

WHY STATES COOPERATE:
INTERNATIONAL ENVIRONMENTAL ISSUES

A Case Study of the United States/Canadian
Boundary Waters Management Regime

by

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Thesis submitted to the faculty of the
Virginia Polytechnic Institute and State University
in the partial fulfillment of the requirement for the
degree of Master of Arts
in
Political Science

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May 1993

Blacksburg, Virginia

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ABSTRACT

Within the international relations literature, there is a large body of work dedicated to cooperation and conflict. More specifically, there are numerous theories of regime formation that attempt to explain how and why cooperation among several nation-states is possible. This paper addresses three of the dominant perspectives: conventional structural realism, modified structural realism, and the Grotian perspective (also often referred to as the Global Commons perspective). The goal of this paper is to analyze the rise of regimes to manage international environmental issues in light of these theories.

Specifically, I analyze the case of the United States/Canadian water management regime for the Great Lakes first established by the 1909 Boundary Waters Treaty. I apply both a conventional structural realist framework and a modified structural realist framework (depicted in game theoretic terms) to the case study. Because neither of these frameworks is able to adequately explain the rise of the United States/Canadian regime, I employ a framework based on the Grotian perspective. Concentrating on Oran Young's hypotheses of institutional bargaining, I analyze the case study and point out similarities and discrepancies between the theory and the actual event. Finally, I discuss the role of epistemic communities in regime formation and

maintenance.

Based on the results of the application of each analytical framework, I conclude that the Grotian perspective (expressed in terms of the institutional bargaining approach) is best able to identify the causes of the formation of the water management regime between the United States and Canada. Because this is one of the most successful examples of an international environmental regime in terms of longevity, compliance, and progress, the factors involved in its creation should make a contribution to our understanding of the problems and possibilities associated with the construction of international environmental management regimes.

I draw heavily from the work of notable regime theorists, such as Susan Strange, Stephen Krasner, Robert Keohane, and Ernst Haas, as well as theorists who have specifically addressed international environmental issues, such as Oran Young, Peter Haas, and Jessica Tuchman Mathews.

ACKNOWLEDGEMENTS

I am deeply indebted to Dr. Edward Weisband for all the support he has provided, the opportunities he has offered, and the challenges he has presented throughout my career at Virginia Tech. Without his guidance, I most surely would not have reached the level of work I have achieved. I am also grateful to Dr. Kim Spiezio for all of the help he has given me both on this paper, and in my understanding of international relations theory. I gratefully acknowledge everyone else in the Political Science department at Virginia Tech, especially Dr. Lee Tlou for her assistance and caring, Maxine Riley, Terry Kingrea, and Kim Hedges for keeping it all together, and Scot Case and Bob Edmison for listening. I am especially grateful to Dr. Howard Warshawsky for introducing me to the study of international relations, and for providing a very solid foundation upon which to build my education and career.

Finally, I am eternally thankful for everyone who provided love, understanding, and support, without which I could never have survived in Blacksburg - Cindy, Bill, and Billy Hallock, Shannon Lugannani, Katie Allen, Robin McAlexander, Denise Bundens, Betsy Kang, and everyone at South Main Cafe.

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INTRODUCTORY REMARKS

The use and abuse of fresh water is a persistent problem in many nation-states. Despite the United Nations' declaration of the 1980's as the "International Drinking Water Supply and Sanitation Decade," surprisingly little has been done to rectify the extreme inequity of distribution of the precious resource.

To a certain extent, the inequity springs from natural factors. After all, the world has arid regions as well as tropical rainforests. Humankind is not an innocent bystander, however. Severe water shortages can also stem from political decisions such as how to distribute supplies, where to build dams, when to redirect rivers, priorities for water usage, where to dump raw wastes, etc. Because water does not heed man-made lines of demarcation, these choices can have international ramifications. Roughly seventy-five percent of all river systems in the world cross through at least two nation-states, and some effect up to twelve independent nation-states.¹ Many underground aquifers do the same. Where this occurs, the political decisions concerning water use made by one government will affect the welfare of the people of a nearby nation-state.

Such situations require international cooperation to

¹ Postel, 1988, p. 103

resolve problems that are common to two or more nation-states. According to the most commonly accepted theories of negotiation and bargaining between nation-states, parties will act in a rational manner for the purpose of achieving their goals. Steven Brams defines the process of negotiation as an "exchange between parties designed to reconcile their differences and produce a settlement".² When such a settlement occurs, it may entail some form of regime designed to regulate the actions of all parties involved in the issue.

Stephen Krasner provides the most common definition of a regime - "implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations."³ A regime generally deals with a specific issue, and is comprised of all parties concerned. States base regimes on written documents, and create them through negotiation or imposition. Whatever form it takes, a regime constitutes a social institution featuring a set of rights and rules which will define it, as well as outline expected patterns of behavior for the roles and practices of all actors subject to the regime.

² Brams, 1990, p. xiv

³ Krasner, 1983, "Structural Causes and Regime Consequences," p. 2

The reason for the rise of international environmental institutions is simple - "the environment needs monitoring and management at an international level."⁴ An ever-growing concern for the natural environment has led to the formation of institutional arrangements to regulate it. "Resource regimes" involve the creation of governing arrangements to deal with issues such as the use of scarce resources, the pollution of air and water, and the loss of biodiversity.⁵ These types of regimes are necessitated by ecosystems which do not heed the boundaries, borderlines, and political tensions created by the human mind. Unlike other issues on the international agenda, environmental issues are not handled through traditional procedural principles of international law.

The case I will analyze deals with cooperation and resource regime formation relating to the use of the Great Lakes, which border both the United States and Canada. Despite the 1909 Boundary Waters Treaty, the Great Lakes were literally devastated in the 1950's and 1960's. They suffered from massive levels of pollution, resulting in the loss of wildlife dependent upon the fresh water, as well as drinking water supplies for humans. The devastation

⁴ von Moltke, 1988, p. 89

⁵ This term was coined by Oran Young and will be discussed extensively in Chapter Five.

affected both nations. After intense negotiation between the parties, the Great Lakes Water Quality Agreement was created in 1972. This document established rules and procedures governing the use of the Great Lakes, as well as coordinated the pollution clean-up effort. The purpose of this study is to analyze the processes of cooperation that resulted in the creation, and the maintenance, of a regime to regulate the use of the Great Lakes. I will analyze the form the regime has taken, and address the continuous efforts that have been made by both parties to ensure the success of the regime's intentions. Most importantly, I will examine the factors that led to regime formation between two nations with different goals and perceptions relating to the use of the waters that divide them.

The research I present in this paper is an initial look at the possibility of using an institutional bargaining approach to analyze the creation and maintenance of international regimes to manage the natural environment. An in-depth look at the theoretical underpinnings of international environmental regimes should be pursued in order to present a more complete explanation of such cooperative efforts.

I will draw heavily from the literatures pertaining to cooperation theory and regime formation. As the world becomes more interconnected, there is increased evidence

that the actions of one nation can greatly affect the conditions for others. Particularly in environmental issues, true success can only be achieved through international cooperation. In recent years, many regimes have been created to deal with a variety of global concerns. As Stephan Haggard and Beth Simmons point out, growing interdependence calls for the development of "interactive models that link domestic and international politics more closely".⁶ Particularly when dealing with natural resources (such as fresh water supplies), state welfare is tied into international welfare, and the best possible way to achieve it is through institutionalized, international cooperation. It is vital that we study examples of such cooperative behavior closely so that we may glean a deeper understanding of the nature of cooperation between sovereign states as we move into a new century marked by advanced technological knowledge and communications.

⁶ Haggard and Simmons, 1987, p. 517

1 A BRIEF HISTORY OF INTERNATIONAL ENVIRONMENTAL CONCERN

Widespread concern over environmental quality did not become an international issue until the 1970's. Although the ramifications of heavy industrialization during the previous decades were felt in many regional areas, it did not become evident until the late 1960's that local environmental damage could affect the entire international community. A series of events led to a radical change in attitudes towards the use and abuse of the natural environment. In 1962, Rachel Carson revealed the problems of pesticide pollution in Silent Spring. The 1967 oil spill from the Torrey Canyon dumped 121,200 metric tons of crude oil into the seas, spreading concern about marine pollution and wildlife destruction. Massive polychlorinated biphenyl (PCB) poisoning occurred in Kyushu in 1968. Realizing that such crises could only be stopped through public awareness, the first Earth Day was declared in the United States in 1970. Grassroots environmental groups sprang up in communities throughout the United States and Europe.⁷

Despite such efforts, the 1970's and 1980's were marked by some of the worst environmental disasters ever: the 1976 dioxin leak at Seveso, Italy, the discovery of life-threatening toxic substances at Love Canal in the United

⁷ This entire section is taken from Biswas and Biswas, March 1985

States in 1978, the 1979 nuclear reactor accident at Three Mile Island in the United States, the gas leak at a Union Carbide plant in Bhopal, India, in 1984, the 1986 fire in a Swiss pesticide factory that led to high levels of toxic chemicals in the Rhine river, and the nuclear reactor accident in 1986 at Chernobyl, Soviet Union. As the world looked more closely at the plight of impoverished Third World nations, a multitude of environmental stresses became obvious, such as overpopulation leading to urban sprawl, the spread of waterborne diseases, and the loss of valuable rain forest and farmland.⁸

In response to increased awareness of environmental damage and advanced scientific technology, a new branch of environmental science arose in the 1970's - ecology. It served as a framework within which many different branches of science and the relationships between them could be simultaneously studied.

