

BRIDGING JURISDICTIONAL DIVIDES

**Collective action through A Joint Strategic Plan for Management of Great
Lakes Fisheries**

by

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**Signatories to *A Joint Strategic Plan for Management of Great Lakes Fisheries*
1997 Revision, Ottawa, Ontario**
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*To my parents, my grandparents,
and the three generations of
Wolverines in my family*

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ABSTRACT

BRIDGING JURISDICTIONAL DIVIDES

Collective action through A Joint Strategic Plan for Management of Great Lakes Fisheries

Ontario, eight Great Lakes states, U.S. tribes, federal agencies in Canada and the United States, and the binational Great Lakes Fishery Commission all have a role in Great Lakes fishery management, with the non-federal governments retaining primary management authority. This dissertation is about how and why independent (yet interdependent) fishery managers work collectively through *A Joint Strategic Plan for Management of Great Lakes Fisheries*, a non-binding agreement. This research focuses on what the Joint Strategic Plan means to those who participate in the process and relies primarily on semi-structured interviews and participant observation to address the central questions: *Why do fishery managers take collective action in Great Lakes fishery management? What do fishery managers hope to achieve when they participate in the Joint Strategic Plan?*

The data reveal four facets of Great Lakes fishery management that help explain how and why collective action occurs. First, the history of Great Lakes fishery management illustrates that the non-federal governments have a strong sense of jurisdictional independence, which has made them sensitive to usurpation of their authority and thus somewhat reluctant to cooperate with each other. Second, fishery managers are part of an “epistemic community,” a group of like-minded professionals, and the Joint Strategic Plan gently coerces this community into working together and substantially rewards them for doing so. Third, despite long-standing tensions between the federal and non-federal governments, the non-federal members generally trust their federal counterparts and work with them synergistically. Finally, members reject the idea of a binding agreement because it would be inconsistent with Great Lakes fishery governance and because they feel they can achieve their goals through a non-binding agreement. These conclusions are applied to a case study—a dispute over walleye harvest in Lake Erie in 2004—as a way to illustrate how members believe the plan serves their needs even in stressful situations. This dissertation concludes by identifying four overarching themes related to fishery governance through the plan—jurisdictional independence, shared strategies and plans, science, and personal relationships—and discusses how those factors relate to the plan’s durability and replicability.

INTRODUCTION

In the heart of North America lie the five Great Lakes—Superior, Huron, Michigan, Erie, and Ontario—and to many, fish are the most alluring feature of these magnificent bodies of water. People love fish. People love to fish. Fish are the central thread in the lakes' fabric. Commercial fishing supports jobs; recreational fishing melts away life's tensions. Tribal fishing is a right in many areas and is the backbone of native communities. Fish mean a clean environment. The lakes are home to a rich variety of species such as lake trout, walleye, yellow perch, sturgeon, American eel, whitefish, salmon, burbot, bass, and bluegill. Together, the commercial, sport, and tribal fisheries bring \$4 billion in economic return to the region annually (Talhelm 1988). Canada and the United States have shared the lakes' fisheries since the region's boundaries were settled after the American Revolution, and because the fish are so important to people and the environment, government agencies go to great lengths to manage the resource. People in both countries expect fish to be abundant, accessible, and available for future generations.

Fish are in demand and like any natural resource that is limited yet important to many, the Great Lakes fishery is stressed. As human populations grew with the advent of European colonization, and as fishing gear improved, people overfished and fish stocks suffered collapse (Bogue 2000). Habitat loss, invasive species, and water quality degradation also took their toll on the resource. Lake trout, for example, a key native species, suffered overfishing and predation by the non-native sea lamprey such that the fishery was closed in 1962; other species, such as several types of cisco (a kind of whitefish) were extirpated or driven to extinction due to overfishing, sea lamprey predation, habitat loss, and other factors. Many other fish stocks suffered boom and bust

fluctuations. Since the opening of the St. Lawrence Seaway in 1957 (to allow ocean-going vessels access to the Great Lakes), an invasive species influx has altered permanently the food web, causing considerable harm. Today, forces like invasive species and habitat loss threaten the fishery's future.

While all fishers must be resource stewards, government agencies are directly responsible for managing the fishery. Governments strive to ensure benefits for today's fishers while protecting the resource for future use. As such, federal, provincial, state, and tribal governments maintain professional fisheries ministries, bureaus, divisions, or departments and staff them with highly trained fishery managers. The managers are biologists who work with animals to understand species interactions, fish behavior, food web fluctuations, and how countless other variables affect fish. They are also diplomats, working with other fishery managers, politicians, and the public to balance myriad needs and desires including those of commercial, recreational, and tribal fishers; elected officials; and environmental preservationists (Krueger and Decker 1999). Managers are expected to master the impossible: putting all of the biological and political pieces together to understand how the elements interact as an ecosystem. They make and implement policies, plan strategies with neighboring jurisdictions, feel political pressures, and are the face of government to the public. Fishery managers make the process work.

Krueger and Decker (1999, p. 31-32) point out that "the institutional complexity surrounding fisheries management increases when natural resources are shared along state or provincial boundaries or between countries." The Great Lakes region has such institutional complexity. Two nations, eight states, one province, and several U.S. tribes border the Great Lakes and each of these jurisdictions, along with the bi-national Great Lakes Fishery Commission, has some role in fishery management. No central authority exists to oversee fishery management or to impose regulations. Instead, management authority is dispersed and rests primarily with the non-federal governments—the states, the province, and the tribes. Because the fishery managers from each jurisdiction are accountable to their own government, they are drawn

inherently toward acting parochially; working for the narrow interests of or exclusively within the boundaries of their particular jurisdiction.

The human-conceived jurisdictional boundaries are not congruent with biological realities, as Great Lakes fish do not observe political borders. However, just as boundary lines carve up the natural ecosystem and invite parochialism, the interconnected fishery unites the jurisdictions and makes multilateral interactions all but inevitable. To help manage within this political complexity, the fishery management jurisdictions adhere to a voluntary, consensus-based framework known as *A Joint Strategic Plan For Management of Great Lakes Fisheries*. The plan calls for participants to meet regularly through “lake committees” and “technical committees,” to identify and articulate their shared fishery objectives, to share information and data, to develop and implement shared plans and objectives, and to fulfill policies in which the jurisdictions hold in common. This cooperative approach to Great Lakes fisheries is referred to as “collective action” throughout this dissertation. The plan is by and for the non-federal managers. The Province of Ontario, each Great Lakes state, and two U.S. intertribal organizations are signatory to the plan. Canadian and U.S. federal agencies have also signed the plan, pledging to work within its structures, and the binational Great Lakes Fishery Commission facilitates the plan’s implementation. While the plan does not replace any jurisdiction’s management authority, it is intended to improve overall fisheries governance on the Great Lakes by being the way for managers to keep communication channels open, to share information, to know one another, and to work together to better harmonize the many jurisdictions’ policies. Figure 6-1 (page 238) provides a conceptual diagram of Great Lakes fishery management with an emphasis on *A Joint Strategic Plan for Management of Great Lakes Fisheries*.

This dissertation is about how and why independent (yet interdependent) fishery managers cooperate in the biologically and politically complex Great Lakes setting. It asks *Why do fishery managers take collective action in Great Lakes fishery management and what do fishery managers hope to achieve when they participate in A Joint Strategic Plan for*

Management of Great Lakes Fisheries? To address these questions, the dissertation focuses on the fishery managers—on their attitudes and behavior—because the members themselves created the process and maintain it only so long as it is useful to them. Understanding Great Lakes fishery governance and how and why it functions, therefore, is predicated on understanding the fishery managers' perspectives. As such, this research draws from 62 semi-structured interviews—conducted between February 2004 and April 2005—with Joint Strategic Plan participants. This dissertation's conclusions are based mainly on the interviews, though it also uses other sources of qualitative data including participant observation, case study analysis, and document analysis. Appendix A contains a detailed description of this dissertation's methodologies and methods and Appendix B lists participants in and the questions posed during the semi-structured interviews.

Plan of the Dissertation

Cooperation in Great Lakes fishery management and how and why it occurs are the central themes of this dissertation. **Chapter 1** begins by presenting a history of jurisdictional authority in Great Lakes fishery management to illustrate that the region's fishery governance regime rests with independent, non-federal governments, which has created a parochial culture. It asks: *What were the forces that thwarted cooperation over shared Great Lakes fisheries and what caused the independent jurisdictions to overcome those forces?* Chapter 1 argues that parochialism stymied repeated attempts among the jurisdictions to work together from at least the mid-1800s through the 1940s. Cooperation began to emerge after the sea lamprey crisis of the mid-twentieth century prompted the formation of the Great Lakes Fishery Commission to address the problem and to help coordinate fisheries issues. Regular information-exchange began in the mid-1960s with the formation of permanent lake committees. Interactions became more strategic and formal beginning in the late 1970s during an era of environmentalism and while the non-federal jurisdictions were under the threat of federal preemption, culminating in the 1981 *Joint*

Strategic Plan for Management of Great Lakes Fisheries, a plan that still drives the management regime. Chapter 1 establishes that the Joint Strategic Plan is the region's response to political incoherence, sovereignty, sentiments of independence, and jealously guarded authorities. Crisis (the sea lamprey and, later, the threat of federal intrusion) and leadership (the commission as a facilitator) led to the development of a cooperative regime. The Joint Strategic Plan reflects the history of Great Lakes fishery management and is structured to respect independence and authority while maximizing opportunities for collective action. Chapter 1 relies on minutes, transcripts, and other archival documents; legal sources; interviews; and other historical literature to produce a history of the development of cooperation, through the Joint Strategic Plan, in the Great Lakes region.

The theoretical implications of this history of cooperation raise questions about collective action and why it occurs; about the relationship between the federal and non-federal governments in Great Lakes fishery management; and about the rationale, strengths, and weaknesses of a non-binding agreement for Great Lakes fishery governance. These themes are developed in the body of the dissertation.

Chapter 2 looks at the behavior of the individual fishery managers and asks: *How can multijurisdictional institutions help independent jurisdictions steer conflict toward cooperation rather than competition? How do fishery managers on the Great Lakes organize in a way that minimizes the clash between parochialism and collective action and why do fishery managers—who are accountable only to their own jurisdiction—expend time, energy and resources to coordinate fisheries policies?* While the chapter begins with a brief discussion about the tendency toward selfishness (in the context of Hardin's (1968) "tragedy of the commons"), it centers more on collective action rather than on dealing with allocation of (competition over) shared resources. The literature most relevant to this chapter concerns relationships, rewards, and coercion and how they relate to collective action among individuals. The chapter argues that conflict is inevitable over a shared natural resource and that the important issue is whether

conflict leads to competition or collective action. The Joint Strategic Plan is designed to help the participants see collective action, not competition, as in their self-interest and, as such, established formal processes for regular interactions and relationship building. The Joint Strategic Plan nurtures collective action by relying on the existence and strength of an epistemic community, an elite group of like-minded professionals. The Joint Strategic Plan process gently coerces members to adhere to the norms of the community. Moreover, the process rewards participants because interactions with trusted peers are enjoyable, because appropriate ecosystem management is professionally and personally pleasing, and because scientifically and politically defensible policies create fewer implementation problems in the home jurisdiction.

Although the non-federal jurisdictions retain primary management authority over Great Lakes fisheries, the Canadian and U.S. federal governments and the binational Great Lakes Fishery Commission participate actively in the Joint Strategic Plan regime, thus illustrating that the relationship among officials from different levels of government is a key feature of Great Lakes fishery management. Political scientist Denise Scheberle (2004) presents a model of environmental federalism that characterizes relationships between levels of government as they implement environmental policies. Using her model as a backdrop, **Chapter 3** asks: *Can an institution in a non-federally-dominant region ease inherent federalism tensions? How do the states, the U.S. tribes, and the Province of Ontario work together and with the federal governments to identify and implement shared fishery policies?* The chapter argues that U.S. non-federal managers are at once suspicious of federal involvement and appreciative of it. (These sentiments were rarely evident among Canadian participants.) Participants believe the U.S. federal agencies involved in Great Lakes fisheries wish to expand their authority at the expense of the non-federal governments. However, members believe the plan helps ease federalism tensions and facilitates synergy among levels of government. As such, the non-federal participants generally trust their federal colleagues and rely on federal resources and leadership. Participants also believe the commission's involvement in the Joint Strategic Plan is appropriate so long as the

commission remains neutral and committed to the process and does not attempt to overstep its limited authority. This chapter extends Scheberle's analysis to a situation—Great Lakes fishery management—where the federal government is involved yet not dominant and concludes that because of trust among officials and an active process to work together, the federal-non-federal governments engage in what Scheberle describes as a “pulling together and synergistic” relationship, a highly desirable state.

Multijurisdictional agreements are usually designed to prompt or compel certain behavior among the signatory members. Agreements come in many forms and in varying degrees of strength. Some are binding and some are not. **Chapter 4** asks *Under what circumstances are non-binding agreements preferable to binding agreements? Why do Joint Strategic Plan members prefer a non-binding agreement and how do participants use the agreement to enhance the likelihood that policies developed under it will be implemented?* Literature related to sovereignty, institutions, agreements, and implementation are reviewed to understand the strengths, weaknesses, and application of binding and non-binding agreements. The Great Lakes fishery regime is then considered in the context of this literature to identify and discuss the conditions on the Great Lakes that warrant a non-binding agreement and to extend the literature to this regime. This chapter argues that a non-binding fisheries agreement is most appropriate for the Great Lakes region because members must preserve jurisdictional autonomy, policies must be flexible, and members wish to work together to promote ambitious policies rather than to constrain behavior. As such, the members believe that the types of policies that emerge from a non-binding agreement are more valuable than those that would come from a binding agreement. Participants also prefer a non-binding agreement like the plan because it contains meaningful mechanisms to enhance the chances of implementation, negating the need for an intrusive binding agreement.

Chapter 5 consists of a single case study—walleye management in Lake Erie—that looks at a situation that tested the plan's ability to manage conflict in a non-binding fashion.

Walleye management can be contentious on Lake Erie because the species is valuable economically to both Canada and the U.S. and because harvest methods vary markedly between the two nations—the Canadians harvest walleye commercially and the Americans recreationally. Unlike the other lake committees, the Lake Erie Committee uses the Joint Strategic Plan process to establish walleye harvest quotas, known as total allowable catch (TAC). Most of the time, the Lake Erie Committee can agree on and adhere to a TAC. However, the committee failed to maintain consensus on the 2004 TAC after consensus was achieved and announced. The committee could not resolve the dispute on its own and, in late 2003, invoked the Joint Strategic Plan's dispute provisions, a rare occurrence. This chapter asks: *What is the mechanism for dealing with conflict when there are no binding enforcement provisions? How did the participants understand the walleye dispute as it occurred? How did the non-binding plan help the committee members resolve their dispute?* This chapter argues that the concept of consensus, the existence of an epistemic community of scientists, and other factors are critical to building the trusting relationships necessary to make the TAC process function. Moreover, the plan, though mostly designed to facilitate non-distributional policies, nevertheless can address distributional issues like TACs, despite being non-binding. Members believe the plan's dispute resolution mechanisms can help them address serious contention. This chapter relies on interview data and draws upon Lake Erie Committee documents, minutes, and reports to create a new source for understanding TAC-setting processes as they apply to the operations of lake committees.

Together, these chapters present an emergent picture of Great Lakes fishery governance under the Joint Strategic Plan, which is outlined in **Chapter 6**. Today's Great Lakes fishery management regime is a direct product of the region's history and the jurisdictional realities that resulted in primary management authority resting with the non-federal governments. The non-federal jurisdictions have a deep culture of independence, and the general unwillingness to cooperate or to cede authority contributed to poor, uncoordinated management despite the interconnected nature of the ecosystem. Crisis and leadership prompted the jurisdictions to

establish permanent mechanisms for cooperation. This chapter concludes that diffuse political authority, non-federal autonomy, a strong interest in interdependence, the threat of federal preemption, the existence of an acceptable third party to facilitate cooperation, and a mutual interest in strategic planning are the conditions that led to the development of the plan and explain why the plan is the way it is. Respecting jurisdictional autonomy, reliance on shared strategies and goals, basing decisions on science, and developing strong relationships among the participants are the plan's key design elements, and the impact of these elements on the plan's durability and replicability are discussed.

This research will demonstrate that the Great Lakes fishery management regime is remarkable not just because the members respect each others' authority, but also because they see political independence as a strength—as a way to leverage resources and take collective action. The regime is remarkable not just because it keeps the federal governments at bay in a non-federally driven situation, but also because it helps the federal and non-federal governments draw upon each others' capabilities to develop and implement meaningful, strategic management activities. The regime is remarkable not just because it is rooted in a non-binding agreement, but also because the plan's voluntary strategies enhance the likelihood that the members will implement it without needing an overbearing “stick” to enforce. Great Lakes fishery management is science-based and cooperative, not naïve or provincial. Joint Strategic Plan meetings are dynamic and cutting edge, not routine or banal. Participants today operate in a culture of cooperation that was missing for much of the region's history. This dissertation is about the fishery managers-diplomats and how they have self-organized into a collegial, strategic, and basinwide management team.

CHAPTER 1

TRANSCENDING DIFFUSE POLITICAL AUTHORITY

The Protracted Evolution of Cooperation in Great Lakes Fishery Management

Abstract

Jurisdictional authority over Great Lakes fishery management rests with independent, non-federal governments—the Province of Ontario, the eight Great Lakes states, and U.S. tribes. This independence undermined repeated attempts by the jurisdictions from at least the mid-1800s to the 1940s to coordinate their disparate fishery management activities. Cooperation began to emerge after the sea lamprey invasion reached crisis stage by the 1940s and thus forced collective action, after the non-regulatory Great Lakes Fishery Commission was formed in the 1950s and served as a focal point for discussions, and after the commission created lake committees in the 1960s. The threat of federal intrusion into non-federal management, the commission's continuing leadership, and the spirit of an era of environmentalism in the 1970s prompted the jurisdictions to formalize their interactions by developing *A Joint Strategic Plan for Management of Great Lakes Fisheries* in 1981. With a history of parochialism as a backdrop, chapter 1 discusses how and why a cooperative regime emerged and argues that today's fishery management process is rooted in political fragmentation, sovereignty, sentiments of independence, and jealously guarded authorities. Cooperation was prompted by crisis and leadership and the structure and goals of the Joint Strategic Plan reflect the history of Great Lakes fishery management. Chapter 1 concludes with a detailed description of the Joint Strategic Plan.

In the late 1700s and early 1800s, during the period of European colonization, the Great Lakes region was a key battleground for control of North America. World powers fought each other, colonists, and native peoples for the right to control the region and out of these conflicts emerged political boundaries that eventually defined the domains of Canada, the United States, eight U.S. states, several tribes, and the Province of Ontario. This patchwork of boundaries carved up the region politically, and many of today's borders reflect events and decisions of more than 200 years ago. Each of the non-federal jurisdictions would retain, attain, or affirm its right

to control the fisheries in its waters, yet because the waters are interconnected, such political diffusion would lead to major problems when jurisdictional management philosophies differed and when resources became scarce. Indeed, the multitude of independent governments, each with its own philosophies and constituent pressures, led to inconsistent, ineffective, and injurious fishery practices, reflecting a long history of parochialism and uncooperative behavior.

The region's history helps explain the emergence of institutional arrangements to help manage the shared Great Lakes fishery, culminating in the 1981 *Joint Strategic Plan for Management of Great Lakes Fisheries*. This chapter asks: *What were the forces that thwarted cooperation over shared Great Lakes fisheries and what caused the independent jurisdictions to overcome those forces? What regime did the jurisdictions establish to help them reach their shared goals?* As this chapter will argue, the existence of many non-federal jurisdictions, coupled with strong management authority at the non-federal level and opposition to overarching management institutions, contributed to decades of uncoordinated management of the shared Great Lakes fishery. This diffuse authority created intense jurisdictional independence and left the region's governments ill-equipped to respond to some of the biggest challenges the basin faced, particularly as the lakes became more polluted and as the fishery declined. Despite their best efforts at multijurisdictional conferences, binational boards of inquiry, interstate agreements, and even treaties, the jurisdictions were unable (and mostly unwilling) to harmonize their fishery regulations and install some degree of coordinated management.

As is often the case with environmental management, crises prompted action, and the invasive sea lamprey, which ravaged the fishery at a basinwide level starting around the 1920s, proved to be the major catalyst for the establishment of an overarching institution, the Great Lakes Fishery Commission. Being the only cross-cutting fishery body on the lakes, the commission was to assume some level of leadership in coordinating multijurisdictional action. This commission was granted little in the way of direct management authority and, as such, was perceived as relatively neutral (i.e., unable to intrude upon non-federal management authority).

This neutrality was essential in convincing the jurisdictions that they could both cooperate through the commission's structures and retain their independence.

The commission formed lake committees in the 1960s to help the jurisdictions meet on a regular basis. With these lake committees, the jurisdictions grew comfortable with information sharing. In the 1970s, another crisis in the non-federal jurisdictions' eyes—the potential strengthening of outside authorities—prompted a shift from information sharing to strategic planning through a more-structured arrangement, *A Joint Strategic Plan for Management of Great Lakes Fisheries*. As in the 1960s, the jurisdictions would acknowledge that some overarching entity—again, the Great Lakes Fishery Commission—would be critical to helping them achieve their shared goals. Thus, in the two major instances when the jurisdictions became organized—in the 1960s and in the early 1980s—agencies acknowledged that cooperation would not come automatically; that an appropriate institution was needed to keep them committed to working together. The Joint Strategic Plan, by being a non-binding, strategic agreement, reflects the region's history and institutional realities. The plan is formulated to suit the Great Lakes region's needs and unique conditions.

The Joint Strategic Plan emerged after a slow but continuous development of a culture of cooperation. This chapter traces the roots of federal, state, provincial, and tribal fishery management authorities and presents a history of cooperation in Great Lakes fishery management, dividing management into four eras of progressively improving cooperation, culminating in the still-in-effect *Joint Strategic Plan for Management of Great Lakes Fisheries*. The chapter concludes by presenting the details of the Joint Strategic Plan, describing the functions of the cooperative regime, and presenting the theoretical lessons from this history. This chapter relies on semi-structured interviews with Joint Strategic Plan participants (see Appendix A) to understand the history of Great Lakes fishery governance, the motivations for the development of the Joint Strategic Plan, and the substance of the plan. This chapter also uses primary documents (minutes and reports starting in the 1940s) and literature to understand

cooperation and the emergence of cooperative structures. Finally, this chapter uses legal documents (such as laws and treaties), and literature to understand the management authorities of each type of jurisdiction.

AUTHORITY DISPERSED: FEDERAL, STATE, PROVINCIAL, TRIBAL, AND BINATIONAL RESPONSIBILITIES OVER THE GREAT LAKES FISHERY

Following the American Revolution, the 1783 Treaty of Peace with Great Britain affirmed the boundary between Canada (then a British Territory) and the United States. As the treaty stipulated, the international boundary was to run through the center of the Great Lakes:

It is hereby agreed and declared, that the following are, and shall be their boundaries . . . a line due west . . . into Lake Ontario, through the middle of said lake until it strikes the communication by water between that lake and Lake Erie, through the middle of said lake until it arrives at the water communication between that lake and Lake Huron; thence along the middle of said water communication into Lake Huron; thence through the middle of said lake to the water communication between that lake and Lake Superior; thence through Lake Superior northward of the Isles Royal and Phelipeaux, to the Long Lake . . . (Anonymous 1783)

At the time of the treaty (as now), it was well-accepted that when two nations border an inland lake, both countries would be entitled to their share of the natural resources (Piper 1967).

Subsequent to the Treaty of Peace, the U.S. Northwest Ordinance of 1787 allowed for up to five new states to be added to the Great Lakes region as westward expansion occurred, in addition to the three states already established (five states were in fact added) (Bogue 2000). While the young American government and the European powers agreed to the region's boundaries, native peoples were displaced (Ferguson 1979), only to have their sovereignty recognized later through treaties (Busiahn 1985; Flanagan 2000).

As a result of the boundary decisions during the late 1700s and early 1800s, two nations, eight states, the Province of Ontario, and several tribes border the lakes (figure 1-1). Through enumerated powers, ownership rights, court cases, precedent, and legislation, each of the non-federal jurisdictions would retain and attain the authority to manage its section of the resource, though with some federal involvement as well. These authorities are generally understood and

accepted, though they are not always exclusive. That is, the areas of authority do not always have concrete edges, though the non-federal authority is largely supreme to the federal authority in Great Lakes fishery management. The following sections provide an overview of the various authorities and how they were derived.

Canadian federal, provincial, and Aboriginal authorities: awkward, ambiguous arrangements

The Canadian federal and provincial authorities over Great Lakes fisheries are deeply intertwined, with an added involvement of the Aboriginal First Nations. While Ontario takes the lead in Great Lakes fishery management, the relationship is complex, as the federal government



Figure 1-1: The Great Lakes political jurisdictions within the lakes system. (Headquarters for the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) and the Chippewa-Ottawa Resource Authority (CORA) shown.)

retains, but delegates, authority to the province (Harrison 1996). Article VI, § 91 of the British North America Act (BNA) of 1867 (the Canadian Constitution) lists freshwater fisheries management and conservation—which includes Great Lakes fisheries—as a federal power (Ollivier 1962). It also grants the federal government authority to protect fish habitat, including water quality. The federal government exercises this authority through its *Fisheries Act* (Dochoda 1999; Government of Canada 2004; Harrison 1996). This act authorizes the federal government to conduct law enforcement (§ 5), issue fishing licenses in unlicensed areas (§ 7), construct fishways around obstructions (§ 20), protect fish habitat (§ 35), and promulgate fishery regulations, including regulations governing conservation, harvest quantity, harvest methods, fish marketing, licensing, and inter-provincial commerce (Government of Canada 2004; Lamb and Lybecker 1999; Rideout and Ritter 2002).

Although the BNA grants the federal government considerable power over freshwater fisheries management, Ontario's role in Great Lakes management is far more substantial. Much of Ontario's authority derives from the fact that the provinces own the natural resources within their boundaries (Bogue 2000; Gibson 1973; Harrison 1996), including the fish. BNA Article VIII, §§ 109 and 117 grants to the provinces ownership of (and the rights to royalties from) “all lands, mines, [and] minerals” (Ollivier 1962; Thompson 1974). Article VI, § 92 enumerates provincial powers, giving them the right to legislate property issues and manage provincial lands. Provinces are also given meaningful powers to raise revenues and manage commerce (Thompson 1974; Vaughan 2003). These BNA sections, along with two court cases—*Dixon v. Snetsinger* (Dixon v. Snetsinger 1873) and *R. v. Moss* (R.v. Moss 1896)—affirmed that the provinces—not the federal government—own the lake beds. With lake bed ownership comes ownership of the waters that flow above them and the fish that inhabit those waters (Piper 1967).

Property ownership also includes the ability to grant access to the property and to benefit from royalties (Bogue 2000; Harrison 1996; Thompson 1974). By owning the lake bed, Ontario has the power to grant people the right to fish. It took Ontario some time to establish those rights

and authorities. Prior to the late 1800s, the federal government exerted strong management authority over inland fisheries by virtue of its enumerated powers under BNA § 91. The first major court case addressing provincial management rights, *The Queen v. Robertson (R. v. Robertson 1882)* established that managing non-tidal waters (including the Great Lakes) was the purview of the owner (Thompson 1974), in this case, the province. In the *Fisheries Reference of 1898*, Ontario challenged the federal government's authority to issue fishing licenses, claiming it was a breach of the province's ownership rights, as established by the BNA. The court concluded that fish appropriation fell under the province's property rights, not the federal government's enumerated authority to manage the fishery (*A.G. (Canada) v. A.G. (Ontario) 1898*). Other court cases asserted that while the federal government could constrain provincial actions through its conservation powers, in doing so, the federal government had to demonstrate that the action did not infringe upon provincial property rights (Thompson 1974).

As time went by, the practical implications of court decisions and agreements between levels of government was such that the provinces would determine who could fish, how they could fish, and how much they would pay to fish while the federal government would implement policies to conserve and protect the resource, to prevent fisheries loss, to conduct law enforcement, and to protect habitat (Thompson 1974). Jurisdictional overlap remains large (Gibson 1973) and authorities are not always exclusive. To complicate the matter, the governments distinguish between commercial and recreational fishing in how regulation occurs. A fish caught commercially is considered property and, therefore, is regulated by the province (Brown et al. 1999), thereby giving the province leeway to expeditiously install commercial regulations. Recreational fishing, on the other hand, is considered both a property matter (i.e., granting access to the fishery) and a conservation matter (the tools for regulating recreational fishing—bags limits—are considered conservation tools). Conservation is a federal responsibility while granting access is provincial. Thus, both levels of government are involved in recreational regulations (Rideout and Ritter 2002).

