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MANAGEMENT OF THE INTERNATIONAL GREAT LAKES

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EDITOR'S NOTE

This paper represents the efforts of the Canada-United States University Seminar. This was a six-month seminar comprised of faculty members and governmental representatives from both Canada and the United States held from December 1971 to June 1972. The objective of the seminar was to consider the need for and the formulation of an improved resource management structure for the Great Lakes Basin.

Part I of the paper deals with the present situation regarding resource use problems of the basin, while Part II presents the conclusions and recommendations of the seminar.

Canada and the United States represent two of the world's leading advanced industrial societies. These two nations share a 3,500 mile continuous boundary, but the most important segment of that border by far is the Great Lakes Basin. It is there that the huge industrial and population complex of the North-Central United States comes together with the most industrialized and urbanized region of Canada. All of the people living and working in the Great Lakes Basin are, by reason of geography and economic necessity, interdependent, and they must share both the benefits and the costs of continued industrial and population growth. It has been demonstrated in recent years that the other side of the development coin is environmental degradation, natural resource depletion and land use mismanagement. One well-known manifestation of this is the deterioration of water quality. Another set of problems concerns the effective management of lake levels, water supply, navigation, recreation and hydropower in and on these joint Canadian and U.S. boundary waters. The heart of the problem appears to lie in institutional inadequacies on both sides of the international border. For example, pollution of the waters of the Great Lakes is a well-studied problem with government concern going back to 1912; however, the inescapable fact remains that the problem persists. It would be unfair to say that nothing was done, but it would be negligence of a high order to assert that enough has been done.

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In 1889 the governments of Mexico and the United States established under treaty a joint commission[1] which, after subsequent changes, became the International Boundary and Water Commission.[2] In 1909 the governments of Great Britain (for Canada) and the United States signed the Boundary Waters Treaty, and in 1912 Canada and the United States formed the International Joint Commission (IJC) to carry out the purposes of the treaty.[3] Guided by these international conventions, the countries have managed rivers and lakes, constructed dams and hydroelectric power facilities, attempted to control water pollution, exchanged lands affected by changed water courses, controlled floods and have undertaken other tasks assigned by the respective concerned governments. There exists, however, the need to consider the opportunities and problems associated with the establishment of some form of integrated management of these efforts.

In more specific terms, there is a need at this time to explore ways to strengthen present institutional relationships and to examine the nature of a binational body that could serve as the locus of coordination for the full range of Great Lakes resource management problems.

PART I
THE RESOURCE USE SITUATION

The Great Lakes cover a total area of about 95,000 square miles and drain an additional land area of approximately 200,000 square miles. They rank among the largest bodies of fresh water in the world. The Great Lakes, lying on or adjacent to the border between the United States and Canada, are situated in the interior of the continent of North America. A connected chain, they are drained by the St. Lawrence River which flows northeast through Quebec province to the Atlantic Ocean. The Great Lakes Basin lies between the latitudes of 40°30′ and 50°30′ north, and between the longitudes of 70°30′ and 93°10′ west, covering a maximum span of 690 miles north-south and 860 miles east-west. The eastern limit of the basin, near the end of Lake Ontario, is 600 miles inland from the Atlantic Ocean as

1. Convention to Facilitate the Carrying Out of the Principles Contained in the Treaty of November 12, 1884, and to Avoid the Difficulties Occasioned by Reason of the Changes Which Take Place in Beds of the Rio Grande and Colorado River, Mar. 1, 1889 [1890], 26 Stat. 1512, T. S. 232.

2. Convention on the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, Feb. 3, 1944 [1945], art. 2, 59 Stat. 1219, T.S. 944.

3. Treaty with Great Britain Relating to Boundary Waters, and Questions Arising Between the United States and Canada, Jan. 11, 1909 [1910], art. VII, 37 Stat. 2448 (1910), T.S. 548. [hereinafter Boundary Waters Treaty].

measured along the St. Lawrence River. The western end of the basin, near the west end of Lake Superior, is nearly halfway across the continent from the Atlantic. Fifty-nine percent of the Great Lakes Basin is in the United States and the remaining 41% is in Canada, covering parts of eight states but only one province, Ontario.

The water and land resources of the Great Lakes Basin have encouraged people and industry to locate in the region. It is here that the huge industrial and population complex of the north-central United States joins the most industrialized and urbanized region of Canada. The basin as a whole has a present population of 36 million which is expected to exceed 60 million by the end of this century. Demographers see the region as an emerging international megalopolis which by the year 2000 is projected to contain over a third of the Canadian population and a quarter of the U.S. population.[4]

The effects of past population and industrial growth in the Great Lakes Basin on that region's water and related land resources are well documented. There are serious water pollution problems in Lakes Michigan, Erie and Ontario; air pollution concerns in the Detroit-Windsor area and on the Niagara Frontier; fishery resource depletion; and numerous land use mismanagement and other resource management problems not necessary to detail here. These population and industrialization pressures on the limited resources of the basin are increasing at an accelerating rate. Municipalities use the region's water for dilution of waste, nuclear power plants propose to use lake water as a coolant for their reactors, and millions of people use the water environment for recreation. Shipping is dependent upon water, and fish and wildlife require a natural ecosystem of which water is an essential part.

The present proliferation and expansion of these uses are putting considerable stresses on the physical limits of the water system of the basin. Furthermore, many of these uses conflict not only with the limitations of the resource, but also with other uses.

The water resource management problems of the Great Lakes include matters related to water quality; municipal and industrial water supply; irrigation; lake level control; hydropower; flood control; navigation; shoreline protection and development; fish and wildlife protection; water based recreation; solid waste disposal; air quality; and urban and industrial land use. While these problems are discrete, they also interact. For example, lake levels affect directly but in different ways hydropower, flood control, navigation and shoreline property use. Improperly treated municipal and industrial

4. *See* J. Pickard, Metropolitanization of the United States (1959); *see also* Pickard, *Is Megalopolis Inevitable?* 4 The Futurist (1970).

wastewater adversely affect drinking water supplies, fisheries and recreational opportunities. In addition, there are related land and economic development issues, especially those affecting shoreline development, that are of fundamental importance to the effective management of the water resource base.

These systemic interrelationships notwithstanding, governments at all levels in both countries continue to treat these water problems as separate situations. Each of these major resource use areas has its own special cluster of public agencies and private organizations defending and promoting one use over the others. A competitive, special interest milieu exists in which different users of the same resource often find themselves working at cross purposes. In such a setting, public policy decisions on competing water and land uses are seldom made using some measure of net social benefit as the main criterion. In the Great Lakes the situation is further complicated by the fact that the waters are, to a large extent, binational.

As a way of illustrating the current resource use situation in the Great Lakes Basin, five problem areas are briefly surveyed.

WATER QUALITY

Lake Erie, the western end of Lake Ontario and the southern end of Lake Michigan suffer from pollution in almost all its forms. The problem is by now well researched and publicized. Furthermore, the problem of water degradation is not a new one. In the period 1912-1918, there was concern by the federal authorities in the United States over Great Lakes pollution and infected water sources as they affected the spread of typhoid fever. Government interest quickly faded, however, when that disease was brought under control by drinking water purification processes and other advances in sanitary engineering. It was not until 1964 that the Canadian and United States Governments moved to investigate in an adequate way pollution in the lower Great Lakes and the international section of the St. Lawrence River.[5] The corrective measures recommended in that intensive study are only now being implemented, and correction of the situation will require considerable time.

The basic causes of the serious water quality problems of the Great Lakes are the same as those of other regions. They include reluctance of the federal governments to interfere in an area reserved by

5. Request of October 7, 1964, I.C.J. 83. The Court requested the Commission to undertake a study of water pollution in Lake Erie, Lake Ontario and the international section of the St. Lawrence River and to recommend practicable remedial measures. Appropriate technical boards were formed and a report was submitted to the International Court of Justice in 1969.

tradition to the states and the provinces; inadequate enforcement authority (and lack of will to enforce) on the part of the federal and state/provincial pollution control agencies; a fragmented bureaucracy for regional planning and natural resources management; lack of funds; excessive number of political jurisdictions with overlapping authorities and responsibilities; and a lack of precedent and experience in area wide waste treatment management planning. This list is not complete, but it includes the more important obstacles to an integrated approach.

