Great Lakes Water Quality, April 15, 1972.

Anonymous, "No U. S. Domination, Nixon Tells Canada," Ottawa (AP), The Ithaca Journal, April 15, 1972.

Butrico, F. A., Touhill, C. J., and Whitman, I, C. Resource Management in the Great Lakes Basin; Battelle Memorial Institute, Heath Lexington Books, D. C. Heath and Company; Lexington, Massachusetts, 1971.

Bruce, J. P., Lane, R. K., and Werler, H. S. "Processes at the Air-Water Interface," Proceedings 11th Conference Great Lakes Resources, 1968.

Bureau of the Budget, The Budget of the United States Government, Appendix FY 73.

Canada - United States University Seminar on Institutional Arrangements for the Integrated Management of the Water and Land Resources of the Eastern Great Lakes; Working Papers - Second Meeting, Cornell University, Ithaca, New York, March 1-3, 1972.

Canada - United States University Seminar on Institutional Arrangements for the Integrated Management of the Water and Land Resources of the Eastern Great Lakes; Draft Seminar Report - Third Meeting, York University, Toronto, Ontario, May 31-June 2, 1972.

Carlson, Douglas M. "Management of the Biological Resources of the Lake Ontario Basin," unpublished class paper, Cornell University Water Resources and Marine Science Center, Ithaca, New York, June 1972.

Chacko, J. C. The International Joint Commission Between the United States of America and the Dominion of Canada, Columbia University Studies in Social Sciences, Number 358, 1932.

Craig, Gerald M. Canada and the United States, Harvard University Press, Cambridge, Massachusetts, 1968.

Craine, Lyle E. Great Lakes Basin Commission - Interim Report on Institutional Arrangements, "Guidelines for the Study," October 21, 1971.

_____. Final Report to the Great Lakes Basin Commission on Institutional Arrangements for the Great Lakes, Preliminary Draft, January 22, 1972.

Craine, Lyle E. A Summary Report on Institutional Arrangements for the Great Lakes, Great Lakes Basin Commission, January 25, 1972.

Congressional Record, February 27, 1913.

Congressional Record - House, September 28, 1965.

Congressional Record - House, February 9, 1972.

Dworsky, L. B., Allee, D. J., and Gates, C. D. The Management of Lake Ontario - A Preliminary Report Proposing an International Management Organization; Cornell University Water Resources and Marine Sciences Center Ithaca, New York, Publication No. 36, July 1971.

Frick, H. C. "Economic Aspects of the Great Lakes Fisheries of Ontario," Fishery Resources Board of Canada, Bulletin No. 149, 1965.

Great Lakes Basin Commission, Great Lakes Basin Framework Study, Appendix No. 9, Navigation, Volume 1 Commercial, Draft No. 1, January 1971.

_____, Great Lakes Basin Framework Study, Appendix No. 11, Levels and Flows, Draft No. 2, Volume 1 of 2, January 1971.

_____, Great Lakes Basin Framework Study, Appendix No. 20, Federal and State: Law, Policies, and Institutional Arrangements - State Sections, Draft No. 2, July 1971.

_____, Great Lakes Institutions: A Survey of Institutions Concerned with the Water and Related Resources in the Great Lakes Basin, June 1969.

Hardin, Garret. "The Tragedy of the Commons," reprint from Science, Volume 162.

Heeney, A. D. P. "Along the Common Frontier - The International Joint Commission," Canadian Institute of International Affairs, Behind the Headlines, Volume XXVI, No. 5, July 1967.

Heiman, Michael K. "Management of the Great Lakes Fisheries," unpublished class paper, Cornell University Water Resources and Marine Sciences Center, Ithaca, New York, December 1971.

Hennigan, Robert D. "Effective Water Quality Management: Impossible Dream or Attainable Goal?" Proceedings Thirteenth Conference on Great Lakes Research; State University College, Buffalo, New York, April 1-3, 1970.

International Joint Commission, Rules of Procedure and Text of Treaty, 1965.

_____, United States-Canada Reference to Study Pollution Problems of Lake Huron and Lake Superior, April 15, 1972.

_____, United States-Canada Reference For the Establishment of a Research Advisory Board, April 15, 1972.

_____, United States-Canada Reference on Great Lakes Levels, October 7, 1964.

_____, Report "Pollution on Lake Erie, Lake Ontario, and the International Section of the St. Lawrence River," 1970.

Jordan, Fredrick J. E. "Recent Developments in International Environmental Pollution Control," McGill Law Journal Volume 15, No. 2, 1969.

MacCallum, J. L. "The International Joint Commission," Canadian Geographical Journal, Volume LXXII, No. 3, March 1966.

Merchant, L. T. and Heeney, A. D. P. "Principles for Partnership - Canada and the United States," reprint from The Department of State Bulletin, August 2, 1965.

Okanagan Basin Study - Information Brochure, prepared by the Okanagan Study Committee, Canada - British Columbia Okanagan Basin Agreement, January 1971.

Pearson, Norman. "Alternative Institutional Arrangements for Multipurpose Resources Management." Working Papers - Second Meeting, Canada-United States University Seminar on Institutional Arrangements for the Integrated Management of the Water Resources of the Eastern Great Lakes; Cornell University, Ithaca, New York, March 1-3, 1972.

Piper, D. C. "The International Law of the Great Lakes, A Study of Canadian-United States Cooperation," Duke University Commonwealth Studies Center, 1967

Simon, Herbert A. Administrative Behavior, Second Edition, The Free Press, New York, New York, 1957.

Tinney, Roy E. "The Canada Water Act - A Vehicle for Action," Optimum, Bureau of Management Consulting, Ministry of Supply and Services, Government of Canada, Ottawa, Volume 2, No. 1, 1971.

University of Illinois, Water Resources Center; WRC Research Report No. 18, "Intergovernmental Relationships in the Administration of Water Resources," Urbana, Illinois, September 1968.

Weber, Eugene W. "Functions of the International Joint Commission," Journal of the Power Division, ASCE, Volume 94, No. PO2, Proc. Paper 6236, November 1968.

Welsh, Mathew E., and Heeney, A. D. P. "International Joint Commission - United States and Canada," Reprint from International Conference on Water for Peace, May 23-31, 1967.

Weston, Roy F., Trelease, Frank J., Dworsky, Leonard B., and Oeuming, Loring F. "Water Quality Management - Legal, Technical, and Administrative Aspects," Water Pollution Control Federation Journal, Volume 36, No. 9, September 1964.

Zimmerman, F. L. "Intergovernmental Commissions: The Interstate - Federal Approach," State Government, Volume 42, Spring, 1969.