Enumerated powers and ownership, thus, justify both federal and provincial authority over the Great Lakes fishery. To make this awkward situation workable, Ontario and the federal government agree that Ontario shall establish the fishery regulations and then refer the regulations to the federal government for assent. The federal government incorporates those regulations into the federal *Fisheries Act* and Ontario then implements the act (Dochoda 1999; Lamb and Lybecker 1999). This arrangement, while complex, has been largely amenable to both sides and allows for the two levels of government to operate under the unique situation that the BNA and court cases created (Gibson 1973).

Just as the federal-provincial relationship is complex, so is the relationship between those governments and tribal First Nations, particularly as they relate to the First Nations' authority to manage fisheries. Courts have ruled that provincial and federal regulations do not inherently deny tribal access to fish, thus limiting the direct role Canadian tribes can play in fisheries management. Indian lands of British North America were sold to Britain starting in 1764 through a series of treaties or agreements with the Aboriginal peoples (Surtees 1986). The *Robinson Treaties of 1850* guaranteed the tribes "full and free privilege . . . to fish in the waters [now ceded by them] as they have heretofore been in the habit of doing" (Duhamel 1964a; Duhamel 1964b; Surtees 1986). The *Robinson Treaties* were followed by a series of eleven numbered treaties (entitled *Treaty 1*, *Treaty 2*, etc.) that facilitated the sale of large parcels of land throughout Canada to the Crown (Cloutier 1957a; Cloutier 1957b; Duhamel 1966; Flanagan 2000). Most of those treaties also included fishing and hunting rights, though, as in *Treaty 3*, they also included the caveat that the rights would be "subject to such regulations as may from time to time be made by Her Government of Her Dominion of Canada" (Duhamel 1966).

Despite these treaties, Canadian federal and provincial powers limit the Aboriginal authority to exercise their fishing rights. The 1990 case *R. v. Sparrow* (R. v. Sparrow 1990) was a major ruling that clarified the meaning of § 35 (1) of the Constitution Act of 1982, which explicitly recognized and affirmed Aboriginal treaty rights. The *Sparrow* decision held

that fishing regulations were established to manage fisheries, not to limit Aboriginal rights, and that federal regulatory authorities to manage fisheries were valid. The court added, “there is nothing in the *Fisheries Act* or its detailed regulations that demonstrates a clear and plain intention to extinguish the Indian aboriginal right to fish.” The evolution of First Nations’ policy does not mean the tribes are powerless to influence management. The *Sparrow* decision did remind government of its responsibility to protect Aboriginal fishing rights. To protect the rights, government must ask whether the regulations are reasonable, do not impose undue hardship, or do not infringe on Aboriginal rights in a major way. Government must also consult with Aboriginal peoples if there is to be a chance their fishing rights would be violated.

As often happens in Canada, agreements facilitate policy execution. In the case of relations with First Nations, Ontario negotiates fishery management agreements, like an agreement between the province and the Saugeen Ojibway governing commercial fishing around the Bruce Peninsula of Lake Huron. Under this agreement, the First Nations are responsible for monitoring commercial harvest and the tribal and provincial biologists agree to share data and make joint recommendations on harvest quotas (Payne 2005). In addition to agreements, First Nations—individually and collectively—implement fishery biology and monitoring programs.

U.S. federal, state, and tribal responsibilities: acting pursuant to enumerated authorities

As in Canada, the U.S. federal, state, and tribal authorities are intertwined, though the lines of responsibility are somewhat clearer than in Canada. The states and tribes, like the Province of Ontario, retain primary management authority over their fishery resources, though the federal government does have significant—albeit mostly unused—powers to influence fishery management. While ownership and enumerated powers define authority in Canada, in the United States, courts first couched, then abandoned, authority based on ownership and instead derived authority mostly from enumerated powers.

Throughout the United States, including in the Great Lakes basin, the states and tribes have well established authority to manage fish and wildlife, especially the animals that remain entirely within their boundaries. One basis for state management authority is simply how the borders were set in the Great Lakes region. A common principle when dividing territory is that inland lakes are treated differently from oceans. While the international border runs through the middle of four of the five Great Lakes (all but Lake Michigan), state boundaries extend to the international border (Bogue 2000; Piper 1967), thus no international waters exist in the basin (Piper 1967). Great Lakes boundaries stand in contrast to oceanic coastal areas where state jurisdiction ends three miles from the state's shores. The fact that state boundaries extend to the international border allowed states to deny the existence of federal waters and assert the authority over Great Lakes' lake beds, waters, and the fish of those waters (Piper 1967).

Early court decisions ruled that states owned the fish and game. The 1845 Supreme Court case *Pollard v. Hagan* affirmed state ownership of waters and lake beds by stressing that such ownership was a time-tested tenet of law; a right that preceded the Constitution (Dochoda 1999; Howard [1845] 1901; Killian and Beck 1987; Piper 1967). Subsequent cases—particularly the 1877 case *McCready v. Virginia* and the 1896 case *Geer v. Connecticut*—upheld state ownership, though *Geer*, as discussed below, would be overturned (Davis 1896; Killian and Beck 1987; Otto [1877] 1901).

State ownership of lake beds helped to establish non-federal authority to manage fisheries, but during the twentieth century, courts shifted from basing natural resource cases on ownership to basing cases on enumerated powers (Zorn 2005). Consequently, while states maintained their management authority, the federal government asserted its constitutional powers to play a role in hitherto exclusive state fishery affairs. In the 1920 case *Missouri v. Holland* (Knaebel 1920), the Supreme Court upheld a treaty—the *Migratory Bird Treaty Act* (USGPO 1918)—allowing federal management of migratory birds despite Missouri's argument that the state owned the wildlife. The court ruled that since the Constitution granted the federal

government treaty-making authority, the federal power could supersede the state authority (Holmes 1920; Killian and Beck 1987; Knaebel 1920; Moore 1965; Willoughby 1979; Zorn 2005). The *Missouri* case did not deny the fundamental right of states to manage resources, rather, it said that there may be times when the national interest is more important than a state interest, thus allowing federal involvement (Willoughby 1979). In 1948, in the Supreme Court case *Toomer v. Witsell* (Wyatt 1948), the court further backed away from earlier ownership decisions, referring to state ownership as “fiction” (Killian and Beck 1987) and the 1979 case *Hughes v. Oklahoma* (Lind [1979] 1981) essentially ended the state ownership issue, specifically overturning *Geer*. In *Hughes*, the court stated that assertions of ownership could not prevent the federal government from exerting its powers, in this case, commerce powers (Killian and Beck 1987; Zorn 2005).

Clearly, while state management authority was not revoked, the state claim of exclusive authority based on ownership would not stand if the federal government chose to exercise its powers. The *Clean Water Act* (USGPO 1972), the *Endangered Species Act* (USGPO 1973), the *Convention on the International Trade of Endangered Species* (CITES [1973] 1979), and other new laws of the 1970s, for example, set the stage for federal involvement in environmental matters previously left up to the states. These acts, plus pre-1970s federal fisheries legislation like the *Federal Aid in Sportfish Restoration Act of 1950* (USGPO 1950) and the *Anadromous Fish Conservation Act of 1965* (USGPO 1965), provide the federal government with mechanisms to involve itself in Great Lakes fisheries and to restrict state actions. However, even with these federal laws, federal involvement in state fishery matters is far from inherent and certainly not absolute or exclusive. Important to the non-federal jurisdictions is the fact that the Constitution does not directly grant the federal government the power to manage fisheries. The Tenth Amendment grants authorities not expressly vested in the federal government to the states. Authority over fish, wildlife, and natural resources is not an express power given to the federal government and, therefore, it is retained by the states. While many natural resource issues are

multi-state matters, and while the courts have ruled that strong federal powers—such as regulating commerce, protecting habitat, managing navigation and entering into treaties—could overrule state authorities (Zimmerman 2005), state authority to manage its natural resources, in the Great Lakes region has nevertheless remained relatively intact.

U.S. tribal authority is also relatively strong and has grown during the previous three decades. Tribes, being sovereign, hold authority to manage the fisheries of their waters. The tribal role in Great Lakes fishery management is far more developed in the United States than in Canada and, as such, tribes in some areas have a management role similar to the states. Tribal authority, in its most basic form, is rooted in the 1832 Supreme Court decision *Worcester v. Georgia* (Peters [1832] 1901), where the court affirmed that an Indian tribe is a political power with authority of self-governance and the ability to execute a broad range of responsibilities including taxation and tribal property management (Cohen 1988).

Until 1871, the U.S. federal government addressed Indian issues through treaties with individual tribes. These treaties are the foundation for tribal fishing rights and some management authority. Authority exists in two main areas: on-reservation and off-reservation. The U.S. Department of Interior in 1936¹ affirmed that on-reservation authority was consistent with the tribes' broad rights of self-governance (Cohen 1988). Tribes can maintain exclusive fishing rights on-reservation; other fishing laws (e.g., state laws) are generally not applicable (Busiahn 1985). On off-reservation lands (known as “ceded” or “sold” lands, which include adjacent waters), tribal fishing rights are usually found in the treaties covering the transfer of the ceded lands. In waters adjacent to ceded lands, tribes can regulate their members, though other non-Native fishers have access to the waters as well and are subject to state regulations. Several treaties between the U.S. federal government and the various tribes affirm tribal fishing rights in Great Lakes' waters and provide a foundation for tribal management. In the *Treaty of March 28*,

¹ Op. Acting Sol. I.D., M. 28107, June 30, 1936 (Cohen, 1988, fn 174, p. 285).

1936, with the Ottawas and Chippewas, for instance, the tribes ceded portions of the northern lower peninsula and eastern upper peninsula of Michigan (including waters of lakes Michigan, Huron, and Superior) to the United States, while retaining the right to hunt and fish on the ceded lands (including the waters of adjacent Great Lakes) (Anonymous 1873). A treaty of 1842 with the Chippewa Indians included a similar cession of Lake Superior waters in Wisconsin (GLIFWC 2006; Kappler [1904] 2006; Mattes et al. 2005).

With the tribal rights to fish on and off reservation in the Great Lakes region affirmed, tribal management authority evolved through a series of court cases and agreements with state governments. From the time of the Indian treaties of the 1800s to around the 1960s, Native American fishers did little to assert their management rights in ceded waters. During this period, Native fishers purchased fishing licenses from the states and conformed to state harvest regulations (Chiarappa and Szylvian 2003). In the 1960s and 1970s, the tribes revisited the still-valid treaties and began to assert their rights. In Michigan, the cases *People v. Jondreau* (Michigan Supreme Court 1971) in 1971 and *People v. LeBlanc* (Michigan Supreme Court 1976) in 1976, and the *Voight* case in Wisconsin (United States Court of Appeals 1983) re-affirmed Indian rights to fish in ceded waters without a state license (Chiarappa and Szylvian 2003; Zorn 2003). After these cases, tribal authority to issue licenses to their members would be protected and tribes would have the ability to block state regulations in the ceded waters should tribes demonstrate the ability to regulate their members effectively and uphold the state's conservation goals (Busiahn 1985; Schlender (undated); Zorn 1989). The landmark 1979 case *U.S. v. Michigan* (United States District Court 1979) re-affirmed tribal activities in ceded waters, noted that the state does not have exclusive management authority in the ceded waters, and said that state regulations over tribal fishing would be invalid.

While each of the individual tribes that signed treaties with the U.S. federal government retain the rights stated in the treaties, the tribes formed two inter-tribal organizations in the United States to consolidate tribal expertise. These two organizations—the Chippewa-Ottawa Resource

Authority (CORA, formerly the Chippewa-Ottawa Treaty Fishery Management Authority), headquartered in Sault Ste. Marie, Michigan, and the Great Lakes Indian Fish and Wildlife Commission (GLIFWC), headquartered in Odanah, Wisconsin—exercise powers delegated to them by their individual tribal members. These organizations support biologists, law enforcement officers, policy-makers, and public information officers who develop the fisheries policies for off-reservation waters on behalf of the component tribes.

Tribal authority overlaps in many respects with state authority, as both states and tribes regulate harvest, conduct assessment activities, enforce regulations, and undertake many similar day-to-day activities in the same waters. That is, both states and tribes regulate fisheries, just not exclusively. In ceded waters, state management authority is limited to what is necessary to conserve the resource; tribal regulations (for instance, tribal licenses) may supersede state regulations if the tribes have an effective system of self-governance that supports resource conservation. To work through this potentially difficult and confusing situation, the states and the tribes together develop and adhere to fishery agreements. In the waters covered under the Treaty of 1836, a “Consent Decree” (an agreement between tribes, Michigan, and the federal government mandated by the *U.S. v. Michigan* decision), outlines where, when, and for what species tribal fishers can fish; who licenses fishers; how top species shall be managed; and how enforcement shall be coordinated (United States District Court 2000). The consent decree requires periodic re-negotiation among the State of Michigan, the relevant tribes, and the federal government, under the oversight of a judge. In other ceded waters of the Great Lakes (which are only in Lake Superior), further agreements (such as court orders for tribal consensus on state management decisions and comprehensive protocols for state and tribal committees) define tribal, state, and federal management spheres (Zorn 2003).

Based on history, court decisions, and the Constitution, state and tribal authorities are generally delineated. The states and the tribes:

- Establish and enforce harvest regulations;
- Issue fishing licenses;
- Stock recreational fish (primarily states though some tribes as well);
- Undertake various fishery rehabilitation initiatives;
- Carry out assessment activities;
- Undertake measures to protect habitat; and
- Protect against invasive species.

The federal government:

- Conducts scientific assessments and collects fisheries data;
- Implements treaties;
- Regulates endangered species;
- Assists with restoration of native species;
- Mediates multi-state disputes;
- Controls the interstate transportation of harmful species;
- Protects against invasive species; and
- Maintains tribal trust responsibilities.

Binational coordination: The Great Lakes Fishery Commission

The federal, provincial, state, and tribal authorities are today fairly clear and established, and a bi-national fishery institution—the Great Lakes Fishery Commission—also exists on the Great Lakes to assist in fishery management, though as the next section will illustrate, the formation of this institution was hard-fought. For many decades, cross-border cooperation was irregular, and while many people strongly believed an overarching institution for Great Lakes fishery management would help make the many disparate management policies more uniform, the U.S. states were reluctant to surrender any of their authority to a bi-national institution (Fetterolf 1980). The destructive sea lamprey in the mid-twentieth century, and the need to control the predator basinwide, ultimately convinced the jurisdictions that a binational institution was warranted. Sea lampreys invaded the Great Lakes through shipping canals and quickly spread throughout the system. Sea lampreys attach to fish with a suction cup mouth ringed with



Figure 1-2: Adult sea lamprey. Photo courtesy New York State Department of Environmental Conservation.

sharp teeth and feed on the fish's blood and body fluids. Sea lampreys decimated the Great Lakes fishery and significantly reduced the commercial harvest. By the late 1940s, harvest of lake trout, a keystone species, had fallen by 99% from the average catch of the 1930s (Fetterolf 1980).

The sea lamprey crisis was severe and the federal and non-federal governments alike, under pressure to fix the problem, realized that only a coordinated approach would be effective. While the states, the province, and the federal governments had relatively defined authorities in the basin, a response to sea lampreys would not be effective if it were simply left up to each jurisdiction to operate within its waters; sea lampreys were an international problem (Smith and Elliott 1952). The Canadian and U.S. Federal governments decided to address the sea lamprey problem through a treaty. The treaty—the *Convention on Great Lakes Fisheries* (U.S. Department of State)—was signed September 10, 1954 by the two nations and created the Great Lakes Fishery Commission.² Not wanting to upset the defined state, provincial, and federal authorities, the governments gave the commission limited responsibilities. The treaty expressly prohibited the commission from encroaching on other jurisdictions' authorities, stating the convention “does not change the established rights and jurisdiction over the fishery held by the

² The *Convention on Great Lakes Fisheries*, which created the Great Lakes Fishery Commission, did not affect or amend the *Boundary Waters Treaty of 1909*, which created the International Joint Commission, the other bi-national treaty organization on the Great Lakes. The International Joint Commission remained responsible for water levels and, particularly since the 1970s, water quality.

riparian states, the federal government of Canada, and the Province of Ontario” (U.S. Department of State). The treaty did give the commission powers to:

1. formulate a research program “designed to determine the need for measures to make possible the maximum sustained productivity of any stock of fish in the Convention Area;”
2. coordinate the implementation of the research program, or to carry out research;
3. make recommendations to the governments based on the research findings;
4. develop and implement a sea lamprey management program; and
5. publish scientific studies.

These duties reflect the strongest duties the non-federal jurisdictions were willing to accept and are a compromise based on lessons learned from previous attempts to establish a binational commission for Great Lakes fisheries. The duties are mostly related to improving biological understanding (research duties) and implementing programs that the non-federal governments did not have the capacity to address (sea lamprey control).

The commission consists of four members from each country plus one alternate from the United States. The Canadian commissioners are appointed directly by Privy Council; the U.S. commissioners are appointed by the President and do not require Senate confirmation. The treaty allows the commission to operate independently of any federal, provincial, state, or tribal agency and, in fact, the commissioners actively manage the program and are accountable to the Privy Council and the President for their performance. Despite this independence, the convention does urge (though does not mandate) the commissioners to use existing government agencies in the discharge of its duties. As such, the commission contracts its on-the-ground sea lamprey control program to Fisheries and Oceans Canada and the U.S. Fish and Wildlife Service. The commission also works in cooperation with the U.S. Geological Survey for sea lamprey research and the U.S. Army Corps of Engineers for the design and construction of physical sea lamprey control structures, such as barriers and traps. The commission works closely with the provincial, state, and tribal governments to ensure that its program is consistent with their objectives and respective of their fishery protocols. By having limited authority, the commission did not alter

the spheres of authority for fishery management in the Great Lakes basin nor did it centralize regulatory responsibilities in an overarching agency.

Table 1-1 lists detailed responsibilities of the basin’s primary fishery agencies and figure 1-3 illustrates the authority of each type of Great Lakes jurisdiction.

DEPARTMENT/AGENCY	ROLE IN GREAT LAKES FISHERY MANAGEMENT
Binational	
Great Lakes Fishery Commission	<ul style="list-style-type: none"> • Formulate and conduct sea lamprey control (in partnership with Canadian and U.S. federal agencies) • Coordinate fisheries research • Publish research • Support budget initiatives • Make recommendations to governments about fish stocks of common concern • Facilitate <i>A Joint Strategic Plan for Management of Great Lakes Fisheries</i> at the request of non-federal jurisdictions • Participate in the technical committees
Canada—Federal • Trust responsibility for tribal First Nations	
Fisheries and Oceans Canada	<ul style="list-style-type: none"> • Serve on the technical committees • Conduct sea lamprey control, under the direction of the Great Lakes Fishery Commission • Restore habitat • Permit habitat alteration • Conserve fisheries (in cooperation with Ontario) • Conduct fisheries research • Conduct invasive species research and policy • Contribute to the development of fish community objectives, state-of-the-lake reports, and other plans. • Conduct law enforcement
Department of Foreign Affairs	Support bi-national initiatives, primarily the <i>Convention on Great Lakes Fisheries</i> .
Canada—Provincial	
Ontario Ministry of Natural Resources	<ul style="list-style-type: none"> • Serve on the lake committees and technical committees • Establish commercial harvest regulations • Implement the federal <i>Fisheries Act</i> • Issue fishing licenses • Permit private stocking of recreational fish • Undertake native species restoration • Carry out assessment activities • Conduct law enforcement
Canada—First Nations	
Individual tribes	<ul style="list-style-type: none"> • Establish regulations on-reservation, so long as they do not contradict the Indian Act • Negotiate suitable fishing regulations with the Province of Ontario • Conduct fisheries assessment and monitoring
United States—Federal • Trust responsibility for tribes	
U.S. Army Corps of Engineers (Department of Defense)	<ul style="list-style-type: none"> • Contribute to technical committees • Construct physical structures to control sea lampreys, under direction of the Great Lakes Fishery Commission • Restore fish habitat through the <i>Great Lakes Fishery and Ecosystem Restoration Program</i>, in partnership with the states and tribes • Conduct environmental restoration and mitigation
U.S. Department of State	<ul style="list-style-type: none"> • Support bi-national initiatives, primarily the <i>Convention on Great Lakes Fisheries</i> • Assist in brokering law enforcement agreements

DEPARTMENT/AGENCY	ROLE IN GREAT LAKES FISHERY MANAGEMENT
U.S. Fish and Wildlife Service (Department of Interior)	<ul style="list-style-type: none"> • Serve on the technical committees • Conduct sea lamprey control, under the direction of the Great Lakes Fishery Commission • Restore native species, in cooperation with the states and tribes • Fund fishery projects through the <i>Fish and Wildlife Restoration Act</i> • Conduct invasive species research and policy. • Contribute to the development of fish community objectives, state-of-the-lake reports, and other plans • Conduct law enforcement
U.S. Geological Survey	<ul style="list-style-type: none"> • Serve on the technical committees • Carry out forage-base assessment • Conduct sea lamprey research, under the direction of the Great Lakes Fishery Commission • Conduct fishery research • Contribute to the development of fish community objectives, state-of-the-lake reports, and other plans
National Oceanic and Atmospheric Administration (Great Lakes Environmental Research Laboratory—Department of Commerce)	<ul style="list-style-type: none"> • Contribute to technical committees • Conduct fishery research (particularly on the dynamics of the food web) • Carry out invasive species research • Contribute to the development of fish community objectives, state-of-the-lake reports, and other plans
United States—States	
Departments of natural resources/environmental quality for the states of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, Wisconsin	<ul style="list-style-type: none"> • Serve on the lake committees and technical committees • Establish harvest regulations • Issue fishing licenses • Stock recreational fish • Undertake native species restoration (including the rearing, stocking, and regulation of harvest of native fish) • Carry out assessment activities • Protect and restore habitat • Conduct law enforcement
United States—Tribal	
Individual tribes, and operating collectively through the Chippewa-Ottawa Resource Authority and the Great Lakes Indian Fish and Wildlife Commission	<ul style="list-style-type: none"> • Serve on the lake committees and technical committees • Manage on-reservation fisheries • Issue tribal fishing licenses in ceded (off-reservation) waters under treaties with the U.S. Federal Government and pursuant to agreements with states • Conduct biological assessments • Manage invasive species (in cooperation with other the Great Lakes Fishery Commission for sea lamprey and other agencies) • Conduct law enforcement • Undertake fisheries research • Restore native species

Table 1-1: Binational, federal, provincial, state, and tribal fishery management authority, by authority and agency

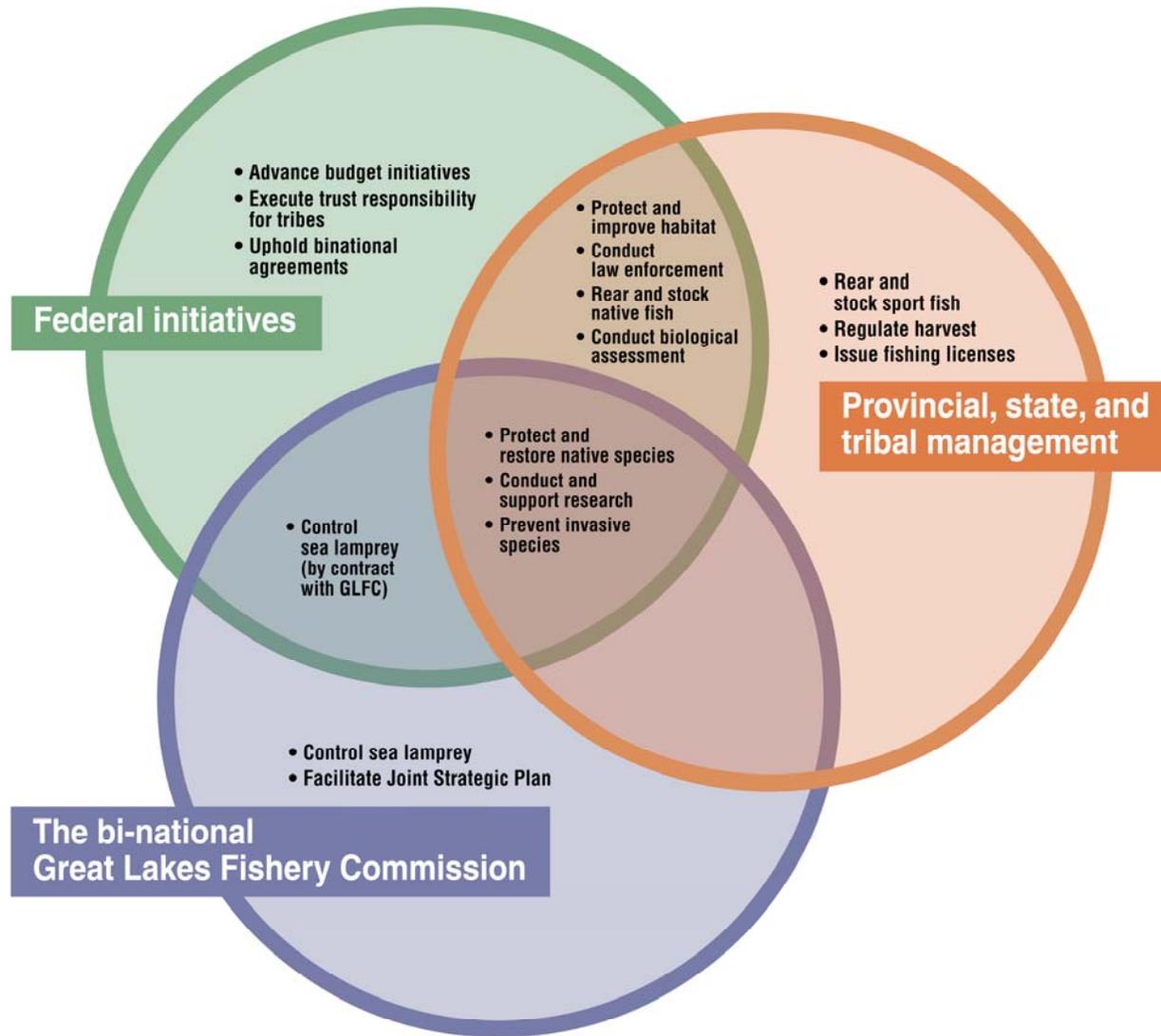


Figure 1-3: Jurisdictional spheres of authority in Great Lakes fishery management. (Diagram M. Gaden and J. Stopke.)

POLITICAL INCOHERENCE AND DECLINE OF THE FISHERY

The diffusion of fishery management authority among many jurisdictions in the Great Lakes basin created an air of sovereignty and independence that for more than a century inhibited a basinwide approach to fishery management. Indeed, with the many independent jurisdictions, each with its own authority and political will, the history of Great Lakes fishery management is a history of parochialism, unilateral action, false starts at cooperation, good intentions, failed agreements, and frustration. Also, as human use of the Great Lakes' resources intensified, the jurisdictions found themselves ill-equipped or unwilling to manage the fishery cooperatively.

The Great Lakes region is endowed with abundant water resources, making it an historic center for settlement, growth, and manufacturing (Beeton et al. 1999; Dempsey 2001; Ray et al. 1991). Along with economic growth and prosperity came damage to the Great Lakes' environment: forests were logged, wetlands were drained, prairies were turned into farmland, urban areas grew. Prior to European settlement, native peoples were the primary exploiters; non-native peoples fished the lakes since they settled the region (Regier 1999). Important species such as lake trout, whitefish, burbot, chubs, walleye, and yellow perch, dominated commercial and tribal fishing. (Appendix C includes a list of the key species of each Great Lake.) Serious exploitation began in the 1840s (Bogue 2000) and by 1872, when the federal governments completed the first long-term report on commercial fishing, the fishery was already stressed and in decline (Bogue 2000). As boats, gear, and technology improved, the amount of fish harvested increased. By the late 1800s, commercial fishermen were observing—and contributing to—major declines in catch, a sign of overexploitation (Dempsey 2001). “Between 1850 and 1893, commercial fishing on the Great Lakes evolved into a wasteful, exploitative . . . industry” which was more “profit-oriented” and “market-driven” than driven by conservation or sustainability (Bogue 2000, p. 42). Pollution, invasive species, and habitat impairment (including physical destruction of streams particularly associated with sawmill and lumbering operations) also contributed to the decline of fish populations (Dempsey 2001).