In the Great Lakes region an additional obstacle is encountered. The Great Lakes are shared (except for Lake Michigan) between two countries and this fact tends to inhibit joint, comprehensive efforts whether they be research undertakings, resource planning or clean-up of polluted air and water. This inhibitive effect is not a permanent obstacle, but rather a variable factor inversely related to the determination of both countries to cooperate on the Great Lakes. In view of recent events (the 1972 Agreement between Canada and the United. States), the prospects for meaningful cooperation on transboundary water pollution between the United States and Canada have improved substantially.

The heart of the problem appears to lie in institutional inadequacies on both sides of the international border. While in recent years policy makers and technical agencies in Canada and in the United States have made visible progress in improving the management of water, land and environmental quality in the Great Lakes Basin, unfortunately, the effect of this effort is something less than it could have been, simply because of the dampening effects of the existing fragmented institutional structure.

FISH AND WILDLIFE

Concern over declining fish populations predates even the early, albeit transitory, interest in water pollution. No less than 27 commissions and conferences since 1875 arrived at the same general conclusion that little progress would be made in halting the decline of fish populations in the Great Lakes until the fisheries were subjected to uniform federal and international control.[6] In 1955 the two nations established under treaty the Great Lakes Fishery Commission.[7] The commission was created primarily as a response to the sea lamprey

6. *Report to the International Board of Inquiry of the United States and Canada,* 44 Science 10 (1944).

7. Convention on Great Lakes Fisheries, September 10, 1954 [1955], art. II, 6 UST 2836, TIAS 3326.

problem. Its broader stated objective is to improve the quality, abundance and productivity of the fishery resources of the Great Lakes for sport and commercial use.

While the commission has had considerable success in controlling the sea lamprey, neither the treaty nor the commission has proved adequate in dealing with the problems of habitat destruction on a large scale or of the malevolent effects of pollution. Perhaps the major question facing fish and wildlife management in the Great Lakes Basin is how they may be protected against encroachment by competing and conflicting uses of the lakes' environment. One example is the location of thermal power plants and the effects that heat discharges have on aquatic life. Another example is the current high demand for wetlands, particularly near urban areas, as sites for construction projects or solid waste disposal areas. Accelerated eutrophication of wetlands caused by man can eventually destroy them as nesting areas for waterfowl.

The basic deficiency in fishery management of the Great Lakes is that the responsible public agencies are restricted to limited and narrowly defined roles. Stronger public agencies working under internationally agreed standards and objectives are required if the two countries are to achieve effective fish and wildlife management in the Great Lakes Basin.

LAKE LEVEL CONTROL

With their vast drainage area of 295,000 square miles, a third of which is water surface area, the Great Lakes provide one of the best naturally regulated systems of fresh water in the world. This is demonstrated by the narrow range of variations in levels and outflows experienced prior to the advent of any artificial regulation on the lakes. The present ranges for monthly mean levels vary from 4.0 feet in Lake Superior to 6.6 feet in Lake Ontario. These are long-term averages, however, and they do not reflect periodic aberrations of high water (1951-1952) and low water (1964) which can and did have serious adverse effects on certain water users. High water during the winter of 1972-1973 is again creating concern along the lake shores. During these episodes, unusual pressures are directed at public authorities to investigate the feasibility of further reducing lake level fluctuations by constructing adjustable control works to regulate outflows or by diverting water to or from areas outside of the Great Lakes Basin. As a result of concerted efforts by many interests in both countries, the governments of Canada and the United States in 1964 requested the International Joint Commission to undertake a com-

plete study of lake levels and their possible control.[8] The IJC study on lake levels is nearing completion and the report is reportedly scheduled to be issued in late 1973.

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. Shore property interests are all public and private lands and developments along the shorelines. It includes, among other things, cottages, water recreation activities, domestic water supply and sanitation, port facilities and industrial cooling water supplies. Shoreline interests are benefited by a reduction in the range of stage since they are adversely affected by extremes of both high and low levels. Navigation interests comprehend the water problems of commercial shipping on and through the lakes and connecting channels and include the related problems of recreational boating. Generally, navigation is served best by high lake levels. Hydropower interests are benefited by high water levels which help to ensure maintenance of minimum flows as large as possible.

Under the most favorable conditions, lake level regulation rules cannot ensure that each water user throughout the system obtains the levels and flows best suited to his particular needs. However, rules are conceivable that would provide levels and flows that would result in generally beneficial conditions without unacceptable adverse effects to any interest.[9]

The whole matter of regulation of the levels and outflows of the Great Lakes cannot be other than international. Artificial control within the lakes of the water supply which comes from both countries cannot be undertaken without affecting the water use interests on either side of the international boundary. Changes in outflows and levels will, of course, have similar international effects. The binational nature of lake levels and their effects was formally recognized in the 1909 Boundary Water Treaty with its specific injunctions against unilateral diversions and obstructions of boundary waters (Articles II through V).

8. Request of October 7, 1964, I.C.J. 82. The Court requested the Commission
> to determine whether measures within the Great Lakes Basin can be taken in the public interest to regulate further the levels of the Great Lakes or any of them and their connecting waters so as to reduce the extremes of stages. . . experienced. . . .

The International Great Lakes Levels Board was established; a final report is expected to be issued in late 1973.

9. T. Patterson & H. Lawhead, *History and Present Status of Regulation and Regulation Studies of Water Levels and Flows on the Great Lakes,* in proceedings of the Great Lakes Water Resources Conference 217 (1968).

NAVIGATION

Waterborne commercial traffic on the Great Lakes has been a significant factor in the economic development of the region. Low cost water transportation, coupled with the availability of adequate supplies of ore, coal, water and electric power, have been decisive considerations in the location of such primary industries as the steel mills on Lakes Michigan, Erie and Ontario. The major present concern of navigation interests in the basin relates to the modernization and improvement of this important industry.

A construction program is underway in Canada to make improvements on the Welland Canal and navigation channels of the St. Lawrence River. A new $180 million 8-mile section in the Welland Canal which bypasses the City of Welland is scheduled to be opened in 1973.[10] The United States has had under study for a number of years a U.S. canal linking Lake Erie with Lake Ontario as a means of handling the anticipated increases in waterborne traffic in future years.

Shipping interests of the Great Lakes of both countries consider an extension of the present 250-260 day navigation season[11] on the Great Lakes-St. Lawrence Seaway absolutely vital to the system's long term viability and prospects for growth. The U.S. Congress in 1970 authorized a $6.5 million, 3-year, interagency study and demonstration project to determine the feasibility of extending the seaway season to a full twelve months.[12] The results of this program thus far have indicated that an increase of one month in the shipping season is not an unrealistic goal.

Safety and pollution control are additional concerns of shipping interests and the regulatory public agencies. Dredging operations to facilitate shipping have produced problems of spoil deposition, hydrologic change and modification of aquatic habitats. Control and enforcement authority available to deal with these problems under the water pollution control laws of both countries was, until quite recently, complicated, time consuming and, on the whole, ineffective. The enforcement measures under the provisions of the U.S. Federal Water Pollution Control Act as amended in 1972, and the recently strengthened measures in Canada, provide improved opportunities for

10. Interview with D. W. Oberlin, Seaway Administrator, 3 Seaway Rev. 5 (1972).

11. The present operating dates for the Great Lakes-St. Lawrence Seaway system are April 1–December 15, with some annual variation, depending on climatic conditions. The 1971 season was the longest on record, running from April 1, 1971 into February 1972.

12. Rivers and Harbors Act of 1970, Pub. L. No. 91-611, § 107. The Winter Navigation Demonstration Program is being conducted by the U. S. Army Corps of Engineers as lead agency in an organization of ten federal agencies comprising the Winter Navigation Board.

these aspects of water pollution control, but they are not yet fully tested.[13]

Changes in lake biology have resulted from waterway development. The most notable of these changes was the introduction of the sea lamprey into Lake Erie and the upper lakes after completion of the Welland Canal. The canal also permitted the alewife to circumvent Niagara Falls and enter the upper lakes.[14]

User charges have been an issue of major importance in the management of the Great Lakes-St. Lawrence Seaway facilities.[15] The seaway is the only navigation works in the continental United States for which users are charged fees. The fee schedule in effect since the opening of the seaway in June 1959 sets a base toll of 4 cents per ton plus $.40 per ton for bulk cargo and $.90 per ton for general cargo (no charge is currently made for tonnage in transit). This original toll accord between Canada and the United States expired in 1966, touching off a vigorous debate. Atlantic and Gulf coast interests pushed for toll increases for the seaway while Great Lakes interests proposed a decrease or even elimination, claiming that the tolls represented a discriminatory burden on the economies of the Midwest. The proponents of a toll increase based their arguments on the fact that during the first several years of operation, tonnage volume moving through the seaway system was considerably below original (and overly optimistic) expectations, consequently, debt repayment failed to keep pace with the imposed repayment schedule. Great Lakes shippers, on the other hand, claim that it is not at all certain that toll increases would in fact raise revenues. The Canadian government, which financed 71 percent of the original seaway construction, bears a correspondingly larger share of the long term debt and thus favors a modification of the toll accords to allow increases in user fees at both the St. Lawrence and Welland locks. Great Lakes shippers of both countries maintain opposition to increases, arguing that current tolls already constitute a substantial portion (around 20 percent) of their costs. The issue over tolls was ameliorated, at least temporarily, when the U.S. Congress passed the

13. Federal Water Pollution Control Act Amendments of 1972, 86 Stat. 816 (1972). In Canada, The Federal Canada Water Act of 1970 which provides an important mechanism for joint efforts in inter-provincial and binational water management programs; The Federal Fisheries Act Amendments of 1970 which authorize the setting of national effluent standards for all industries discharging wastes into waters inhabited by fish.