It is the integration of traditional disciplines into the study of the structure and metabolism of the planet, its atmosphere, geosphere, hydrosphere, and its living realm, the biosphere, and of the interactions among them. Its emergence comes from the recognition that mankind's activities are now on a scale great enough to affect the planet as a whole, and we must understand these natural systems if we are to live successfully with our new ability to alter them.⁹

⁸ *ibid.*

⁹ Mathews, 1988, p. 21

New information concerning environmental degradation led to pressure on national governments to put a stop to it. Many national governments established Environmental Ministry posts or protection agencies. The first international conference was held in 1972 - the United Nations Conference on the Human Environment (UNCHE). The one hundred and thirteen countries in attendance adopted a Declaration on the Human Environment, which laid out twenty-six principles and one hundred and nine recommendations for action. Most significantly, UNCHE approved the creation of the United Nations Environmental Programme (UNEP) to coordinate international efforts for environmental protection. UNEP was established in 1973 in Nairobi, Kenya and has since effectively led the way in the sphere of international environmental protection and clean-up.¹⁰

It is in this atmosphere of cooperation on environmental matters that the United States and Canada worked out a regional agreement to manage the use and abuse of the Great Lakes. The next chapter looks specifically at the rise of the regime they created.

¹⁰ Haas, 1990, pp. 8-9

2.1 THE GREAT LAKES - A BRIEF HISTORY

On the border between the United States and Canada lie four of the five Great Lakes - Lake Superior, Lake Huron, Lake Erie, and Lake Ontario.¹¹ These lakes provide the world's largest supply of melted fresh water, as well as serve as the only outlet to the Atlantic Ocean for the central part of the North American continent.¹² One-fifth of the total population of the United States and two-thirds of the total population of Canada live and work on the lakes, which means that forty-seven million people from both nations rely on the drinking water the lakes provide.¹³ One-half of all United States industry, including seventy percent of all U.S. steel output comes from the area, which translates into one-sixth of the United States' Gross National Product. One-third of Canada's agricultural output comes from the Great Lakes basin.¹⁴

In the sixteenth century, the lakes enabled explorers to push further into the continent. They greatly aided the fur and timber trades by providing access to the Atlantic

¹¹ The fifth Great Lake, Lake Michigan, lies entirely within U.S. borders.

¹² The St. Lawrence River connects the lakes, runs along the US/Canada border and empties into the Atlantic Ocean.

¹³ Graham, 1981, pp. 16-17

¹⁴ Hileman, 2/8/88, p. 23

Ocean. Throughout the seventeenth and eighteenth centuries, the French and British colonies were often in dispute over which nation controlled the lakes. The Treaty of Paris (1783) and the Jay Treaty (1794) were two attempts to deal with disputes pertaining to water boundaries and navigation rights. In the early nineteenth century, France left North America altogether and Great Britain asserted her position as the dominant force in the Great Lakes area. Throughout the century, however, the United States and Great Britain continued to disagree over ownership and use of the Great Lakes. The Treaty of Ghent (1814) and the Rush-Bagot Agreement (1817) are outstanding examples of agreements reached to limit naval forces on the Great Lakes and define boundaries. The last major boundary dispute (over the Alaskan panhandle) was settled in favor of the United States in 1903.

2.2 THE BOUNDARY WATERS TREATY AND THE INTERNATIONAL JOINT COMMISSION

Although still formally part of the United Kingdom, Canada was eager to assert her independence, and agreed to establish the International Waterways Commission with the United States. This was primarily an advisory committee to recommend solutions to fluvial disputes between the nations.

It soon became apparent that the Commission could not actually solve disputes, and the negotiation of the Boundary Waters Treaty was set into motion. This treaty was signed by both parties on January 11, 1909 in Washington, D.C. The Preamble explains the purpose of the Treaty:

...to prevent disputes regarding the 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, of either in relation to the other or to the inhabitants of the other along their common frontier, and to make provision for the adjustment and settlement of all such questions as may hereafter arise.¹⁵

The Treaty deals with all of the fluvial border between the two nations, which includes over one hundred and fifty rivers and lakes. It lays out general principles regarding issues such as navigation, legal remedies, particular restrictions of use, the use of non-boundary waters that affect boundary waters, and pollution. It establishes the International Joint Commission to execute the provisions of the Treaty. The International Joint Commission serves administrative, consultative, and arbitral purposes. Although it cannot initiate specific projects on the waterways, most proposed projects require its approval. There are six Commissioners on the International Joint Commission - three from each nation. The Canadian members of the Commission are appointed by the Governor in Council

¹⁵ Graham, 1981, p. 5

of Canada, and the United States' members are appointed by the President of the United States with advice and consent from the United States Senate.¹⁶ The three current United States' members were appointed by George Bush. The Commission meets at least twice a year, once in the United States and once in Canada. Decisions require only a simple majority, and a quorum is fulfilled with the presence of four members. Since 1912, the International Joint Commission has dealt with over one hundred and thirty boundary conflicts. The dockets dealt with by the Commission most often relate to water uses and diversions of water. The second most common dockets are those dealing with water/air quality and other environmental matters.¹⁷

Despite the Boundary Waters Treaty and the existence of the International Joint Commission, the first half of the twentieth century witnessed the near destruction of the Great Lakes through severe levels of industrial, domestic, and sanitary pollution. For many years, the Great Lakes served as dumpsites for raw sewage, industrial wastes (including many toxins), polluted sediments, and farmland and urban run-off. Because of the immense size of the lakes, it was believed that they could handle pollution

¹⁶ IJC, 1987-88, p. 4

¹⁷ Graham, 1981, pp. 5-14

without any negative ramifications. In the late 1960's, it became glaringly evident that the dumping capacity of the Great Lakes had been grossly miscalculated. Polluters never took into account the fact that the Great Lakes system is a relatively closed one. Less than one percent of the total volume of water in the lakes flows out (through the St. Lawrence River) each year. For example, on the average, water that enters Lake Superior takes one hundred and eighty-two years to be flushed out again.¹⁸

2.3 THE 1972 GREAT LAKES WATER QUALITY AGREEMENT

The Great Lakes suffered from an overall lack of cooperation between the eleven federal, provincial, and state governments and their departments. The International Joint Commission's response was the establishment of the 1972 Great Lakes Water Quality Agreement, which lays out objectives of water quality management. Although the International Joint Commission could not implement or enforce any aspect of the Agreement, both Canada and the United States worked together to effectively clean up the waters of the Great Lakes. Many other regions, such as the Chesapeake Bay area, are studying the Great Lakes Water

¹⁸ Hileman, 2/8/88, p. 23

Quality Agreement as a framework for cooperation across legal jurisdictions.

The 1972 Great Lakes Water Quality Agreement addressed conventional pollutants such as phosphorus, oil, and visible solid wastes. During the first five years of the plan, more than ten billion dollars was spent on reducing phosphorus discharges into the lakes. The visible results were astounding - algal mats almost completely disappeared from Lake Erie and the foul odors emanating from Lake Erie and Lake Ontario vanished. Despite such improvements, it became evident that the original agreement did not fully address the issue of pollution in the Great Lakes. Fish were still heavily contaminated with PCB's (polychlorinated biphenyls), mirex (an insecticide and flame retardant), heavy metals, and other chemicals. The sources of such pollutants - runoff from farmlands and urban areas, industrial discharges, airborne toxins, contaminated groundwater, and polluted sediments - were not dealt with in the existing agreement.¹⁹

¹⁹ *ibid.*, pp. 22-30

2.4 THE 1978 GREAT LAKES WATER QUALITY AGREEMENT

In 1978, Canada and the United States signed a new Great Lakes Water Quality Agreement. Its goal was to eliminate discharges of toxic chemicals altogether. It banned roughly three hundred and fifty hazardous pollutants from the lakes. This agreement was not as easily carried out as the first one, however. In November 1987, the United States and Canadian governments reviewed the 1978 Great Lakes Water Quality Agreement and found disturbing results. The reduction of the named pollutants in both the water and the biota had come to a virtual standstill. The United States Environmental Protection Agency and Canadian Environment Minister signed amendments to increase accountability and management of the Great Lakes. They laid out responsibilities based on improved technical knowledge and set dates for the achievement of certain goals.²⁰

2.5 THE INTERNATIONAL JOINT COMMISSION 1985 ADVISORY

Throughout the history of the International Joint Commission, it had only offered advice to the Canadian and United States' governments when specifically asked. In January 1985, however, the Commission issued an Advisory to

²⁰ *ibid.*, pp. 30-39

both governments urging that the Great Lakes be addressed on an ecosystem basis rather than simply dealing with issues of water quality. The advisory stressed:

... the need to consider the interrelationship of Great Lakes water quantity and water quality in the context of an ecosystem, including the other than economic importance of this vast body of water to the millions of people who live and will live in the basin.²¹

The advisory recommended that the United States and Canadian governments should "engage in broad but systematic discussions" concerning further use of the Great Lakes' waters before another serious crisis emerges.²²

Leonard B. Dworsky and David J. Allee of Cornell University conducted a three year study (1986-1988) of the 1985 Advisory and the responses of the United States and Canadian governments. Their findings indicated that the "federal systems of the United States and Canada are learning how to cope with and apply the principles of ecosystem approaches to the long term management of the International Great Lakes." They credit the growing number of national and international cooperative arrangements to the International Joint Commission's 1985 Advisory.²³

²¹ Dworsky and Allee, November 1988, p. 22.