The fishery continued to deteriorate into the twentieth century. The commercial lake trout catch peaked around the turn of the century, but by the late 1940s, had fallen by 99% from the average catch of the 1930s (Fetterolf 1980). The commercial lake trout fishery was closed in 1962 (Baldwin et al. 1979; Pycha and King 1975). Over-exploitation and sea lamprey predation were the primary causes for the collapse of the lake trout fishery. Several other native species declined significantly or were extirpated from Lakes Michigan, Huron, Erie, and Ontario (Lake Superior has not lost a species), including ciscoes (whitefish), blue pike, sturgeon, and Atlantic salmon (Cudmore 1999). Overharvest, changes in the food web's composition (caused by invasive species), pollution, and habitat loss all contributed to the decline of the Great Lakes fishery (Eshenroder 1987; Hansen 1999; Hile et al. 1950; Jensen 1978; Krueger and Ebener 2004; Zint et al. 1995).

The large number of government authorities, each with an independent right to manage its fisheries, resulted in incoherent policies. Said historian Margaret Beattie Bogue (2000, p. 332):

The divided jurisdiction over the fisheries of the Great Lakes led to almost insurmountable obstacles to conservation efforts. While partition does not always mean stalemate, in this case the division of the waters hamstrung the state or provincial and national efforts to control the exploitation of the fish resource, a constraint recognized as increasingly important beginning in the 1870s as parts of the whole failed effort to find ways to control aggressive overfishing.

Bogue's history of Great Lakes fishing from 1833 to 1933, and data reports from the fishery assessments at the time, indeed describe an era of rapidly depleting fish stocks caused by over-exploitation and a lack of political will to regulate (Bogue 2000; Cobb 1916; Hinrichs 1913; Joslyn 1905; Willoughby 1979). In the late nineteenth and early twentieth centuries, each jurisdiction dealt with its own political mix of legislators and special interests, a mix that usually thwarted fishery regulation (Bogue 2000; Willoughby 1979). The U.S. jurisdictions tended to favor fisheries propagation (stocking) to bolster the fish stocks instead of imposing regulations on commercial fishing (Bogue 2000). The Canadians tended to support regulations and enforcement and were

aggressive in undertaking measures to conserve the fishery resources by appointing fishery officers, establishing a system of licensing, closing fishing seasons when necessary, regulating fishing gear, protecting fish habitat, and specifying size limits.

Some level of recovery, prosperity, and ecosystem integrity has emerged since the 1950s, primarily after sea lamprey control began. Commercial fishing has held steady in Canada and decreased in the U.S. between the 1930s and the 1970s (Brown et al. 1999), while sportfishing has boomed, starting in the 1960s. Management practices, such as commercial harvest limits, the introduction of new species of sport fish (e.g., Pacific salmon, steelhead trout), enhanced investments in harbors and boat-access ramps, and sea lamprey control, contributed to a surge in new sport anglers (Bence and Smith 1999; Regier 1999; Tanner and Tody 2002). The combined recreational, tribal, and commercial fishery is worth up to \$4 billion annually to the people of Canada and the United States (Talhelm 1988), though these economic benefits still depend on careful, intense, and often costly management actions to propagate the fishery and protect it from sea lampreys. This degree of recovery and the relative stability occurred because of federal and non-federal support for fisheries departments and concerted efforts to rehabilitate stressed fisheries. These efforts would have been difficult or impossible without cooperation among the various authorities, as no single government had the authority or the resources to affect lakewide or basinwide change. As the next section will argue, cooperation was slow to evolve, but it did develop, propelled by crisis and leadership.

INCHING TOWARDS COOPERATION: THE FOUR ERAS OF GREAT LAKES FISHERY MANAGEMENT

The wide assortment of approaches to fishery management, and lenient enforcement of what few regulations there were, did little to conserve the fishery or to build trust among the people who fished the lakes. The situation bred resentment among the Canadian commercial fishers, who did not like the fact that they were regulated while the Americans were not, and a

feeling of futility among the fishery managers, as hard-won regulations in each jurisdiction were rarely reciprocated (Kuchenberg and Legault 1978). The frustration over political incoherence and the resulting fishery decay prompted repeated attempts to coordinate policies and repeated calls for federal or binational preemption over non-federal authority. The non-federal governments and industry resisted any regulations or loss of authority and instead tried time and again to work together to harmonize their activities voluntarily. However, in the absence of any overarching authority to compel or nurture cooperation, the interest in protecting independence proved to be more powerful than taking collective action.

Efforts to bridge jurisdictional divides in fishery governance³ fall into four broad eras: (1) 1883 to 1942, characterized by improvised conferences, a lack of governance institutions, and failed attempts at agreement; (2) 1943 to 1963, characterized by the emergence of cooperative committees and the Great Lakes Fishery Commission; (3) 1964 to 1980, characterized by the maturation of lake committees as a way to share information; and (4) 1981 to the present, characterized by strategic cooperation through *A Joint Strategic Plan for Management of Great Lakes Fisheries*. Progressing through these eras, the jurisdictions went from relying on *ad hoc*, politically insincere conferences to adopting strategic plans that institutionalized interactions, retained individual jurisdictional authorities, and created a culture of cooperation that grew over time. Along the way, the jurisdictions considered—and rejected—calls to approve sweeping treaties and binding agreements. Table 1-2 (page 66) lists the many conferences and outcomes that characterize the four eras, and figure 1-3 (page 69) illustrates the evolution of cooperative committees and agreements from the 1880s to the present.

The discussion of these four eras will show several key theoretical issues surrounding multijurisdictional governance. First, when many jurisdictions each have independent

³ The governments of Canada and the United States successfully bridged divides in water quantity and (particularly since the 1970s) water quality governance through the *Boundary Waters Treaty of 1909*, which created the International Joint Commission, a sister agency to the Great Lakes Fishery Commission.

management authority over the same resource, some force, whether it be a crisis, an institution, or a paradigm shift in management philosophy (or a combination of these factors), helps prompt cooperation. Second, jurisdictions cooperate and retain their independence when a perceived neutral authority (e.g., the Great Lakes Fishery Commission) guides the process and respects authorities. Third, the regime to guide cooperation on the Great Lakes (the Joint Strategic Plan) is self-organizing, represents jurisdictional independence, and reflects the history and jurisdictional realities of the Great Lakes region.

1883 to 1942: Improvised conferences, false starts, and attempts at agreement

Beginning in 1883 and continuing at a regular pace for nearly 60 years, the jurisdictions convened no fewer than 27 international and interstate conferences, and the federal governments signed one international treaty, in an attempt to create a permanent mechanism for cooperative Great Lakes fishery management. During this era, the jurisdictions individually devoted ever-increasing resources to fishery management, they improved science, and they refined their fishery management techniques (Nielsen 1999). However, they rarely cooperated with each other. While the states and the province arranged meetings from time to time to share ideas and to try to coordinate their policies, their interest in cooperation did not last far beyond meeting-adjournment. As such, the federal governments, academicians, and, at times, the non-federal jurisdictions themselves repeatedly called for a strong, regulatory authority on the Great Lakes. Governments failed to create such an authority for three main reasons: the states were unwilling to cede management authority to the federal governments or to a binational institution (Fetterolf 1980); the federal governments were unwilling to allow states to enter into binding agreements with foreign governments (Dochoda 1999; Zimmerman and Wendell 1951); and non-federal fishery managers were unable or unwilling to persuade their legislatures to implement the recommendations of the many conferences and meetings (Gallagher et al. 1942). This suggests that in the absence of a force or a motivation to cooperate, governments with independent

authority will remain interested in protecting their authority, even when cooperation might be beneficial to all parties.

The first official statement stressing the need for cooperative fishery management came from the State of Michigan in 1875 when the state observed that uniform laws governing the fishery would be desirable. In 1879, Michigan called for a federal commission to help the states coordinate their policies (Gallagher et al. 1942), and while such a commission would not be established until 1892, the states did begin a series of multilateral fisheries meetings and conferences, starting in 1883, to share information, promote fish hatcheries, develop recommendations, and attempt to make uniform the disparate regulations. These meetings were mostly *ad hoc* and informal and except for small bits of action in one or two legislatures, nothing much came of recommendations from the meetings (Bogue 2000; Gallagher et al. 1942; U.S. Congress 1937).

One of the main barriers to harmonizing non-federal regulations was the disparate philosophies and policies for Great Lakes fisheries throughout the basin. Governments rarely licensed commercial fishers in U.S. waters and state regulations were piecemeal. Political pressures were such that state regulations lasted hardly more than a few years anyway, making effective fishery management all the more difficult. Establishing uniform regulations across the states would be near-impossible, considering individual states could not even establish effective and lasting regulations for their own waters. Furthermore, states that did not wish to acquiesce to other states' regulations had a habit of agreeing to shared regulations and then abandoning them (and, of course, casting appropriate blame) when another jurisdiction could not live up to its end of the agreement (Willoughby 1979).

While the states and the province were trying (and failing) to coordinate their activities through *ad hoc* meetings, the idea of federal preemption proceeded down a parallel track. The Canadian and U.S. federal governments retained strong treaty-making powers, powers which could take priority over state and provincial authorities (Willoughby 1979). Also, the federal

governments, by virtue of their authority to manage interjurisdictional issues and regulate commerce, felt they could leverage authority away from the non-federal entities. Spurred on by academicians and others who observed inadequate state regulations, the federal governments attempted to create agreements and institutions that would heighten overarching control at the expense of the non-federal governments. In 1892, a joint commission to investigate water issues observed the lack of uniform regulations and recommended a permanent international body. This recommendation was not widely appreciated, as it would have intruded upon state management authority (Bogue 2000). Five years later, in 1897, another international commission, looking at border issues, recommended a binational treaty—the *Inland Fisheries Treaty of 1908*—for the Great Lakes fishery and a permanent commission to promulgate regulations. Such a treaty was offered in 1908 but withdrawn in 1914 after the non-federal governments opposed it vehemently as a usurpation of their management authority (Fetterolf 1980; Piper 1967).⁴

⁴ About this time, in 1909, Canada and the United States successfully ratified the *Boundary Waters Treaty of 1909*, a major agreement that, among other things, created the International Joint Commission, a governance body to implement the treaty. The *Boundary Waters Treaty of 1909*, which is still in effect, focused on water management along the entire Canadian/U.S. border, considering the heavy use of water for navigation, industry, power, and agriculture (Bogue 2000). Water problems—both quality and quantity—were growing in importance to the two nations around the turn of the twentieth century; the focus on water tended to relate to human health and use rather than to fish health, thus there were few overt discussions connecting fisheries and water issues during this period.

The question arises as to why Canada and the United States did not simply combine the two treaties, given the major interest from both governments at the time in establishing joint agreements about both water and fisheries. The *Boundary Waters Treaty of 1909* and the proposed *Inland Fisheries Treaty of 1908* were likely kept separate for several reasons. First, the scope of the *Boundary Waters Treaty of 1909* was much larger than the Great Lakes, as the treaty covered the entire Canadian/U.S. border. Agreements about the Great Lakes fishery would have been out of place in the larger *Boundary Waters Treaty of 1909*. Second, the *Boundary Waters Treaty of 1909* likely focused entirely on powers explicitly granted to the federal governments through their constitutions. At the time—as today—navigation and regulating water levels was a clear federal responsibility while fisheries were—as today—in the domain of the non-federal governments. Thus, it would have been difficult to marry the two ideas easily and still maintain the support needed for the approval of a combined treaty. Third, the governments then—as is often the case today—likely simply kept the issues separate, not fully cognizant of the connection between water quantity, water quality, and fisheries. Governments often compartmentalize laws and institutions and set them up to address specific issues (Holling 1995), and the interest in keeping fisheries and water separate should not be surprising.

Historian Margaret Beattie Bogue (2000), in her book *Fishing the Great Lakes*, provides a discussion about the debates leading to the proposed *Inland Fisheries Treaty of 1908* and a brief discussion about the forces that prompted the *Boundary Waters Treaty of 1909*. She offers little indication that the governments considered merging the two treaties or even that either treaty was discussed within the context

This era of little to no cooperation persisted because many independent jurisdictions—each with its own suite of politics, constituents, needs, and philosophies for management—were responsible for managing their portion of the resource and had little incentive to give up authority. With no overarching authority to force or persuade the jurisdictions to cooperate, each proceeded to manage in its own way for decades. Revealingly, governments at all levels recognized the need for cooperation: time and again they attempted to meet together, harmonize regulations, and move in a unified direction. However, each time, the jurisdictions' independent will to manage their own waters, to appease their own constituents, and to ignore the wishes of other jurisdictions overrode the perhaps good intentions to coordinate actions. Since neither whole-scale crisis nor overarching authority existed during this era to encourage collective behavior, the jurisdictions had no compelling incentive to cooperate and, thus, continued on a course of parochialism.

1943-1963: Crisis and leadership—Cooperation takes root

Crisis and the emergence of a coordinating institution helped bring an end to the era-of-no-cooperation. A commitment to information-sharing and cooperative action would emerge from this era because the jurisdictions would come to realize that they had no choice but to work together; fishery problems grew too severe for them to manage their waters independently and still expect fish to be available. Cooperation emerged in the 1940s because of the need to address the sea lamprey on a basinwide level and the need to share information and resources to restore the fishery ravaged by the sea lamprey and other problems. This emergence of cooperation received a boost in 1956 with the formation of the Great Lakes Fishery Commission as an entity the jurisdictions could turn to to help them maintain ongoing interactions.

of the other. Future research into the origins of the *Boundary Waters Treaty of 1909*, whether fisheries were discussed within that treaty's context, and whether any discussion occurred about merging the proposed *Inland Fisheries Treaty of 1908* and the *Boundary Waters Treaty of 1909* would likely yield more definite answers about why the two treaties followed separate paths.

By the mid-1940s, the managers were coming to realize that a lack of uniform regulations was the least of their problems. The fishery was being systematically destroyed not only by overfishing and habitat loss, but also by an insidious predator, the sea lamprey, an invader from the Atlantic Ocean. By the mid-1940s, sea lampreys were abundant in the system and were playing havoc on the fisheries. Sea lampreys regularly migrated across political boundaries (Smith and Elliott 1952) and the fishery's future depended on a unified, concerted effort to control the pest. Governments were in a race against time to come up with a way to manage the lamprey and restore the lake trout and other species, lest the fishery and environment be decimated.

Yet another interstate conference, held in Madison, Wisconsin, in 1943, recommended the creation of institutions—in this case, two ad hoc committees, the Lake Trout Committee and the Sea Lamprey Committee—to address the basin's major problems. Unlike previous recommendations, however, these committees would actually be formed (in 1946 and 1949 respectively) and would persist (Anonymous 1946). These two committees comprised representatives from the Great Lakes states, the Province of Ontario, and the federal governments. The primary intent of the committees was information sharing, particularly as agencies responded to the lake trout and sea lamprey problems. During the 1949 Lake Trout Committee meeting, for instance, participants discussed a lake trout stocking schedule and protocols for individual efforts to mark stocked fish⁵ (Anonymous 1949). The participants also used the meeting to keep each other abreast of their particular agency's activities. Ultimately, the lake trout and sea lamprey committees would merge into the Great Lakes Fishery Committee (and later, morph into the Upper Great Lakes Fishery Committee, as the lower lakes did not have as large a stake in the issue). Although attendance at these meetings was sporadic and although they focused on the

⁵ When fish are stocked into lakes, managers often mark the fish by clipping a fin so that the hatchery reared fish can be distinguished from naturally produced fish and also to denote which agency stocked the fish.

upper Great Lakes where the sea lamprey and lake trout problems were most pronounced, these committees were the first multijurisdictional committees to meet regularly. Cooperation, however limited in subject and scope, had begun.

In addition to the Great Lakes Fishery Committee, agencies in 1951 formed a binational *ad hoc* committee on Lake Erie—called the Lake Erie Fish Management Committee. This committee was intended to help participants discuss the “essentials” of Lake Erie fishery management, including the role of regulations, marketing, harvesting, hatcheries, and research (Anonymous 1952; GLFC 1951). (An *ad hoc* Lake Ontario Committee, consisting of representatives from New York and Ontario, also existed around that time, but no minutes from those meetings were retained.) While the agencies intended the Lake Erie Fish Management Committee to be temporary until the federal governments formed a treaty organization to regulate (GLFC 1956), no treaty organization was formed. By 1955, the Lake Erie Fish Management Committee became formalized and government participation grew significantly. Later, the meetings would include the public (GLFC 1955). This committee was the early progenitor of the lake committees, formed by the Great Lakes Fishery Commission in the 1960s.

Just as these new committees were in their formative stages, the Canadian and U.S. federal governments waged one last-ditch effort to create an overarching regulatory institution for the Great Lakes fishery. In 1946, the two governments signed a treaty to create a binational commission with the power to prepare sweeping Great Lakes fishery regulations, though the regulations would be enforced by the non-federal governments (Bogue 2000; Piper 1967; Truman 1946). Like the proposed Inland Fisheries Treaty of 1908, states opposed this treaty strongly because the commission it created would usurp their management authority. “As a result [President Truman] withdrew the treaty from the Senate and did not ratify it” (Piper 1967, p. 44). This would be the last attempt to create a bi-national, *regulatory* body on the Great Lakes.

While the need to promulgate common fishery regulations was lessened with the emergence of the sea lamprey and lake trout committees, the sea lamprey invasion stressed the

need for strong Canadian and U.S. federal action, as the non-federal governments were unable (and still uncoordinated enough) to manage the problem. Thus, despite the fact that the Lake Trout, Sea Lamprey, and Lake Erie Committees continued to function, the idea of a binational treaty for the Great Lakes did not go away, though the failed treaties of 1908 and 1946 convinced governments that any binational agreement could not be regulatory or preemptive of non-federal management rights. Officials believed the federal governments should establish an institution with the authority to manage sea lampreys and (probably more importantly to the non-federal jurisdictions) provide the funds to carry out the program. This authority needed to be clear and distinct from the other management authorities and it needed to be binational. Consequently, the governments in 1954 successfully negotiated and ratified the *Convention on Great Lakes Fisheries*, which created the Great Lakes Fishery Commission in 1956. This new binational institution's authority did not approach the regulatory powers granted in the preceding un-ratified treaties (U.S. Department of State). Non-federal entities widely supported this convention because the commission would manage a common pest, a pest that the non-federal governments had neither the funds nor the means to address. Beyond its sea lamprey management authority, the commission could not compel a jurisdiction to do anything, though the convention did envision the possibility of the commission playing a coordinating role saying "[t]he commission may seek to establish and maintain working arrangements with public or private organizations for the purpose of furthering the objectives of this convention" (U.S. Department of State). This provision allowed the commission to softly lead coordinated actions, to form permanent multijurisdictional committees, and later to justify the commission's role in facilitating *A Joint Strategic Plan for Management of Great Lakes Fisheries* at the request of the non-federal jurisdictions. The formation of the commission essentially ended the debate about whether there would be an authoritative body on the lakes to promulgate regulations or exert centralized authority over the non-federal entities. No such body would be created. Instead, the approach would focus on voluntary, on-going cooperation.

For the remainder of the 1950s and through the first half of the 1960s, the Great Lakes Fishery Committee and the Lake Erie Fish Management Committee blossomed. Attendance grew and the meetings became more encompassing. Participants produced written and oral reports about agency activities, and they used the meetings to learn what the other jurisdictions were doing, what regulations they were promulgating, and what research they were conducting. While participants did not initially use this process to develop shared management plans, they did use the process as a way to interact regularly and share information. (For examples of agendas see GLFC 1958a; GLFC 1958b; GLFC 1959.) These committees were persistent and put an end to the many failed attempts at regular meetings among the management jurisdictions. The sea lamprey crisis helped jolt the jurisdictions into thinking beyond their borders and helped create a commission with the authority to deal with the problem on a basinwide level. The commission, in its enabling treaty, was also encouraged to do what it could to bring the jurisdictions together to share information and coordinate their activities. Clearly, the committees were becoming more



**Figure 1-4: Negotiators of the 1954 Convention on Great Lakes Fisheries.
Photo: Great Lakes Fishery Commission.**

useful to the individual management agencies who participated in the process, with research and information needed to aid management as a key focus. With the commission given the go-ahead to bring the agencies together, regular cooperation among the jurisdictions was becoming common.

1964-1978: Interactions become routine—The era of lake committees

Although the new Great Lakes Fishery Commission was not established to harmonize regulations, the commission quickly became the focal point for cooperation and scientific exchange, as it was the only basinwide, binational fisheries body on the Great Lakes. The commission's stature would prove to be important, as the commission, by 1964, realized that the goodwill of the agencies to meet was not enough to maintain cooperative relations. Cooperation needed to be structured and managers needed to expect some business to take place through a committee process. The commission thus formed permanent lake committees in 1964 and, in doing so, made interactions expected and on-going. It took leadership—not a compelling stick—to encourage the jurisdictions to work together.

While the Great Lakes Fishery Committee and the Lake Erie Management Committee continued to meet, they were still limited to particular areas of the basin and focused on a relatively narrow suite of issues. Indeed, the upper Great Lakes had a committee just for lake trout and sea lamprey (important issues, but not comprehensive) and the lower lakes had a committee just for Lake Erie.⁶ Specific committees for the other lakes did not exist. Moreover, the committees lacked formal sanction from the management jurisdictions and instead were, in the words of Dr. Ferguson, an official from the Province of Ontario in 1962, “an amorphous group of research and management people with no official status as representatives” (GLFC 1962, p. 13-14). As meetings became more routine and scientific, high-level administrators

⁶ Lake Ontario had a committee as well in the early 1950s, but it is unclear how regularly that committee met, as no minutes are known to exist.

stopped attending (GLFC 1963). This lack of status did not bode well for cooperation, and some questioned whether senior officials would continue to take the cooperation seriously in the absence of committee charters. For instance, Norman Baldwin, chair of the Lake Erie Fishery Management Committee (and also executive secretary of the Great Lakes Fishery Commission), wondered out loud during the 1963 committee meeting whether the committees were continuing to serve a useful function considering the senior administrators' waning interest (GLFC 1963).

The following year, the Great Lakes Fishery Commission sensed the committees were losing momentum and concluded they needed to be formalized if they were to survive and serve a useful purpose. As such, the commission established committees for each lake "to strengthen the work of the States and Province in administering the fishery and to further the objectives of the Commission" (GLFC 1964, p. 7-8). According to the commission's internal rules, "each committee shall consist of a senior staff member from each agency administering the fishery, assisted by experts and advisors from all agencies concerned" (GLFC 1965a, p. 11). Although the lake committees would comprise state and provincial fishery managers, they were, at the outset, established to advise *the commission* and help it discharge its research and advisory mandates.⁷ The commission stressed that the existence of the committees would "in no way infringe on the responsibilities of the other agencies [i.e., the province and the states] concerned with the fishery" (GLFC 1964, p. 8).

The lake committees met for the first time in 1965 and, according to the meeting summaries (GLFC 1965a), were established to:

- provide a forum for agencies to coordinate their management programs;
- serve as means for agencies to keep each other informed of changes in regulations and about each others' management practices;
- help the agencies explore uniformity in regulations, where appropriate;
- assemble a group of fishery experts who could assist the fishery commission in the execution of its program;

⁷ One interviewee for this research pointed out that this was the commission's way of saying it did not have the resources to do its job and, thus, needed to tap into state and provincial expertise.

- serve as a way for the commission to communicate its program and needs to the management agencies; and
- be a place to consider matters referred to the committee. (See appendix V of 1965a for descriptions of each lake committee's charge.)

Commission executive secretary Norman Baldwin explained to the new lake committee members that the commission was responsible for formulating and leading Great Lakes fishery research and making recommendations on measures to improve the shared fish stocks. As such, the committees would help bring the commission “in closer touch” with the resource and with agency management activities (GLFC 1965b). While this suggests that the lake committees were originally established to serve the commission, Baldwin also added that the lake committees should feel free to use the process to deal with any matter it chose (GLFC 1965b).

During the ensuing decade after the lake committees were formed, the committees focused less on being advisory bodies to the commission and more on being forums for information exchange and reporting among the state and provincial jurisdictions. The Lake Superior Committee agenda for 1968, for example, illustrates the types of things members discussed during a typical lake committee meeting:

- I. Agency reports about the status of fish populations
 - a. Sea lamprey
 - b. Lake trout
 - c. Salmon
 - d. Lake herring
 - e. Whitefish, rainbow trout, walleye, alewives, chubs, etc.

- II. Jurisdictional reports on current management measures
 - a. Sea lamprey
 - b. Commercial fishing regulations
 - c. Sport fishery
 - d. Planting (stocking) schedules

- III. Agency monitoring of fish stocks and research

This agenda is nearly identical to the agendas of the other lake committees; the format changed little throughout the rest of the 1960s and the 1970s.

During interviews (described in Appendix A) with many early lake committee members, several recall the meetings being mostly a mechanism for information exchange and not so much a process capable of handling crises, developing shared policies, or advancing science on the Great Lakes, though they often used the process to come to agreement on how hatchery-reared fish would be allocated. The meetings were useful as a way to share information but beyond that they inspired little strategic action. The committees were not used, for example, as a means to develop uniform regulations, were not used to develop shared fishery objectives for management, or were not used to develop and seek consensus about implementation of operational fishery management plans. The lake committees lacked scientific work groups or focused subcommittees and, if anything, the lake committees of this era slipped into a simple routine of agency reporting. Said one lake committee member from this era, describing the meetings, “You give your report at the meeting, you sit down, [you think] ‘aw Jesus, when is this thing going to end?’” Said another participant, the early lake committees were so focused on jurisdictional reports that they were “very turf oriented.” Although the meetings were not entirely strategic, they were still vastly different from the region’s parochial history as they served to encourage the jurisdictions to interact and helped the managers expect not only to get information from colleagues but also to give information. The main contribution of the early lake committees, thus, was to create an ongoing process of interactions among like-minded professionals and to begin the development of a culture of cooperation in the region.

1978-Present: A Joint Strategic Plan for Management of Great Lakes Fisheries

Great Lakes fishery management, and the process to facilitate cooperation among many jurisdictions, began to change in the mid to late 1970s when the “ecosystem approach to management” became popular. While managers likely had no unifying concept of what ecosystem management entailed, generally, such an approach recognized the need to manage fisheries across boundaries and to take more than the fish (e.g., habitat, water quality, prey

organisms, etc.) into account when considering management initiatives. The 1970s was an era of environmentalism in Canada and the United States and officials at all levels of government were motivated to take action to protect and restore the Great Lakes. At the same time, this was also an era of new exertion of federal authority, as intense public concern over the environment prompted a suite of new federal laws in the United States and Canada to respond to some of the most far-reaching problems the nations faced (Hoberg 1997; Kraft and Vig 2006; Mazmanian and Kraft 1999). The possibility of increased federal activities on the Great Lakes, and a strong interest among the jurisdictions in planning their initiatives more purposefully, prompted the jurisdictions to move from information sharing to strategic thinking, lest their management authority be weakened by other levels of government. The spirit of this era, the coming-of-age of the ecosystem approach to management, and a non-federal interest in taking steps to protect their authority through more-coordinated management, helped prompt the fishery management agencies and the Great Lakes Fishery Commission to together develop *A Joint Strategic Plan for Management of Great Lakes Fisheries* in 1981.

Past and current lake committee participants have many opinions about why the Joint Strategic Plan emerged out of the 1970s, though they generally framed their responses within the context of three main reasons: (1) a lack of strategic planning led some to believe the fishery agencies were not doing enough to proactively manage the fishery; (2) agencies were concerned about federal intrusion into Great Lakes management, particularly with the passage of the *Magnuson-Stevens Fishery Conservation and Management Act* (USGPO 1976), U.S. legislation establishing federally dominant fishery management councils; and (3) the Great Lakes Basin Commission⁸ (now defunct) needed to develop a fishery management plan and asked the non-federal governments to undertake the task. These three reasons threatened somewhat the jurisdictions' exclusive domain over Great Lakes fisheries and helped spur a move toward more

⁸ Not to be confused with the still-active Great Lakes Commission, an interstate compact established by the Great Lakes Basin Compact of 1956.

strategic interactions. In essence, the Joint Strategic Plan emerged out of the 1970s as a way to preserve non-federal management authority, to shift into a new environmental paradigm, and to leverage federal and non-federal resources. Like the solidification of cooperation in previous eras, the Great Lakes Fishery Commission would provide the leadership to help the agencies establish a more-refined governance regime. These three reasons were complementary and, together, help explain why and how the cooperative regime progressed in the late 1970s.

Emergence of Strategic Planning

The first main catalyst for the Joint Strategic Plan was the emergence of planning as an important element of natural resource management. “Planning,” says Crowe (1983, p. 1-2), “is an integrated system for management that includes all activities leading to the development and implementation of goals, programs, objectives, operational strategies, and progress evaluation.” Strategic planning is not a particular project or initiative *per se*, rather, it is a “way of doing business; . . . a system for decision-making.” Fishery managers who were active in the lake committee process in the 1970s recall that, consistent with the environmental movement prevalent in that era, strategic planning within their own agency was in vogue. One senior manager remembers that in the 1970s, it became standard practice to develop a management plan to respond to the “issue *de jour*.” The State of New York, for instance, produced management plans for all of its major management areas in the 1970s and Ontario produced the *Strategic Plan for Ontario Fisheries* (SPOF) (Anonymous 1976) in 1976. These strategic plans were a way for jurisdictions to identify fishery problems and to outline how they would manage them. However, while strategic planning was taking place throughout the basin, the plans were often oriented toward the particular jurisdiction’s authority, or on particular fish species, not so much on the lake or the basin as a whole. Indeed, prior to the Joint Strategic Plan, each agency had its own strategic plans, its own goals, and its own means and timeline to achieve those goals. The pre-

Joint Strategic Plan lake committee process, while a forum for information exchange, still did not serve as a catalyst for interagency strategic action (GLFC 1981c).