14. S. Smith, *Species Succession and Fishery Exploitation in the Great Lakes,* Journal of the Fishery Research Board of Canada 667-693 (1968).

15. The discussion on user charges of the St. Lawrence Seaway system is taken from E. Shenker & J. Wilson, The First 7 years of the St. Lawrence Seaway (1966), reprinted in 112 Cong. Rec. 24661 (1966).

Merchant Marine Act of 1970, which, among other things, relieved the St. Lawrence Seaway Development Corporation (U.S.) from payment of accrued as well as future interest charges on the principal debt of the U.S. section of the seaway.[16] A favorable trend for the seaway system is the steadily increasing use of the waterway. Gross tonnage in 1971 rose to 53 million short tons, compared with the estimated break even point of 42 million short tons per season.[17] Nonetheless, the toll issue remains, and the mechanism that would be used in resolving this difficult problem has not yet been devised.

URBAN AND INDUSTRIAL LAND USE

In the context of this brief discussion, "urban and industrial land use" refers primarily to the effects of urban development and industrial development on the use of the land resources of the Great Lakes Basin. It goes almost without saying that the basic economic issue that must be confronted by the people of the Great Lakes region is how best to allocate the available water and land resources among competing uses and to resolve the inevitable conflicts that arise as growth pressures continue to increase in the region.

Water uses are interrelated. The allocation of water, and indeed related land resources as well, involves a continuous series of trade offs which seek to meet agreed on social objectives while reducing conflict. Economic factors play a central role in this process. They provide a major mechanism for working toward some mix of resource allocation which, theoretically at least, will provide the maximum level of possible benefits for the most people. There are great problems associated with achieving these objectives through economic processes alone. Political, social and institutional factors impinge on and influence public decision making processes, which, more often than not, produce something far less than the optimal economic solution to public problems. Another source of suboptimization in a purely economic sense is the inherent problem of quantifying all costs and benefits associated with the selection of alternatives. Finally, there is the problem of externalities—the measurement, allocation and management of costs or benefits—which are not comprehended in the traditional economic and political processes. Much of the current concerns over the "environment" are in recognition of this.

In spite of the difficulties involved, the problems created by competing demands on finite public resources must be confronted economically. They must be dealt with both in terms of external

16. Merchant Marine Act of 1970, §43, 84 Stat. 1018 (1970).
17. Shenker & Wilson, *supra* note 15, at 24661.

diseconomies as well as classical notions of costs. Consideration should be given to ways of introducing into the calculus of economic trade off and compromise a much higher level of non-market influence in order to protect the interests of all sectors of the society. Natural resources and their allocation should not be the exclusive concern of those particular groups possessing the economic and political clout to exclude other sectors of society. The increasing use of the courts, particularly in the United States in response to the National Environmental Policy Act of 1969,[18] has yielded some visible progress in restraining uncontrolled exploitation of our key resources or unique places of natural beauty. It is a constant struggle, and one destined to become even harder fought in the future.

For all intents and purposes, economic development occurs in both countries in response to market forces, limited in the most nominal sense and in only some cases by government regulatory agencies. Planned economic development as such does not exist. Neither Canada nor the United States subscribes to any concept of a planned economy. Both countries, however, have evolved some legislative tools (e.g., Employment Act of 1946[19]) and institutional devices (e.g., Council of Economic Advisors in the U.S. or the Economic Council of Canada) to guide their respective economies along certain general lines, such as increased and sustained economic growth. Increasing Gross National Product, minimizing unemployment and controlling inflation make up the essential elements of our respective national economic policies. The states and provinces simply endorse this growth policy as the generally accepted economic goal.

While most urban development still takes place without benefit of effective planning, a widespread planning institutional base has been established in both Canada and the United States. Recent legislative activity in the U.S. proposes stronger government land control policies, and this issue is becoming more urgent in Ontario largely as a result of the urbanization in the lower Great Lakes. There are some good instances of land use planning at the municipal level, for example, the *Toronto Centred Region*[20] and comparable regional studies by the Province of Ontario. Land use planning experience in the United States has been strengthened by programs in Hawaii[21] (Land Use Commission), Vermont[22] (Environmental Control Law and

18. National Environmental Policy Act of 1969, 83 Stat. 852 (1970).

19. Employment Act of 1946, as amended, 60 Stat. 23 (1946).

20. Government of Ontario, Design for Development: The Toronto-Centered Region (1970). This report was part of a larger land use analysis and planning program for Ontario known as *Design for Development* initiated in April 1966 by the Government of Ontario.

21. Hawaii Rev. Laws. §205 (Supp. 1969) (Land Use Commission).

22. Environmental Control Law of 1970, Vt. Stat. Ann. tit. 10 §151 (1970)

Environmental Board), Wisconsin[23] (shoreland protection program under the state Water Resources Act of 1966) and in New York State (Agricultural Districts).[24]

In the Great Lakes Basin, a number of contradictory trends can be seen. One is the past, and perhaps even present, trend toward the increasing misuse of air and water for waste disposal. At the same time there is a rapidly increasing demand for water of improved quality for a host of urban needs and also for the health and aesthetics of recreation. There is an increasing desire to use the shoreline for recreational purposes, yet simultaneously in the same areas, there are pressures to build over it all, for industrial and urban development. There are increasing demands to use the Great Lakes for a major shipping route; to use more of the water for industry, for irrigation and for power station cooling; to use more of the water for waste disposal; and to use more of the shore for more complex uses. In short, we are imposing on the Great Lakes a great number of intensely conflicting demands. This situation calls for a very complex and careful devised planning system in both countries which together must deal with the total basin.

Development planning on a joint basis is now a prerequisite to intelligent and efficient management of the resources of the Great Lakes Basin. This does not mean that Canada and the United States need to march in lockstep. It would suffice if they could be persuaded that the mutual interest is best served by proceeding in cooperation to correct the present wasteful and uncontrolled manner in which the resources of the basin are used.

The only existing formal arrangement between the United States and Canada broad enough in scope to permit comprehensive joint action on resource use problems of the Great Lakes Basin is the International Joint Commission (IJC).[25] The Commission was formed in 1912[26] to carry out the purposes of the Boundary Waters Treaty of January 11, 1909, which are: ". . . to prevent disputes regarding the

23. Wisconsin Shoreland Zoning Law, Wis. Stat. Ann. §§59.971, 144.26 (Supp. 1970).

24. Laws of New York, 1971, Vol. I, Ch. 479. This Act provides for the creation of agricultural districts to carry out the declared policy of the state to conserve and protect agricultural lands from the pressures of urbanization. *See* F. Bosselman & D. Callies, The Quiet Revolution in Land Use Control (1971).

25. The other existing Canada-United States treaty body, the Great Lakes Fishery Commission, established pursuant to the 1954 Convention on Great Lakes Fisheries (*supra* note 7), has a more specialized mandate, to wit: implementation of a program to control the sea lamprey and the formation and coordination of research programs designed to improve the fisheries.