²² *ibid.*

²³ *ibid.*, p. 29

2.6 THE GREAT LAKES TODAY

Many improvements have occurred as a result of the 1978 Great Lakes Water Quality Agreement, however, problems of pollution still persist. In April 1990, the International Joint Commission concluded that "present toxic substances in the Great Lakes environment threaten human health" and "it would be unwise and imprudent not to take immediate action."²⁴ The United States has been criticized both at home and in Canada for not providing full support of the International Joint Commission and its recommendations. Led by the National Wildlife Federation (NWF), ten environmental organizations wrote a letter to Secretary of State James A. Baker III and Environmental Protection Agency Administrator William K. Reilly dated January 10, 1990. The letter protested the failure of the United States to fulfill its obligations under the 1972 and 1978 Great Lakes Water Quality Agreements. The letter states that the agreements are "a model for international cooperation to address shared environmental problems." The lack of support on the part of the United States "not only jeopardizes the well-being of the Great Lakes system, but it also undermines the credibility of the United States government in international

²⁴ Hileman, 4/23/90, p. 5

environmental negotiations."²⁵ Reilly responded with an article in the EPA Journal in which he laid out a "strategy to save" the Great Lakes. The article stressed the United States' interest in protecting the biotic communities, both human and animal, that rely on the Great Lakes for survival.²⁶

Other United States officials have responded. Representative Henry J. Novak (D-NY) has introduced a bill (HR4323) that would implement many of the International Joint Commission's recommendations, hence reasserting the United States' support for the Great Lakes Water Quality Agreements.²⁷ While the current administration has not yet made any official statements regarding the Great Lakes Water Quality Agreements, President Clinton and Vice-President Gore have made it quite clear that the next four years of United States policy will pay close attention to environmental issues.

In its Sixth Biennial Report on Great Lakes Water Quality, released in April 1992, the International Joint Commission recommended phasing out and eventually banning industrial processes that lead to the release of

²⁵ Excerpted from Dagani, 1/22/90, p. 6

²⁶ Reilly, Nov/Dec 1990, pp. 2-4

²⁷ Hileman, 4/23/90, p. 6

polychlorinated dibenzo-p-dioxins, polychlorinated dibenzofurans, and hexachlorobenzene (all chlorine related compounds) as by-products. The Commission based its recommendation on several scientific studies of wildlife and humans in the Great Lakes region. The levels of chemicals found in the subjects' bodies prompted the International Joint Commission to announce that the "substances are too dangerous to be released in any quantity."²⁸

The history of the United States/Canadian regime to manage the use of the Great Lakes depicts how difficult the process of negotiation can be. Even when an agreement can be worked out, it requires constant re-evaluation and commitment on the part of all parties involved if it is to be successful.

²⁸ Hileman, 4/20/92, p. 6

3.1 DEFINITION OF REGIME

With the adoption of the 1909 Boundary Waters Treaty and the International Joint Commission, the United States and Canada established a regime to manage the use and abuse of the waters of the Great Lakes. The purpose of this paper is to define the regime they created and, more importantly, identify the factors that led to regime formation in this particular case.

The most common definition of regime in the international relations literature was established by Stephen Krasner:

Regimes can be defined as sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given area of international relations. Principles are beliefs of fact, causation, and rectitude. Norms are standards of behaviour defined in terms of rights and obligations. Rules are specific prescriptions or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice ...²⁹

Other notable international regime theorists have adopted similar language in their definitions, including Keohane and Nye, Ernst Haas, and Hedley Bull.

Principles and norms provide the foundation for a regime, while rules and decision-making procedures help determine the shape it will take. Changes in rules and decision-making procedures may alter the activities of the

²⁹ Krasner, 1983, p. 2

regime, but changes in principles and norms alter the regime itself. When this occurs, the existing regime breaks down and there is "either a change to a new regime or a disappearance of regimes" from that particular issue-area.³⁰ If the actions of member states do not comply with the four components of the regime (principles, norms, rules and decision-making procedures), or if the four components themselves are incoherent, the regime is weakened.³¹

Finally, a regime involves long-term commitments to cooperation on the parts of all member states. As Robert Jervis points out, regime formation requires more than nation-states' calculations of "short run self-interest."³² When part of a regime, a state is willing to sacrifice certain benefits in exchange for others in the long-term.

According to Krasner's definition, the cooperative efforts between the United States and Canada to manage the Great Lakes form a regime. The principles are that the pollution of the Great Lakes by either nation affects water quality in ways that are destructive. As a result, coordinated national policies are necessary to restrict levels of pollutants released into the Great Lakes. The

³⁰ *ibid.*, pp. 3-4

³¹ *ibid.*, p. 5

³² Jervis, 1983, p. 173

norms were clearly laid out in the 1909 Boundary Waters Treaty:

... 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 of the other ...³³

... the rights of both to have access to the navigable streams and lakes of both that were either on the boundary, that is to say 'boundary waters' strictly so-called, or that crossed the boundary ...³⁴

... no use shall be permitted which tends materially to conflict with or restrain any other use which is given preference over it ...³⁵

The rules and decision-making procedures are established at bi-annual meetings of the International Joint Commission, and published in the International Joint Commission Activities Report each year.

In the years since the International Joint Commission was established, there have been new agreements and treaties added to the regime to deal with specific issues, such as the 1954 St. Lawrence Seaway Agreement, the 1961 Columbia River Treaty, and the 1972 and 1978 Great Lakes Water Quality Agreements. Despite these additions in rules and decision-making procedures, the basic principles and norms of the 1909 Boundary Waters Treaty remain intact. Both

³³ Graham, 1981, p. 6

³⁴ *ibid.*, p. 7

³⁵ *ibid.*, p. 13

nations have worked together to ensure the continued existence of the regime.

3.2 PERSPECTIVES ON THE IMPORTANCE OF REGIMES IN INTERNATIONAL SOCIETY

There are three major theoretical perspectives regarding the importance of the concept of the regime to analyze the behavior of states: conventional structural realism, modified structural realism, and the Grotian perspective.³⁶

The conventional structural realist view does not attach much importance to the role of regimes in international society. This derives from basic realist presumptions: states are fully informed, rational actors who calculate costs and benefits of optional courses of action and choose the one that most closely fits their set of fixed preferences. The outcome they choose is based on the distribution of power (structural level) rather than the

³⁶ The Groatian perspective is named after Dutch jurist Hugo Grotius (1583-1645). Considered the "father of the modern science of international law," Grotius' 1625 book, On the Law of War and Peace (De Jure Bellis ac Pacis) is often referred to as the first textbook on international law. Grotius believed in a common human nature and a self-evident law stemming from it upon which even sovereign states could agree. For more information on the life and works of Hugo Grotius, see Hugo Grotius and International Relations. 1990. Edited by Hedley Bull, Benedict Kingsbury, and Adam Roberts. Oxford: Clarendon Press.

interaction between states (process level). National security issues are of utmost importance, and the strength of a state in terms of its national security is solely dependent on its position with regard to the distribution of capabilities.³⁷ Under such conditions, it is generally not in a state's best interest to engage in cooperative attempts at regime formation. Susan Strange represents this view. She critiques the concept of regimes on five counts: 1) it is a fad, 2) the term is "imprecise and woolly," 3) It is a value-based term, 4) the concept overemphasizes the static conditions in international relations and underemphasizes the dynamic ones, and 5) it is a narrow-minded, state-centric paradigm.³⁸ Strange does not believe that regimes have any impact on international affairs, if they even exist.

The modified structural realist approach is also based on the idea of sovereign states acting in a rational manner to achieve maximum benefits. Unlike conventional structural realists, however, this view does credit regimes as playing an important role when they do occur. The "basic function of regimes is to coordinate state behavior to achieve

³⁷ Peter Haas, 1990, pp. 35-37

³⁸ Strange, 1983, p. 337

desired outcomes in particular issue-areas."³⁹ This approach posits that regimes can only arise under certain circumstances. Theorists of this approach often turn to game-theory to highlight such circumstances. I will discuss this approach more fully in Chapter Four.

According to the Grotian perspective, regimes are inherent to human relations. The actors in the system are not states, for states cannot make decisions. Rather, the actors are individuals with transnational agendas in addition to their national goals. These elites (statesmen) conceive of themselves as being restricted by norms of behavior, moral or ethical principles, and certain rules or regulations they are required to follow. As such, they engage in relatively static, patterned behavior, which results in the development of international norms. These norms play a vital role as mediator between statesmen simultaneously engaged in both competition and cooperation. In this view, national security and power are not the only important objectives. Conventional power-based theories are used to explain issues of security and defense, however, they cannot adequately address what Ernst Haas has termed organic theories: eco-environmentalism, eco-reformism, and

³⁹ Krasner, 1982, "Structural Causes and Regime Consequences," p. 7

egalitarianism.⁴⁰ Oran Young, a proponent of the Grotian orientation, has developed an alternative approach to regime formation designed specifically to explain the rise of resource regimes to manage international environmental concerns. I will come back to his work in Chapter Five.

Krasner believes that regimes do play an important role in international relations. They serve as intervening variables between causal variables (such as power, preferences, and self-interest) and outcomes (displayed as state behavior).⁴¹

Basic Causal Variables ----> regimes ----> related behavior and outcomes

Figure 3.1 Krasner's Depiction of Regime Formation

In such a depiction of the role of regimes, Krasner regards regimes as a dependent variable. He defines five basic causal variables that determine the development of a regime.

⁴⁰ Ernst Haas, 1982, p. 26

⁴¹ Krasner, 1982, "Structural Causes and Regime Consequences," p. 5

3.3 BASIC CAUSAL VARIABLES

At the core of the existence of international regimes is egoistic self-interest on the part of the member states.

Krasner defines this as

.. the desire to maximize one's own utility function where that function does not include the utility of another party...⁴²

The behavior of other parties is only important when it directly affects the utility of the egoist. The conventional structural realist, the modified structural realist, and the Grotian perspectives all regard egoistic self-interest as a determining factor in regime formation.

Political Power is another variable in the formation of regimes. It can occur in two forms: power used to promote the common good, or power used to maximize individual interests. For example, in the former case, state intervention in economic matters helps the society as a whole by creating a market system through which individuals can pursue self-interest maximization. Since everyone benefits, the common good is served. In relations among and between states, however, this is not a major factor. Commonly, states use their power to pursue their own interests.