Strategic fisheries planning on a basinwide level, many believed, would be beneficial to the Great Lakes community. First and foremost, strategic planning would communicate the goals and needs for the fishery. To get agency, legislative, or public support for an initiative, it would be essential to ground that initiative in a clear plan. Perhaps more importantly, a strategic fisheries plan would be necessary if fisheries management were to keep pace with the broader environmental movement that was growing more sophisticated in other areas, such as water quality. It was during this era, for instance, that Canada and the United States negotiated and began implementing the *Great Lakes Water Quality Agreement*, a major binational initiative—led by the federal governments—to address some of the most pressing pollution issues. Bill Pearce, Director of Marine Resources for the State of New York, in a 1981 speech about how he saw the fishery community vis-à-vis other interests, captures how fishery managers needed to adjust:

Our interests (fisheries) are competing with some real heavies. I have an image of a board room in which the principles are sitting around the table in their dark blue three piece suits, with ties and white shirts and shiny black shoes. Naturally, they're smoking big stogies. They represent, among others, shipping, heavy industry, municipal government, and utilities. On the edge of the crowd is barefoot Huck Finn. That's us. Maybe I should say, 'That's been us,' because we're beginning to have an impact. If we want to achieve our rightful position we must organize ourselves in such a manner so that we can become increasingly effective. To do this, we, fishery interests, must pull together and be certain that others consider fishery interests as equals when decisions are made which might affect out interests. [Emphasis in original.] (GLFC 1981c)

An Ontario official, who was interviewed for this research, put it another way:

[The late 1970s] was the time when concerns for the Great Lakes other than strictly water quality . . . were injected into the [Great Lakes Water Quality] agreement. It became obvious to some people that if fisheries was going to have an equal voice at the table then we bloody well better have a strategy for the Great Lakes.

Added another Ontario official,

Not only were they able to develop a strategic plan [SPOF] that everybody in the province followed and adhered to and so all the fisheries people were working in the same direction, but it was a very successful plan, not only for coordinating activities but for generating revenue. And so everyone was thrilled with the strategic plan. And the need for the strategic plan as successful as it had been within Ontario and I think the Joint Strategic Plan was the logical outgrowth of that success within Ontario.

Concern about Federal Intrusion

The second main catalyst for the Joint Strategic Plan was concern about U.S. federal intrusion into non-federal management. Participants believed that if the Great Lakes jurisdictions did not create a process for cooperative management, the U.S. federal government would impose one through the *Magnuson-Stevens Fishery Conservation and Management Act* (USGPO 1976). The act, signed in 1976 by President Gerald Ford, established a formal process for the federal government and the states to govern fishery management activities in federal waters (i.e., from three miles to 200 miles from the coast). The federal National Oceanic and Atmospheric Administration (NOAA) would lead the councils (Pacific Fishery Management Council 2005; USGPO 1976) but because oceanic states have control over their fisheries to the three-mile limit, the act would provide for state involvement. Under this act, regional councils (made up of federal and state managers, stakeholders, and other interested parties), were established to prepare and present fishery management plans to NOAA, conduct public hearings on the plans, submit periodic reports to NOAA, review fishery harvest policies, and review state and federal actions affecting the fisheries (Furlong 2002; USGPO 1976). NOAA would implement the plans and the U.S. Coast Guard would enforce them. Regional councils were set up in the expected places—the Atlantic, Pacific, and Gulf coasts—where federal and state governments needed to cooperate to manage the fishery.

About the same time President Ford signed the *Magnuson Act*, the Comptroller General of the United States concluded in a major report (GAO 1976, p. i) that “Congress should consider giving the Secretary of Commerce [the head of NOAA] statutory authority to impose management measures on U.S. fisheries when states fail to do so.” Additionally, the 1970s was an era of federal muscle-flexing in environmental programs, with the creation of the Environmental Protection Agency and NOAA, and with passage of the *Clean Water Act* (USGPO 1972), the *Endangered Species Act* (USGPO 1973), the *Great Lakes Water Quality Agreement* (IJC [1972] [1978] 1987), and the *Convention on the International Trade of Endangered Species*

(CITES [1973] 1979), among other acts. With the passage of these measures, the federal government was stating its intent to be a player in the environmental. The regional fishery councils (under federal leadership), a heavy-handed recommendation from the Comptroller General, and major new federal authorities suggested the possibility of a new era of federal dominance over fisheries and environment.

Applying the *Magnuson Act* to the Great Lakes would have been a major change in Great Lakes fisheries governance, as there are no federal waters in the Great Lakes and federally dominated regional councils would have pervade state management. It is not surprising, therefore, that the non-federal fishery managers of the Great Lakes region were quite concerned about the possibility of a Regional Council being thrust upon them. (In fact, NOAA did propose a regional council for the Great Lakes (Dochoda 1999).) Some long-serving fishery managers recall being distressed by the possibility of a Great Lakes regional council under the *Magnuson Act*. One fishery manager, when asked why the Joint Strategic Plan was developed when it was, replied:

I know quite precisely. This was shortly after the *Magnuson Act*. . . There was an effort motivated by [NOAA] . . . to extend the *Magnuson Act* to the Great Lakes, and to create a council and engage [NOAA] here. And the states responded to that as a challenge to their jurisdiction. And that led to discussions about how we could address whatever institutional weaknesses there were that might lead to the *Magnuson Act* being extended to the Great Lakes. That is what started the [Joint Strategic Plan] exercise.

Other non-federal managers involved in Great Lakes fisheries in the late 1970s agree and point out that a Great Lakes regional council would have upset unnecessarily the federal-non-federal relationship in the basin in favor of the federal government, as it would have invited federal management in an unprecedented and (in light of the absence of federal waters) an unwarranted way. The solution, many realized, was to create a regime to coordinate the jurisdictions' activities in the spirit of the *Magnuson Act*, but in a way that was suited to the Great Lakes

region. With a basinwide strategic plan, the states reasoned, the federal government would have no pretense to usurp non-federal authority in the Great Lakes basin.⁹

Great Lakes Basin Commission Request

The third main catalyst for the Joint Strategic Plan was a direct request by the Great Lakes Basin Commission to develop a fisheries management plan. In 1967, President Lyndon Johnson created several river basin commissions, including the Great Lakes Basin Commission, to investigate matters relating to the environmental health of U.S. waters. The basin commission was a consortium of state and federal agencies (GLFC 1977c) though was authorized and led by the federal government. The basin commission played a key role in the development of the *Great Lakes Water Quality Agreement* and integrated many issue areas including fisheries, wildlife, toxic pollution, and navigation. In the early 1970s, the basin commission began producing approximately twenty framework studies about these and other issues as background for a comprehensive, forty-year management plan for the Great Lakes.

In 1977, Carlos Fetterolf, then Great Lakes Fishery Commission executive secretary, reported that the basin commission asked the fishery commission to help develop the fishery portion of its comprehensive management plan (GLFC 1977c), suggesting that the plan include: management objectives for the Great Lakes fishery, an examination and clarification of the basin's environmental problems, an action plan for the management of Great Lakes fishes, and a coordination of state fishery plans with state coastal programs (GLFC 1977b). One major problem with the basin commission's proposal, however, was that it would have been a major undertaking; it would have entailed the development not only of fishery objectives, but an action plan to fulfill those objectives. Such an exercise, while recognized throughout the basin as

⁹ At the invitation of the non-federal jurisdictions and the Great Lakes Fishery Commission, NOAA participated in the development of the Joint Strategic Plan and signed the plan in 1981. By involving NOAA in the process from the earliest stages, the jurisdictions were able to secure acceptance from the U.S. federal government for the Great Lakes fishery management regime under the Joint Strategic Plan instead of under a regional council.

beneficial, was, nonetheless, being thrust upon the management agencies when, in fact, few operational plans existed, let alone a basinwide one. Moreover, members of the fishery commission expressed worry that the basin commission's approach would be inconsistent with the spirit of the lake committee regime because it would not involve Ontario (GLFC 1977a).

Meanwhile, sensing the opportunity to play a leading role in the development of a Great Lakes fishery management plan, the U.S. Fish and Wildlife Service, operating through Robert Herbst, the Assistant Secretary for Fish, Wildlife and Parks and a member of the fishery commission, submitted its own ideas for how to develop the basin commission's fishery plan. The service proposed to have its Ann Arbor laboratory develop a plan, which would include a complete description of the fishery, an assessment of the fishery's condition and probable future, and recommendations for management actions (GLFC 1978a). The proposal was for an operational plan for the Great Lakes and having the service develop such a plan would have had the federal government do what had been proposed and resisted for much of the twentieth century: to coordinate Great Lakes fisheries management. Fetterolf realized immediately that "to accept the Herbst proposal . . . would amount to rejection of the [lake committee] initiative and enthusiasm for a binational approach" (GLFC 1978a).

State and provincial partners saw the basin commission's request as doable so long as the basin commission or the service did not develop it, as they believed the proposed plan was too broad and they did not want an "outside agency" meddling in their affairs. The lake committees, in a letter to the fishery commission, consequently expressed support for the development of a *strategic* fishery management plan (GLFC 1978a) and asked the fishery commission to develop the plan. Their hope was to establish a process for strategic interactions (e.g., Crowe 1983) rather than a point-in-time operational document. In the letter to the commission, the agencies stated that they "sincerely believe the Great Lakes Fisheries [sic] Commission has the best resources for coordination and development of this plan. Past experience demonstrates the ability of the states and province to attack and resolve significant management problems through the Lake

Committees” (GLFC 1978a, p. 203). The Great Lakes Fishery Commission accepted the request and both the Great Lakes Basin Commission and Mr. Herbst expressed in writing their pleasure over the fishery commission and the lake committees assuming the development of a strategic fishery management plan (GLFC 1978a; GLFC 1978b).

Work on a strategic Great Lakes fisheries management plan¹⁰ (ultimately entitled *A Joint Strategic Plan for Management of Great Lakes Fisheries*) began in earnest in the fall of 1978. Plan-framers decided early that senior officials from the state and provincial management agencies needed to develop and approve the plan, as support for the process and the product needed to be from the highest levels (GLFC 1978c; GLFC 1981a). It was not lost on the people who worked on the plan that the fishery managers would be assuming greater responsibilities once the plan was put into force. Managers needed to know that their jurisdiction’s senior officials held a cooperative process in high regard, and the only way to ensure such legitimacy was to have the senior administrators themselves lead the process. The plan-drafters labored throughout 1979, completed the plan in fall of 1980, and presented it to the individual management agencies for their sanction.

THE JOINT STRATEGIC PLAN: SUBSTANCE AND EVOLUTION

The development of the Joint Strategic Plan came about because the management agencies sensed a federal threat to their authority through the sweeping Magnuson Act, because they sensed the need for fisheries to be more prominent in the broader realm of environmental management, and because they sensed that a fishery management plan would be developed by

¹⁰ The Great Lakes Basin Commission referred to the yet-to-be-produced plan as the “Great Lakes Fishery Management Plan.” The agencies added the word “strategic” to the beginning of that working title and abbreviated it SGLFMP. Although the final plan was always entitled *A Joint Strategic Plan for Management of Great Lakes Fisheries*, the abbreviation for the working title—SGLFMP—lingered for decades. Even today, in 2007, it is not uncommon for lake committee members and others to refer to the plan as “SGLFMP” (and actually pronounce it as “see-guhl-fump”), a habit that makes the current Great Lakes Fishery Commission executive secretary, Dr. Chris Goddard, bristle conspicuously. Through his concerted efforts, Goddard has made considerable progress in ridding the lexicon of this unpronounceable, anachronistic acronym.

other entities (like the basin commission or the Fish and Wildlife Service) if they failed to act. The non-federal governments enjoyed unchallenged authority over their fisheries until the broader environmental movement of the 1970's forced them to re-think how they cooperated. Like the formation of the lake committees in the 1960s, the Great Lakes Fishery Commission would serve as the neutral force to organize the effort, provide binational legitimacy, and ensure the process moved forward. In light of the other forces at the time—the environmental movement, enhanced federal involvement, the Great Lakes Basin Commission, the need for strategic planning—it is probable that if the non-federal agencies did not better organize, some other entity would intrude on their management responsibilities.

Four main sections comprise the plan: (1) a goal statement, (2) a list of issues surrounding the Great Lakes fishery, (3) broad strategies for making the plan work, and (4) specific strategic procedures for the agencies to fulfill the agreement. Each element is described below. Appendix C provides details on each of the plan's main sections.

1. Goal Statement: Early in the drafting process, the drafters found “no irreconcilable differences” among the management agencies in their goals for the fishery, demonstrating that the agencies could move in a shared direction (GLFC 1979). (It would have been a major problem if they had discovered that some jurisdictions, say, were absolutely opposed to hatchery propagation of fish while the others were not.) This goal statement, included in the Joint Strategic Plan, noted the purpose of agency programs was:

To secure fish communities, based on foundations of stable self-sustaining stocks, supplemented by judicious plantings of hatchery-reared fish, and provide from these communities an optimum contribution of fish, fishing opportunities and associated benefits to meet needs identified by society for: wholesome food, recreation, employment and income, and a healthy human environment.

The plan, thus, would stress that agencies should strive to have self-propagating fish support the fishery, but in the absence of natural reproduction, that they would stock fish.¹¹ The agencies affirmed that their management programs would be aimed at providing the maximum benefits to a wide variety of stakeholders.

2. Issues: In preparing the plan's list of issues, drafters, through a fixed-form survey with open-ended questions, polled the management agencies to learn which issues affected the achievement of their goals. The questionnaire looked at a number of issues including (among other things) the institutional framework, decision-making processes, enforcement philosophies, availability of scientific information, water use conflicts, fishery allocation, and fishery resource stresses (GLFC 1979). With a large amount of quantitative and qualitative data in-hand, the drafters settled on a list of shared issues—issues that management agencies acknowledged they should address individually and collectively through the plan. Those issues are lost fishing opportunities, fish community instability of (caused by sea lamprey, overharvest, exotic species, etc.), inadequate environmental quality (land use, water use, air deposition), competition among users (sport, commercial, tribal fishing), and access to the resource (GLFC 1981a).

3. Underlying, broad strategies of the plan: With a common goal statement and a list of fishery issues that needed attention, the plan-drafters then identified four strategies the plan

¹¹ Several participants in this research pointed out that this goal statement reveals a contradiction inherent in Great Lakes fishery management, then and now. “Stable, self sustaining stocks” refers primarily to self-sustaining stocks of *native* fish like lake trout and ciscoes, fish species that were severely depleted and of which there was little hope of immediate recovery. “Judicious plantings of hatchery-reared fish,” while certainly relevant to fish stocked to restore the native fish communities, refers mainly to hatchery propagation of *exotic* salmonids like steelhead trout and Pacific salmon. These stocked salmonids are the mainstay of the fishery in the absence of significant natural reproduction. This goal statement perhaps downplays major disagreement between the State of Michigan, which based its management on stocked fish, and some of the other jurisdictions, like Ontario, which focused on natural fish populations. In this compromise goal statement, the agencies stated that their practice of artificially propagating the fishery would continue while they sought native species rehabilitation. Henry Regier, an academician who has for decades been involved in fishery management, recently observed that while the plan contains sentiments that strive for the ecosystem approach to the management of whole fish communities, it also serves as “an endorsement of hatchery-reared exotic salmonids. . . . Perhaps [this] implies a contradiction that has been endemic to the [Joint Strategic Plan] all along? I can’t tell which side is winning now, a quarter century later” (Regier, 2005).

would use to achieve its objectives. Those four strategies (reflected in the current version of the plan) are:

- Consensus
- Accountability
- Information Sharing and
- Ecosystem Management.

Consensus: The Joint Strategic Plan is rooted in action by consensus. Consensus, says the plan, is general agreement, the collective opinion, and the judgment arrived at by most of those concerned. Consensus occurs after all points of view have been heard and when no participant objects to the opinion (GLFC 1997a). Joint Strategic Plan participants generally have a shared understanding of consensus. They recognize that it does not mean unanimity or that everyone is completely happy with the outcome. Rather, in the words of a Great Lakes Fishery Commission participant, “consensus to me means everybody agrees or chooses not to disagree.” Agencies agree to reach consensus on management practices before they implement major initiatives. Agencies also agree that any change in fishery management practice that affects other jurisdictions must be agreed to by the other jurisdictions. To help achieve consensus on management actions, agencies together have identified shared fish community objectives (e.g., Ryan et al. 2003) and, often, developed operational plans (e.g., Hansen 1996).

This definition of consensus is a direct reflection of the jurisdictional realities in Great Lakes fishery management and, probably more than any other element of the plan, captures the essence of how cooperation would occur under the plan. Even after the heightened federal involvement in the environment of the 1970s and beyond, Great Lakes fishery management remained rooted in the fact that independent jurisdictions, at the non-federal level, are the primary fishery managers. Although the Great Lakes Fishery Commission facilitates cooperation among these independent actors, the plan was never intended to change the fact that each jurisdiction would remain in control of its waters. In other words, the plan would not force the jurisdictions to do something they did not want to do (this is discussed in chapter 4). Instead, the plan would

help produce emergent commonalities and strategic goals. The plan's definition of consensus, thus, emerged out of the jurisdictions' history of information sharing, coming together as equals, coming together voluntarily, and preserving their autonomy. Consensus reflects the interest in developing an emergent culture of cooperation rather than creating a movement toward coercive action. In the rare instance where consensus cannot be achieved, the Joint Strategic Plan contains provisions for conflict resolution through the Great Lakes Fishery Commission or a third party.

Accountability: The second broad strategy is accountability. Agencies have the right to manage their own fisheries, and some degree of accountability serves to encourage agencies to adhere to the shared objectives and plans they develop through the process. The plan indeed depends on each agency taking steps to implement the shared decisions. Because the plan is non-binding, it relies on “soft” accountability procedures (as opposed to “hard” procedures like law enforcement or sanctions) to encourage implementation. To promote accountability, the plan calls for the production of a decision record—primarily meeting minutes and published documents—to make it clear to the public and to other personnel in the home jurisdiction what the agencies agreed to and how they plan to fulfill their agreements. The Joint Strategic Plan also calls upon each agency to submit periodic reports about their activities on each lake and to provide each other with regular reports on progress toward reaching shared objectives. These accountability measures recognize agency independence while still acknowledging that being a part of the plan requires a commitment to each other to implement what is agreed to. Regular public reports and a decision record serve to keep activities transparent.

Information Sharing: The third broad strategy is information sharing. All agencies need solid information to properly manage the fisheries. Information sharing is a key element of cooperation because it helps agencies make consistent decisions, it makes the decisions more sound, and it is economical because agencies can leverage resources. Information sharing also levels the playing field, as it prevents data hoarding, a practice that is known to happen with

valuable products like scientific data. Information sharing has been difficult at times because the jurisdictions generate data in a variety of formats. To maximize information sharing, the plan calls for agencies to together develop and implement standards for recording and maintaining fishery management and assessment data. The plan envisions the agencies coming to consensus on the data needed to develop and achieve their shared goals, developing plans for who is to collect the data, and seeking ways in which the agencies can collect their data together. The plan also calls for agencies and the commission to publish information and make it available through convenient means.

Ecosystem Management: The final broad strategy outlined in the plan is ecosystem management. A guiding principle on the Great Lakes is that managers must consider the Great Lakes as systems of interacting biotic and abiotic variables. This means that fishery managers need to look beyond fishery management or single species and instead consider and respond to all issues that affect the Great Lakes. In particular, the plan calls for fishery agencies to integrate their fish community objectives and plans with environmental objectives and with plans developed through other processes. For example, the Canadian/U.S. Great Lakes Water Quality Agreement identifies “Areas of Concern” in the Great Lakes basin that have suffered significant environmental degradation. Each area is to have a “Remedial Action Plan” that defines how the area is to be restored. The plans are intended to take into account “the interrelationships between land, air, water, and all living things, including humans, and involving all stakeholder groups in comprehensive management” (Hartig 1997, p. 437). The Joint Strategic Plan calls upon fishery managers to work with environmental officials involved in activities like Remedial Action Plans to integrate fishery needs and objectives with environmental needs and objectives.¹²

¹² While the Joint Strategic Plan envisions linkages between fish community objectives and RAPs and LAMPs, several participants in this research noted that achieving such linkages has been difficult. The 1997 revision of the plan called upon the agencies to redouble their efforts to better articulate environmental objectives, but such efforts have been slow to emerge.

4. Specific strategic procedures for implementing the plan: The final section of the plan lists specific procedures to put the plan into action. First and foremost, the plan identified the already-existing lake committees (which the commission established in 1964) as the mechanism for implementing the plan. The plan tasked the participants with developing shared fish community objectives, identifying environmental issues that may impede the achievement of those objectives, developing plans to achieve the objectives, using the lake committees as the forum for information sharing (particularly as a place to report substantive changes in practice), and facilitating consensus. The plan also directed the participants to make annual progress reports and to present recommendations to the appropriate agencies. Finally, the plan called for members to develop data collection protocols and to share their own agency's data.

The Great Lakes Fishery Commission signed a resolution pledging its intent to provide on-going support for its lake committee process, though the lake committee focus would shift

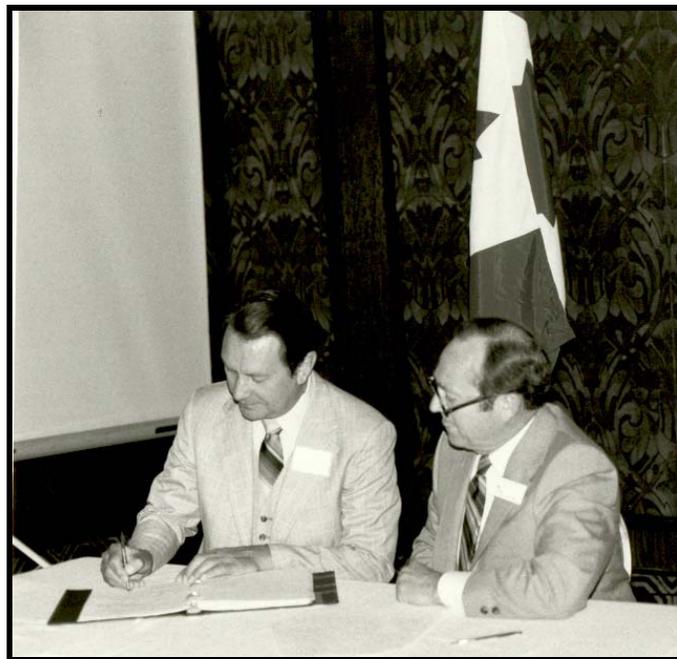


Figure 1-5: Wisconsin DNR Secretary C.D. "Buzz" Besadny (left), signs the Joint Strategic Plan for Management of Great Lakes Fisheries, 1981. Great Lakes Fishery Commission Executive Secretary Carlos Fetterolf witnesses. Photo: Great Lakes Fishery Commission.

from being committees designed to advise the commission to committees designed to operationalize the Joint Strategic Plan. The plan itself envisioned the commission as being the neutral third party to facilitate the process and to mediate disputes. The commission was quite aware of the fact that it did not have management authority in the same vein as the state and provincial agencies. Commissioner Henry Regier, for instance, during the 1981 annual meeting (the meeting where the plan was signed), observed that

although the lake committees advise the commission, the individual members are not compelled to tailor their management decisions, except voluntarily, to suit any outside entity, including the commission. . . . When a problem occurs the GLFC can provide a forum for its discussion and resolution, or, as required, a recommended judgment (GLFC 1981b, p. 11).

Overall, then, the Joint Strategic Plan made many changes to the Great Lakes fishery management regime:

- Although the lake committees would still be under the Great Lakes Fishery Commission's umbrella, the plan served to associate the committees with the management agencies.
- The lake committees would become the mechanisms under which the management agencies would implement the plan.
- The management agencies agreed to develop fish community objectives for each of the lakes, and the operational plans to achieve those objectives.
- The agencies agreed to keep the others informed of any significant changes in policy that might affect other jurisdictions.
- Any group decision would be reached by consensus.
- The Great Lakes Fishery Commission agreed to serve as a neutral third party to mediate disputes.
- The management agencies pledged to submit annual reports to the lake committees.
- The agencies agreed to coordinate their data collection and dissemination.

Although the lake committees facilitated information sharing prior to the plan, the Joint Strategic Plan formalized the relationships among the fishery managers. From the fishery managers' personal perspective, thus, the plan:

- Introduced, renewed, and formalized a new set of relationships;
- Asked each member, as he or she participated in the development of shared objectives, to produce something larger than they had before;
- Asked the participants to formalize relationships with people from other jurisdictions, many with different sensitivities; and
- Created a new personal sense of duty that members would be expected to pass on to new participants.

The plan has changed little in overall focus and function since 1981, though agencies have created technical subcommittees, have added additional signatories, and have completed one major review and revision (in 1997).

The emergence of technical committees

Technical committees consist of field-level professionals who undertake such tasks as deciding on data needs, gathering data, interpreting data, and providing advice to the lake committees. While the Joint Strategic Plan does not mandate the formation of technical committees, it did allow the lake committees to establish subcommittees. The Lake Erie Committee Technical Committee existed prior to the Joint Strategic Plan,¹³ and each lake committee formed a technical committee as-needed after the plan was signed in 1981. The Lake Ontario Technical Committee operates less formally than the technical committees on the other lakes.¹⁴ Similar to technical committees are “task groups,” which are more-specific versions of technical committees. The number of task groups on each lake varies according to need and specific issues on the lake. For example, the Lake Erie Committee has established permanent walleye, yellow perch, forage, and coldwater task groups. Technical committees (and task groups) meet regularly and report to the lake committees. Unlike the lake committees, whose members represent agencies with management authority, technical committees and task groups include as members federal officials and, by invitation, outside experts, such as academicians.

¹³ The Lake Erie Technical Committee was formed in the mid-1970s to assist in the interjurisdictional management of walleye (see chapter 5).

¹⁴ Lake Ontario’s technical committee is less-formal than those on the other lakes because only two jurisdictions—Ontario and New York—manage the lake and because staff at all levels interact across the border on a continual basis. Said one senior manager from New York, illustrating the on-going interactions, “people in the Great Lakes tend to have more interactions with colleagues in other states and Ontario who are working on the Great Lakes than they do with colleagues within the same agency working on other bodies of fresh water.” Said another New Yorker on Lake Ontario, “Because we are just dealing with two agencies, for all intents and purposes, the lake Ontario Technical Committee is everything. Or you know if you were to say we want the lake Ontario technical committee to have a lake trout task group and prey fish task group and a warm water fish task group, a walleye, a yellow perch, task group, it would be the same people every time, [including the lake committee members].”

Entities that have relevant data to share and that have suitable biological expertise are usually invited to participate in the technical committees.

The first new members: U.S. tribal participation in the Joint Strategic Plan

About the time the plan was signed in 1981, the courts were settling major cases relating to tribal management authority. Tribal rights had yet to be fully asserted and tribal capacity to carry out biological programs was too limited for their involvement in the early lake committee process. After the tribal court cases affecting the waters of lakes Superior, Michigan, and Huron (which established that states did not have exclusive management authority in ceded waters), it was clear that the tribes would co-manage in some areas of the lakes. Shortly after the court decisions, tribal members began to attend technical committee meetings to learn what was going on and to provide input into management. At first, they did not receive a warm welcome. Said one long-serving tribal participant interviewed for this research,

The tribes had to prove themselves. I remember when [my colleague] and I went to our first technical committee meeting—it was Michigan City, Indiana . . . in '82. Treaty rights were a big issue and people basically laughed at us. . . . [P]eople couldn't believe that the tribes would actually hire a biologist and had people on staff. And we were actually treated pretty rudely.

Other colleagues corroborate the initiative that tribes took. “We weren't necessarily invited [to the lake committee and technical committee meetings], we just sort of showed up.”