26. Both Governments had appointed their respective members by November 10, 1911; the Commission held its organizational session in January 1912 and its first regular meeting on April 13, 1913. *See* 49 Cong. Rec. 3123 (1913).

use of boundary waters and 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 . . . along their common frontier, and to make provision for the adjustment and settlement of all such questions as may hereafter arise . . ."[27]

The commission consists of six members, three from each country. The United States Commissioners are appointed by and serve at the pleasure of the President.[28] The appointment of U.S. Commissioners is not subject to Senate confirmation.[29] The Canadian Commissioners are appointed by Order in Council of the Canadian Government and serve at the pleasure of the government.[30]

The 1909 Treaty gives the Commission responsibility in two general categories. The first of these responsibilities is to approve or disapprove all proposals for use, obstruction or diversion of boundary waters on either side of the boundary which would affect the natural level or flow of the boundary waters on the other side. Examples in the Great Lakes system include the regulating works at Saulte Ste. Marie, those on the St. Lawrence River, as well as numerous private dams constructed by industrial firms that might affect the natural state of the boundary waters. These projects are brought before the IJC by what are termed "applications,"[31] filed by interested public agencies or private corporations or individuals.

The second general responsibility, which is becoming the major work of the Commission, is to investigate and make recommendations on specific problems referred to it by either or both governments.[32] It is under this provision of the treaty that requests, or "references," by the two governments have been made on such varied subjects as water pollution, air pollution, regulation of the levels of the Great Lakes, preservation of the American Falls at Niagara and others.

In the case of an application, the burden is on the applicant to furnish all necessary information and data required. Interested persons may intervene in support of or in opposition to the application. This is followed by public hearings usually on both sides of the boundary, after which the Commission issues a final order concerning the proposed project.[33]

In the case of references, the procedure is different. The Commission appoints an international technical board which is directed to

27. *See* Convention, *supra* note 2, at preamble.
28. *See* Treaty, *supra* note 3, at art. VII.
29. *Id.* Articles VII does not require the advice and consent of the Senate.
30. *Id.*
31. *See* Treaty, *supra* note 3, at arts. III & IV.
32. *Id.* at art. IX.
33. *Id.* at art. VIII.

make a thorough investigation of the facts involved and file a written report with the Commission. The IJC then publishes the board report and schedules public hearings. The Commission then prepares its report to the two governments. Neither government is bound by the reports or recommendations of the Commission.[34]

As of December 1972, the Commission had docketed a total of 95 actions, including 58 applications and 37 references.[35] Of that total, 26 actions pertained in some way to the water, land or air resources of the Great Lakes Basin.

The Commission carries out its varied responsibilities through a series of permanent and *ad hoc* boards. As of December 1972, the Commission had under it thirteen boards of control, seven boards of investigation and eight surveillance boards. This does not include the new Great Lakes Water Quality Board established by the Commission pursuant to the Great Lakes Water Quality Agreement signed by the two countries in April 1972.[36] The Water Quality Board will be the instrument through which the Commission will carry out its role in controlling water pollution in the Great Lakes.[37]

The International Joint Commission has been in existence for sixty-one years. It was originally conceived and promoted as a bilateral, quasi-judicial body to provide speedy and efficient resolution of those occasional and mainly minor border disputes that arose among citizens of Canada and the United States and which were, therefore, beyond the jurisdiction of ordinary courts of both countries. Prior to the formation of the Commission, referral of such disputes to the Department of State or to the British Government more often than not led to lengthy diplomatic correspondence between Washington and London. Excessive delays and presumed bureaucratic inaction tended to feed suspicions and arouse national feelings to the point that minor border controversies were blown far out of proportion to their actual importance. In short, the drafters of the 1909 Boundary Waters Treaty sought to create an instrumentality that could help prevent boundary controversies as well as resolve with minimum delay any that did arise.

The Commission has accomplished its purpose in a commendable manner. Its long life cannot be explained by the conventional wisdom concerning the tendency of temporary commissions and boards to acquire permanent stature. The primary reason the Commission has

34. *Id.* at art. IX.

35. Information provided by U. S. Section, I.C.J. (December 1972).

36. Agreement Between Canada and the United States of America on Great Lakes Water Quality, signed in Ottawa on April 15, 1972 and in force on April 15, 1972.

37. *Id.*, art VII.

endured is the simple fact that the need for which it was designed has itself persisted.

There has been only one instance in its sixty year life that the Commission and its reason for being were challenged in the U.S. Congress. The first and only serious discussion in the United States Senate to consider terminating the treaty took place on February 27, 1913 when a doubting and impatient Senator Borah asked why the Commission had "made no report and consummated nothing in the way of final settlement." The reply to Senator Borah was made by Senator Elihu Root, who in 1909 signed the Boundary Waters Treaty as Secretary of State. Root strongly defended the Commission and its intended purpose. Regarding the need for it over the long term, he said:

> I do not anticipate that the time will ever come when this commission will not be needed. I think that as the two countries along this tremendous boundary line become more and more thickly settled, the need for it will increase. I do not think we shall ever see the time when this commission will not be needed to dispose of controversies along the boundary line in their inception, furnishing a machinery ready at hand for people to get relief and redress without going into the long process of diplomatic correspondence. I think it will have to continue as long as the ordinary courts of the country continue.[38]

These and other remarks made that day on the floor of the Senate by Elihu Root closed the only discussion thas has taken place in the U.S. Congress that might have led to the termination of the 1909 Treaty on the part of the United States.[39]

Aside from its longevity and its record of serving its intended purpose, the IJC is unique in other ways. One of these is its impartiality. 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."[40] There was to be majority rule, irrespective of nationality. The Commission has an impressive record of honoring this concept. According to Matthew E. Welsh, former Chairman of the United States Section (1966-1970), the Commission up through 1969 had divided along national lines or failed to reach unanimous agreement

38. 49 Cong. Rec. 4172 (1913).

39. Art. XIV of the Treaty declared that it "shall remain in force for five years, dating from the day of exchange of ratifications (May 10, 1910), and thereafter until terminated by twelve months' written notice given by either High Contracting Party to the other.

40. MacCallum, *The International Joint Commission*, 72 Canadian Geographical J. 2 (1966).

in only three decisions out of the ninety-odd docket cases submitted to the commission.[41]

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

Another positive aspect of the Commission is its reputation for being nonpolitical. While it is true that commissioners are appointed and serve at the pleasure of their respective governments, and that some appointments have been terminated to make room for individuals considered more qualified 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 of either country to appoint, as a matter of course, new commissioners whenever a new government is formed. The relative absence of partisan politics within the IJC has not only facilitated its work, but it has also enhanced its overall credibility and reputation.

Another feature of the Commission is the modest size of the permanent staff and operating budget of both the U.S. and Canadian sections. The size of the full time staff of the U.S. section has remained virtually constant at five persons since 1913,[42] and the administrative budget has increased from $42,000 in FY 1914[43] to about $300,000 in FY 1973.[44] This amount has remained essentially constant, when the effects of inflation over the intervening years are taken into account. The Canadian section has also remained small, and currently consists of eight persons, including one Commissioner on a full time basis.

As a result of the 1972 Great Lakes Water Quality Agreement, the IJC will undergo an expansion of its permanent staff. The U.S. section plans to increase its Washington staff to approximately five professionals. The newly authorized regional office is located at Windsor, Ontario. It will have a staff of sixteen, including ten professionals, five from each country.[45]

The IJC was originally conceived and created by treaty as a court of arbitration. Like any court, the IJC assumes a passive role. It lacks authority to act until either (1) an application for approval of works or

41. Heeney, *Along the Common Frontier: The International Joint Commission*, 26 Canadian Institute of Int'l. Affairs 7 (1967); M. Welsh, The Work of the International Joint Commission reprinted in 115 Cong. Rec. 25032 (1969).

42. The permanent staff of the U. S. Section in mid-1972 consisted of one full time Chairman and two part time commissioners; an Executive Director; a Secretary and two secretaries.

43. 49 Cong. Rec. 4175 (1913).

44. Information provided by U. S. Section, I.C.J. (July 1972).

45. *Id.* (December 1972).

(2) a reference from one or both governments is received. Its holdings ("orders") with regard to applications are final, having the force of law in both countries. On the other hand, in the case of a reference, its role is much more limited. Upon receipt of a reference, the Commission will temporarily assume investigative, administrative and recommendatory functions which are specified by the terms of the reference. When an investigation has been completed, the IJC makes recommendations to the governments. There is nothing in the treaty requiring either country to act upon such recommendations.

In recent years, the number of applications received by the Commission has diminished, while the references submitted to the Commission have tended to increase. The IJC finds itself more and more in the role of coordinating large scale joint studies (water pollution of the Great Lakes, 1964-1969 and lake levels, 1964-1973) and of making recommendations thereon to the two governments.

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.

The IJC was not granted a planning role with respect to the boundary waters by the treaty. Thus the Commission has neither the authority nor the resources with which to undertake a planning function, much less to develop a program designed to attack the mismanagement of the boundary waters. Its contribution has been the resolution of problems on a case-by-case basis as they arose and as they captured sufficient federal government attention to result in the required reference.