There are two variations to the perspective of the use

⁴² *ibid.*, p. 11

of power to maximize state interests. The first approach is based on the assumption that pay-offs are fixed, so that when the hegemon wielding the most power in the system declines, the regime will decline because no other state is strong enough to take over the role of provider.⁴³ The second approach assumes that pay-offs are not fixed, and the use of power can alter them. Dominant actors use their power to influence the decisions of other states. When the dominant actors lose power, the regime must decline because the dominant actors can no longer control the pay-offs through influencing weaker states.⁴⁴

The third causal variable that affects regime formation is Norms and Principles. A specific issue-area is not a closed entity. Norms and principles of behavior that are developed in one issue-area are infused into other related issue-areas by nature of the interconnectedness of nation-states. For example, the principle of sovereignty in international relations supercedes all issue-areas and determines to a large extent how states will deal with one another.

⁴³ A hegemon is the state in the system with the most power - a combination of both military and economic strength. The decisions and actions of the hegemon have a strong impact on all other states.

⁴⁴ Krasner, 1982, "Structural Causes and Regime Consequences," pp. 14-16

Krasner lists usage and customs as supporting causal variables for the first three. Usage "refers to regular patterns of behavior based on actual practice [or] custom."⁴⁵ This leads to similar expectations on the part of all parties involved. These expectations become associated with legitimate principles and norms, which often results in regime formation.

Knowledge is another variable that supports egoistic self-interest, political power, and norms and principles. It creates a basis for agreement by elucidating the facts of an issue-area for all parties. As knowledge increases, the rules and procedures of a regime quite frequently change to meet new challenges or improve existing methodologies.⁴⁶ Recently, much attention has been focused on the role of knowledge as a key factor leading to regime formation in environmental issue-areas. I will address this in Chapter Six.

According to Krasner, these five basic causal variables lead to regime formation in a particular issue-area. Both the modified structural realist configuration (see Figure 3.2)⁴⁷ and the Grotian approach configuration (see Figure

⁴⁵ *ibid.*, p. 18

⁴⁶ *ibid.*, pp. 19-20

⁴⁷ *ibid.*, p. 8

3.3)⁴⁸ also depict regime formation as dependent upon these basic causal variables. Is regime formation possible when these causal variables are not in place?

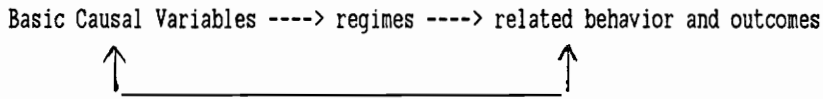


Figure 3.2 Modified Structural Realist Depiction of Regime Formation

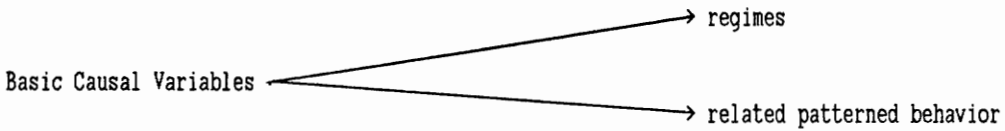


Figure 3.3 The Grotian Depiction of Regime Formation

⁴⁸ *ibid.*, p. 9

3.4 KRASNER'S CAUSAL VARIABLES AND THE UNITED STATES/CANADIAN REGIME

In the early 1900's, the United States and Canada recognized the need for cooperative behavior to manage the use and abuse of the Great Lakes. The result was a regime, yet not all of Krasner's five causal variables played a role in this process.

The prevailing explanation for the formation of international regimes is egoistic self-interest.⁴⁹ We should assume, therefore, that both the United States and Canada individually decided that the regime would maximize their utility of the waters of the Great Lakes. The United States was concerned only that Canada was harming the United States' water quality and/or supply, and vice versa. Actually, during the early 1900's, the United States used the Great Lakes primarily as a dumping ground for the industries (particularly steel mills) that were rapidly taking over the area. They were not concerned with water quality as much as unrestricted use of the waters for industrial purposes.⁵⁰ Entering a regime that restricted water use and created a regulatory body to govern the treaty (the International Joint Commission) would not maximize the

⁴⁹ *ibid.*, p. 11

⁵⁰ Steel mills require large amounts of water for the cooling process. The used water is then released back into the main supply to be re-used over again.

self-interest of the United States.

Canada, on the other hand, used the waters of the Great Lakes primarily for fishing and agriculture. The industrial wastes released into the lakes by the United States were harmful to Canada's utility of the water supply. Entering a regime to manage the use of the boundary waters was in the best interest of Canada. I will discuss the preferences of the two nations in more depth in Chapter Four.

As Young points out, both spontaneous and negotiated regimes rely upon egoistic calculations.⁵¹ In the case of the Great Lakes, this variable does not apply.

The second causal variable Krasner identifies is political power. In the Great Lakes, the pay-offs are relatively fixed. Large amounts of pollution over time will destroy the water (for all but industrial use), and the only way to prevent the destruction is to prevent the pollution. As previously mentioned, this is Canada's goal.

At the time negotiations began for the Great Lakes regime (the early 1900's), neither the United States nor Canada was considered a hegemon. Based on a combination of military and economic strength, Great Britain was clearly the hegemonic power in the world, and Canada was just

⁵¹ Young, 1982, "Regime Dynamics," p. 99. The third type of regime, imposed, does not rely on egoistic self-interest, however, the U.S./Canadian case was not an imposed regime.

emerging from her protective power.⁵² Because the United States was militarily and economically stronger than Canada at the time, Canada was in no position to exert political power over the United States.

Krasner's third variable, norms and principles, probably did play a role in regime formation. Both the United States and Canada were on relatively friendly terms with one another, and both deeply respected and valued the concept of sovereignty.⁵³

Because both nations had only recently gained independence from Great Britain, there was not much of a history of usage and custom between them. Both the United States and Canada concentrated their efforts on internal growth and unification, and had not had many dealings on a national level (other than territorial questions). There were no regular patterns of behavior in regard to the Great Lakes to evolve into cooperative ventures in management. Other than the Rush-

⁵² Canada was still considered a dominion of Great Britain at the time of the negotiations for the Great Lakes water management regime. Their representative at the negotiations was actually the Ambassador in Washington D.C. for Great Britain. The United States officially gained independence from Great Britain over a century earlier, in 1783.

⁵³ There was talk of an American annexation of Canada to strengthen the North American alliance, however, nothing was ever actually proposed.

Bagot Agreement, which dealt with the usage of the Great Lakes only in terms of naval forces, there were certainly not shared expectations as to how the water of the lakes should be used.

Finally, while knowledge may have played a role in the evolution of the United States/Canadian regime, it most definitely did not help to create it. Environmental scientific technology had not yet developed as a prominent branch of science, and most industries in the early 1900's had no idea what the by-products of their production methods were.

While Krasner is able to provide a useful definition of regime, his explanation of why regimes are formed does not provide an adequate explanation of the rise of the United States/Canadian regime to manage the Great Lakes. In the next chapter, I will look more closely at the modified structural realist perspective, expressed in terms of the game theoretic approach.

4 THE GAME THEORY APPROACH

The application of game models to international politics has traditionally occurred in the realm of military strategic analysis. In light of recent cooperation on environmental and economic issues, however, the recognized need for explanation has led to an increased interest in game theory. The conventional structural realist perspective of international politics concentrates more on conflict than cooperation. Game theory seeks to create models of deterrence scenarios that emphasize the strategic interaction of rational actors. Although often misused in analytical attempts to reconstruct specific situations, game models are best used as a heuristic tool where they can generate new understandings of the field of international relations.⁵⁴

Game theory is based on four interrelated concepts: strategy, strategic rationality, preferences, and payoffs. It may be assumed that actors have a strategy, that is, "a complete plan for action" that accounts for all

⁵⁴ For a complete explanation of game theory and its applications, see Snyder and Diesing, Conflict Among Nations (Princeton: Princeton University Press, 1977), Snidal, "The Game Theory of International Politics" (World Politics, October 1985, v38, n1, pp. 25-57), and Sandler, The Political Economy of Public Goods and International Cooperation (Denver: University of Colorado Press).

contingencies.⁵⁵ The actors pursue their strategy in a rational manner, with the realization that their decisions must include a consideration of other states' choices. All choices are made in accordance with the preferences of the rational actor, and only those actions which maximize payoffs will be chosen.⁵⁶

When game theory is applied to cooperative efforts among states with the goal of regime formation, there are fundamental questions which must first be answered on the national level in order for the regime to be possible. First - does this regime maximize my self-interest? A state must gain a greater benefit from taking part in the regime than it would from non-cooperation. This question rests on the concept of efficiency. A regime is considered to be efficient if it allows member states to maximize their individual interests. A second consideration relates to the continued existence of the regime. Can it be self-enforcing, without requiring a costly centralized enforcement unit to oversee it? Finally, do member states receive fair treatment in the distribution of costs and benefits?⁵⁷ According to game theory, if any of these

⁵⁵ Snidal, 1985, p. 37

⁵⁶ *ibid.*, pp. 36-44

⁵⁷ *ibid.*, p. 46

conditions are not met to the satisfaction of a state, it will not be in its best interest to cooperate, hence, the viability of a regime is damaged.

Game theory application provides a heuristic device to anticipate the behavior of states and the nature of systemic outcomes given the preferences of individual states. The Great Lakes case involving Canada and the United States presents an interesting example. Given the preferences of each nation, it is in Canada's best interest to enter a cooperative agreement, while the United States would prefer not to enter such an agreement.

Canada uses the waters of the Great Lakes primarily for human consumption, fishing, agriculture, and raising livestock. They rely on the water to be clean and free of phosphorus, toxins, PCB's, and other types of industrial waste. Canada's preferences, in order, are as follows:

- 1 To enter a mutually agreed upon regime to manage the use of the Great Lakes where both parties restrict their use,
- 2 To cooperate with the United States regarding water use regulation, even if the United States does not comply,
- 3 To refuse to cooperate with a United States led effort to manage the use of the Great Lakes,
- 4 The worst outcome for Canada would be for no cooperative efforts to be made on either part, which would result in heavily polluted water.