In addition to having tribal biologists attend the lake committee and technical committee meetings starting in the early 1980s, the tribes also took steps to organize themselves. By this time, the courts had affirmed tribal management authority; the question was how the tribes would exercise their authority. The tribes of western Lake Superior created the Great Lakes Indian Commission (later renamed the Great Lakes Indian Fish and Wildlife Commission), partially to grow their biological expertise so they could work better with the other management agencies. The tribes party to the *U.S. v. Michigan* ruling (who were also party to the Consent Decree of 1985) formed the Chippewa-Ottawa Treaty Fishery Management Authority (later re-named the

Chippewa-Ottawa Resource Authority) as a way to best assert their management authority in the treaty waters. Tribal and state interviewees note that the formation of the two inter-tribal organizations did much to help everyone accept tribal participation on the lake committees and technical committees. In the spring of 1985, tribes officially requested a seat on the lake committees, starting with Lake Superior (Busiahn 1988), and the intertribal authorities formally signed the Joint Strategic Plan in 1989 after tribal authority was demonstrated and after the individual tribes endorsed the agreement. A long-serving tribal participant, reflecting back, said “by the time [our membership on lake committees] came, I don’t think there was too much resistance because by then, again after that Consent Decree, everybody knew . . . we were going to be there.”

Fine-tuning the agreement: The 1997 Revision of the Joint Strategic Plan

The first (and, to date only) major revision to the plan occurred in 1997 after a detailed review. The signatories gathered in 1996 to assess implementation and to discuss any needed changes. The discussion led agencies to make several updates to the issues list and to the plan’s strategic procedures. For instance, the 1997 revision added fish consumption advisories and climate change to the list of important issues affecting the fishery. The updated plan further emphasized the impact of exotic species on the fishery, called upon the agencies to redouble their efforts to incorporate environmental objectives into their management plans, and enhanced reporting and accountability commitments. The revised plan created a Council of Great Lakes Fishery Agencies—comprising senior fishery managers (usually heads of fishery departments) and senior environmental managers—to improve plan operations. The U.S. Geological Survey became a signatory in 1997 to accommodate Department of Interior biologists who were moved from the U.S. Fish and Wildlife Service to the U.S. Geological Survey after a departmental restructuring. The most significant change was the commitment to hold major “state of the lake” conferences every year to focus on one of the five Great Lakes. State-of-the-lake conferences

were intended to help lake committee members publish state-of-the-lake reports and fish community objectives. Such publications, though important to the Joint Strategic Plan, were nevertheless a perennial problem as lake committee members were expected to produce them on top of their already over-extended agency responsibilities. Appendix C summarizes the changes to the Joint Strategic Plan after the 1997 review.

Although the Joint Strategic Plan has been reviewed and revised since its inception in 1981, the basic structure and procedures have remained intact. The lake committee process remains the plan's foundation and the plan's strategic procedures remain in force. U.S. tribal membership helped to clarify the tribal role in fisheries management after a turbulent period of court decisions. Ongoing agency willingness to adhere to the Joint Strategic Plan process contributed to a new culture among fishery managers—a paradigm of cooperation.

CONCLUSION

The Great Lakes basin is politically disconnected and fishery programs are spread among no fewer than fourteen binational, federal, provincial, state, and tribal governments and agencies. The primary fishery authority rests with the non-federal governments and because the jurisdictions were loath to cede their sovereignty, parochialism frustrated repeated attempts among the jurisdictions to work together. This chapter argues that the parochial and diffuse nature of Great Lakes fishery management authority devolved into an era of non-cooperation, contributing to poor management and fishery degradation. Nothing—not crisis, not an authority—compelled the jurisdictions to cede their responsibilities and, thus, until the 1940s, each jurisdiction carried out its management pursuant to its own will and political pressures.

Cooperation began to emerge after a major crisis (the sea lamprey) and a leader (the Great Lakes Fishery Commission) helped convince the jurisdictions to work together to address some of the basin's most pressing problems. The formation of the lake committees in the 1960s projected the commission's interest in forging lasting relationships. This helped prompt the

jurisdictions to participate regularly in meetings and share information. Even though the meetings became routine in the 1960s and 1970s, they served as a useful forum for information sharing. Another crisis in the eyes of the non-federal agencies—the possibility of usurpation of their management authority—helped jolt the agencies in the late 1970s into developing a more formal agreement, the Joint Strategic Plan, though the agencies were also motivated into strategic planning by the spirit of the environmental movement. The agreement—rooted in consensus, accountability, information sharing, and ecosystem management—would be more strategic in nature than the previous process. Like the 1950s and 1960s, the agencies relied on the soft, neutral Great Lakes Fishery Commission to help them organize, illustrating that expectations of self-organization alone would not be sufficient to develop lasting cooperative regimes.

The Joint Strategic Plan reflects the region's political incoherence, non-federal sovereignty, sentiments of independence, and jealously-guarded authorities. The plan also reflects the real needs to cooperate to achieve strategic, shared goals and to manage the fishery as an ecosystem. Given the history of false starts, failed agreements, and independence, it should be no surprise that the emergent regime would be consensus-based, non-binding, and voluntary (see figure 6-1). At the same time, the Joint Strategic Plan is no token agreement. Through the formal arrangement, all jurisdictions agreed to change the way they interacted, as the plan called upon the signatories to commit to meet regularly, provide meaningful input, develop operational plans, and live up to their commitments. As the next three chapters will argue, this history and the plan's built-in structures, help the fishery managers take collective action, work synergistically with the federal governments, and move toward shared goals in a non-binding way that reflects the basic realities in Great Lakes fishery governance. While the Joint Strategic Plan did not cause an immediate paradigm shift in collective action on the Great Lakes, it did help further develop a culture of cooperation on the Great Lakes that endures to the present day.

Given that representatives from independent jurisdictions work together in a cooperative regime, this dissertation now turns to a discussion about collective action, the conditions under

which collective action likely occurs, and why participants in the Joint Strategic Plan—who are accountable to their own jurisdiction—choose to work with others in the Great Lakes basin.

YEAR	EVENT	RESULTS
1883 to the 1940s: Multijurisdictional conferences, false starts, roots of cooperation		
1883	First Great Lakes Interstate Conference	Thirteen recommendations were agreed upon; none adopted by the states.
1884	Second Great Lakes Interstate Conference	Same issues covered as the first conference, same result.
1891	International Fish and Game Conference	Report produced containing resolutions about common regulations, fish size limits, and uniform closed seasons. Nothing came of the resolutions.
1892	Joint Commission Relative to the Preservation of the Fisheries in Waters Contiguous to Canada and the United States, formed to collect information and make recommendations.	Commission advised uniform regulations, a joint management plan, and a permanent international body with regulatory authority. Recommendations not widely appreciated; would have usurped non-federal management authority.
1897	American Fisheries Society annual meeting: committee of one representative from each state was formed.	Stressed the need for uniform regulations. Nothing came of the meeting.
1897	International Commission formed to look at border issues, including Great Lakes fishery management.	Commission recommended a treaty and permanent joint commission to supervise the fisheries, review science, and promulgate regulations. No treaty proposed immediately.
1896	Interstate committee of IL, MI, MN, and WI met to draw up a code of uniform regulations.	No printed record of results.
1904	Conference of State Officials, Chicago.	Recommendations to state legislatures for uniform regulations. No two of the legislatures agreed to nor followed the recommendations. "Nothing accomplished." (Gallagher et al. 1942, p. 31)
1906	American Fisheries Society annual meeting: interstate committee meeting	No record
1908	Treaty between Canada and the United States agreed to concerning the fisheries of all waters between the two nations. Established a permanent international commission on the Great Lakes, though without regulatory authority.	Failed to pass Congress; never went into force. Great Britain withdrew treaty in 1914.
1910	International Commission formed to investigate border issues, including Great Lakes fishery management.	Same recommendations of the international commission of 1897; same results.
1927	Lake Erie International Conservation Council, formed to coordinate action on Lake Erie.	Resolutions adopted but no future meetings occurred.
1928	International Fisheries Conservation Council of the Great Lakes (met twice in 1928)	Agreements on general measures for the Great Lakes fishery, including use of fishing equipment, fish size, taking of spawn, pollution control, and data collection. "Nothing definite was achieved and the conference was soon forgotten." (Gallagher et al. 1942, p. 31)
1929	Meeting of Michigan and Ontario on Lake Huron.	Effort to form a code uniform regulations. No action by either government.
1931	Conference held in Buffalo of Lake Erie jurisdictions.	Resulted in the formation of the Lake Erie Advisory Committee, to study Lake Erie and propose uniform regulations. Toronto Agreement of 1933 another result of this conference.
1933	Toronto Agreement (result of 1931 conference) signed by each of the jurisdictions on Lake Erie.	Agreement covered all vital regulations on Lake Erie. However, implementation was a disaster. Jurisdictions found enforcement of regulations impossible. During a meeting later that year, the agreement was completely dissolved, as was the Lake Erie Advisory Committee. The failure of the Toronto Agreement "led to endless controversy and even to the disruption of friendly relations among the representatives charged with its enforcement." (Gallagher et al. 1942, p. 32)
1933	Meeting of Indiana, Illinois, Michigan, Wisconsin, and the U.S. Bureau of Commercial Fisheries	Attempt to draw up uniform regulations for states on Lake Michigan. Measures failed to be enacted.

YEAR	EVENT	RESULTS
1936	Meeting in Washington to resurrect the Lake Erie Advisory Committee	Failed. Began a sustained call for federal involvement.
1936	Meeting in Chicago among Indiana, Illinois, Michigan, Minnesota, Ohio, Wisconsin, and U.S. Federal Government to establish uniform regulations in Lake Huron and Lake Superior.	A few recommendations were enacted by Illinois and Michigan.
1936	Meeting in Toronto between Michigan and Ontario to develop uniform regulations for Lake Huron.	Tentative agreement reached but held in abeyance.
1937	Great Lakes fisheries meeting, during Eastern States Conservation Conference. Only two Great Lakes states participated.	Council of State Governments agreed to coordinate the development of an interstate compact for Great Lakes fisheries or a binational agreement.
1938	Council of State Governments meeting of the eight Great Lakes states, Ontario, the U.S. Bureau of Commercial Fisheries, and the U.S. Department of State with the purpose of looking at ways to get uniform regulations.	Recommended formation of the International Board of Enquiry (formed), and produced a resolution calling for federal management of the fishery. A treaty (of 1946) resulted from this effort, but the treaty failed to be ratified.
1938	Meeting of the Midwest Regional Assembly of the Council of State Governments, with the goal of developing uniform regulations for Lake Michigan.	Nothing accomplished.
1942	Report of the International Board of Enquiry (formed in 1938).	Rejection of the idea of an interstate compact; support for a binational treaty.
1943 to 1964: The emergence of a cooperative regime		
1943	Interstate Conference, Madison, Wisconsin.	Established the Great Lakes Lake Trout Committee (met in 1946) to discuss lake trout issues on Lake Michigan.
1946	Formation of the Lake Trout Committee, established to discuss lake trout issues on Lake Michigan. This committee was the result of the 1943 interstate conference held in Madison.	First permanent, multijurisdictional fisheries committee on the Great Lakes. This committee merged with an ad hoc sea lamprey committee in 1953 and became the Great Lakes Fishery Committee, a committee formed to look at lake trout, sea lamprey, and other issues. This was to be the first robust multi-state/provincial committee on the Great Lakes. The committee lasted until 1956, when its function was absorbed (though continued) by the Great Lakes Fishery Commission.
1946	Treaty between the United States and Canada signed, creating a binational commission on the Great Lakes to make regulations such as open and closed seasons, gear restrictions, size limits, etc. Regulations would need approval by the President and the Privy Council.	Not ratified; withdrawn.
1949	Establishment of the sea lamprey committee, in response to the sea lamprey invasion of the upper Great Lakes.	First on-going body to investigate and respond to the sea lamprey. Precursor to the 1954 Convention on Great Lakes Fisheries. This committee merged with the Lake Trout Committee in 1953.
1951	Ad hoc Lake Erie Fish Management Committee formed to create dialogue between Canadian and U.S. jurisdictions on Lake Erie.	This committee became permanent in 1952 and evolved into the present-day Lake Erie Committee.
1953	Formation of the Great Lakes Fishery Committee, a merge of the Lake Trout Committee and the Sea Lamprey Committee.	Integration of lake trout and sea lamprey investigations. Committee absorbed by the Great Lakes Fishery Commission in 1956.
1954	Convention on Great Lakes Fisheries signed. Formed the Great Lakes Fishery Commission, a binational body on the Great Lakes with the responsibility to control sea lampreys, coordinate research, and make recommendations to government about fish stocks of common concern. (Note: no authority to propose common fisheries regulations.)	Ratified in 1955. Still in force.
1964 to 1978: The evolution of lake committees		
1964	Lake committees (one for each lake) formed by the Great Lakes Fishery Commission.	From 1964 to the present, lake committees have been convened at least annually as a forum to report on agency activities and share information.
1977	Great Lakes Basin Commission requests the agencies and the Great Lakes Fishery Commission develop a Great Lakes management plan.	Agencies and the commission agree to develop a <i>strategic</i> Great Lakes fisheries management plan.
1978	Council of Lake Committees formed by the Great Lakes Fishery Commission.	From 1978 to the present, the Council of Lake Committees has been convened at least annually to discuss issues of importance to the Great Lakes basin as a whole.

YEAR	EVENT	RESULTS
1978 to the present: A Joint Strategic Plan for Management of Great Lakes Fisheries		
1978	Agencies form a steering committee to begin drafting a strategic fisheries management plan.	Plan completed in 1981 as a Joint Strategic Plan for Management of Great Lakes Fisheries.
1981	Provincial, states, and federal agencies sign <i>A Joint Strategic Plan for Management of Great Lakes Fisheries</i> . (U.S. tribes would sign the plan in 1989.)	The Joint Strategic Plan, which is still in force , outlined issues and strategies for Great Lakes fishery management and established a regular process for cooperation and interaction among the non-federal jurisdictions and with the federal authorities and the binational Great Lakes Fishery Commission. Fish community objectives for the each of the Great Lakes, state-of-the-lake reports, and other shared initiatives would be developed under the Joint Strategic Plan structure. Lake committees, at first committees established to serve the Great Lakes Fishery Commission, would fall under the domain of the non-federal agencies, as they would be the “action arms” of the Joint Strategic Plan. Technical committees would be formed on each of the lakes (some lakes have more than one technical committee) as a place for field biologists to interact, share data, and come to a common understanding of the biological issues facing the resource.
1986	Agencies meet in Toronto to review the Joint Strategic Plan.	No substantive changes made.
1989	Two U.S. intertribal organizations—the Great Lakes Indian Fish and Wildlife Commission and the Chippewa-Ottawa Treaty Fishery Management Authority, today known as the Chippewa-Ottawa Resource Authority—sign the plan.	U.S. tribes, represented through intertribal organizations, become members of lake committees and technical committees.
1997	Joint Strategic Plan reviewed by provincial, state, tribal and federal jurisdictions.	No major changes made to the plan. Continued emphasis on lake committees and consensus-based process. Dispute resolution mechanism clarified. Signatories called for renewed emphasis on development of environmental objectives. Council of Great Lakes Fishery Agencies created (comprising senior fisheries managers) to be ‘keepers of the plan.’

Table 1-2: The four eras of great lakes fishery management, 1883- present

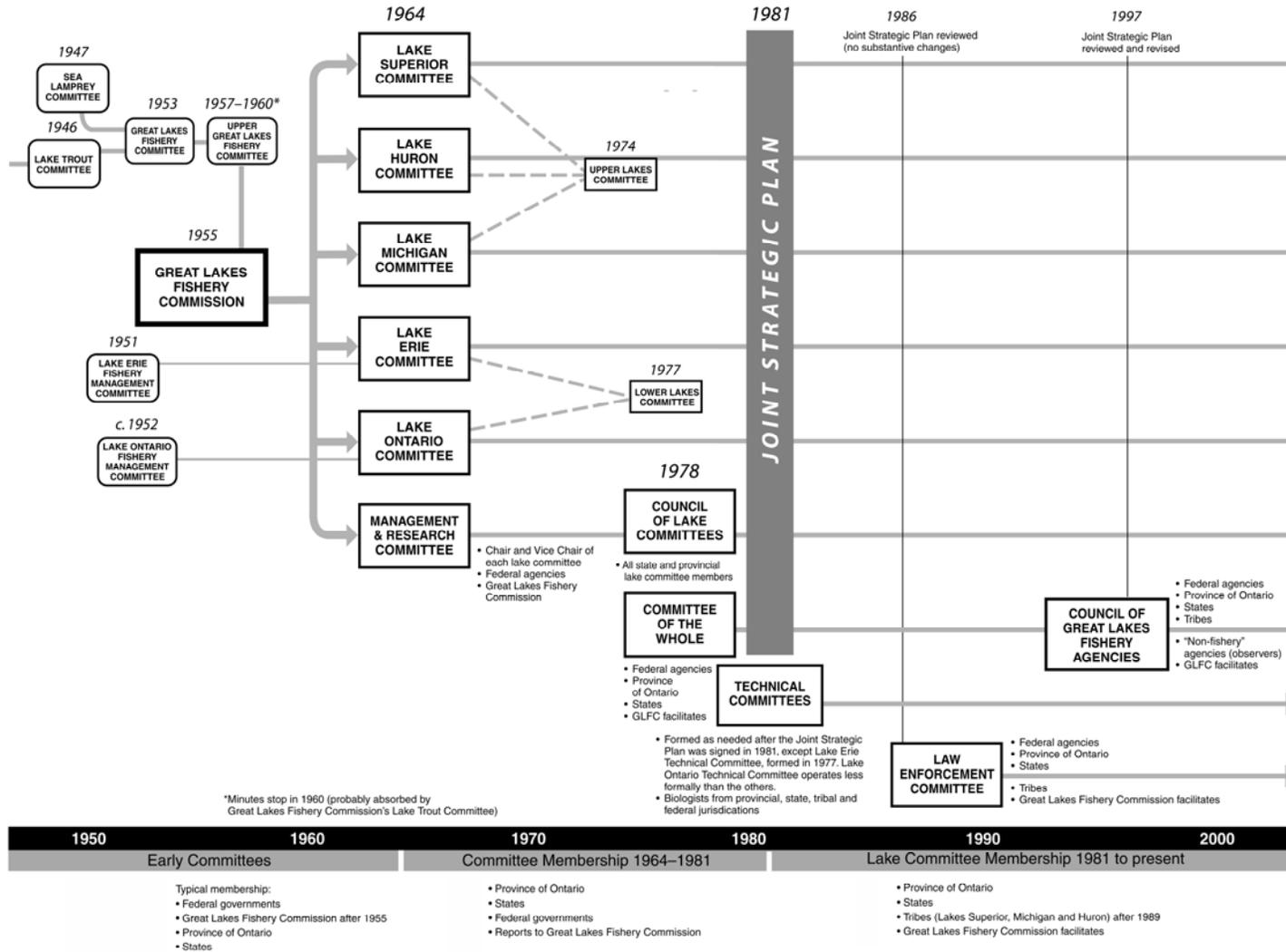
Adapted by M. Gaden from Hubert R. Gallagher, Huntsman, A.G., Taylor, D.J. and Van Oosten, J. 1942. International Board of Inquiry for the Great Lakes Fisheries. Washington, DC. U.S. Government Printing Office.; Bogue, Margaret Beattie. 2000. Fishing the Great Lakes: An environmental history, 1833-1933. University of Wisconsin Press; Piper, Don. 1967. The International Law of the Great Lakes. Duke University Press; Great Lakes Conferences and Meetings 1928-1954. Great Lakes Fishery Commission; Lake Erie Fish Management 1951-1964. Great Lakes Fishery Commission

Figure 1-6: The evolution of cooperative committees in Great Lakes fishery management.

<p>1883 First Great Lakes Interstate Conference 13 recommendations agreed upon; none adopted.</p> <p>1884 Second Great Lakes Interstate Conference Same issues as first conference; same result.</p> <p>1891 International Fish and Game Conference Nothing came of several resolutions produced.</p> <p>1892 JOINT COMMISSION Advised uniform regulations, a joint management plan, and a permanent international body with regulatory authority. Recommendations not widely appreciated.</p> <p>1896 Interstate committee of IL, MI, MN, and WI Met to draw up a code of uniform regulations. No printed record of results.</p> <p>1897 American Fisheries Society annual meeting Stressed need for uniform regulations. Nothing came of the meeting.</p> <p>1897 INTERNATIONAL COMMISSION Recommended a treaty and permanent joint commission to supervise the fisheries, review science, and promulgate regulations. No treaty proposed immediately.</p>	<p>1904 Conference of State Officials Recommendations to state legislatures for uniform regulations. "Nothing accomplished."</p> <p>1906 American Fisheries Society annual meeting No record.</p> <p>1908 TREATY Agreement concerning the fisheries of all waters between Canada and the U.S. Established a permanent international commission. Failed to pass Congress and was withdrawn in 1914.</p> <p>1910 INTERNATIONAL COMMISSION Commission formed to investigate border issues, including Great Lakes fishery management. Same recommendations of the 1897 commission; same results.</p> <p>1927 Lake Erie International Conservation Council Council formed to coordinate action on Lake Erie. Resolutions adopted but no future meetings occurred.</p> <p>1928 International Fisheries Conservation Council of the Great Lakes Met twice in 1928. Agreements on general measures for the Great Lakes fishery. "Nothing definite was achieved and the conference was soon forgotten."</p> <p>1929 Meeting of Michigan and Ontario on Lake Huron Effort to form a code of uniform regulations. No action by either government.</p>	<p>1931 Conference of Lake Erie jurisdictions Resulted in the formation of the Lake Erie Advisory Committee and the Toronto Agreement of 1933.</p> <p>1933 Toronto Agreement signed by each of the jurisdictions on Lake Erie Agreement covered all vital regulations on Lake Erie. However, implementation was a disaster.</p> <p>1933 Meeting of IN, IL, MI, WI, and the U.S. Bureau of Commercial Fisheries Attempt to draw up uniform regulations for Lake Michigan; measures failed to be enacted.</p> <p>1936 Meeting in Washington Attempt to resurrect the Lake Erie Advisory Committee</p> <p>1936 Meeting in Chicago among IN, IL, MI, MN, OH, WI and U.S. Federal Government A few regulations for Lakes Huron and Superior were enacted by IL and MI.</p> <p>1936 Meeting in Toronto between MI and ON Tentative agreement was reached on uniform regulations for Lake Huron, but held in abeyance.</p> <p>1938 Council of State Governments Meeting Resulted in formation of International Board of Enquiry.</p> <p>1938 Midwest Regional Assembly Goal to develop uniform regulations for Lake Michigan. Nothing accomplished.</p> <p>1938 INTERNATIONAL BOARD OF ENQUIRY Formed to investigate fishing practices and government regulations.</p>	<p>1942 Board of Enquiry Report Rejected interstate compact; recommended treaty.</p> <p>1943 Interstate conference, Madison, WI Established Lake Trout Committee.</p> <p>1946 TREATY Created bi-national committee to make regulations, subject to federal approval. Not ratified; withdrawn.</p>
<p>Pre-1900 1900–1929 1930 1940</p> <p>Early attempts at cooperation</p>			

• Mostly ad hoc mixes of states, Province of Ontario and federal governments

(Continued)



Adapted by M. Gaden from Hubert R. Gallagher, Huntsman, A.G., Taylor, D.J. and Van Oosten, J. 1942. International Board of Inquiry for the Great Lakes Fisheries. Washington, DC. U.S. Government Printing Office.; Bogue, Margaret Beattie. 2000. Fishing the Great Lakes: An environmental history, 1833-1933. University of Wisconsin Press; Piper, Don. 1967. The International Law of the Great Lakes. Duke University Press; Great Lakes Conferences and Meetings 1928-1954. Great Lakes Fishery Commission; Lake Erie Fish Management 1951-1964. Great Lakes Fishery Commission

CHAPTER 2

RE-FRAMING SELF-INTEREST

Turning Conflict into Collective Action Through the Joint Strategic Plan

Abstract

Given that fishery managers are accountable only to their own jurisdiction, and given conflict among independent jurisdictions is inevitable, this chapter asks: *How can multijurisdictional institutions help independent jurisdictions steer conflict toward cooperation rather than competition? How do fishery managers on the Great Lakes organize in a way that minimizes the clash between parochialism and the need for collective action and why do fishery managers expend time, energy and resources to coordinate fisheries policies?* This chapter argues that under the Joint Strategic Plan, fishery managers meet regularly to engage in three primary collective action activities: to collect and share information; to decide on tasks and who carries them out; and to develop shared plans, policies, and objectives. These collective actions strengthen the framework for cooperation, create durable relationships, help the managers engage in ecosystem management, and help produce policies that are more defensible with politicians and the public. The Joint Strategic Plan helps the fishery managers re-frame self-interest from parochial needs to developing and achieving shared goals. The formal process facilitates collective action by gently coercing members into adhering to the norms of the fishery management community. Moreover, participants are rewarded for collective action because interactions with trusted peers are enjoyable, because ecosystem management is professionally and personally a better way to manage, and because scientifically and politically defensible policies create fewer implementation challenges in the home jurisdiction.

The philosopher Thomas Hobbes (Hobbes, p. 100) believed that people's lives are "solitary, poor, nasty, brutish and short." In this condition, humans are constantly competing with one another and hardly concerned about cooperating to advance any shared goals they might have. This conclusion seems counterintuitive, as humans are clever and should realize that at times, collective action could leave everyone better off. After all, competition often squanders

time, resources, and lives. Yet even enlightened, rational people—some argue *particularly* enlightened, rational people—look out for their own interests (Hardin 1968). Perhaps nowhere does the tension between selfish parochialism and cooperative collective action appear more visibly than in the appropriation and management of shared natural resources. Whether a local community, a region, or the world shares a resource, one person's or group's use often lessens benefits for others (Hardin 1968). Unwilling to gamble potential rewards on collective action, people are known to appropriate wantonly to satisfy their own interests, with little concern for sustainability, causing resource degradation and eventual loss. Nobody benefits from such behavior. People do not readily act out of selfless concern for others and rational people, acting out of self interest, create an absurd outcome that they could have prevented had they cooperated. To Hobbes, cooperation is not natural; to others, it requires motivation.

Conflict over shared resources is indeed to be expected; the question is whether conflict leads to selfish competition or whether it leads to mutually beneficial collective action (Kohn 1992). The Great Lakes fishery is an example of a shared natural resource. Two nations, eight states, the Province of Ontario, and Native American tribes have the authority to manage and use the fishery. Primary management responsibility rests with the non-federal governments, and no overarching authority exists to compel these independent resource-users to cooperate. The jurisdictions are free to manage and appropriate their portion of the shared Great Lakes fishery in the manner they choose. Undoubtedly, the jurisdictions will face conflict over their fishery management activities, as the jurisdictions have differing management philosophies, needs, constituent pressures, and political dynamics. Managers may feel conflicted over whether to satisfy their parochial interests or to consider everyone's interests. In the absence of communications, conflicting management philosophies could cause the jurisdictions to work at cross purposes; to permit selfish, unsustainable harvest; or to distrust others' motivations or intentions. These behaviors would illustrate conflict leading to competition.

The Great Lakes basin's management agencies, however, have chosen a different course—a course that attempts to channel parochial behavior—by establishing and adhering to *A Joint Strategic Plan for Management of Great Lakes Fisheries*, a non-binding, consensus-based agreement. As chapter 1 discusses, the plan is designed to help the provincial, state, and tribal agencies on the Great Lakes work together to identify and achieve their shared goals. The agencies also work with the federal governments and the bi-national Great Lakes Fishery Commission to manage the lakes as a system. The plan reflects the diffuse political authorities in the region and focuses on consensus among those independent authorities, helping them identify what they have in common. In the absence of the plan, the agencies would have limited means to advance shared goals, as no overarching authority exists to span all the primary jurisdictions.

Recognizing that conflict among the jurisdictions is inevitable but could lead to undesirable outcomes, this chapter investigates how and why fishery managers work together to handle conflict. This chapter asks: *Without a compelling authority, can independent jurisdictional actors establish institutions to help steer conflict toward cooperation rather than competition? Can fishery managers on the Great Lakes organize in a way that minimizes the clash between parochialism and the need for collective action and, if so, why do fishery managers—who are accountable only to their own jurisdiction—expend time, energy and resources to coordinate fisheries policies?*

To investigate these questions, sixty-two current and former Joint Strategic Plan participants—including all twenty current lake committee members—were interviewed. Participants were asked what they believe was the Joint Strategic Plan's impact, why they chose to participate in the plan's processes, and what they hoped to gain when they attended meetings. The interviewer also attended more than eighty lake committee, technical committee, and other meetings convened under the Joint Strategic Plan since 1995 and took fieldnotes related to this research from 2003-2005. These observations of the lake committee and technical committee

processes supplemented and generally corroborated interview data. Appendix A discusses methodology in greater detail.