It is sometimes asserted that the IJC need 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.[46] This is a situation not without its drawbacks. When the technical work of the Commission is carried out by the federal agencies of the two governments, and this by necessity has always been the case, the work produced is a product of the priorities, constraints, funding and program 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

46. M. Welsh, & A. Heeney, *International Joint Commission: United States and Canada*, a paper presented at the International Conference on Water for Peace, May 23-31, 1967, Department of State, Washington, D. C.

over the work done in its name by the agencies, it can do little more than place its imprimatur on whatever the agencies come up with, whenever they come up with it.

Notwithstanding its sixty-year existence, the Commission and its work are virtually unknown to the general public in the United States and Canada. For many years the Commission's primary function was the processing of applications for projects involving private parties or at best very local interests. The Commission quietly and effectively carried out its treaty mandate in this regard. The fact that the Commission has seldom if ever gained national attention on either side of the international border cannot be regarded as a reflection on the Commission. Success in international problem-solving is measured just as much by what does not take place as what does. Indeed, an argument could be made that the low profile of the Commission has been one of its strengths.

Its lack of public visibility to date notwithstanding, it may be presumed that that era in the life of the commission is now ending. The Great Lakes Water Quality Agreement will, if it is vigorously implemented, thrust the IJC into public view and the political arena to an unprecedented degree. As the Commission assumes greater responsibilities, its politicization has to increase, a phenomenon that will significantly alter both the character of that body and its operational relationships with those agencies and organizations with which the Commission has customarily done business. It has been suggested that a more politicized IJC might actually enhance its usefulness, since a politically responsive Commission might be trusted with regulatory or enforcement powers.[47]

Interest in the pollution of the Great Lakes antedated the Treaty of 1909. Typhoid fever at the turn of the century ranked as one of the major health problems in the United States and Canada. The link between polluted water supplies and the spread of typhoid fever had been established in Berlin in 1895 and in Scranton, Pennsylvania in 1907. These and other breakthroughs in bacteriology stimulated governmental epidemiological investigations of typhoid fever of which the one carried out by Lumsden of the U.S. Public Health Service (1906-1910) was the most outstanding.

Stream and lake surveys were indicated but the federal agencies had no legislative authority to undertake them until the passage of the Public Health Service Act of 1912. The states and provinces had exclusive jurisdiction over the waterways, and the initiative had to emanate from that level. In 1908, at the recommendation of the

47. Bilder, *Controlling Great Lakes Pollution: A Study in United States-Canadian Environmental Cooperation*, 70 Mich. L. Rev. 469, 550 (1972).

Mayor of Chicago, an interstate commission to study and report on pollution in Lake Michigan was formed. The cooperation of the Public Health Service was requested, and the service responded. Later that year a similar group composed of representatives of cities on Lake Erie was organized to collect data, "and excite interest regarding the necessity of protecting water supplies." The findings of both groups pointed to the need for legislation to prevent pollution of interstate waters. Such legislation was introduced in the Congress, but was not enacted.

Public and governmental concern over the relationship between typhoid fever and polluted water supplies found expression in the 1909 Treaty in the form of a single sentence appended to Article IV:

> It is hereby agreed that the waters herein defined as boundary waters and waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other.

Any ideas of a prompt contribution by the newly authorized Commission to the need for a joint survey of the boundary water pollution problem were dashed by the three year period required to ready the Commission for business. Even if the IJC had been prepared to function earlier, a reference on Great Lakes pollution would have been an empty gesture considering the fact that, on the United States side, no federal agency had, at least until August 1912, either legislative authority or the funds to engage in investigations of pollution in the nation's waterways.[48]

On August 14, 1912, Congress enacted the first law directly aimed at the problem of water pollution by authorizing the Public Health Service to investigate "the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage and the pollution, either directly or indirectly, of the navigable streams and lakes of the United States." In 1913, the first special appropriation for field investigations by the Public Health Service was made by Congress.

In another action in August 1912, the governments of the United States and Canada sent the IJC a reference (Docket 4) requesting the Commission to examine:

48. In actuality, however, stream pollution investigations date from 1910 when Dr.Allan J. McLaughlin of the U. S. Public Health Service was detailed to carry out a survey of cities in the Great Lakes Basin, with instructions to investigate the extent of pollution of their water supplies and its relationship to the prevalence of typhoid fever and other waterborne diseases. Those studies (1910-1911) revealed the correspondence between typhoid fever rates and sewage polluted drinking water supplies taken from lake waters. *See* R. Williams *The United States Public Health Service, 1798-1950,* 421 (1951).

> 1. To what extent and by what causes and in what localities have the boundary waters between the United States and Canada been polluted so as to be injurious to the public health and unfit for domestic or other uses?
>
> 2. In what way or manner—is it possible and advisable to remedy or prevent the pollution of these waters—to fulfill the obligations undertaken in Article 4 of the waterways treaty of January 11, 1909—?

At a meeting in Ottawa in October 1912, the new reference was considered, and it was decided to request clarification as to the intended scope of the investigation. The response from the Department of State on behalf of both contracting parties in November 1912 confined the investigation "to cases of pollution of boundary waters on one side of the boundary which extend to and affect the boundary waters upon the other side."

The Commission secured the services of Dr. McLaughlin of the PHS and T. A. Starkey of McGill University to lead the investigation. Professor Earle B. Phelps, an eminent sanitary engineer from Columbia University, was hired as a consulting engineer. This highly competent team began its investigation in March 1913. The survey centered around the connecting channels, but some deepwater investigations were made with the assistance of the U.S. Coast Guard. The comprehensive reports of Dr. McLaughlin (January 16, 1914) and Prof. Phelps (March 16, 1916) on their findings, which still stand as classics in the field of water pollution examination and control, described a generally unsatisfactory situation. Vivid language was used such as:

> —situation along the frontier which is generally chaotic, everywhere perilous and in some cases disgraceful.[49]
>
> —imperil the health and welfare of the citizens—in substantial contravention of the spirit of the Treaty—[50]

Sewage from vessels, cities and industries was identified as the major cause of pollution. Remedies could be provided by treatment plants.

The commission issued its final report on August 12, 1918, with the recommendation that it be granted "ample jurisdiction to regulate and prohibit this pollution of boundary waters and waters crossing the boundary."[51] The two governments requested the Commission on March 11, 1919, to draft either reciprocal legislation or a treaty to

49. I.C.J. *Final Report on the Pollution of Boundary Waters Reference* 31 (1918).
50. *Id.*, at 51.
51. *Id.*

carry out its recommendations. On October 6, 1920, the Commission submitted a draft convention which would have given it authority to investigate any alleged violation of Article IV of the Treaty. In addition, its findings of fact were to be "final and conclusive" and the two governments would have been obligated to prevent a continuation of the breach. The proposed convention was never negotiated to a conclusion. Aside from the obvious concern over vesting the Commission with such broad powers, there was a reluctance on the part of both federal governments to legislate in an area in which the provinces and the states had exercised full jurisdiction.[52] By 1920 the stance of inaction with regard to the proposed convention was a defensible one (albeit myopic), because by then the widespread acceptance of water supply filtration and chlorination had effectively eliminated typhoid fever as a menace to public health.

The next activity of the Commission concerning boundary water pollution came much later. On April 1, 1946, a reference, similar in wording to its 1912 predecessor, was sent to the Commission to cover the St. Clair River, Lake St. Clair and the Detroit River.[53] In October 1946, the reference was extended to include the St. Mary's River and in April 1948 was further amended to include the Niagara River.[54] The IJC carried out an investigation and issued its report in October 1950. The report recommended adoption by the two governments of water quality objectives as criteria to control water quality.[55] The two governments approved the recommendations, which authorized the Commission to establish and maintain continuing supervision over pollution in the connecting channels of the Great Lakes. Advisory boards, which included representatives from the states and provinces as well as federal representatives, were set up on the control of pollution of boundary waters. These boards report to the Commission semiannually on the extent to which the water quality objectives are being met. These boards have had no discernible effect on the problems of pollution of the Great Lakes.

Frederick J. E. Jordan has also examined the limits on institutional arrangements with respect to pollution problems of joint concern to

52. D. Piper, The International Law of the Great Lakes 86 (Publication No. 30, Duke University Commonwealth Studies Center 1967).