The United States uses the waters of the Great Lakes for industrial purposes, primarily steel production. The

water does not have to be clean for such use, and, as we have seen, the ramifications of industrial wastes on the waters of the Great Lakes can be devastating in large quantities. Since United States industry does not require clean water, however, restricting water use is not in their best interest. The preferences of the United States are as follows:

- 1 To refuse to cooperate in a Canadian led water management effort, leaving more clean water and no use restrictions on United States industry,
- 2 To have no cooperative efforts on either part, and a complete lack of water use management,
- 3 To cooperate in a mutually beneficial agreement to manage the use of the waters of the Great Lakes,
- 4 The worst possible outcome for the United States would be to cooperate in water management efforts while Canada did not.

The following figure depicts the preferences and possible outcomes for both nations as described above:⁵⁸

		United States		
			
		: cooperate	: defect	
			
	:	cooperate	: 4,2	: 3,4
Canada	:		
	:	defect	: 2,1	: 1,3
			
				4 = best outcome
				3 = second best outcome
				2 = second worst outcome
				1 = worst outcome

Figure 4 The Game Theory Configuration for The United States and Canada

⁵⁸ For an explanation of how to create game models to cooperative situations, see Steven J. Brams. 1990. Negotiation Games: Applying Game Theory to Bargaining and Arbitration: New York: Routledge.

As Figure 4 shows, the best outcomes for Canada (3 and 4) will be possible only when they are willing to cooperate. This is known in the Game theory literature as a Prisoner's Dilemma, a situation which is highly conducive to regime formation. For the United States, however, the best possible outcomes (3 and 4) can only be achieved through defection, that is, refusing to cooperate. This is known as a Deadlock situation, where no mutually beneficial agreement seems apparent. Yet, for some presumably rational reason, the United States did choose to enter into a resource regime with Canada to manage the waters of the Great Lakes. The modified structural realist perspective, expressed here in terms of game theory, is unable to provide an adequate explanation for the rise of the United States/Canadian regime. The United States did not choose the course of action predicted by the game model. How was Canada able to convince the United States to abandon a more unilaterally beneficial outcome for the sake of cooperation? The answer to this question is the key element to the processes of cooperation and regime formation.

5.1 THE GROTIAN PERSPECTIVE

Chapters Three and Four show why the realist approach to regime formation (both conventional and modified structural realism) is unable to fully explain the process of cooperation between the United States and Canada that led to a water management regime. Quite simply, the realist perspective is too limited for a world of complex interdependence. By concentrating on cooperation as a binary issue (as in the game theoretic approach), realists overlook the integrative potential for cooperation. As Sebenius observes, "the competitive and cooperative elements are inextricably intertwined."⁵⁹ The realist perspective also relegates the need for knowledge and learning to a minimal role and focuses on power. In doing so, they virtually ignore that power comes through knowledge.

The Grotian perspective begins with the same basic definition of "regime" offered by Krasner, however, it highlights other aspects as well.

First, a regime exists as a mutual understanding on the parts of member states about some type of behavior. Like Krasner, the Grotians view a regime as an "attitudinal phenomenon" based on norms and principles.

Second, the Grotian perspective heightens the

⁵⁹ Sebenius, 1992, p. 330

importance of decision-making procedures to a position pertaining to the core of the regime. Hence, a change in the decision-making procedures alters the regime. Krasner stated that decision-making procedures are cursory variables that support those at the core of the regime.

Third, every regime must include a hierarchical listing of the principles upon which it is based, as well as the norms that determine what behavior is acceptable and what behavior is deviant.

Fourth, a regime has a set of elites who perform the decision-making duties. An important distinction is drawn between the regime itself and the actors which operate within it.

Finally, regimes are prevalent in international society. A regime is said to exist wherever regular, patterned behavior determines what decisions actors will make. This fifth characteristic is a key point of departure from the realist perspective.⁶⁰

One point upon which Grotian theorists are very clear is that regimes do exist, and they exist in all issue-areas of international relations. Because regimes originate from and exist through the actions of statesmen, all behavior is constrained by human morals, principles, and rules. The

⁶⁰ Puchala and Hopkins, 1982, pp. 62-63

reason that actors create regimes is to mediate state behavior in the pursuit of self-interest. Regimes provide a vehicle through which it is possible to analyze states' interests and goals on one hand, and their behavior on the other. Particularly during times of power transitions, the existence of regimes creates a certain degree of stability and certainty in the international society of states.

Regimes can take many forms. They are often formalized documents negotiated and agreed upon between member states. Other times they are spontaneous and informal, and sometimes they are imposed upon some states by others. Who the major actors in the regime are depends upon what form it takes.

The effectiveness of the regime depends upon the degree of compliance among member states. Particularly in regimes dealing with a specific issue-area, a change in the structure of international power will cause a change in the regime. This is known as revolutionary change. Other changes in regimes are evolutionary - a product of change through learning, knowledge, and the subsequent re-evaluation of goals on the part of all member states.⁶¹

⁶¹ For more detail and examples of regimes analyzed in this perspective, see Puchala and Hopkins, 1982, p. 61-91 and Young, 1982, "Regime Dynamics," pp. 93-113.

5.2 INSTITUTIONAL BARGAINING

Working from the Grotian perspective, Oran Young has developed an alternative model of regime formation. He presents this new model, institutionalized bargaining, in the context of the formation of international regimes to manage the natural environment. As such, the model emphasizes negotiation between decision-makers serving their own self-interest in order to deal with a problem of collective action (such as most environmental issues), yet it differs from the utilitarian (modified structural realist) perspective.

Institutional bargaining allows for multiple autonomous actors in the cooperative process. Whereas n-party situations, defined in the game theoretic literature, attempt to identify and rank the coalitions that are most likely to form, institutional bargaining focuses on creating arrangements that everyone involved in the negotiations (not just the most powerful) will accept. In other words, institutional bargaining is based on unanimity rule rather than majority rule.

Particularly when negotiating issues of environmental concern, institutional bargaining is based on integrative (productive) rather than distributive (positional)

bargaining.⁶² Young assumes that there is a "fixed, unchanging, and generally acknowledged contract curve or negotiation set,"⁶³ such as the damage to water quality by x level of pollution. Actors are informed about this negotiation set, which is why they agreed to negotiate in the first place. The ensuing negotiations are designed to appropriate costs and benefits of this set, resulting in a cooperative effort to manage the issue.

The integrative nature of the institutional bargaining approach separates it from other cooperative efforts. Cooperation can exist whenever two or more parties agree to certain behaviors. Integrative bargaining, however, requires a much higher level of political and technocratic involvement. Very specific types of behavior are outlined, including detailed methodology. A mutual relationship exists between the politicians engaged in integrative bargaining and the technocrats who contribute information necessary for the delineation of specific required behaviors.

Because institutional bargaining is based on an

⁶² Integrative bargaining attempts to find a way for all actors to jointly share in the costs and benefits of the issue at hand. Distributive bargaining divides the costs and benefits of the issue, and assigns each actor a certain portion.

⁶³ Young, 1989, International Cooperation, p. 261

integrative negotiation process through unanimity rule, there is a greater emphasis on equity than the realist emphasis on allocative efficiency.⁶⁴ For a state to define its interests in terms of allocative efficiency, it must be sure of what the outcome or gains will be. When dealing with collective environmental issues, this is virtually an impossibility. A state cannot be sure, for example, of exactly what will happen to water quality in the future if restrictions are placed on certain types of pollution and/or use. This creates what James Buchanan has called a veil of uncertainty, in which states agree to cooperate based on a process that appears to be generally equitable to everyone rather than attempt to calculate the possible end results of each choice. When dealing with environmental crises, the sooner the regime is formed, the sooner states gain benefits.

Because environmental issues involve many aspects, states usually concentrate on a few specific problems that are most important to them. Each state involved in the negotiations will choose accordingly, which gives them bargaining chips to trade with other states who feel more or less intensely about the problems. As they begin to settle

⁶⁴ The term "equity" has many meanings. In this paper, I use the term to represent fair play at the procedural level - all actors have the same probability of achieving favorable outcomes.

on some aspects of the issue-area, member states formulate a negotiating text. This gives structure to future negotiations, organizes the many aspects of the issue-area, and provides a basis from which to expand or revise the regime over time.⁶⁵

Young acknowledges four major obstacles to success in institutional bargaining:

- 1 The unanimity rule creates incentives for greedy actors to hold out and wait for others to offer concessions,
- 2 Institutional bargaining cannot take place as long as there are "diverging preferences regarding the composition of the group of participants and the contents of the agenda,"
- 3 Similarly, states will not engage in institutional bargaining unless the nature of their goals is similar to the goals sought by others,
- 4 Because states differ in their abilities to contribute attention, money, and human resources to the effort, institutional bargaining can fail if members cannot simultaneously gather the political will necessary for cooperation.⁶⁶

The way around these obstacles is effective leadership. Young defines "leadership" as "the actions of individuals who endeavor to solve or circumvent the collective action problems that plague the efforts of parties seeking to reap

⁶⁵ Oran Young addresses institutional bargaining in Young, 1989, "The Politics of International Regime Formation," and Young, 1991, "Political Leadership and Regime Formation."

⁶⁶ Young, 1991, pp. 284-285

joint gains in processes of institutional bargaining."⁶⁷ Leadership can determine the success or failure of the negotiation process.