Chapter 1 stresses that for much of the history of Great Lakes fishery management, conflict over the shared resource inhibited cooperation and often led to ineffective or contradictory policies. By the mid-twentieth century, crisis (the sea lamprey) and an organizing leader (the Great Lakes Fishery Commission) helped the jurisdictions work together, and the fear of federal intrusion, the environmental movement, and the commission prompted the creation of a permanent institution, the Joint Strategic Plan, to make those interactions ongoing and strategic. The literature about conflict and cooperation places much emphasis on arrangements that promote recurring interactions. Such arrangements can help participants seek future opportunities and focus on shared goals rather than on how to compete over the resource. This chapter argues that the Joint Strategic Plan was designed to overcome historical parochialism and turn conflict into collective action. By focusing on relationships and process, the plan increases familiarity among participants and helps them recast self-interest in cooperative terms rather than in terms of parochial self-interest. The participants become used to working together and because of the existence of an epistemic community—an elite community of like-minded professionals—members value continual relationships, are gently coerced into adhering to the community's norms, and are rewarded for working together. The literature argues that rewards and coercion prompt collective action.

COMMONS, CONFLICT, COMPETITION, AND COOPERATION; A REVIEW OF THE LITERATURE

Common pool resources are natural resources available on such a scale that excluding potential users is difficult, if not impossible. The resources are usually enough in demand that people compete to exploit them (Barkin and Shambaugh 1999; Ostrom 1990). Chances are, a common pool resource transcends political boundaries and is stressed because of nonexistent or weak checks against unsustainable exploitation (Dietz et al. 2002). Common pool resource

literature is often coupled with literature about cooperation because people must work together (through an institution, perhaps) if they are to protect and sustain the shared resource. Collective action (or, simply, “cooperation”) results when people work together to achieve their shared goals. Cooperation has connotations of synergy and reciprocity—synergy in the sense that people work together to gain more than if they worked alone, and reciprocity because all participants expect benefits from cooperation. For cooperation to work, members of a group should know and respect each other’s interests, should recognize shared goals, and should be willing to coordinate activities to reach those goals (Sebenius 1992; Yaffee 1998). Cooperation is working toward a goal “in such a way that each individual’s successes facilitates the other’s” (Kohn 1992, p. 4).

Cooperation does not automatically mean harmony or lack of conflict. In fact, says Keohane (1984, p. 53),

[Cooperation] is typically mixed with conflict . . . [and] takes place only in situations in which the actors perceive that their policies are actually or potentially in conflict, not where there is harmony. Cooperation should not be viewed as the absence of conflict, but rather as a reaction to conflict or potential conflict.

Because common pool resources are resources that many can access, conflict is all but inevitable. The important issue is whether conflict leads to competition (often articulated through “game theory”) or cooperation (collective action) (Kohn 1992). Olson (1965) argues that people are generally unwilling to act collectively without coercion or incentives because self-interest leads people to seek benefits without contributing to the collective action. Given the chance, people will free-ride (i.e., receive benefits without sacrifice), as they perceive taking what they can to be more beneficial than the marginal impact of their individual (and personally costly) sacrifice, particularly if they believe others are unwilling to make the same sacrifice. Olson discusses incentives largely in monetary or tangible terms but also stresses that social incentives, such as social pressure or social acceptance, also promote collective action. “The recalcitrant individual can be ostracized and the cooperative individual can be invited into the center of the charmed circle” (Olson 1965, p. 61).

Hardin (1968), in his seminal article *The Tragedy of the Commons*, generally shares Olson's view that people act in their self interest and ignore the benefits of collective action. Hardin uses a prisoner's dilemma (game theory) model to make his points. There are many different types of game theories, but a simple, underlying premise is that rational individuals, who have incomplete information about what others will do, will view it in their self-interest to appropriate as much as they can, lest someone else benefit. Not wanting to be left with nothing, individuals act rationally, though selfishly, which produces irrational outcomes (Axelrod 1984; Hardin 1968). In the case of common pool resources, if many appropriators have unimpeded access to the resource, acting in the resource's interest requires a personal sacrifice that will only serve to benefit other appropriators who will choose not to sacrifice. Conflict over the shared resource, in other words, leads to competition; a person sees it as in his self-interest to satisfy competitive urges. This situation causes a strong incentive against collective action (Hardin 1968; Ostrom 1990), which leads to resource degradation and collapse. Hardin calls this "the tragedy of the commons" (Hardin 1968) and uses game theories to show that competition, not collective action, is the case when dealing with a common pool resource. Game theorists suggest that in the absence of coercion or incentives—which Olson says are necessary for collective action—people do not cooperate and the outcome is often tragic.

Scholars have, for decades, scrutinized Hardin's notion that self interest leads to uncooperative behavior, and many now conclude that acting out of self interest does not necessarily lead to the "tragedy of the commons." The skeptics point out that Hardin falsely assumed appropriators will act without communicating and that interactions among the appropriators occur only once (Axelrod 1984; Dietz et al. 2002). Hardin's assumptions ignore the fact that people do work together and that there are ways to make interactions regular. Axelrod (1984) provides a rebuttal to the idea that self interest, games, and realism preclude cooperative behavior. While accepting that actors might play games and act selfishly, Axelrod (1984, p. 3) asks nevertheless "in situations where each individual has an incentive to be selfish, how can

cooperation occur?” In answering this question, he demonstrates—through the use of game theory—that cooperation can occur if actors have mutual goals, if they communicate regularly, and if they behave predictably. Axelrod indeed places great emphasis on the positive function of ongoing relationships in contributing to cooperative behavior and predictability. He also adds that cooperation is more likely when “the shadow of the future is enlarge[d]” (Axelrod 1984, p. 129), that is, when participants consider and care about the affect of today’s actions on future relations. When participants know they will work with the same people in the future, they will be more cooperative today for fear of jeopardizing future opportunities. Frequent and strong interactions among members of the community are thus instrumental to cooperation.

Other explanations for cooperation are rooted in the idea that being a member of a select community motivates collective action because members either feel obligated to play their role (coerced into participating through peer pressure) or are rewarded for doing so, or both. These community-oriented scholars contend that relationships, commitments, social pressures, and a sense of ownership are powerful motivators for collective action. As Haas (1992a; 1992b), Adler (2005), and Montpetit (2003) explain, “epistemic communities”¹⁵ exist that comprise people with a shared sense of identity, shared goals, and shared vision. Members exist in a “shared paradigm” (Montpetit 2003) and consider their actions based on their epistemic community’s social context. They believe that collective learning takes place through that community. In other words, 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 that domain or issue-area” (Haas 1992b, p. 3). Examples of epistemic communities might include like-minded scientists from different countries, government officials in the same policy area, academicians who work in the same discipline, and global environmentalists. Particular work

¹⁵The term “epistemic community” is similar in concept to “policy communities,” “issue networks,” and “advocacy coalitions” as described in other literature (e.g, Adler 2005; Coleman and Pearl 1999; Thomas 1997).

affiliation is less important than sharing a common understanding of an issue or how to achieve policy outcomes. Because shared norms, values, and beliefs are the very essence of an epistemic community, it is difficult to fool other members of the group—members know who does and who does not belong. An epistemic community is also a form of a peer-pressure group.

Epistemic communities have the ability to affect policy in several ways. On the global scale, epistemic communities have been credited with raising public awareness of issues and forcing politicians to deal with those issues (Haas 1992a; Wapner 1995). Epistemic communities, by producing a credible base of knowledge, reduce uncertainty and help make political decisions clearer (Haas 1992b; Montpetit 2003). When there are uncertainties or disagreements about an appropriate policy option, “the closest we can come to . . . certainty is when an expert consensus emerges over a given issue” (Montpetit 2003, p. 23); epistemic communities help produce that expert consensus. On a practical level, epistemic communities create a process—a network for example—to exchange information, share data, and develop shared policy responses (Sebenius 1992). When community members meet frequently and deliberate, their dialogue helps them unite around a shared scientific understanding and standard, as the policies reflect the basis consensus of the community (Coleman and Pearl 1999; Montpetit 2003). Moreover, such repeated interactions influence policy by helping the members know each others’ intentions (and, thus, avoiding imprudent decisions for lack of information), by multiplying opportunities to interact with peers (thus satisfying one of Axelrod’s criteria for enhancing cooperation), and by establishing pleasant social networks or peer-pressure opportunities (thus creating the reward or coercive force that Olson says is important for collective action).

Managing common pool resources is inherently conflict-laden. The “tragedy of the commons” literature and the question of why people do or do not act collectively has been debated and refined since Olson’s and Hardin’s works of the 1960s. The literature has focused

generally on ways in which conflict plays out: as a competitive force or as a motivator for collective action. Perhaps Dietz et al (2002, p. 3) summarize the evolution of this literature best:

Three decades of empirical research have revealed many rich complicated histories of commons management. Sometimes these histories tell of Hardin's tragedy. Sometimes the outcome is more like . . . comedy. Often the results are somewhere in between, filled with ambiguity. But drama is always there. . . [Some analyses] presume that self-interest is the only motivator and that social mechanisms to control self-interest, such as communication, trust, and the ability to make binding agreements are lacking or ineffective. . . People sometimes do, however, move beyond individual self-interest. Communication, trust, and the anticipation of future interactions, and the ability to build agreements and rules sometimes control behavior well enough to prevent tragedy. [There are] a wide diversity of settings in which users dependent on common-pool resources have organized themselves to achieve much better outcomes than can be predicted on Hardin's model.

Dietz's concept posits that each common-pool-resource setting is unique and that people can organize to take collective action.

HOW COLLECTIVE ACTION OCCURS THROUGH THE JOINT STRATEGIC PLAN

Jurisdictional sovereignty means conflict—conflicting regulations, political pressures, and constituent needs. The Joint Strategic Plan, signed in 1981, is a consensus-based, non-binding agreement among the non-federal fishery management agencies on the Great Lakes and is designed to turn conflict into collective action. On a constitutional level, the plan itself facilitates collective action by creating a process under which managers meet regularly. As chapter 1 describes, lake committees consist of senior fishery managers who work together to decide on and formulate policies. Technical committees consist of field-level professionals who undertake such tasks as deciding on data needs, gathering data, interpreting data, and providing advice to the lake committees. Technical committees for all lakes were formed as-needed after the Joint Strategic Plan was signed in 1981¹⁶ and, over time, relationships among the members and between the lake committees and the technical committees emerged that helped strengthen the management regime. Through regular meetings, members enhance communications and

¹⁶ As chapter 1 has noted, the Lake Ontario Technical Committee is less-formal than the technical committees on the other lakes because there are only two jurisdictions on Lake Ontario and that interactions among the managers—at all levels—occur on an on-going basis.

solidify their commitment to cooperate, while de-emphasizing competition and unilateral action. While the Joint Strategic Plan outlines strategic procedures, the members must make the process work, thus, it is important to learn from the participants themselves how and why they take collective action. During the interviews, participants were asked what they do to work together and what they hope to accomplish by participating in the plan's processes.

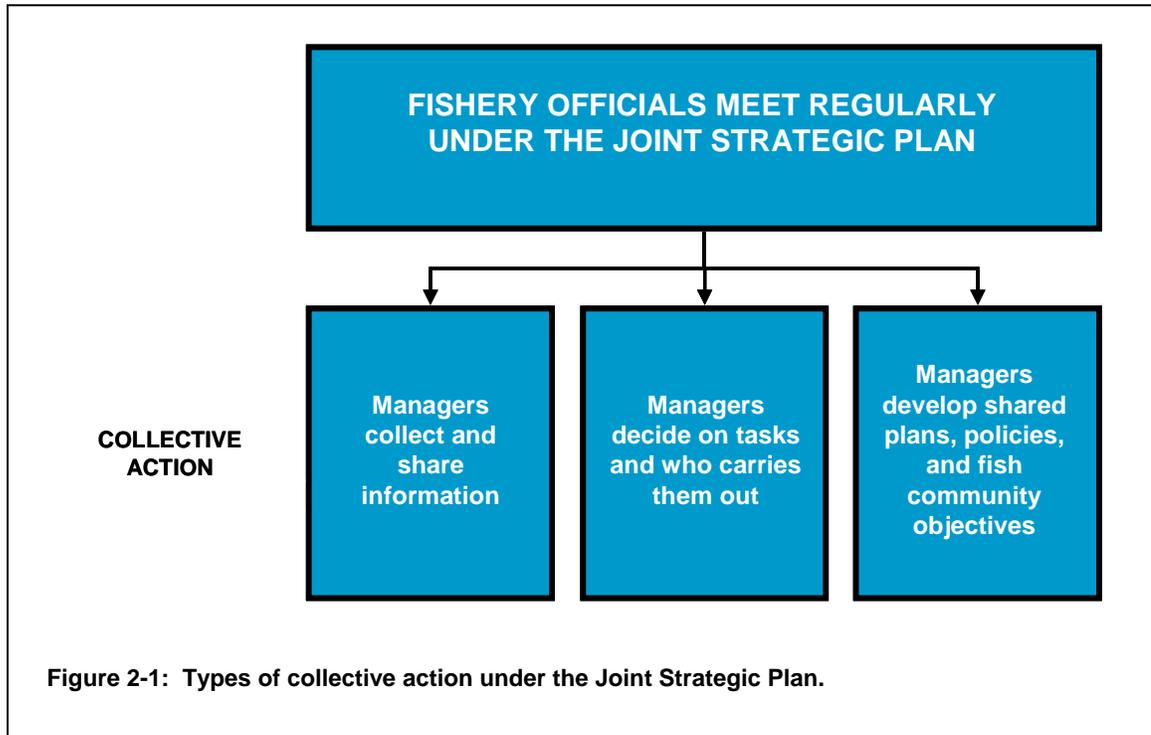
First and foremost, the plan's primary strategy is to create a forum for fishery managers to interact regularly. Managers convene lake committees and technical committees at least once per year (sometimes more often), and conference calls, emails, and outside interactions are common and on-going. The Council of Lake Committees—comprising all lake committee members—meets twice per year, and lake committee members deliver reports during the Great Lakes Fishery Commission's annual meeting. Because the meetings occur regularly, members expect to see and work with their colleagues from other jurisdictions. Although the lake committees existed prior to the plan, the plan increased significantly the number of meetings among Great Lakes fishery managers at all levels. Members strongly associate the plan with regular meetings, and while the participants provided a large list of collective actions they take because of their meetings, three main actions emerged (figure 2-1). Through the plan, members together:

- collect and share information,
- decide on tasks that need to be done and identify who is to perform the tasks, and
- develop broad policies that guide management.

Collecting and sharing information

The Joint Strategic Plan serves as a forum to manage information—information both about the resource's biology and about jurisdictional management activities. Information exchange provides members with opportunities to learn about the status of the fishery, about what other agencies are doing, and about emerging issues and problems. The information they exchange originates mostly from two sources: individual agencies and the technical committees.

Individual agencies conduct a variety of fishery management activities and managers use the lake committees as a place to share that information. Technical committees receive direction from the lake committees and are designed to collect and manage scientific information. The two information sources are deeply intertwined, as members bring their agency's data to the technical committees and in turn they apply technical committee data to their agency decisions. During lake committee and technical committee meetings, members routinely report to each other on fish stock status in each jurisdiction, forage base¹⁷ status, individual agency activities, progress in achieving shared objectives, and each jurisdiction's harvest regulations. In addition to that reporting, members discuss trends, significant changes in the fish communities, and the latest scientific research. This reporting function is not unlike the pre-plan lake committees of the 1960s and 1970s. However, while the early lake committees focused simply on reporting, meetings under the plan are more strategic.



¹⁷ Smaller organisms that serve as the foundation of the food web.

As much as the lake committees are a broad forum for using and sharing information, the technical committees are a focused forum for field-level biologists to generate and digest data. Data drives fishery management, and sound data are invaluable. Collecting data requires major monetary resources, time, staff, and technical know-how. Management of data is difficult because scientists do not always agree on what they need to collect nor on how best they can collect it. The technical committees help overcome data collection and sharing problems, as members see it as their job to monitor the resource and to conduct the science necessary for the lake committees and the agencies to make informed decisions. The lake committees provide direction to the technical committees. For example, if the lake committees tell the technical committees to develop options to restore a particular species, the technical committee members will agree on what data they need to identify the restoration options. Subsequently, technical committee members frequently parcel out data collection tasks, report back on their activities, and question each other over the meaning of technical data. When asked about their function, technical committee members often expressed their responses in terms of how they carry out their duties. For example, said a Lake Superior technical committee member, “we sit down and decide who is going to sample [what and] in which years.” Technical committee minutes and reports are riddled with statements like:

Lakewide coordination of data and assessment activities continued to be the main focus of the [Lake Michigan Technical Committee] this past year . . . Significant effort during the last year has been directed at standardization of the collection and reporting of creel survey and diet data¹⁸ (Holey 1995, p. 4),

and “the technical committee conducted a third lakewide assessment of deepwater predators (siscowets) in Lake Superior” (Ebener 2001, p. 9). With data in-hand, technical committee members analyze the information, conduct modeling exercises, test hypotheses, and apply the

¹⁸ “Creel survey” refers to the number of each species caught in angler fishing. “Diet data” refers to the food (e.g., fish, plankton) that caught-fish had in their stomachs, illustrating the amount and types of organisms that serve as food for other animals (known as the “forage base”).

data to reports and management plans. These plans are important to both individual agencies and to the lake committee members.

Information exchange at the technical committee and lake committee levels not only helps the members develop plans to manage the resource, but it also allows members to learn about what each of the other agencies is doing. The participants indicated that learning about other agency activities is valuable for two reasons. First, members want to be sure the other agencies are not doing things that would harm their efforts. Said one retired Canadian federal official, “we ask ‘is there anything happening elsewhere on the lake, under the aegis of a different agency, that will undo what we’re trying to do?’” Second, knowing what the others are doing gives members an opportunity to respond to the actions, particularly if the actions are inconsistent with shared objectives. Such an opportunity to respond facilitates dialogue and helps turn disagreement into policies that are more consistent with shared goals. Members discuss issues over which they disagree, but, in the words of a lake committee member, “my experience has been [that this discussion is] more about the critical dialogue . . . rather than trying to be real negativistic and create allies and that sort of thing.” This approach uses regular discussions to help the agencies avoid dealing with conflict competitively.

Decide and Perform Tasks

The second major way members say they act collectively is to together decide on tasks that need doing and then to identify who is to perform the tasks. This function puts strategic plans into action; it spells out to the participants who is expected to do what and commits the members to their shared agenda. Members view this task-management as a shared responsibility and as a way to achieve shared goals. The lake committee members use the process to instruct the technical committees. “The lake committees want the technical committees to tell them what’s going on with the resource,” said a tribal participant. Added a lake committee member from Lake Erie, “my expectation is that [the technical committees] will do the best science, they

will assimilate the best information, . . . [and] give us the best ideas from a scientific standpoint . . . [W]e are extremely dependent on them to give us the best information . . . possible,” Lake committee members spoke frequently in terms of how they turn the technical committee data into management, so not only do the lake committee members tend to view the technical committees as the “eyes and ears” of the resources, but they also rely on the technical committees to look into the issues that the lake committees feel are important.

Minutes from lake committee and technical committee meetings are replete with examples of how the lake committees instruct the technical committees. For instance, in 2004, the Lake Superior Committee charged its technical committee with developing environmental objectives for the fishery (GLFC 2004c), the Lake Huron Committee charged the lake trout technical committee with developing a plan to evaluate the effectiveness of pulse stocking¹⁹ (GLFC 2004b), and the Lake Erie Committee handed several charges to its technical committees including tasks relating to assessing the status of walleye and yellow perch stocks, environmental objectives, and resource modeling (GLFC 2004a).

Minutes, agendas, and participant-observation show that the technical committees devote a significant portion of their meetings to discussing and formulating responses to specific lake committee charges, and, in fact, technical committee participants, like the technical committee documents themselves, often framed their function in terms of how they respond to lake committee charges. For example, typical in minutes are statements like “the [Lake Superior Technical Committee] was charged by the Lake Superior Committee to investigate what is happening to lake herring stocks on Lake Superior since herring have not reproduced very successfully in the last five years” (Ebener 1998, p. 3) or “the [Lake Erie Standing Technical Committee] forwards the following recommendations to the [Lake Erie Committee] for their consideration” (GLFC 1987, p. 77).

¹⁹ Pulse stocking favors concentrated stocking in certain areas that change from year to year instead of stocking the same areas year after year at a relatively constant rate.

Develop shared policies, plans, and objectives

The third major collective action under the plan is the development of shared policies, plans, and objectives. Beyond the lake committees of the 1960s and 1970s, today's process is strategic, not just informative. Before the plan, lake committee members focused on reporting individual activities to each other (see chapter 1). While that remains an important function, managers use today's process to strategize and develop shared policies, plans, and objectives. "If data does not get converted to policy, what's the point?" observed a technical committee member during a lake committee executive session. The lake committees and technical committees indeed are established to turn talk into action; to turn science into policy. The committees motivate members to focus on a shared purpose, to identify their shared goals, and to work

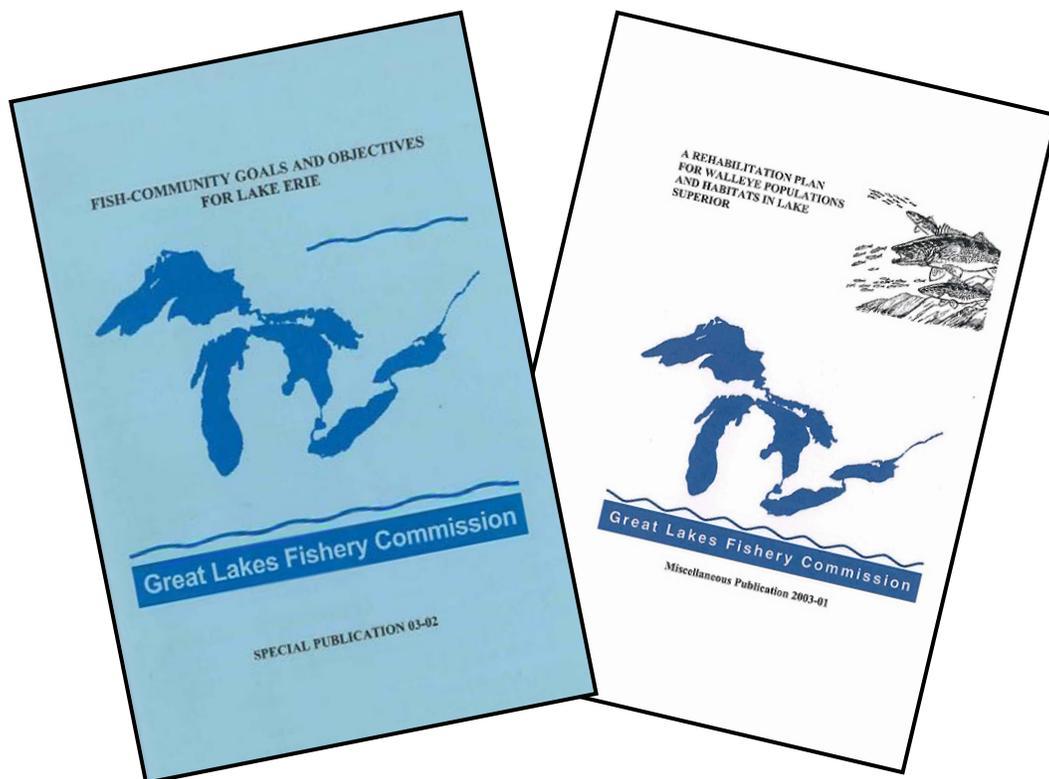


Figure 2-2: Typical lake committee products: Fish Community Objectives (left) and a fishery restoration plan.

together to advance those goals collectively. “I went to meetings looking forward to pulling together with other agencies,” said a retired member. “The lake committee meetings, of course, are [all] about the decision-making . . .” added a current member. As the committees began to develop fish community objectives and specific fishery rehabilitation plans, lake committee meetings added to their regular agendas updates about progress to achieve fisheries rehabilitation and challenges in fulfilling shared objectives. Lake trout restoration, for example, while a major topic of discussion long before the Joint Strategic Plan, attained renewed attention when the plan called for the development of shared lake trout objectives and restoration plans.

Under the plan, agencies agree to work together to produce and fulfill fish community objectives and management plans, a major type of collective action. Fish community objectives are the primary strategic lake committee product and lake committee and technical committee members see this exercise as a major responsibility. The Joint Strategic Plan is rooted in the philosophy that each of the Great Lakes should be managed as a whole. The plan calls for each lake committee to develop and publish the shared vision for the lake’s fishery—the desired species mix, how to attain and sustain the mix, and how to measure successful management (e.g., by the amount of fish it yields) (DesJardine et al. 1995). Although the objectives vary in how they articulate the vision for the lake’s fish communities, they generally follow a uniform format: a description of the historical fish community, guiding principles for management agencies, specific objectives for the fish communities (usually organized by species or group of species), suggested strategies to reach the objectives, and challenges to attaining the objectives. The fish community objectives are not specific management plans, rather, they articulate the consensus about what the fishery should look like. They respect the fact that each jurisdiction will retain management authority, but they also acknowledge that collective action is necessary to reach the objectives. Appendix D summarizes the fish community objectives for each lake.

Beyond being a useful management guide for the agencies, members also see the *process* to develop objectives as important. Said a lake committee member from Ontario: “It was a big

struggle [to develop the objectives] but it was a good exercise. It forced all the agencies to think cooperatively . . . [I]t's big big stuff and it takes a lot of time and agency commitment to do it.” Lake committee members see the objectives as a “good starting point” for where fishery management on the lake will go, and they view the objectives as evolving documents. Indeed, lake committee and technical committee members appear less concerned about publishing the objectives than they are about working together to keep the dialogue vibrant. Said a technical committee member, from the Province of Ontario,

I guess [the fish community objectives] had value [to the lake committee and technical committee] before they ever got finished. They had no value to the [Great Lakes Fishery Commission] until they were finished because [the commission] didn't acknowledge it is a living document . . . [It has been] a consensus document of the [lake committee] for a number of years. And it evolved every time there was a new issue.

Lake committees do not measure the plan's success strictly through outputs like the number of published fish community objectives. Instead, they also see value in a process that keeps them working toward their shared goals.

As much as the lake committee meetings are an open, public forum, the technical committees and the lake committee executive sessions are the place for collective strategic planning. During the lake committee meetings (and often during other times of the year), the members meet in executive session for *in camera* dialogue about the issues and to make recommendations. For instance, in 1998, the Lake Michigan Committee agreed to comment on a draft lake trout rehabilitation plan (GLFC 1998), in 2001, the Lake Superior Committee approved the fish community objectives and a walleye rehabilitation plan (GLFC 2001b), and in 2004, the Lake Ontario Committee completed fish community objectives for the St. Lawrence river (GLFC 2001a). Members discussed in detail during executive session these and many other lake committee products, and members had a chance to express concerns, question new ideas, review underlying data, and have frank discussions. In 1992, for instance, the Lake Superior Technical Committee used its meetings to revise the lake trout restoration plan (Hansen 1992), the Lake Michigan Technical Committee evaluated the appropriateness of Lake Michigan Fish Community

Objectives (Holey 1992), the Lake Huron Technical Committee developed a sturgeon rehabilitation plan (Ebener 1992), the Lake Erie Technical Committee developed specific recommendations for species like walleye and yellow perch, and the two agencies on Lake Ontario worked directly to coordinate their activities. Agendas and reports from other years show similar activities; activities focusing on developing data and discussing ideas related to restoration plans and fishery objectives.

THE RESULTS OF COLLECTIVE ACTION

Members use the Joint Strategic Plan to meet regularly and take collective action. They collect and share information, manage tasks, and develop shared plans and objectives. The plan increased the number of meetings among fishery experts at all levels and spawned new committees to deal with technical matters. This section discusses what participants believe to be the results of their collective actions. To be sure, what members perceive to be the results is as diverse as there are participants. Nevertheless, participants, during the more than sixty in-depth interviews, tended to frame their comments in terms of four themes (figure 2-3). First, regular collective action creates a durable framework and process for future collective action. Second, collaboration builds durable relationships and has fostered an epistemic community. Third, collaboration helps agencies manage the fishery across the political boundaries and view the resource from a larger “ecosystem” perspective, a perspective that takes into account multiple species and multiple needs. Finally, collaboration helps members produce better policies that are more defensible with politicians and stakeholders. The relationship between collective action and the result of collective action is highly synergistic. For example, the act of gathering and sharing information solidifies a cooperative framework and makes the relationships more durable. In turn, a more-solid framework with durable relationships makes the members more apt to take collective action. In other words, the more the members see results of collective action, the more future collective action occurs.