53. I.C.J. 54 (1946).

54. I.C.J. 55 (1948).

55. Concerning water quality objectives or standards, *See* Bilder, *supra* note 47, at 493:

> The idea of recommending technical water quality objectives was a major innovation. . . .The objectives, which were the first of their kind to be formulated on an international basis, anticipated national action in both countries; the concept was ultimately embodied in the [U. S.] federal Water Quality Act of 1965 fifteen years later.

Canada and the United States.[56] He pointed out that both countries, since World War II, have turned increasingly to the IJC as the appropriate agency for handling transboundary pollution problems.[57] Jordan identified three major limitations that are placed on the IJC in carrying out an effective role in this area.[58] 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 the Commission has a reference, it has no power to direct or coordinate the research for information gathering being done by domestic agencies at the various levels of government, thus resulting in duplication of activities and lack of communication on means and ends. Third, the Commission lacks the power to give effect to the standards and measures of control recommended by the IJC following the 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 government 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."[59] The Commission's powers are reduced to those of good will and persuasion.

Jordan rules out the establishment of a supranational pollution control agency. 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.[60]

He also recommended 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

56. Jordan, *Recent Developments in International Environmental Control.* 15 McGill L. Rev. 279 (1969).
57. *Id.*, at 298-299.
58. *Id.*, at 299-300
59. *Id.*, at 300.
60. *Id.*, at 301

require legislation enabling the attornies general to launch compliance proceedings.[61]

The three institutional limitations singled out by Jordan are not significantly altered by the 1972 Great Lakes Water Quality Agreement. 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, the agreement fails to address itself to the other two fundamental limitations, i.e., the reference requirement and lack of enforcement authority.

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,*[62] authored by former Ambassadors Livingston T. Merchant of the United States and A. D. P. Heeney of Canada.[63] 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 the section entitled, "Machinery for Consultation," the authors consider the International Joint Commission.[64] They described the Commission as "one which has been of continuing importance to both countries since its establishment," as a "unique institution" with "a solid foundation of law and precedent" and as an institution with a "long and successful record in the disposition of problems along the boundary" which "justify consideration of some extension of the Commission's functions."[65] They accordingly recommend that the two governments "examine jointly the wisdom and feasibility of such a development."[66]

In the White House press release issued on the Merchant-Heeney study, it was stated that the President (Lyndon B. Johnson) "believes this report is a serious and constructive contribution to still better relations between Canada and the United States." The statement added that the Secretary of State is to "take the lead for the United States in a prompt review of the report and its recommendations."[67]

61. *Id.*, at 301.

62. L. Merchant & A. Heeney, Canada and the United States—Principles for Partnership, Dept. of State Bull. No. (1965).

63. Ambassador Heeney was at the time serving as Chairman, Canadian Section of the I.J.C.; he was in that capacity 1962-1970.

64. Paragraph No. 45.

65. *Id.*

66. *Id.*

67. White House Press Release (Austin, Texas) (July 12, 1965).

Shortly 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.[68] The Congressmen lauded the Merchant-Heeney report as "a skillfully written document prepared by two masters of the diplomatic art," but then admitted to "a perspective on United States-Canadian relations which differs in degree from that embraced in the Merchant-Heeney report."[69] The Republican statement was also extensive in scope and well written. The commentary it contained on the IJC is of special interest. The House members were willing to be more explicit in sketching out a wider role for the IJC than were Ambassadors Merchant and Heeney. Paragraph 14 of the Republican statement, for example, began by stating that the 1909 Treaty "should be negotiated so as to broaden the functions of the Commission." The Merchant-Heeney recommendation regarding the IJC was endorsed, and the statement was made that "it (IJC) may be the institution which can bring new excellence in the relations between the two countries in fields with which it is not presently authorized to deal."[70] The House members said "We believe that expansion of the authority of the International Joint Commission, in accordance with the following recommendations, would enhance the capacity of the two North American nations to establish a model of relations between independent states."[71] Among the recommendations alluded to in the foregoing were: (1) inclusion of Lake Michigan in the definition of boundary waters (Paragraph 15); (2) the IJC to be empowered to make recommendations relating to continental development of water and energy resources (Paragraph 16); (3) the IJC to constitute a permanent institutional location for international discussion of technical foreign policy questions which arise between the two nations (Paragraph 17); (4) the IJC studies on water level and pollution of the Great Lakes should be given immediate priority emphasis by both countries (Paragraph 18); and (5) the IJC should have a leading role in fulfilling "the obvious need for comprehensive advance planning in the development of water resources" (Paragraph 19).

Elihu Root's statements in 1913 on the continual need for the IJC were indeed prophetic. The border complications have continued, and the Commission still offers the only readily available machinery for resolution. The Commission over the years has faithfully carried

68. 111 Cong. Rec. 25394 (1965).

69. Reps. Tupper (Me.), Ellsworth (Kans.), Frelinghusen (N.J.), Horton (N.Y.), Mathias (Md.), Morse (Mass.), Mosher (Ohio), Reid (N.Y.), Robison (N.Y.), and Smith (N.Y.)

70. 111 Cong. Rec. at 25397.

71. *Id.*

out this unspectacular but necessary duty. It is a narrow role, circumscribed by an instrument that reflected the limits of political acceptability of a world that existed sixty years ago. It was not until 1972 that the Commission was authorized by the two governments to expand its role, and even then in only one area of water resource management.

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?

In the 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.

PART II

In its search for an improved institutional structure for water and related land resources management in the Great Lakes Basin, the seminar noted the various types of organizations which are either in use or which have been proposed to carry out some public purpose relating to the management and development of natural resources.

The existing organizational forms and some combinations thereof were considered as to their suitability as models for an institutional arrangement for the management of the Great Lakes. The general consensus was that, while these organizational forms seemed, on the whole, to be adequate for the specific purpose for which they were established, and while some possessed advantageous features in the context of the resource management problems of the basin, no one form or no single readily apparent combination of them has the required scope and capability to provide integrated resource management of the Great Lakes Basin. This conclusion is in line with Lyle E. Craine's analysis of four different institutional forms considered as possible models for an improved institutional structure for the U.S. portion of the Great Lakes.[72] The seminar was also in agreement with

72. L. Craine, Final Report on Institutional Arrangements for the Great Lakes II-4 (prepared for the Great Lakes Basin Commission 1972).

the observation made by Craine that the deficiencies identified were not necessarily "deficiencies in the agency form itself but rather in the institutional system, or lack thereof, in which the agency has been expected to operate."[73]

The idea of laying out the complete set of existing organizational forms, and then either attempting to select the optimal one or constructing a composite institutional solution was thereupon abandoned. An altogether different course was chosen and that was to consist of the following steps: (1) identify the full set of resource management problems of the basin; (2) ascertain the governmental function most appropriate for each management problem; (3) examine the public agencies in Canada and the United States established to carry out these functions and to cope with these management problems; and (4) determine what should be done that is not now being done. This task completed, the general characteristics of a joint institutional system could then be approximately determined. In carrying through with this methodology, it was considered imperative that the existing constitutional, political, economic and cultural constraints operating within each country and between both countries be recognized and "factored in" whenever appropriate and to the extent the collective talents of the group allowed.

The resource management problems of the Great Lakes Basin that were identified in the initial working papers and considered by the seminar included: water quality, municipal and industrial water supply, agricultural (irrigation) water supply, lake level control, hydropower, flood control, navigation, shoreline protection and development, fish and wildlife protection, water-based recreation, solid waste disposal, air quality, urban and industrial land use, agricultural land use, land transportation.

The seminar discussions served to help classify these resource management problems into those which: (1) are (or should be) matters of primary concern to a binational body and (2) require minimally: surveillance (e.g., information collection and reporting); mediation (e.g., development of joint programs; conflict resolution); and control (e.g., regulatory responsibility and implementing authority). (Table 1 helps to illustrate these two classifications of the management problems.)

In addition, the management problems of one basin (Lake Ontario) were examined from the standpoint of the public agencies established in the United States and Canada to deal with each of them. The conclusion from that analysis was that there exists a definite need for

73. *Id.*, at S-2.