A structural leader acts in the name of a state involved in the bargaining process. His goal is to maximize the state's structural power (in the form of material resources) into bargaining leverage. This involves making threats or promises that are credible and properly timed. Often, a structural leader will form coalitions, both within his state and within the group of negotiators.⁶⁸

The entrepreneurial leader relies on his excellent negotiating skills to bring the participating states together under a regime that is beneficial to all. He may or may not act in the name of a state. The role of an entrepreneurial leader is to set agendas, draw attention to the importance of the issues being negotiated, devise policy options, and work as a mediator between states to make deals.⁶⁹

The intellectual leader relies on the power of knowledge to shape the way states perceive the issues at hand. Generally, he is an individual who may be associated

⁶⁷ *ibid.*, p. 285

⁶⁸ *ibid.*, pp. 288-293

⁶⁹ *ibid.*, pp. 293-298

with a state or private interest. The intellectual leader undertakes a deliberative, slow-paced plan to introduce new ideas, and shape the way policy-makers approach them.⁷⁰

The process of institutional bargaining, with an eye towards regime formation, "ordinarily requires the interplay of at least two forms of leadership, and it is not uncommon for all three forms of leadership to come into play."⁷¹ In the absence of effective leadership, institutional bargaining will fail.

The institutional bargaining approach attempts to find suitable explanations for the rise of international regimes. Theorists of this method acknowledge that, although regimes are prevalent in international society, there are many instances when cooperation is not possible. To highlight the most salient of their hypotheses, I will analyze the creation of the United States/Canadian water management regime in terms of the Grotian perspective.⁷²

⁷⁰ *ibid.*, pp. 298-302

⁷¹ *ibid.*, p. 302

⁷² These hypotheses are laid out in Young, 1989, "The Politics of International Regime Formation," pp. 366-375.

5.3 THE UNITED STATES/CANADIAN REGIME IN GROTIAN TERMS

In order to succeed, institutional bargaining must take the form of contractarian negotiations, that is, the issues at hand must be amenable to integrative agreements to avoid deadlock situations. Integrative bargaining and the veil of uncertainty that prevail in such negotiations make it necessary to approach the process as "a problem-solving exercise aimed at reaching agreement on the terms of a social contract."⁷³

In 1889, the United States and Mexico reached an agreement concerning water use, The International Boundary and Water Commission of the United States and Mexico.⁷⁴ The San Pedro River, the New River, and the Santa Cruz River all flow upstream (from Mexico into the United States) and Arizona and California are on the receiving end of the raw sewage and refuse that Mexico dumps into these rivers. Entering a water management regime with Canada would show the United States' commitment to the maintenance of all boundary waters, hence strengthening the United States/Mexico agreement.⁷⁵ In 1909, the United States and Canada produced a contract - the Boundary Waters Treaty.

⁷³ *ibid.*, p. 366

⁷⁴ von Moltke, 1988, p. 90

⁷⁵ Graham, 1981, pp. 4-5

waters (including the Great Lakes), the United States and Canada created an integrated plan for the use of the waters, including navigation, legal remedies if the agreement is broken, restrictions of use, pollution, and the use of non-boundary waters that affect boundary waters. Because of the general nature of the agreements contained in the Treaty, neither nation was put in the position of having to sacrifice more than the other, and both nations signed the Treaty in January 1909. Since then, many additions and changes regarding specific rules have occurred, but the basic contract remains intact.

The second hypothesis of institutional bargaining represents a major departure from realist thought. While utilitarian theories based on rational choice emphasize allocative efficiency in decision-making, the Grotian perspective believes that equity is a necessary basis for international institutional arrangements.⁷⁶ The difference here is one of means versus ends. While allocative efficiency deals with gains/benefits/ends to be achieved, equity is an issue at the process level. A state will be more likely to agree to a cooperative effort if the agreement is an equitable one, meaning all parties have the

⁷⁶ Young defines equity as "the distribution of values among the members of a social group and ... the conformity of this distribution to some normative standard concerning what is fair or just," 1982, Resource Regimes, p. 125.

same chances to receive the equivalent ends. To be successful, a regime must involve such agreements. This equity-based approach ties in with Joseph Grieco's "relative gains problem," in which he asserts that a state will "decline to join, will leave, or will sharply limit its commitment to a cooperative arrangement" if it believes that other members will achieve greater gains than they will.⁷⁷ The concept of allocative efficiency is abstract - it is impossible to determine if the outcomes of the regime are efficient until after the decisions have been played out. Although efficiency and equity are not entirely separable, the Grotian approach to regime formation accords topmost priority to equity because it is clearly dealt with directly during the bargaining process.⁷⁸ In this sense, only equitable arrangements allow for regime formation.

As discussed in Chapters Three and Four, the United States had no clear reason for entering a regime with Canada in terms of the realist perspective. Because we used the Great Lakes primarily for industrial purposes, it would not be efficient to allow restrictions on levels of pollution released into the waters. In terms of equity, however, the

⁷⁷ Grieco, p. 499

⁷⁸ For more information regarding the role of equity as a procedural, or practical, association, see Nardin, 1989, pp. 205-208.

reasons for the United States/Canadian water management regime become more clear. If the United States did not agree to this integrative plan to use the Great Lakes in an equitable manner and pursued allocative efficiency, it may not receive the same benefits/ends as it would from the Treaty. The arid western section of the United States depended upon rivers flowing from Canada and the Great Lakes for survival. Navigation and trade were also of great importance at the time. Without a cooperative institutional arrangement, Canada could use the waters any way they chose, which could include restricted water flow to the United States.

Another important factor for the United States was to give the impression that she was trying to provide an equitable arrangement with Canada. The United States government was receiving political pressure from Great Britain to work out the differences that existed in North America so that a more solid bloc would be in place to support Great Britain. Political tensions were on the rise in Europe in the early 1900's, and Great Britain wanted to be sure of the strength of its allies.

In President Roosevelt's calculations of United States interests, agreeing to negotiations to establish an equitable arrangement governing the Great Lakes and other boundary waters made more political sense than striving for

allocative efficiency. The gains and benefits of cooperation would be far greater than the gains to industry by refusing to cooperate. Because the Boundary Waters Treaty equitably distributed costs and benefits to both Canada and the United States, it was an acceptable arrangement.

Third, success in institutional bargaining often results when the agreement is salient, simple, and clear. It is easier for states to determine the equity of the solution, and compliance will be more likely if it is not a complicated task.

The original agreement upon which the United States/Canadian regime is founded does not address specific issues in-depth. The regime was simply created to:

...prevent disputes regarding the use of boundary waters ... and to make provisions for the adjustment and settlement of all such questions as may hereafter arise.⁷⁹

In the years since the regime was established, other agreements have been reached with more detailed regulation regarding the use of particular areas.

The fourth hypothesis of institutional bargaining is that the likelihood of success increases when there is a clearly identified and effective compliance mechanism in place to oversee the operation of the regime. States do not

⁷⁹ Graham, 1981, p. 5

place to oversee the operation of the regime. States do not fully trust one another to comply with the agreement. In many international regimes, states must designate domestic agencies to regulate compliance internally. Although these can be effective, an international agency eases the tensions on all states.

When the United States and Canada first established the water management regime, they created the International Joint Commission.⁸⁰ Its purpose is to execute the provisions of the 1909 Boundary Waters Treaty, as well as any additional agreements added to the regime. In addition, the United States and Canada turn to this body with complaints or proposals, thereby ensuring compliance without direct confrontation that could lead to a weakening of the regime.

Fifth, when exogenous international crises occur during the bargaining stage, states will be more likely to cooperate with one another in the issue-area they are negotiating. Many times, an international crisis (such as the economic ramifications of the end of communist rule in the Soviet Union) requires states to turn their full attention to the immediate problem. Rather than allow months, or even years, of negotiations to come to an

⁸⁰ See Chapter Two for details on the International Joint Commission.

form of an agreement. In other cases, the crisis may be a result of the lack of coordination in an issue-area (for example, protection of the ozone layer), and the clear need for cooperation facilitate regime formation. This particular aspect did not play a role in the creation of the United States/Canadian water management regime.

Finally, as previously discussed, institutional bargaining relies on effective leadership if it is to be successful. All three types of leaders - structural, entrepreneurial, and intellectual - play an important role in the process leading to regime formation and maintenance. Their task is to find solutions to major obstacles to cooperation, and make bargains so that the final outcome is acceptable to all parties. The case of the United States/Canadian water management regime provides an excellent example of the importance of effective leadership.

When the United States and Canada began negotiating their regime, they were led by structural leaders, that is, representatives from both state governments. The two men responsible for the negotiations were James Bryce, the Ambassador in Washington D.C. for Great Britain, and Elihu Root, the United States Secretary of State.

James Bryce was fascinated with America from childhood. During his distinguished academic career in England and Scotland, he made many trips to the United States. Through

his colleagues at home and abroad, he befriended many high-ranking United States officials, including President Theodore Roosevelt. In 1870, Bryce wrote The American Commonwealth, a highly acclaimed book covering constitutional analysis and the hotly debated issue of Anglo-American unity.⁸¹ In the early 1900's, he was serving as the Chief Secretary of Ireland when Edmund Grey (head of the Foreign Office in London) offered Bryce the position as Ambassador to the United States. Bryce hesitated, but was finally convinced by Grey and President Roosevelt to accept the job.⁸² Bryce served from 1907-1913, a period marked by the further strengthening of the United States/Great Britain alliance.

Elihu Root began his career and a lawyer on Manhattan Island in 1865, primarily representing large corporate interests. It is here that he met Theodore Roosevelt, William Howard Taft, Henry Cabot Lodge, and John Hay. In 1899, Root accepted President McKinley's invitation to become the Secretary of War for the United States. He resigned in February 1904, much to the chagrin of President Roosevelt and Secretary of State Hay. When John Hay died in 1905, Roosevelt was able to persuade Root to re-enter the

⁸¹ Tulloch, 1988, pp. 1-11

⁸² Ions, 1970, pp. 198-202

political arena, this time a Secretary of State. In President Roosevelt's eyes, Elihu Root was "the ablest man [he had] ever met ... and [Root] would manage with the Senate better than any Secretary of State."⁸³ Root summed up his attitude toward his job when he remarked in September 1905, "the main object of diplomacy is to keep the country out of trouble."⁸⁴

Elihu Root and James Bryce met in Washington D.C. in the 1890's. They developed a close friendship, one which greatly affected the outcome of the negotiations for the United States/Canadian water management regime. In 1907, Bryce was assigned the task of creating a triangle of North Atlantic powers, including Great Britain, the United States, and Canada. President Roosevelt had charged Root with the task of settling the many outstanding differences between the United States and Canada. There was discussion among some members of both the United States Congress and the Canadian Parliament of a United States' annexation of Canada, in much the same forceful way as they had annexed the Alaskan Panhandle and excluded Canada from the area entirely. The Prime Minister of Canada, Sir Wilfrid

⁸³ Jessup, 1938, p. 453

⁸⁴ Leopold, 1954, p. 50

Laurier, strongly opposed annexation.⁸⁵ Among the other tensions between the United States and Canada were disputes over fishing rights, sections of territory between New Brunswick and Maine, the use of the boundary waters of the Great Lakes, tariff and trade arrangements, and outstanding pecuniary claims from decades before.