Regular collective action creates a durable framework and process for collective action

Participants see regular meetings and the other forms of collective action under the plan as establishing a durable process for cooperation. Said the participants, by meeting regularly, the plan served as a “framework for dealing with issues,” a “shining star for all of us to follow,” it gives us a sense of “common purpose,” it pushes people “in a uniform direction,” it is “common ground” for the agencies, and it “gives us an opportunity to focus on common threads and pull those common threads together and maybe weave them into positives.” Said a long-serving member: “The Joint Strategic Plan [showed] it would be possible for the states to agree on a common vision for the Great Lakes and a common method for making big decisions.” The idea

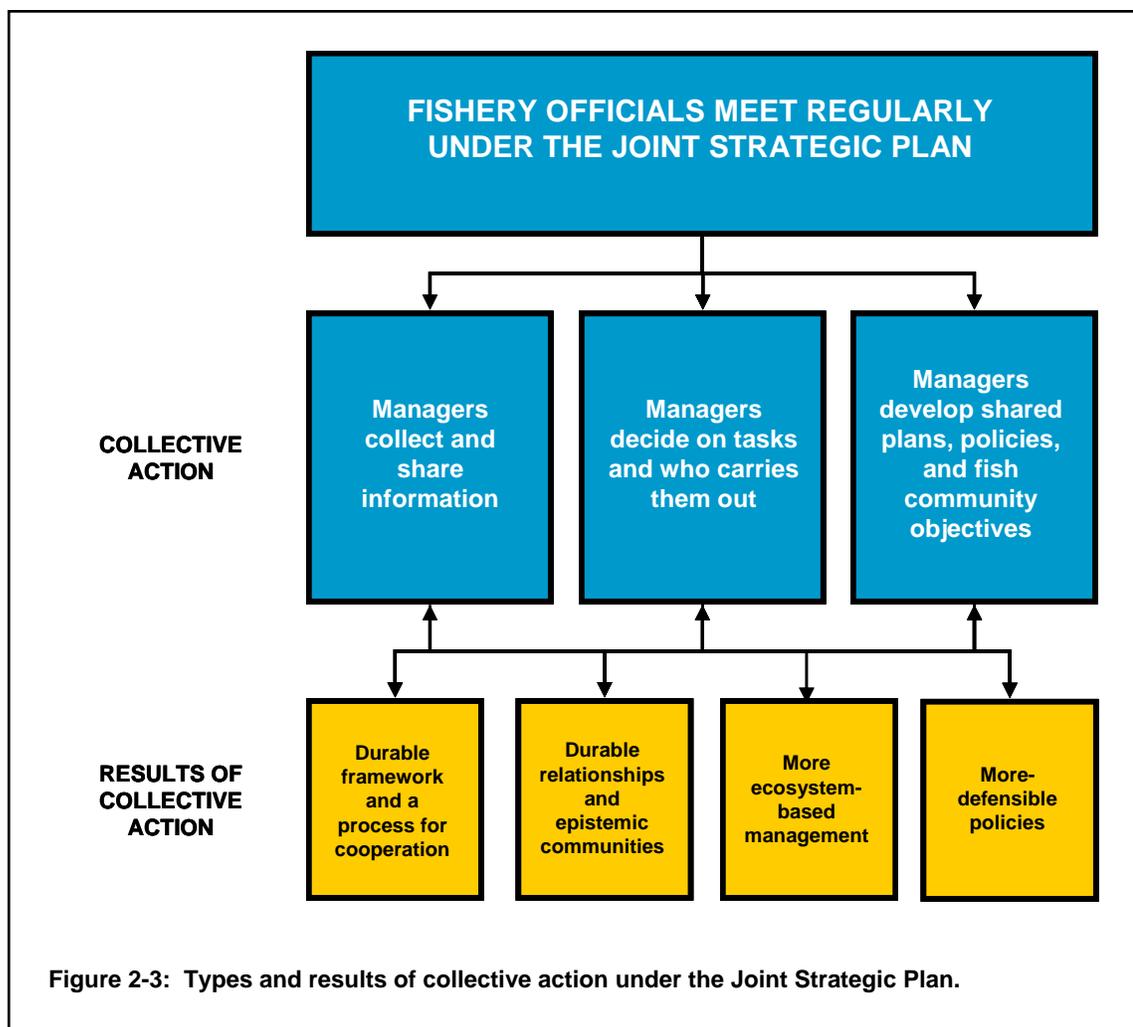


Figure 2-3: Types and results of collective action under the Joint Strategic Plan.

that the plan is a framework to develop a shared vision is an important concept to the lake committee and technical committee members because they know that diffuse authority leads to conflict and without an overarching framework or process to follow, parochialism would prevail.

That the plan is common ground or a framework is a concept that participants at all levels generally share. When asked about the impact of the plan, nearly all participants, in one way or another, framed their response in terms of the structure that has resulted from their collective action. Participants who were around before and after the plan was developed speak of the plan as the first move to change the way of thinking on the Great Lakes from parochial to cooperative. Many credit the plan with forcing them to work together to reach those goals. This contributed to a feeling not only that cooperation occurs “because we all agreed to the plan,” but also because the plan created an “attitude” of working together. Members recognize that agencies often have differing philosophies or opinions about how to reach goals, even goals they share with other jurisdictions. Without a framework and a process for collective action, they sense there would be chaos. When there exists a shared resource but not a shared vision for how the resource should be managed, the outcome is failure and harm to the resource, observed a tribal representative.

Participants believe that ongoing collective action makes the process durable. The process is a regional forum for action, complete with decision records, deadlines, and timelines. Even though the process is voluntary, members feel committed to the process because their jurisdiction signed the agreement and agreed to the formal process. Because they are used to regular interactions, they do not feel they can easily or flippantly ignore the plan. Thus, the plan cements both personal relationships and agency relationships. “I think the Joint Strategic Plan says you will not walk away from the table. The Joint Strategic Plan says we are committed to this process,” said a state lake committee member. A former member of the Great Lakes Fishery Commission, and a long-time participant in the Joint Strategic Plan process, summarized it this way:

Part of the reason for [the Joint Strategic Plan's] success is that it provided a lasting documentation of the process going on on the Great Lakes. It required agencies to not only participate, but actually put their signatures on the line. So, it made some level of accountability to that process. And by doing so, it provided [things] like endurance, resilience, life...It's the idea [to make] it more difficult if you wanted to dissolve it overnight; it's very hard to do so. So it gave it an enduring life and ...those are very good outcomes.

Indeed, many observed that lake committee and technical committee meetings engage everyone in the process on a regular basis and allows for—some say forces—ongoing dialogue. So, while collective action has solidified the framework, a solid framework has initiated more commitment to collective action.

Collaboration builds durable relationships and has fostered an epistemic community

Professional and personal relationships are critical to cooperation, and the Joint Strategic Plan's impact is largely a function of ongoing interactions among members, through the lake committees and technical committees. Relationships are important for four reasons: they increase understanding among the members; they increase trust and, therefore, the feeling that decisions made will be kept; they make dishonesty or insincerity undesirable because such behavior threatens future relations; and they make interjurisdictional cooperation enjoyable. The danger of a deep reliance on relationships, on the other hand, is the possibility of homogenous thinking (“group think”), characterized by an over-reliance on philosophies within the scope of the dominant paradigm, a shunning of members who do not conform, and a reluctance to present novel ideas and thereby risk embarrassment or being ostracized.

The Joint Strategic Plan is designed to maximize interactions among peers and, in doing so, to build a close-knit community of fishery managers. Indeed, the lake committees and technical committees represent epistemic communities—communities of like-minded thinkers and members of these communities meet regularly—several times a year for some members. Meetings almost always include a group social and participation in the social is a time-honored highlight. (“Never, never underestimate the importance of the social interactions after the

meeting,” implored a former lake committee member.) Many members have been involved in the process for several years—some for decades. These long-term professional and social interactions allow the members to know one another, to know each person’s perspective, and to better understand and predict individual positions. Lake committee and technical committee members speak of “becoming friends” with colleagues from other jurisdictions. They spend hours a day in meetings discussing issues and they usually continue their deliberations in social settings after the meetings have ended. Said a tribal participant:

Maybe it’s because people have been around now a while and they know each other, they work with each other. I think . . . people know where the other agency is coming from [and] what they could or couldn’t live with. A lot of schmoozing going on before you actually sit around the table and say ‘here’s what we want to do.’

Added a state manager, talking about the management community: “It is a pretty small family, and it is a pretty . . . tight-knit family.”

Trust and understanding emerge from a tight-knit community that interacts frequently. In epistemic communities, people want to be credible and trusted (particularly with people they



Figure 2-4: A typical lake committee meeting social. Photo: M. Gaden.

respect) and they also want to trust others. Lake committee and technical committee members say that preserving and improving their own credibility drives their involvement. Credibility depends on providing colleagues with the best data available, coming to the table in earnest, and following through on commitments. “If you do something that’s totally at odds with what the science suggests, you’ve got to face those people around the table and you’ve got to look yourself in the mirror,” noted a former lake committee member from Ontario. In relationships based on trust and credibility, discussions focus on the issues at hand, not on personalities. Said one state lake committee member,

The amazing thing is, people have these critical dialogues during the day and they disagree, they disagree, they disagree. Nobody walks out of the door and says ‘you son of a bitch, I am going to screw you the next time.’ We go and have dinner and we continue the discussion.

Trust also produces efficiencies. Colleagues who know and trust each other do not have to start at the beginning with every issue. Said a manager about a fellow technical committee member,

So if [Pat²⁰] is throwing something up on the screen, and it is highly statistical, and I might not fully understand everything he is saying, . . . it is OK that I don’t understand it because I trust him. Now if it is some Joe Blow from some university . . . spewing off something, [and] I don’t know anything about the guy and I don’t understand what he’s saying, my red flags go up at that point.

Clearly, future interactions are also important to members. Members are acutely aware that they will work with colleagues again, and they take that fact that into account when they act today. Insincere or dishonest behavior comes at a price, perhaps paid in the future. Said a long-serving participant from the Great Lakes Fishery Commission,

sometimes you have to take double the hit or to always take the high road . . . [You must] reflect upon the nature of this particular decision relative to the overall process of cooperative management over the next 10 or 20 years. Do you win your battle for today, but jeopardize the process for the next 20 years?

People in a tight-knit community who meet frequently indeed must be sensitive to future interactions and take into account whether headstrong behavior today will threaten future

²⁰ Name has been changed.

opportunities. Members who are continually obstructionist or closed-minded, or possess a hidden agenda, are taken less seriously than those who have a track record of cooperation. Moreover, the trust that takes years to develop could evaporate with a single transgression, illustrating how fragile trust is and how important it is for members to respect the relationships. People who go back on their word for a short-term gain must live with the consequences in the future, when others are less willing to trust them.

Strong relationships built on trust have the added benefit of making the meetings more enjoyable. Lake committee and technical committee members generally come from similar academic backgrounds and have similar worldviews about how the fishery should be managed. Some even went to school together or worked together in the same agency. They share mentors. Lake committee and technical committee members generally agree that members are mostly of the same professional caliber, though technical committee members more readily accepted that some of their peers have less expertise than others.²¹ Members generally value talking to one another as peers not only because they gain information that is important to their jobs, but also because they simply appreciate rubbing shoulders with esteemed colleagues. (These are indeed common traits of epistemic communities.) “I really enjoy renewing acquaintances” during the lake committee meetings, said a Great Lakes Fishery Commission staff member. Added a lake committee member from Ontario, “in most cases, we like each other, so it’s a highlight of the job to get together at these meetings and interact with the other side of the table.” Members speak of camaraderie, and, as a lake committee member from Ontario described, look forward to a break from the daily grind:

I think most of the committee gets along very well together. We are like friends. And I think it is a chance to get away. We don’t have to answer the phone. We don’t have to deal with our constituents. It is like any job. You get together with people who have similar interests or jobs and you can sit around and bitch and complain and feel better because you are not alone. Most of the other people have similar problems and headaches

²¹ This variation in professional expertise is probably due to the fact that technical committee members are earlier in their professional careers than those who are at the lake committee level.

that you do. So at least you don't feel that you are the only one. And it is always interesting. It reinvigorates us too to get back into the biology and [to recall] why you are in it in the first place. How often do you get sidetracked into the politics? To get back and hear about some biology and some interesting developments on the lake is reinvigorating. So when you head back home you can feel a little refreshed.

The word “refreshed” is not a term one would expect people to associate with meetings that go on for several days and involve massive amounts of data. Yet, participants describe returning from the meetings with a renewed vigor for the job. An official from Ontario perhaps captures it best: “I suspect that for most fisheries managers, it is the highlight of their existence to go meet with their international counterparts. I suspect it's a perk rather than a burden . . . Otherwise, being a lake manager is a very lonely job.”

Collaboration helps agencies manage the fishery properly, from an ecosystem perspective:

Collective action, say participants, broadens their thinking; it helps them manage the resource as an ecosystem. Although managers rarely agree on a single definition of ecosystem management, they widely accept two aspects of this approach: (1) that the species inhabiting the resource—including humans—are interconnected, and (2) that management action should be based on ecological (not political) boundaries (Grumbine 1994; Krueger and Decker 1999). Today, most institutions on the Great Lakes recognize explicitly ecosystem management as the foundation for actions (Ferreri et al. 1999; Jude and Leach 1999). By embracing the ecosystem approach, people and governments agree to work together to manage transboundary resources (Donahue 1988). If fishery managers acknowledge ecosystem management as a motivator for their actions, they move toward framing their self-interest in terms of collective action and cooperation rather than competition.

Biologists on the Great Lakes understand and appreciate that they share the fishery with others and that it would be futile to manage based on political boundaries. On the other hand, fishery managers are responsible to their own jurisdiction, which is akin to being strongly motivated by self-interest, a threat to collective action. Indeed, a fishery manager's professional

performance is evaluated not so much by the amount of time spent working with other jurisdictions, but rather by whether he advances his department's interests. Said a senior state manager, "People naturally want to manage their area. Constituent pressures and politics are significant and naturally push a manager to be turf-conscious." "Ecosystem management," on the other hand, is a more holistic approach, and many Joint Strategic Plan participants see their collective actions as leading to ecosystem-based policies. In turn, accepting ecosystem-based management leads to more collaboration as more and more disciplines are integrated.

The first aspect of ecosystem management—that species are biologically interconnected—is simple reality to the fishery managers. Accepting this principle means that managers must incorporate many disciplines—disciplines such economics, water and air quality, human needs and desires, physical habitat, aesthetics, goals of different constituencies—into fishery management (Krueger and Decker 1999). For instance, it makes little sense to manage the lake for one species when the species has an affect on and is affected by so many other species and environmental elements like habitat and pollution. Participants do believe that working together helps them think about the resource in terms of ecosystem management, like preserving the structure and stability of the entire fish community, rather than focusing on single-species management. Said a manager from Ontario, observing fishery management on the Great Lakes over time,

The process [of fishery management is] constantly evolving about aquatic management. The environmentalists and water quality people are now working with the habitat people. The people are starting then to see that this is a system out there. We went from extremely non-productive, reductionist mode into the holistic situation."

Others agree. Reflecting on his career, a long-serving member of the lake committee process noted that previous generations of fishery managers did not always think in terms of ecosystem management.

But as [managers of the 1950s, 1960s and 1970s] retired, and a younger generation came in, . . . you could see it was going more towards fish communities lake wide –this is a broad, nebulous way of saying 'ecosystem management.' . . . [Previously, the managers were] talking 'single species management'.

The Joint Strategic Plan, in the minds of many, has helped the fishery managers better understand and manage the biological interconnections. Part of this relates to the fact that the Joint Strategic Plan, under the 1997 revision, calls upon the agencies to develop environmental objectives as a way to better connect fisheries to other related areas. Several of those interviewed noted that while the fishery managers still have a long way to go before environmental objectives are meshed with fishery objectives, they nevertheless believe that the process of developing fish community objectives prompts them to cooperate with each other and with those in other disciplines.

The second aspect of ecosystem management, that management should be based on ecological boundaries, requires that fishery managers understand that many jurisdictions share the resource and that collaboration is essential to sound management. On the broadest level, the very reason for agreeing to the plan was to create a mechanism to facilitate cross-jurisdictional cooperation. Deeper than that, the participants do share an ecosystem mindset. Throughout the interviews, most participants, in one way or another, acknowledged that jurisdictions are parts of a larger community. Common were comments like: “we don’t operate in a vacuum,” or “this is a shared fishery,” or “fish don’t observe the political boundaries.” They know that actions in one jurisdiction affect the others. Perhaps more importantly the participants understand that interconnectedness requires cooperation; that in acknowledging the existence of a shared resource, they also acknowledge the existence of shared goals. “Any conversation we have about the Great Lakes,” said a senior official from Ontario, “always takes place with at least a backdrop—and very often explicit reference—to the fact that the fish swim around and are shared with the U.S. jurisdictions; they are not exclusively ours.” “You have to take other jurisdictions into account before you take actions that could effect the whole,” added a retired biologist from a large state, and, said a lake manager from Ontario, the Joint Strategic Plan “forces people to recognize that the fish stocks in the Great Lakes are shared.” Tribal representatives agree. Said one: “Tribal leadership understands that you can’t manage the resource independently.” Perhaps

most clearly stated, said a long-time academic participant in the lake committee process, “It doesn’t take rocket science for biologists to figure out that you can’t manage the lake independently from the other jurisdictions.”

Participants see collaboration as nurturing a culture of ecosystem management. While there is some variation on just how strongly participants believe the plan compels members to act—some say, for instance, the plan *forces* them to work together while others say the plan *encourages* cooperation (see chapter 4)—participants nevertheless believe that their collective action has helped them think more on an ecosystem level than they would have without the plan. Said a fishery manager on Lake Michigan, “I think [the plan] has been primarily to force—if I could use that word—other agencies into considering ecosystem management.” Added another state lake committee member, “It holds agencies together and it has that subtle pressure on agencies to work together and share information instead of going off on their own path.” Said a long-serving Joint Strategic Plan participant, now retired, “After the plan, it was well accepted that one had to be circumspect about what one did and to engage the other players before doing or undertaking any kind of major management initiative.” Whether the plan forced, exerted subtle pressure, verbalized a shared goal, caused circumspection, or simply helped provide the big picture, participants link the plan to the broader concept of working together to achieve ecosystem management, a management strategy that they see as essential.

Collaboration leads to policies that are more defensible with politicians and stakeholders

Lake committee and technical committee members believe that collective action has helped them produce better policies that are more defensible with politicians and stakeholders. Likewise, when better policies emerge through a collaborative process, managers have an incentive to collaborate further. Fisheries is a politically charged policy area. Each of the non-federal jurisdictions has the ability to promulgate regulations and institute policies within their jurisdiction, independent of other jurisdictions’ will. Politicians, bureaucrats, and leaders have

considerable leeway to significantly impact fishery managers' actions in a parochial way. Stakeholders who want such things as greater access to the resource, lower license fees, higher quotas, or fewer restrictions on behavior, for instance, exert direct pressure on politicians and senior officials. Because "all politics is local," there could be considerable political and constituent pressures to force fishery managers to do parochial things. On the other hand, relying on science and developing shared objectives have made others less likely to second-guess fishery managers' decisions and have made the decisions sound more reasonable to politicians and constituents.

Joint Strategic Plan members and observers are acutely aware of political and constituent pressures. Whether the participant is at the lake committee or technical committee level, most noted that constituents and politicians almost always affect their decisions and thinking. Many noted, however, that they believe politicians, and constituents are often operating without the benefit of relevant data or an appreciation for the shared nature of the resource. Constituent pressures usually move what should be ecosystem-based policies in a parochial direction. Participants believe their collective action helps protect them from these parochial pressures. For one, the plan is a document to which senior officials have agreed and, therefore, deviation from the plan would entail some political costs from the other jurisdictions. Moreover, to the participants—particularly to the senior-level participants who are directly accountable for policies—the plan allows them to remind politicians that a meaning exists to their decisions—even decisions that might not appear to be in the immediate best interest of the home jurisdiction. A retired senior manager recalled that arguments he couched in the Joint Strategic Plan were a big help. "There were times [when politicians] would want to go off on their own. . . . [That is when] I gave them a copy of the plan and [said] 'look, [my decision] is part of an interstate [agreement]. This is bigger than [the state of ***].'" Managers see the plan as a buffer, as a way to explain to politicians that there are other jurisdictions they need to consider. Managers, at many levels, say they have used the plan to explain policies to politicians and, often, the politicians accept the lake

committee decisions. For instance, during an Ontario Commercial Fisheries' Association meeting in January, 2004, the Honorable David Ramsay, Minister of Natural Resources for Ontario, standing before a hostile audience of commercial fishermen who were about to have their quotas cut substantially, defended Ontario's Lake Erie manager for accepting the lower quota and remarked that good bilateral relations with the U.S. states was an important factor in his agreeing to the manager's decision. "Managing fish stocks is an international endeavor . . . it is a shared resource," remarked the minister.

The plan also helps managers deal with stakeholders. Fishery managers throughout the Great Lakes basin, in one way or another, interact with their stakeholders, and managers believe that the collective decisions can help them explain their policies to the public. At times, the shared decisions run counter to the jurisdictions' parochial interests. Like politicians, the stakeholders are somewhat persuaded by non-parochial initiatives that have the endorsement of a larger community or are grounded in quality information—information generated through the lake committee process. A senior fishery manager from a state on Lake Erie noted that after explaining a tough decision,

one of the very first constituent or stakeholder responses is 'why are you doing this? Is this just some sort of altruistic thing? Why are you doing this?' And when you tell them about [the Joint Strategic Plan], they seem awfully impressed with the fact that we have the kind of collaboration with the other agencies that we do.

Added a senior manager from Ontario,

When there is a stakeholder that is challenging our management action and it becomes a political issue, you can say 'we have international [fish community objectives]; we have an international agreement on this. We are working cooperatively internationally.' That carries an awful lot of weight in terms of dealing with what can be quite politically active and assertive stakeholders in different jurisdictions.

A retired state manager recalls how the plan helped him with an unpopular decision:

We told the public 'look we are a part of this deal and we have to be good team players. And we can't get everything we want but we are going to get stuff that we wouldn't be able to get if we didn't belong.' And that is the way we sold the plan. When you have people that just said 'screw lake trout, we don't want lake trout—they are fat and greasy and they don't taste good and they don't fight hard; we just want salmon,' we could say 'nope, we are members of the plan.' We did that.

The stakeholders might or might not agree with the decision, but they at least want to know that the agreement among the jurisdictions is reasonable and fair and that everyone will adhere to it. The managers believe that the collaborative process often creates safety in numbers and helps make the policies they develop better and more defensible with politicians and constituents. This allows members to use the Joint Strategic Plan process as a way to focus on the collective needs rather than on parochial interests. Parochialism, in such a cooperative process, manifests itself as political and constituent pressures outside of the process rather than as fishery managers using a meeting structure to advance their jurisdictions' particular will. Self-interest, in other words, is internalized in terms of seeking shared goals.

RELATIONSHIPS, COERCION, AND REWARDS: THE JOINT STRATEGIC PLAN'S TACTICS FOR COLLECTIVE ACTION

A Great Lakes fishery manager must have a pretty good reason to expend time, energy, and resources to consider other jurisdictions' interests and needs. After all, strictly from an accountability perspective, the manager must please only his agency's hierarchy, his jurisdiction's politicians, and the stakeholders who scrutinize his actions closely. A manager could be forgiven for thinking parochially. Yet, through the Joint Strategic Plan, Great Lakes fishery managers expend considerable effort to collaborate with colleagues from other jurisdictions, to transcend parochialism, and to take collective action. The final section of this chapter focuses on the question *why do fishery managers—who are accountable only to their own jurisdiction—expend time, energy and resources to coordinate fisheries policies?* The interviews, participant observation, and documents suggest the Joint Strategic Plan gently coerces cooperation and it rewards collective action. In particular,

1. because the process is formal and because in signing the plan, members agree to participate in it, participation in the plan is viewed as somewhat mandatory and, therefore, the plan gently coerces managers into collective action;
2. an epistemic community of like-minded thinkers stokes strong relationships. Relationships among individuals in such a select community both coerces managers into adhering to the norms of the community and rewards the participants personally

- and professionally, as the members benefit from the information they share, the policies they develop, and the intellectual stimulation;
3. managers know that ecosystem management (not parochialism) is the best way to manage and managers are rewarded professionally and personally by managing most appropriately; and
 4. defensible policies are more rewarding—both professionally and personally—than policies that stakeholders and politicians believe are misguided.

Either coercion or reward-based encouragement (or both) is needed to frame conflict among the jurisdictions in terms of cooperation rather than competition. The Joint Strategic Plan, in the minds of participants, has fulfilled this function. These four reasons for collective action illustrate how gentle coercion and rewards together encourage fishery managers to work collectively (figure 2-5).

The literature this chapter reviews stresses that one should expect there to be conflict over shared natural resources. Kohn (1992) and Keohane (1984) observe that conflict is channeled either toward competition or cooperation. First and foremost, in Great Lakes fishery management, conflict does not appear to lead to competition over the fishery resources. Joint Strategic Plan participants rarely provided competitive, game-theory-like explanations for why they participate in the lake committees or technical committees. This is not a surprise. With the important exception of the Lake Erie Committee—which explicitly uses the process as a way to allocate the fishery and which will be discussed thoroughly in chapter 5—the lake committee and technical committee meetings seldom focus on competitive-type issues, issues such as whether one jurisdiction is harvesting more than others or whether one jurisdiction is shouldering a larger stocking burden than others. While the interviews did suggest elements of self-centered behavior among the lake committee and technical committee members (for example, members participate to keep an eye on each other), the prevailing reason for participation is not to secure a competitive advantage, rather, it is to find and employ ways to work together, to move in the same direction, and to maximize information sharing.

Why, then, do the members act collectively? Process, relationships, coercion, and rewards are most important, says the literature, and collective action through the Joint Strategic Plan creates a durable process, durable relationships, an ecosystem mentality, and defensible policies. These in turn help the participants know each other and care about relationships, which are coercive and rewarding. Together, these factors help explain why members work collectively in the Great Lakes basin. First, a discussion of the formal process as a coercive force. Nothing compels fishery managers to participate in the plan; it is not a binding agreement like, say, a treaty or an interstate compact. However, the fact that the plan is in writing and was agreed-to by senior officials from all fishery agencies coerces the Great Lakes fishery managers into participating in the process. Coercion can come in many forms and in varying degrees. Usually, coercion is synonymous with forcing action or creating a situation where people are forced to do something they do not want to do. Coercion, though, can also be more gentle. It might not harshly force action but it certainly could persuade or pressure action. Signatories consider participation in the plan to be somewhat mandatory because fishery managers are gently coerced into cooperation by the mere existence of an agreed-to framework.