Table 1

Resource Management Problems Classification

Resource Management Problem	*Level of Binational Concern*	*Management Level**		
		Surveillance	*Meditation*	*Control*
Water Quality	Primary	X	X	X
Municipal & Industrial Water Supply	Secondary	X		
Agricultural Water Supply	Secondary	X		
Lake Level Control**	Primary	X	X	X
Hydropower	Primary	X	X	X
Flood Control	Primary	X	X	X
Navigation	Primary	X	X	
Shoreline Protection & Development	Secondary	X		
Fish & Wildlife Protection	Primary	X	X	X
Water-Based Recreation	Secondary	X		
Solid Waste Disposal***	Secondary	X	X	
Air Quality	Primary	X	X	X
Urban & Industrial Land Use	Primary	X		
Agricultural Land Use	Secondary	X		
Land Transportation	Secondary	X		

* It is important to note that this classification arrangement was a part of the preliminary study in which problems clearly requiring a control program at some time in the future would be identified. The seminar did not recommend the use of supranational control authority by any joint Great Lakes management entity, except for water and air pollution control.

These classifications were developed as a means of organizing the information and data available to the seminar. They provoked lively discussions and on some points there was wide divergence of opinion. They are presented here mainly to illustrate the process of review and discussion and are not to be taken as representing a full consensus of the seminar.

** Lake level control is closely related to four other problem areas: hydropower, flood control, navigation and shoreline protection and development.

*** Shoreline and other dumpings by industry and municipalities.

greater emphasis toward a more comprehensive management of the resources of the Great Lakes region.

The study, having identified the principal resource management problems of the basin and having examined the existing organizational forms, then turned to a review of previous research efforts on multiple purpose resource management organization. The institutional problems associated with water and land use management have been studied by a number of investigators in Canada and the United States. This review of previous research provided the seminar

participants needed perspective and insight into the current thinking of professionals in the field.

The development of standards or criteria against which to measure existing organizations or as a method in devising new organizations was also considered. This is not a new concept, yet only a few writers have attempted to construct a set of criteria that would be applicable to an organization charged with the management of multiple purpose use of resources in an entire region.

The review of these research efforts by "experienced practitioners of the water management field" clearly indicated the existence of certain common organizational criteria associated with the various conceptual models of multiple purpose, regional management schemes that were developed in the reports. While it is not suggested that the set is complete, we do have confidence that the most essential criteria are included.

The criteria are jurisdiction, enforcement powers, fiscal adequacy, staffing adequacy, administrative discretion, flexibility, visibility, accountability and structural compatibility.

These organizational criteria were not utilized by the seminar in any rigid matrix like manner. A discussion of them indicated that their utility depended greatly on too many factors. For example, it was difficult to apply the criterion of "enforcement powers" in a satisfactory way to all three types of management functions (surveillance, mediation or control), because the degree of enforcement power required in these cases varied from very little to considerable. In addition, each resource management problem of the basin requires its own level (and here again the range is wide) of enforcement power. Confronted with such practical difficulties, the seminar simply took note of the criteria and utilized them mainly on a subjective basis.

In order to place the presentation that follows in better perspective, it may be helpful to review the present limits of political feasibility of Canada-United States arrangements as they are represented in the 1972 agreement on Great Lakes Water Quality. Under that agreement, the following new or reconfirmed responsibilities were assigned to the International Joint Commission:

1. Collection, analysis and dissemination of data and information on Great Lakes water quality
2. Advice and recommendations to government on boundary water pollution matters
3. Coordination assistance for joint activities undertaken pursuant to the agreement
4. Coordination assistance for Great Lakes water quality research

5. Annual reporting to governments on program progress and effectiveness
6. Discretionary special reports to governments and the public on any Great Lakes water quality program
7. Discretionary authority to publish its own documentation prepared in the discharge of its functions under the agreement
8. Authority to independently verify data and information submitted by governments
9. Authority to establish the Great Lakes Water Quality Board
10. Authority to establish the Great Lakes Research Advisory Board
11. Authority to establish a regional office and other subordinate bodies

The new responsibilities placed on the IJC and the domestic agencies of both countries are significant, and if the terms of the agreement are actually implemented by both nations a big step will have been taken in controlling water pollution in the Great Lakes. While these modifications to the IJC mandate are indeed significant, important gaps still exist in these joint arrangements which limit binational effort. For example, the Commission still lacks initiatory authority and enforcement authority. It should be stressed also that the new responsibilities of the Commission pertain to only one aspect of resource management, water pollution.

Given that the 1972 agreement does represent the extent to which the two countries are prepared to go towards institutional modifications at the present time, the seminar nevertheless proposed further changes for consideration, in view of the rate at which real and potential problems are building up on and around the Great Lakes.

As a result of seminar discussions which were structured in the manner described up to this point, certain basic principles concerning an improved institutional arrangement emerged.

First, there was broad agreement that policy affecting the resources of the basin can no longer afford to be made on a purely domestic basis with occasional provision for informal coordination between Canada and the United States. The Great Lakes are large and diverse but, perhaps most importantly, they are also binational, and this fact requires that any proposed institutional system devised for improving the management of the Great Lakes Basin must be bilateral in character.

Second, and again there was no disagreement, given the complex interrelationships existing among resource management problems, this bilateral institutional arrangement must include the authority to deal effectively with the entire set of resource management problems in the basin.

Third, an institutional arrangement implies the establishment of a bilateral organizational structure which would carry out certain policy, planning and management functions in the basin as agreed upon by negotiation between the two federal governments. The way in which these three functions are defined and assigned is crucial and also controversial. It was at this point that opinions diverged.

Fourth, there was a general consensus that an improved institutional arrangement must in some way overcome the problem of incongruity between political jurisdiction boundaries and natural drainage boundaries. The seminar's preferred approach to that problem was an institutional arrangement based on two separate but complementary organizational components. They are: (1) a joint basin wide policy and planning agency which is politically responsive primarily through federal, provincial/state and citizen representation; and (2) a network of regional or lake basin management agencies responsible for implementing the appropriate surveillance and mediation tasks within the overall policy guidelines established by the basin wide policy agency.There was no sharp disagreement among seminar participants on the general concept of a two component institutional arrangement. There was, however, difference of opinion as to whether the emphasis should be placed on strengthened local or regional arrangements or, alternatively, on a centralized basin wide policy agency.

The institutional form proposed would be a joint (Canada-United States) body intended to serve as a common source of policy guidance and coordination for those public programs and private sector activities which affect, to an extent which would be agreed upon through bilateral negotiation, the water and related land and air environments of the Great Lakes Basin. In brief, it would have a supplemental, coordinative and catalytic role among the existing governments and their agencies.

It is important to emphasize that the joint body considered here is not a management entity in the sense of a regulatory and program agency like state, provincial or federal departments and agencies with legislative mandates. Neither is there any intention of altering the equality status between the two countries, or of creating a supranational bureaucracy with absolute authority over the existing three levels of government. Likewise, the organization need not displace any existing agency of any level of government having responsibilities for some aspect of resource management in the Great Lakes Basin.

The joint organization would carry out certain policy, planning and management functions delegated to it by the two national governments. Policy and overall basin wide planning coordination with the

governments of general jurisdiction and their respective agencies would be the province of the joint Great Lakes policy agency. Basin and regional planning as well as "management" duties would fall primarily (but not exclusively) within the sphere of activity of the regional resource management agencies.

The term "management" in the immediate context is defined as encompassing two general administrative functions, those of surveillance and mediation.

"Surveillance" is defined in this instance as information gathering, data interpretation and dissemination. It is a function concerned with problem identification and definition. It would require a continuing responsibility to be aware of current and developing problems in the whole Great Lakes Basin.

"Mediation" is viewed as the administrative function going beyond that of surveillance in terms of authority and responsibility. It is an active role in which joint activities are agreed upon and conflicts are resolved through discussion and consultation. It is envisaged that the joint body being proposed would be actively involved in a coordinative and mediative capacity with the operating agencies in developing joint programs to attack common problems within the basin. This role *could* include, among other things, promulgation (after appropriate coordination with the agencies concerned) of regulations, standards and compliance schedules. While the joint body, under the definition and recommendations of this report, would have no enforcement authority of its own, such promulgations would provide clear evidence of acceptance of common goals and agreement on joint programs. The public notice of these actions would be a large step forward in securing public credibility, improving government accountability and providing public reports for public assessment of progress.

While its initial basic administrative functions would be those of surveillance and mediation, the two national governments may at some stage consider vesting the joint agency with a specific enforcement role in the case of certain resource management problems, e.g., water pollution and air pollution.

The joint agency could not carry out an effective mediation role under the present form of the 1909 Boundary Waters Treaty. Changes are required to allow the joint agency to operate (within carefully negotiated limits to be established by the two countries) *without* the restrictions that the reference procedure now imposes. The national reference requirements vitiate the anticipatory and initiatory actions that are essential to both planning and meditation.