Bryce made several trips to Canada in 1907 and 1908, where he quickly established a political base on which negotiations could build. Employing their legal training, both Bryce and Root sat down and "carefully and without rancor reviewed the case for either side."⁸⁶ Negotiations were aided by the personal friendship between the men, President Roosevelt's affection and trust for them both, and an earnest desire on the part of the governments of Great Britain and the United States to settle the tensions between themselves and Canada.

The first document Root and Bryce produced was purposefully crafted in a general nature. It dealt with the territorial waters of the St. Croix River, the St. Lawrence River, and the Great Lakes. The Boundary Waters Treaty was signed in January 1909.

In creating the International Joint Commission to

⁸⁵ Ions, 1970, p. 206

⁸⁶ *ibid.*, p. 213

oversee the regime, Bryce and Root gave way to entrepreneurial leaders. Although members of the International Joint Commission are state representatives, their purpose is to promote cooperative arrangements rather than represent state interests. The guiding principle of the creation of the International Joint Commission was that solutions to problems pertaining to the boundary waters between the United States and Canada should not be sought in bilateral negotiations of diplomacy, rather, solutions should come from the "deliberations of a permanent, unitary institution composed equally of members from the United States and Canada."⁸⁷ In all cases presented before the International Joint Commission, it has proven to be "an indispensable instrument of international environmental policy" because of its nonpartisan methods.⁸⁸

Finally, intellectual leaders have played a key role in the continued growth of the regime by providing information pertinent to the creation of rules and regulations to best ensure that the basic norms and principles of the regime are upheld. Natural scientists, marine biologists, and environmental lobbying groups have all played a key role in the continual revision of the Great Lakes water management

⁸⁷ IJC, 1987-88, p. 4

⁸⁸ Caldwell, 1990, p. 134

regime as intellectual leaders by providing knowledge, which empowers the constituents of a state to press for action.

Working from the Grotian perspective, Oran Young's theory of institutional bargaining is able to explain why the United States and Canada were able to create a cooperative arrangement governing the use of the Great Lakes. It is this perspective that must be more thoroughly investigated, precisely because it is more accurate and informative than previous realist attempts to analyze regime formation.

6 EPISTEMIC COMMUNITIES

As discussed in Chapter Three, knowledge is one of the basic causal variables leading to regime formation. It reinforces the more predominant variables of egoistic self-interest, political power, and norms and principles.⁸⁹ Oran Young incorporates the role of knowledge in his discussion of regime formation. He states that institutional bargaining cannot be successful without effective leadership. One component of effective leadership is the intellectual leader, who relies on knowledge and information to help guide the regime. Recently, international regime theorists have taken the roles of knowledge and intellectual leadership much further. An entire edition of International Organization was devoted to the role of epistemic communities in regime formation.⁹⁰ While I do not find the arguments presented to offer compelling "answers" to the "questions" of cooperation and regime formation, I would be remiss if I did not introduce the concept of epistemic communities.

An epistemic community is:

...a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within

⁸⁹ See Krasner, 1983, "Structural Causes and Regime Consequences," pp. 19-20

⁹⁰ International Organization, 46, 1, Winter 1992

that domain or issue-area.⁹¹

The term "epistemic community" most frequently refers to a scientific community. While scientists of all disciplines can be included in an epistemic community, it is vital that all members share the same basic set of normative values, principled beliefs, causal beliefs, defined criteria for validity, and a set of common practices.

The role that epistemic communities play in regime formation is basically threefold. First, epistemic communities have influence on policy innovation. They often define the problems that must be addressed and set standards for "solving" them. In this process, they often unconsciously define states' interests.⁹²

Secondly, epistemic communities assist in policy diffusion transnationally through communication with their colleagues, conferences, and publication. This tends to exert pressures on various governments in regard to similar issues.⁹³

Finally, epistemic communities assist in policy selection. On issues where governmental decision-makers are not fully informed (most often environmental or

⁹¹ Peter Haas, 1992, p. 3

⁹² Adler and Haas, 1992, p. 375

⁹³ *ibid.*, pp. 378-379

technological issues), epistemic communities are invited to make policy recommendations. Once these have been institutionalized, they often become legitimized through the persistence of the epistemic community striving to keep their issues in the public eye in order to gain funding for future projects.⁹⁴

Epistemic communities are generally called upon under conditions of uncertainty. Their task is to provide information that will reduce the uncertainty faced by decision-makers and help to clarify the course of action that most closely fits the interests of the state. This suggests that state interests are of nonsystemic origins, and that cooperation is not necessarily based on the distribution of power. A departure from structural realist thought, the epistemic communities approach posits that a state defines its objectives through the distribution of information rather than the distribution of capabilities.⁹⁵ In turn, policy is not determined by economic, political, or social structures that "generate a preconditioned set of outcomes," rather, it is informed by "new patterns of reasoning."⁹⁶

⁹⁴ *ibid.*, pp. 381-385

⁹⁵ Peter Haas, 1992, pp. 4-5

⁹⁶ *ibid.*, pp. 20-21

A leader in the epistemic communities approach, Peter M. Haas analyzed the Mediterranean Action Plan in light of the role of epistemic communities. The Mediterranean Action Plan, formulated in the early 1970's, is a regime consisting of nations that border the Mediterranean Sea. Similar to the Great Lakes regime, it's goal is to reduce levels of pollution that have nearly destroyed the water. Negotiations for the regime were led by the United Nations Environmental Programme (UNEP), and the plan has been quite successful thus far. According to Haas, the success is due to the role that epistemic communities have played in the formation of the regime and its continued existence.

The ecological epistemic community that set the agenda for Mediterranean cooperation consisted of high-ranking UNEP officials, mid-level governmental officials from various Mediterranean countries, and scientists from many diverse backgrounds (including engineering, physics, oceanography, microbiology, and urban planning). They united under similar beliefs about

...the need to preserve the quality of the physical environment, ... the origins and severity of pollutants, the policies necessary to control pollution, [and] the research needed ...⁹⁷

The scientists worked together and, when asked by their respective governments for information, they suggested

⁹⁷ Peter Haas, 1989, p. 384

congruent policy advice and recommended that the country follow the guidelines specified in the Mediterranean Action Plan. Eventually, all of the nations bordering the Mediterranean Sea signed on. The countries in which the epistemic community is strong have been more compliant to the regime than those in which the epistemic community is not as unified.

Peter Haas concluded that the process of regime formation and interest recalculation led by epistemic communities is generalizable. He offers several other examples of "successful" environmental regimes where epistemic communities played a role, and suggests that the failure of states to cooperate on other environmental issues is due to a weakness in the epistemic communities that inform them.⁹⁸

Epistemic communities did not play a role in the creation of the United States/Canadian regime for the Great Lakes. As I discussed in Chapter Three, environmental scientific technology in 1909 was not a developed science. The regime was created without perfect knowledge of the types of pollutants and the levels of pollution in the Great Lakes. There is no doubt that epistemic communities have

⁹⁸ Haas cites the 1987 Montreal Ozone Protocol and the 1979 Economic Commission for Europe (ECE) Convention on Long-Range Transboundary Air Pollution as examples of "successful" regimes led by epistemic communities.

generated knowledge that has led to changes in the rules of the regime. The 1972 and 1978 Great Lakes Water Quality Agreements and the International Joint Commission 1985 Advisory were the direct results of new information pertaining to the pollution of the Great Lakes. The basic norms and principles of the regime have remained the same, however. Epistemic communities have contributed to strengthening the policies of the regime, but they have not changed the nature of the regime itself in any way.

The recent concentration on epistemic communities in regime formation has overvalued the role of knowledge. Despite technological advances and increasingly rapid communications, governments do not allow information presented to them in regard to specific issue-areas to solely determine policy decisions. States will pursue courses of action that best meet their needs for survival. Such decisions are based on economic considerations, natural resource supply, and political and military power, as they have traditionally been.

Increased knowledge and communication have made one significant change in how governments make policy decisions. The recent expansion in media coverage, especially television, makes it extremely difficult for government officials to make decisions in a vacuum. The population of a nation now has access to the government in a very direct

manner, both in the public and private lives of our elected officials. When epistemic communities provide information, it reaches the public. To maintain their legitimacy, governments must respond to the pressures exerted by their constituents. Candidates for public office formulate their entire agendas based on the issues the public wants addressed. If epistemic communities have been successful in leading to international cooperative efforts, it has been an indirect path through the public.

Nowhere is this more evident that the United States' attitude toward the United States/Canadian water management regime. During the 1980's, America let environmental issues drop to the back burner while we addressed foreign affairs and domestic economics. As a result, pollution in the Great Lakes increased, leading to the International Joint Commission's 1985 Advisory. In response to that Advisory, many scientists and environmentalists investigated how well the United States was keeping their agreement with Canada pertaining to the abuse of the Great Lakes. Their results were published in journals and magazines and covered by television news programs. With this increased awareness, the American public began pressuring the United States'

government to take action.⁹⁹ Within a year, a bill was introduced to bring the United States back in line with the International Joint Commission's recommendations.