The agency must have the flexibility needed to anticipate future problems of the basin, to help plan for them and to assist in the

coordination of programs designed to ameliorate them. The agency should have a planning staff adequate enough in size to provide it with expert advice on planning matters. Also, the agency must have sufficient fiscal and supervisory control over any planning activities it itself undertakes or it sponsors.

This completes the discussion of the general specification of a Great Lakes management organization. The next section develops the viable institutional alternatives identified by the seminar.

In developing the characteristics of a binational body with the surveillance and mediation functions envisaged by the seminar, two alternative approaches were identified and accepted by the group as a whole as representing the most viable options presently available. Both would require a considerable strengthening of cooperative relationships at local and regional levels to achieve the desirable degree of decentralized decision making and public support.

The first alternative would seek to improve management of the resources of the Great Lakes by introducing organizational improvements within the framework of a significantly strengthened International Joint Commission. The functions of the IJC would be significantly broadened with respect to the Great Lakes Basin. The scope of its jurisdiction over the water and the related land resources of the basin would be extended commensurate with the new management functions assigned to it by negotiation between the United States and Canada. The IJC would be granted the necessary policy making and administrative authority to enable it to carry out its assigned coordinative role. The IJC would be freed from the present treaty constraint of acting only when a matter is referred to by both countries, and it would assume an active role in the public decision-making processes through its mediation function. The number of commissioners as well as the present appointment criteria and procedures might require modification, but this is left to the bilateral negotiations. The IJC would be authorized a binational, full time secretariat that would carry out its functions at some mutually agreed upon permanent location in the Great Lakes Basin. The IJC would be authorized to establish subordinate offices at the basin or sub-basin level to the extent it deems appropriate. The relationship of the IJC to the court systems of both countries would be a major question to be included in the bilateral negotiations. The IJC should be empowered to hold hearings on all matters within its purview.

Concerning a planning role, the IJC would facilitate planning on a joint basis, using as guides the Great Lakes Basin Commission (GLBC) established pursuant to the U. S. Water Resources Planning Act of

1965[74] and the programs of coordinated planning carried out by arrangements between the Provinces and the Federal Government of Canada such as those possible under the Canada Water Act of 1970.[75] This means that the IJC would be authorized by treaty to serve as the principal agency for assuring the coordination of federal, state/provincial, interstate, local and nongovernmental plans for the development of water and related land resources within the Great Lakes Basin. Through its enhanced surveillance and mediation functions, it would also recommend long range schedules of priorities for the collection and analysis of basic data and for investigation, planning and construction of projects. It would carry out any other planning functions to which both national governments may agree.

One of the major functions of a strengthened IJC would be coordination of ongoing research and research planning pertaining to the Great Lakes Basin. This does not imply an in house research capability for the IJC, however. The objective here is primarily to minimize duplication of research work and to identify gaps in the overall research effort.

Finally, the coordinative and catalytic role envisioned for the IJC implies a continuous and close relationship with the existing governments and their agencies having responsibilities in the Great Lakes Basin. It draws its political responsiveness from the fact that it would continue to be ultimately accountable to the Department of State and the Department of External Affairs. The provision for state/provincial and citizen representation would further ensure political responsiveness and accountability. Its authority would derive from a treaty, and this legal basis should be extended so that it is rooted ultimately in the laws of all the governments of general jurisdiction within the Great Lakes Basin.

The second alternative would seek the same objective by establishing by treaty new organizational arrangements which would be distinct from the International Joint Commission. The Columbia River Treaty would provide a precedent. The second alternative differs from the first in that a specially created, international body supplants the IJC in the Great Lakes Basin. The IJC is relieved of its treaty responsibilities within the basin and the functions of the existing permanent and temporary Great Lakes boards are absorbed by the new treaty established body. The responsibility of the IJC for that portion of the international border lying outside the Great Lakes Basin would remain unaffected. The second alternative would require

74. Water Resources Planning Act of 1965, Stat. (1965).
75. Canada Water Act of 1970, Can. Stat. c.52 (1969-1970).

the negotiation of a new treaty by Canada and the United States as well as modifications to the 1909 treaty. The principal advantage of this second approach is that it gives policy makers of both countries the opportunity to build "from the ground up" a joint agency specifically designed to improve the management of the water and related land resources of the basin.

The functions of this newly created body would be, for this level of generalization, identical to those postulated in the first alternative.

To be fully effective, both alternatives above have to be based on strengthened cooperation among the array of Canadian and U.S. agencies having responsibilities in the Great Lakes Basin. Besides developing a binational policy with surveillance and mediation functions, attention has also to be given to achieving more intensive regional (or sub-basin) collaboration in ways which put the binational body into an effective working relationship with the politically-responsive agencies at the municipal and state/provincial level.

One approach to this is to see that "opposite number" agencies at sub-basin and special problem area levels within the Great Lakes Basin have and use wide authority to collaborate with one another in a transborder manner in an array of management questions (while at the same time preserving clear cut lines of political responsibility for policy-making in both countries). This is only to recognize that there is an inseparable relationship between planning for water management and pollution control, planning for community growth and renewal, and planning for the future development of industry, agriculture and other resource uses within the basin. This complexity has to be recognized and cannot be dealt with exclusively by strengthening centrally created organizations such as the joint policy coordination body called for in the two alternatives above.

In summary, the alternatives recommended imply or provide for:

—Establishing a joint Canadian-United States management body for the Great Lakes having surveillance and mediation functions;

—Joint agency budget and administrative procedures;

—Initiatory authority for such matters as planning, surveys, investigations and research under carefully specified guidelines established by the two countries;

—Program responsiveness by requiring that the activities of the joint management body be subject to program and budget authorization and review on, for example, a biannual basis;

—Facilitating joint planning on a multiple purpose basis;

—Stressing intensive regional and transborder collaboration among state/provincial and local governments;

—Developing a more comprehensive and systematic approach to the management of the Great Lakes;
—Joint information collection and analysis; and
—Public reporting.

The alternatives recommended *do not provide for:*

—Changing the equality status of the two countries in matters concerning Great Lakes management;
—Establishing a supranational decision making authority;
—Changing the basic authority of existing national, provincial, or state responsibilities; nor
—Displacing existing agencies.

It will be observed that these approaches to institutional change have not been developed in full, the omission of detail being deliberate. The general feeling among the Canadian-United States faculty group was that if the seminar could succeed in identifying the most viable alternatives available and could also, with some degree of confidence, indicate their general specifications, then the time and effort expended on the exercise by everyone was well employed.

Moving for the moment beyond the context of the immediate study, the participating faculty members as a group were most concerned about the fundamental question that has to do with the general attitude of the governments of Canada and of the United States on the multiple purpose management of the Great Lakes Basin. It is not clear whether or not the two governments believe that the problems emerging in and around the Great Lakes are inexorably leading to critical situations and that it is imperative to initiate now concerted action in order to conserve and enhance these unique resources for the present and future generations. There should be little doubt that the pollution problem is already critical. Can the two countries afford again to wait for other crises to occur as a prerequisite to action?

The major question is the willingness of both countries to exercise their political will at least to the extent of strengthening their ability to resolve existing difficulties and to be better prepared for future problems. Some members of the academic community of the region in both Canada and the United States have demonstrated their readiness to play a supportive role in this endeavor.

If the seminar has accomplished little else, it should serve to open up debate on the whole Great Lakes question. In the event the response from the two governments for further efforts is positive in tone, they will find that some groundwork has been prepared for them and that the Canadian and U.S. universities around the Great Lakes Basin are in a position to lend added structure to the debate.

RECOMMENDATIONS

A. The governments of the United States and Canada should initiate, on a joint basis, a comprehensive examination of the problems associated with multiple purpose management of the Great Lakes in order to conserve, develop and use that unique resource for the mutual benefit of the people of both countries.

B. The alternative proposals formulated by the Canada-United States University Seminar should be used by the two governments as a basis for initiating discussion and debate on the modernization of the management of the Great Lakes.

C. In the United States, a study bill should be introduced early in the 93rd Congress for the purpose of opening the doors to serious public debate on the question of the joint management of the Great Lakes Basin by local, state, regional and federal officials and private persons and non-governmental organizations concerned with the public interest.

D. In Canada, the findings of the seminar should be discussed with officials in the federal government, the Ontario provincial government and selected regional and local governments in Ontario. The purpose would be to encourage informal federal-provincial-regional-local consultations on the new steps and responsibilities needed for the Great Lakes Basin, with a view to developing more detailed proposals for consideration at the cabinet level of the two senior governments and providing material for bilateral consultations.