Knowledge can have an impact on regimes, however, as Krasner so succinctly puts it:

... knowledge alone is never enough to explain either the creation or the functioning of a regime. Interests and power cannot be banished ...¹⁰⁰

⁹⁹ See Chapter 2.6. The National Wildlife Federation led ten environmental organizations in a campaign against then Secretary of State James Baker and Environmental Protection Agency Administrator William Reilly to protest the United States' actions in regard to the Great Lakes Water Quality Agreements.

¹⁰⁰ Krasner, 1982, "Regimes and the Limits of Realism," p. 368

7 CONCLUSIONS

The goal of this paper is to analyze the leading theories pertaining to international cooperation and regime formation and apply them to a case study. I used the United States/Canadian regime to manage the use and abuse of the Great Lakes to identify the strengths and weaknesses of the structural realist approaches, Stephen Krasner's attempts to unify several theories, the Grotian perspective, and the epistemic communities approach.

Chapter Three presented a basic introduction to the major perspectives on international cooperation and regime formation. Conventional structural realism was dismissed because it considers regime formation to be an epiphenomenal event, and cannot, therefore, aid in an investigation of the rise of the United States/Canadian regime. The focus of Chapter Three was on Stephen Krasner's attempt to define and explain international regime formation using bits of several different theories to develop his approach. While the definitions he provides are accurate, Krasner's understanding of how and why international regimes form does not provide an adequate portrayal of the United States/Canada case.

Chapter Four expanded on the modified structural realist approach, presenting a game theoretic model for the United States/Canadian regime. A variety of basic

theoretical errors render this approach inaccurate when dealing with integrative environmental issues, particularly the case of the United States/Canadian regime.

In Chapter Five, I detailed the Grotian approach to international cooperation, and highlighted Oran Young's theory of institutional bargaining. The application of this approach supplied many of the theoretical underpinnings necessary to an understanding of the rise and the continued existence of the Boundary Water management regime created by the United States and Canada. This perspective proves to be a promising one, and certainly warrants further investigation. It is in the work of Oran Young that we find a detailed approach to understanding resource regimes designed to manage environmental issues of collective goods.

In analyzing the formation and continuation of the regime to manage the Great Lakes, several elements necessary for international cooperation on environmental issues become apparent. First is the changeable nature of states' interests. The United States/Canadian regime has been in effect for eighty-four years. The interests of both the United States and Canada were very different in the early 1900's when the basic core of the regime was first established. At the top of the list of U.S. state interests were maintaining a friendly alliance with Great Britain, reinforcing the regimes she had already established,

strengthening her grip on South America and the Carribbean Basin. Canada was most concerned with gaining independence from Great Britain, holding a United States annexation of Canada at bay, and building internal economic strength. These issues were at the crux of the negotiations for the first United States/Canadian cooperative effort. As time went on, state interests evolved to meet changing domestic and international events. The maintenance of the water management regime can be traced directly to an increased public awareness of environmental degradation in the past thirty years, and the pressures that awareness places on both the United States' and Canadian governments.

The evolution of state interests is evident in the role of leadership in the cooperative process. Structural leaders, vital to the creation of the regime, have taken a lesser role to intellectual leaders, without whom the public would not be empowered with knowledge concerning the condition of the Great Lakes. Without the entrepreneurial leadership of the International Joint Commission, the agreements contained in the regime could not be carried out.

The issue of equity also plays a great role in the cooperative process. Particularly in environmental issues requiring joint ventures, a veil of uncertainty as to end results persists. The best option for a state wanting to act in its best interests is to cooperate in a regime in

which costs and benefits are equitably divided. In such a case, all states have an equal chance of acquiring benefits in the long run.

Natural resources differ from international security concerns. Whereas power and security issues exist in an atmosphere of conflict and separation, the use of natural resources, according to an ecological perspective, necessitates that everything is connected to everything else. To maintain healthy ecosystems then, collective goods must be provided to everyone. Because this differs radically from economics and the free enterprise systems that coordinate human activity, the role of the state must be to protect the ecosphere and maintain balance rather than strive for allocative efficiency. This requires states to agree upon basic principles, goals, expectations, and patterns of behavior.¹⁰¹

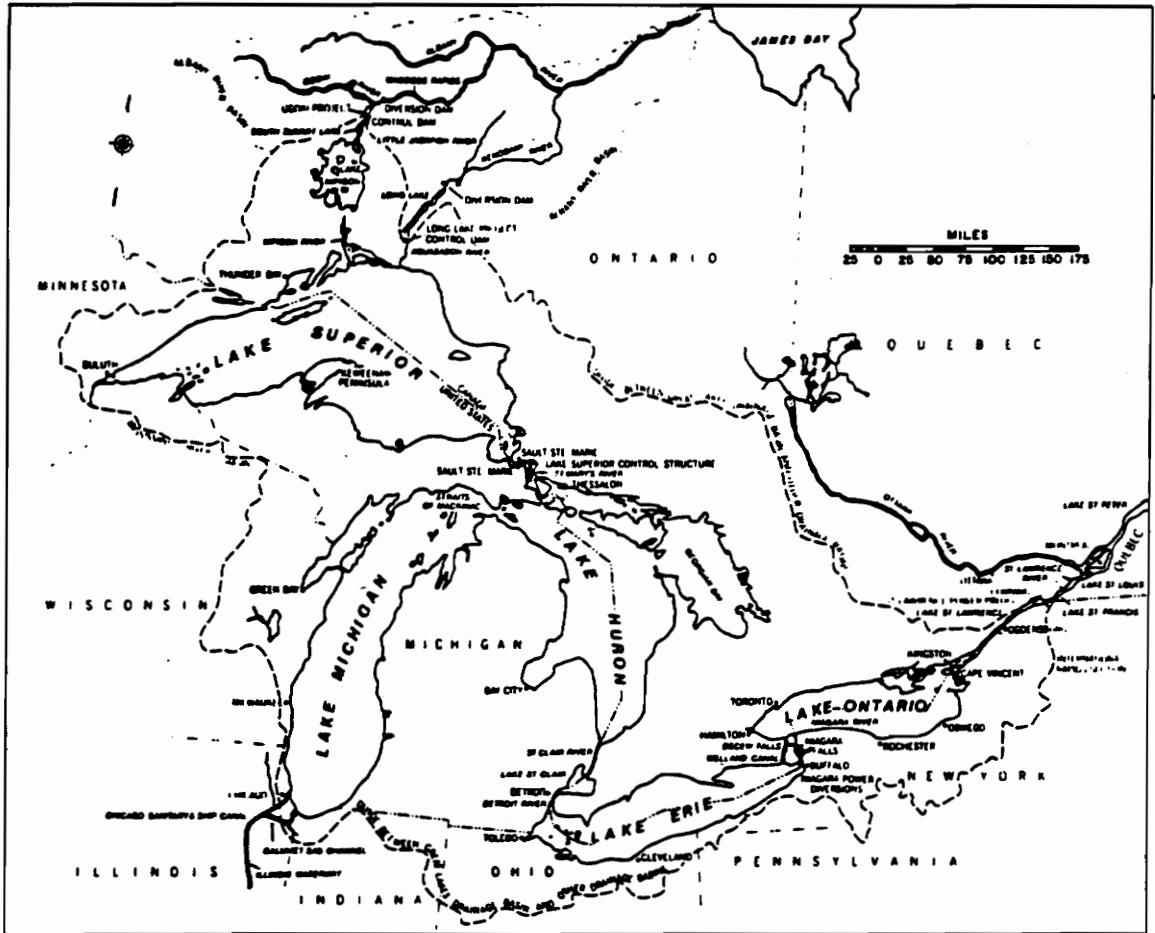
To meet the requirements necessary for a successful cooperative effort, states are often forced to calculate their interests in noneconomic terms rather than according to allocative efficiency. They may consider certain values, such as the right to life or the legal standing of plants and animals. There are values of human welfare that must be

¹⁰¹ For more information on resource regimes, see Young, 1982, Resource Regimes, and Young, 1989, International Cooperation: Building Regimes for Natural Resources and the Environment.

considered - the reservation of rights and freedoms and the welfare of future generations. There are social costs that should be explored, for example, the destruction of arable farmland through soil erosion or the loss of wildlife and plant species. In the realm of international environmental cooperation, these considerations must "ultimately outweigh the benefits and costs reflected in market prices" if we are to successfully maintain our natural environment.¹⁰² Failure to do so will most certainly result in disaster for the human race.

¹⁰² Young, 1982, Resource Regimes, p. 124

Appendix A



GREAT LAKES-ST. LAWRENCE RIVER DRAINAGE BASIN

Appendix B

Chronology of Events Leading to the United States/Canadian Regime

- 1814 Treaty of Ghent - provided means of settling boundary disputes
- 1817 Rush-Bagot Agreement - limited naval forces on the Great Lakes
- 1818 Convention of 1818 - extended and defined the US/Canadian border
- 1903 Last major boundary dispute settled (the Alaskan panhandle)
- 1903 International Waterways Commission - to solve fluvial disputes
- 1909 Boundary Waters Treaty - established to govern the use of boundary waters
- 1909 International Joint Commission - executes provisions of the Boundary Waters Treaty
- 1912 January 10 - the first meeting of the IJC
- 1954 St. Lawrence Seaway Agreement - manages navigation and shipping
- 1961 Columbia River Treaty - attempt to stabilize the flow of the river
- 1972 Great Lakes Water Quality Agreement - regulates pollution in the Great Lakes
- 1978 Great Lakes Water Quality Agreement - expanded the regulations of the 1972 Great Lakes Water Quality Agreement
- 1985 International Joint Commission Advisory - warned of impending damage to the Great Lakes if the regulations established in the Great Lakes Water Quality Agreements were not followed

This information was compiled from Graham, 1981, pp. 3-19 and The International Joint Commission's 1978-79 annual report, 70 Years of Accomplishment.

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