The formal process is also somewhat coercive in that it helps keep members accountable to each other; it helps ensure that the members follow through on their responsibilities to develop and implement shared objectives and plans. Fish community objectives, restoration plans, joint assessment activities, and other lake committee and technical committee products are shared; they reflect a common vision. The products are by the members and for the members and, as such, members expect the other members to adhere to them. Participants see the formal lake committee and technical committee processes as important to achieving the shared objectives, and agencies, by agreeing to the plan, pledge their commitment to contribute what they can to the process. Since the proverbial chain “is only as strong as its weakest link,” agreeing to be a part of the process involves a commitment—a coercion of sorts—to do one’s part. Since accountability is a major tenet of the Joint Strategic Plan, by signing the plan, signatories agree to adhere to the plan,

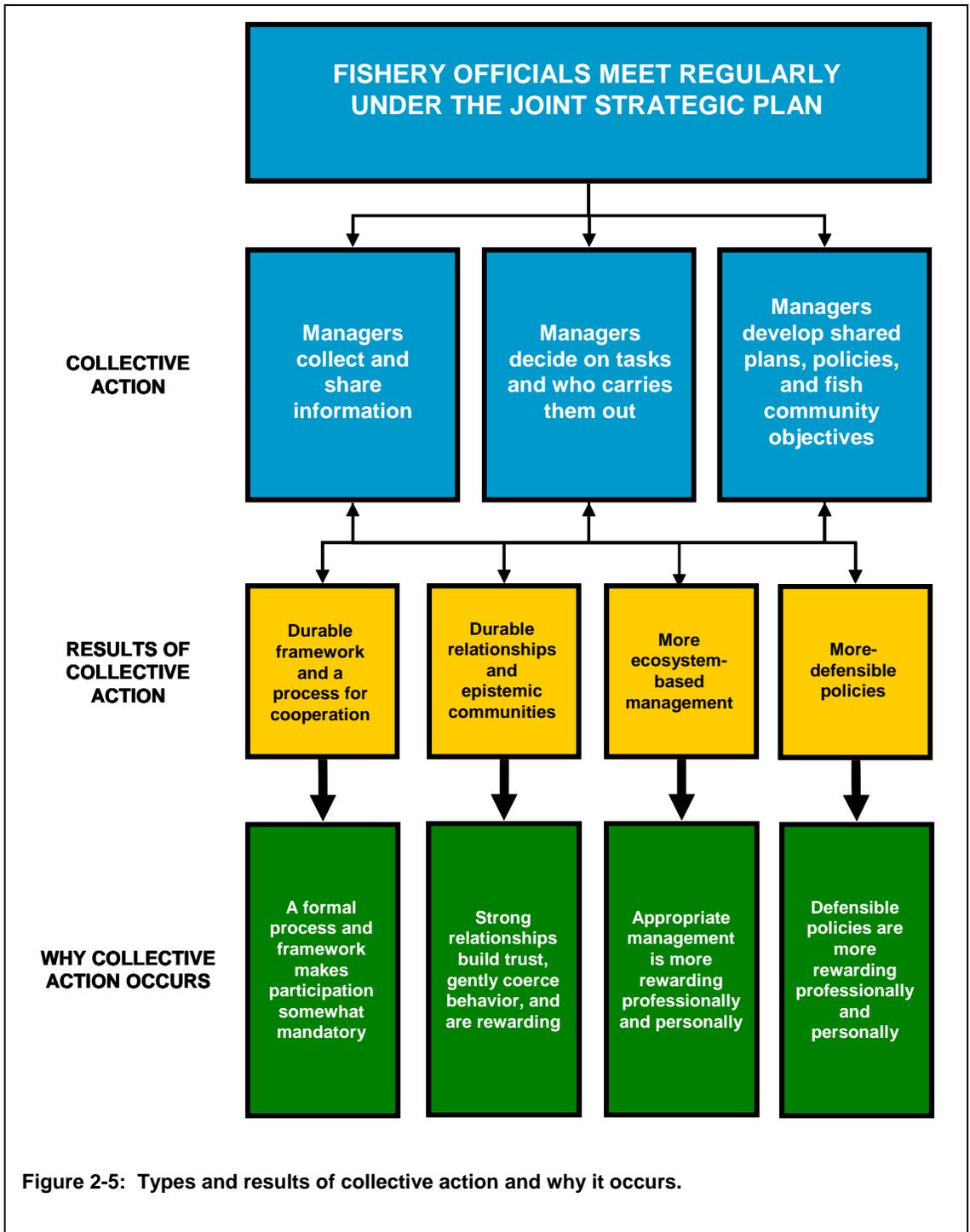


Figure 2-5: Types and results of collective action and why it occurs.

removing some discretion over how agencies will manage the Great Lakes and, thus, making the plan mildly coercive. (Chapter 4 discusses implementation factors in more detail.) Coercion, says Olson, prompts collective action.

The formal process also has created stable patterns of interactions, interactions which Axelrod says help improve the chances that members will cooperate. Under the plan, managers agree to meet frequently and to carry out what they agree to under the plan. Lake committees meet over a one- or two-week period every year, the Council of Lake Committees meets twice a year, technical committees meet several times a year, task groups meet regularly, and data collection and management are ongoing. Moreover, once tasks are parceled out, members are tagged with fulfilling them and reporting back to the committees on their progress. This means that members are in constant communication with each other to gather and digest information and to write-up reports. The formal process ensures that members will meet again and that they will be responsible for certain tasks. Regular meetings are, indeed, stable patterns of interaction, they help members care about future interactions, and they help members care about the relationships.

The second result of collective action—the development of strong relationships—is, of course, a direct result of the stable patterns of interactions that the plan creates. Clearly, a strong epistemic community of Great Lakes fishery managers exists. Members of the lake committees and technical committees, all of whom know one another and share a similar scientific background, have the ability to filter out unsound data and opinion, either presented from outside the group or from within the community itself. An important thing about epistemic communities, say Haas and Adler, is that members have a strong sense of “we;” a sense of community. Joint Strategic Plan participants have this sense of community. They speak of the group as a “tight-knit family” with whom they work for long periods of time. Frequent meetings help the participants know each other and accentuate the community’s legitimacy and influence. Recurring interactions among colleagues build trust, create predictability, break down professional reticence, and reassure the members that their fellow peers will deliver on their

promises. Confidence that others will adhere to the group's decisions is a strong benefit to being a member of a community. Axelrod stresses that such recurring interactions help the members move beyond the issues that lead to competitive, game-theory-like responses and instead allows the members to work cooperatively.

The relationships among the lake committee and technical committee members are both rewarding and coercive. Many social benefits to participating in the Joint Strategic Plan exist, and while being a member of the Great Lakes fishery management community brings with it obligations that coerce participation, it also brings a personal satisfaction that comes with being a member of an elite group. Recall that Great Lakes fishery managers expressed how they enjoy the social interactions, how they enjoy “renewing acquaintances,” and how many see the meetings not as a burden but as a “highlight of the job.” The meetings are a pleasure for many because they are the chance to interact with respected peers on an international level. They can talk science, they can commiserate over wacky political decisions, they can plan major initiatives, and they can float new ideas with an open-minded, less-judgmental group. They grow as a community. An epistemic community—a community that meets frequently and places a high value on the social parts of the meetings—means that the members find the interactions to be rewarding and look forward to the next meeting. The professional rewards a manager experiences is linked to the epistemic community's interests.

Another, perhaps stronger, facet of relationships under the plan is the peer pressure that comes with an epistemic community. The Joint Strategic Plan is designed to heighten the number of interactions that occur among specialized community members. By relying on strong relationships among members of an epistemic community, the plan creates an atmosphere where members are expected to participate in earnest, to adhere to the norms of the community, to not disappoint respected colleagues, and to strategize with those who understand the world of fisheries management. This is gently coercive. Indeed, under these conditions, members have an obligation to behave pursuant to the community's rules and follow through on one's

commitments lest the relationship and the manager's professional esteem be jeopardized. While such behavior has incentives as well, being a member of an epistemic community requires members to work together and adhere to the high principles of their community.

The third result of collective action—that it helps the managers manage as an ecosystem—is dependent on sound information, sound management practices, and regular interactions among the policy players. Information is valuable to the participants because it helps them manage the Great Lakes properly and as an ecosystem. People are known to hoard information, particularly if relationships are weak or contentious (Scheberle 2004) because information is power. The Joint Strategic Plan is a major source of precious data for the participants and it creates a culture of sharing, not hoarding. All sorts of information is exchanged during the lake committee and technical committee meetings, from information about a particular agency's management activities to lakewide fishery trends. Scientists report on new findings. Policy professionals introduce hot-button issues. Government agencies disseminate their annual reports. Graduate students speak about their research. The Joint Strategic Plan demands that managers from around the basin share their information, and a manager from one jurisdiction thus benefits from another's information; information he might not have had otherwise. Despite incentives to be parochial, participants understand that the plan links achieving their agency's goals to how well the jurisdictions work together and manage the resource as an ecosystem, not to how much of the resource a manager can bring back to the jurisdiction. That is, because the lakes are interconnected, what is good for the whole system is good for any jurisdiction. This attitude suggests that managers are concerned about how to overcome collective action problems rather than fixated on how to maximize benefits vis-à-vis the other participants (i.e., a competitive approach).

Collectively generating and using information, and ecosystem management, relate directly to the fourth primary result of collective action: making policies more defensible with politicians and stakeholders. Information is valuable to the members in that it gives them the

knowledge they need to make their policies stronger and more defensible with politicians and stakeholders. Interview participants stressed time and again that they need to ground their policies in science, but political and other social pressures are sometimes at odds with good science. The better the information, the more defensible the management action is against criticism. The participants benefit professionally by cooperating through the Joint Strategic Plan because the information they receive makes their collective and their individual policies more ecosystem-based and less vulnerable to attacks from politicians, stakeholders, and other skeptics. Fishery managers are hired to manage fisheries and do biology. As far as they are concerned, the less politicians and stakeholders second-guess their work the better.

By expending time and effort to develop shared policies, the policies reflect the broad, collective will of the management jurisdictions and, thus, have the potential to withstand parochial attacks from constituents and politicians. Fishery managers are spared constituent and political grief if they can argue that the proposed policies reflect a broad consensus. Even politicians and constituents find it hard to argue for parochialism in the shared Great Lakes if there is an alternative available that other jurisdictions accept. Stronger policies mean fewer implementation challenges for the managers and, thus are rewarding. Better policies are rewarding because, in the words of one participant, “they enlarge the sphere of esteem with success.” Likewise, should there be a policy failure, the fact that the members moved forward with broad consensus “enlarges the sphere of embarrassment.” These rewards (esteem for good success; cover for embarrassment) are significant and are a major motivator for collective action through the Joint Strategic Plan.

CONCLUSION

The Joint Strategic Plan is an institution structured to enhance interactions among Great Lakes fishery managers and build lasting relationships. As such, the plan strengthens the epistemic community of fishery professionals in the Great Lakes region, which makes the

members more interested in and willing to take collective action. Members of such a community care about future interactions, worry about lost opportunities if they are uncooperative, desire to work with esteemed colleagues, and place a high value on giving and receiving important information. By helping the members know one another, share information, and develop long-term relationships, the plan heightens the chances that participants will view their jurisdiction's interest and the interest of the larger resource as one in the same. The intent is to turn conflict into cooperation, not competition; to seek shared goals. Parochialism becomes more a force from outside of the epistemic community rather than a force brought forward by the members themselves.

An agreement that takes into account the needs of its members can facilitate collective action. The Joint Strategic Plan process suits its members' needs by creating a robust meeting process that helps participants exchange information, manage tasks, and develop shared policies. The plan has created a formal process for interactions, durable relationships among members of an epistemic community, ecosystem management, and defensible policies, all of which, in turn, spawn more collective action. Considering the political reality, it is somewhat remarkable that members exert their energies to working together. However, consistent with the literature, members participate in this process because it gently coerces participation, it provides them with substantial rewards, it creates relationships, and it helps the members know each other. These realities characterize Great Lakes fishery management and underscore Dietz's conclusions that unique situations can rely on unique structures to nurture collective action.

A major reality in Great Lakes fishery governance is that while the jurisdictions are indeed independent, non-federal governments in both Canada and the United States work in federal systems; there are different levels of government working on the Great Lakes. This chapter has discussed how and why collective action occurs among individuals. This dissertation now turns to a discussion about how the plan manages issues of federalism; how it facilitates "vertical" cooperation when relationships between different levels of government have the potential to be hierarchical and contentious.

CHAPTER 3

SUSPICION AND SYNERGY

Overcoming Federalism Tensions in Great Lakes Fishery Management

Abstract

The non-federal jurisdictions retain primary management authority over Great Lakes fisheries, though the Canadian and U.S. federal governments and the binational Great Lakes Fishery Commission play a role in fisheries as well. Using Denise Scheberle's (2004) federalism model—which characterizes federal-non-federal relationships—this chapter asks: *Can an institution in a non-federally-dominant region ease inherent federalism tensions? How do the states, the U.S. tribes, and the Province of Ontario work together and with the federal governments to identify and implement shared fishery policies?* Interview and other data indicate that non-federal managers are at once suspicious of federal involvement and appreciative of it. Participants (particularly the U.S. participants) believe the federal governments wish to expand their authority at the expense of the non-federal governments. However, members believe the Joint Strategic Plan helps maintain a federalism balance and facilitates synergy among levels of government. As such, the non-federal participants generally trust their federal colleagues and rely on federal resources. Participants also believe the binational Great Lakes Fishery Commission's involvement in the plan is appropriate so long as the commission does not attempt to overstep its limited authority. This chapter concludes that because of this trust and an active process to work together, the federal and non-federal governments have what Scheberle describes as a “pulling together and synergistic” relationship, a highly desirable state.

Sir John A. MacDonald, a Canadian “Father of Confederation” and the nation's first Prime Minister, did not much admire the United States Constitution. At a convention in Quebec in 1864, during the formative debates leading to the 1867 British North America Act (BNA, Canada's constitution), and, coincidentally during the fifth year of the U.S. Civil War, Sir John sparred with New Brunswick's E.B. Chandler, who argued vigorously for provincial supremacy at the expense of the federal government. “I think the whole . . . system [would] be a failure if we adopted Mr. Chandler's views,” said MacDonald at the convention.

It would be adopting the worse features of the United States. We should concentrate the power in the Federal Government, and not adopt the decentralization of the U. States [sic]. Mr. Chandler would give sovereign power to the local legislatures, just where the United States failed . . . It would be introducing a source of radical weakness. It would ruin us in the eyes of the civilized world. All writers point out the errors of the United States” (McGee 1864, quoted in Vaughan 2003, p. 105).

To MacDonald, the “radical weakness” in the U.S. system was the considerable power the U.S. constitution granted to state governments. The U.S. mode was for free and independent states to be supreme, leaving a national government to oversee truly national matters like defense and commerce. With the Civil War and a rabid “state’s rights” mentality raging, MacDonald was likely convinced the new Canadian system could only escape the U.S.’s errors by keeping the provinces in check and relying on a strong central government to lead the way (Simeon and Robinson 1990). As such, MacDonald and like-minded Fathers molded the BNA to grant sweeping powers to the federal government and to leave specific, enumerated powers to the provincial governments.

Ironically, neither country would follow the paths so carefully crafted by their founding fathers. In Canada, the provinces attained substantial authority at the federal government’s expense and in the United States, the federal government aggregated power at the states’ expense (Lower 1958; Nagel 2001; Thompson 1974; Vile 1973). In both countries, the shifts occurred over time through court cases and exertion of reserved powers.

The relationship between the federal and non-federal governments affects Great Lakes fishery management today and reflects the evolution of federalism in both countries. In Canada, Ontario’s authority over its Great Lakes fisheries became relatively absolute as provincial authority over most matters grew. In the United States, state authority over freshwater fisheries was strong from the beginning and eroded little over time, even as federal power grew substantially in other policy areas. Thus, in both countries, the non-federal governments became the primary fishery managers on the Great Lakes. As chapter 1 has demonstrated, non-federal

governments have guarded jealously and successfully protected their freshwater fishery management authority—even authority over multijurisdictional fisheries.

The non-federal authority exists despite the fact that both constitutions provide for substantial federal involvement in interjurisdictional and commercial matters, certainly matters which could relate to the shared Great Lakes fishery. Whether the dominant non-federal governments like it or not, they must co-exist with federal officials, making the vertical relationships between levels of government a major variable in Great Lakes fishery governance. Given this situation, this chapter asks: *Can an institution in a non-federally-dominant region ease inherent federalism tensions? How do the states, the U.S. tribes, and the Province of Ontario work together and with the federal governments to identify and implement shared fishery policies?*

Denise Scheberle, in her book Federalism and Environmental Policy, explores cases where state and federal governments needed to cooperate to implement environmental statutes. Scheberle's cases follow a pattern where, as defined in the enabling statute, the federal government is responsible for or capable of leading policy implementation, whether by providing resources or forcing state action. While the federal government's role in her cases might be secondary in many situations, and while the federal agencies are not always over-eager to preempt or take aggressive action, the statutes nevertheless define the relationships. In Scheberle's analyses, the vertical relationship between levels of government is an important facet of policy implementation. Scheberle's model considers the amount of trust and interactions between the levels of government to gauge the way laws are implemented. In doing so, she identifies relationships ranging from synergistic to antagonistic to outright avoidance and denotes trust, level of interactions, and specific implementation factors as key variables influencing the relationship.

Chapter 1 outlined the spheres of authority in Great Lakes fishery management, demonstrating that, compared against Scheberle's model, the Great Lakes fishery management

regime is an unusual example where federalism is reversed; where the federal governments' role is secondary despite the fact that two nations share the Great Lakes and the fish routinely transcend many political boundaries. These spheres of authority, with the non-federal governments taking the lead, might seem counterintuitive given the international boundary bisects the lakes, rendering just about any policy an international affair. Both the Canadian and U.S. constitutions discourage state and provincial involvement in foreign affairs and envision federal authority over multi-state/multi-provincial matters. Moreover, both countries have federal environmental laws on the books, giving the federal governments some authority to limit provincial, state, or tribal autonomy. Despite these factors, provincial, state, and U.S. tribal rights to manage their fisheries are well established, and the federal governments are reluctant to intrude, as such action would be extraordinarily preemptive. In contrast to some aspects of Scheberle's cases, in Great Lakes fishery management, the federal governments do not have an inherent ability to force non-federal compliance with federal wishes. Nevertheless, fishery officials from both levels of government know they need each other for optimal implementation of fisheries policy.

Using Scheberle's model as a guide, this chapter discusses how the Joint Strategic Plan relates to federalism and investigates whether participants have used the plan as a way to progress beyond classic federalism tensions and instead focus on the quality of the relationship. This chapter argues that the Great Lakes fishery management regime resembles what Scheberle has identified as a positive "pulling together, synergetic" relationship among governments. This relationship benefits from a high level of trust and a high level of involvement among all participants, including the federal and non-federal managers. However, consistent with the history of Great Lakes fishery management, and not unusual in cases involving federalism, non-federal fishery managers are at once suspicious of federal intentions and reliant on federal resources for effective policy implementation. The Joint Strategic Plan eases these tensions by helping to delineate and maintain the federal and non-federal spheres of authority, developing and

maintaining positive relationships among fishery managers, and facilitating meaningful, long-term relations among the jurisdictions. The plan helps federal and non-federal agencies pursue complementary fisheries policies that often depend on each level of government playing its role. Through the plan, agencies accept the Great Lakes region's spheres of authority, agree to adhere to the plan's way of doing business, and pledge to implement shared fisheries policies that they develop together through the plan. Given the region's political complexity, and given the substantial non-federal management authority over a shared natural resource, examination of Great Lakes fishery management yields a deeper understanding of federalism, demonstrating that positive relationships in federalist systems can function even when the federal governments do not have primary authority.

Methods

Using data from sixty-two semi-structured interviews, from participant observation, and from Joint Strategic Plan documents (e.g., minutes, fish community objectives), this chapter explores how Great Lakes fishery managers from all jurisdictions view their relationship with the federal governments and with each other. (Methodology is discussed in greater detail in Appendix A.) It probes their attitudes and behavior as they work within the Joint Strategic Plan framework to cooperate and coordinate their management activities. In many interviews, the participants were quick to offer their ideas about the federal-non-federal relationship, making it readily apparent that the relationship weighed heavily on many participants' minds. This chapter also looks at two case studies of Great Lakes fishery management—the implementation of the *Great Lakes Fish and Wildlife Restoration Act* and lake trout restoration in Lake Superior—to better understand the relationships and place federalism into an operational context.

THE FACES OF FEDERALISM

Federalism is an important feature of Great Lakes fishery management, given fishery management occurs at the non-federal level, but not in the absence of federal involvement. Indeed, as chapter 1 has demonstrated, the non-federal governments retained and attained primary management authority over Great Lakes fisheries, though federal responsibilities are also intertwined, creating an inextricable relationship among governments. *Federalism* relates to how the national and sub-national levels of government interact with one another and exert or share power (Elazar 1993). Scholars have identified three major types of federalism: *dual*, *cooperative*, and *coercive* federalism. Dual federalism describes a situation where the federal government or the non-federal governments are dominant in a policy area, but each level stays within its area of authority (Grodzins 1969; Nice 1987; Vile 1961; Zimmerman 1992). In cases of cooperative federalism, the spheres of authority are muddled, overlapping, or complementary such that the levels of government must integrate their efforts to deliver a better program than if either level acted alone; the work of the levels of government are intertwined (Grodzins 1969; Nice 1987; Peterson et al. 1986; Vile 1961; Zimmerman 1992). Coercive federalism has evolved from cooperative federalism and describes instances where the federal government uses its superior powers, at its will, to preempt non-federal authority or to force the non-federal governments to do or not do something (Arganoff 2001; Elazar 1969; Zimmerman 1992).

Although the United States and Canada are each federal systems, the relationship between the federal governments and the non-federal governments evolved differently in each country. In the United States, the constitution, on paper, established a system of dual federalism, where the spheres of federal and state authorities were supposed to be relatively clear, with the federal government's powers specifically enumerated (Article I, § 8,) and the balance of power reserved for the states (the Tenth Amendment) (Vile 1973; Zimmerman 1992). As the U.S. federal government slowly concentrated power from the time of the U.S. Constitution to the New Deal (Nagel 2001; Peterson et al. 1986; Zimmerman 2005), and then through a massive

concentration of power since Lyndon Johnson's Administration (Vile 1973; Zimmerman 1992), the clear lines between federal and state powers have blurred so much that dual federalism has all but been dismissed as an unrealistic concept (Zimmerman 1992). Cooperative or coercive federalism are more accurate models for illustrating the relationship between national and sub-national governments in the United States (Elazar 1969; Zimmerman 1992; Zimmerman 2005) because each level of government, in many policy areas, needs the other for successful implementation to occur (Peterson et al. 1986).

In Canada, the founders wanted a strong central government, and their strategy was to enumerate provincial and federal powers and leave un-enumerated powers to the federal government (opposite the strategy of the U.S. framers) (Smith 2004; Vaughan 2003; Vile 1973). The constitution granted Crown (i.e., sovereign) authority to both the national and provincial legislatures, thus giving each level of government, within its sphere of enumerated or reserved powers, sovereignty (Lower 1958; Smith 2004). Over time, the provinces attained substantial authority (Vaughan 2003), though the twin crises of the Great Depression and World War II helped slow the aggregation of provincial powers and re-establish the federal role in Canadian governance (Hodgetts 1974; Simeon and Robinson 1990). Today, national and provincial powers overlap considerably (Simeon and Robinson 1990; Vile 1973). Says Vile (1973, p. 14), "the Canadian 'solution' [to overlapping powers was] to turn away from constitutional expansion of power to financial and other cooperative arrangements which depended upon a genuine bargaining between Dominion and Province."

Denise Scheberle, in her book Federalism and Environmental Policy (2004), develops a contemporary framework for federalism in environmental policy.²² Scheberle stresses that the

²² Although Scheberle's focus is on the relationship between the U.S. federal government and states, for the purposes of discussing Great Lakes fishery management, this chapter applies her analysis more generally to the relationship between federal governments and all types of non-federal governments. In Great Lakes fishery management, a group of non-federal entities (eight states, the Province of Ontario, and U.S. tribes) interact with two federal governments to carry out fisheries policies.

federal-non-federal relationship is critical in environmental policy and she examines cases where the federal government and the states must cooperate to achieve policy implementation. In her cases, the federal government has some authority to compel, encourage, or coerce state actions. Her concept of environmental federalism consists of two parts: a typology of working relationships and an implementation framework for how policies are executed. Concerning typology, Scheberle identifies four main types of relationship between the federal and non-federal governments. These types of relationship depend on the amount of *trust* between the two levels of government and the amount of *involvement* each level has in a particular law, policy, or initiative. The interplay of trust and involvement often determine whether and how well policy is implemented. The four types of relationship are: (1) “pulling together and synergistic,” where high levels of trust and involvement by federal and non-federal governments lead to information sharing, respect, consultation, and good working relationships; (2) “cooperative but autonomous,” where relationships have high trust but low levels of involvement, resulting in not enough interaction to create the positive relationship needed to pull together; (3) “coming apart with avoidance,” where the federal and non-federal governments neither trust each other nor interact much, resulting in ineffective programs, as cooperation is superficial or for show; and (4) “coming apart and contentious,” a relationship with low trust yet high levels of interaction, leading to micromanagement, pointless bureaucracy, hidden agendas, and antagonism. The integration of trust and involvement gets to the heart of policy implementation because, in the federal system, where cooperative or coercive federalism predominates, how the levels of government interact is important to implementing programs as intended.

Scheberle’s implementation framework—the second component of her concept of federalism—recognizes the nuances and context of individual policies and lists several factors relating to how policies are implemented. Says Scheberle (2004, p. 51) about implementation,

[E]very point in the process is subject to a unique set of conditions and constellation of actors, employing various strategies to alter the course so as to maximize their position in the eventual outcome. . . . [F]ederal-state working relationships form an important subset

of policy implementation. As programs mature, the daily operations of federal and state agencies become paramount to policy success or failure. These regular interactions among personnel may greatly influence the eventual outcomes of a public program.”

Beyond interactions, her case studies identify several other implementation factors including:

- the specific statutory language of the federal law and what it requires of the non-federal partners;
- whether the non-federal entities implement national decisions;
- how officials respond to changes in organizational, technical, and political environments;
- how success is measured (output or outcome);
- whether monetary, human, or other resources are available for implementation;
- the presence of innovative bureaucrats at the implementation level;
- the political climate;
- how accountability takes place; and
- other intrinsic and extrinsic factors.

These implementation factors are discussed further in table 3-1 (page 152). While the importance and nuances of these factors are clearly unique to individual cases, Scheberle is able to identify them as some of the key aspects influencing environmental policy implementation in a federalist setting.

Scheberle’s model is a useful framework for better understanding federalism in Great Lakes fishery management. However, her model is not entirely applicable to the region. Scheberle’s model suggests that the specific statutory language which establishes a program is a major factor in the relationships that develop and in how the program is implemented. Also, her model emphasizes policies where the federal government is either the policy-architect (with the states implementing) or the regulation-enforcer (should the states fail to deliver), or both. In other words, her cases have some elements of coercive federalism, where the relationships are top-down-driven, but also elements of cooperative federalism, where the federal government remains secondary and reluctant to take preemptive action.

In the Great Lakes region, however, the state and tribal authorities, and to a lesser degree the provincial authorities, do not face a threat of direct federal oversight over their fishery programs. The non-federal governments do not carry out their fishery programs pursuant to a federal statute and the default, if fisheries policies fail or go unimplemented, is not for the federal

governments to step in automatically.²³ Federal and non-federal responsibilities are mostly defined and respected, and limited opportunities exist for the federal governments to regulate the fisheries directly without first taking extraordinary steps. While the federal governments could assert, for example, their treaty-making or interstate commerce powers at the expense of non-federal powers, the current federal role is not to lead or preempt non-federal authority, as is often the case in Scheberle’s study. Rather, Canadian and U.S. federal governments play a supporting role in Great Lakes fishery management. That said, both levels of government acknowledge that each needs the other for the optimal implementation of fisheries policies, resembling more of a cooperative federalism relationship. This creates a different relationship between federal and non-federal governments than if a federal law preempted non-federal laws or mandated non-federal behavior.

Considering Scheberle’s federalism model and the situation in the Great Lakes region, this chapter now turns to an analysis of the relationship between federal and non-federal participants in the Joint Strategic Plan process.

BENEFITING FROM SYNERGY WHILE REMAINING SCEPTICAL: THE FEDERAL-NON-FEDERAL RELATIONSHIP

In the Great Lakes region, the federal and non-federal spheres of authority are fairly well defined and accepted and, as such, successful working relationships among the governments are a major factor in the success of Great Lakes fishery policies. While the non-federal governments dominate day-to-day management, the federal role is also important. Several federal agencies are involved in Great Lakes fisheries (see table 1-1, page 27) and two—the U.S. Fish and Wildlife Service and the U.S. Geological Survey—are particularly active and signatory to the Joint

²³ In Canada, while the federal *Fisheries Act* must contain Ontario’s fishery regulations, such assent is a relative formality under the long-standing agreement between the province and the federal government for freshwater fisheries management. Thus, the Canadian federal government, despite promulgating regulations under the *Fisheries Act*, does not threaten to preempt Ontario’s management authority as might appear at first glance.

Strategic Plan. This chapter, when it refers to federal involvement in Great Lakes fisheries, has these two agencies primarily in mind, though the other federal agencies involved in fisheries—the National Oceanic and Atmospheric Administration, the U.S. Army Corps of Engineers, the Department of State, and the Department of Fisheries and Oceans—also possess enough authority to affect non-federal policies. Indeed, these federal agencies have significant resources and latent powers that could affect policy implementation.

Benton and Morgan (1986) point out that relations among government officials depend on the participants making the relationships function. Chapter 2 indeed stressed the importance of solid personal relationships among Great Lakes fishery managers; relationships that encourage multijurisdictional cooperation. However, cooperative federalism—relationships affected by governmental authority—depend somewhat on the existence of a structure, an institution, or a set of norms to define how the cooperation is to occur. The relationship between federal and non-federal governments permeated many of the interviews with Joint Strategic Plan participants—particularly with the U.S. participants at senior levels. Although not all participants framed their discussion in the context of their relationship with those from other levels of government, those who did generally expressed their thoughts in one or more of three ways:

1. In the U.S., many non-federal participants suspect that the federal government wants to expand its authority. They see the Joint Strategic Plan as a way to keep the lines clear between federal and non-federal responsibilities. Canadian participants did not identify this issue.
2. Participant interviews and their behavior show the plan facilitates cooperative federalism, particularly in areas where federal and non-federal programs are complementary. The non-federal participants generally trust federal participants because the members share goals and visions, are professional and proficient, and are highly engaged in the process. Thus, the Joint Strategic Plan creates a process that helps both federal and non-federal officials interact and leverage each others' resources.
3. Participants acknowledge that the Great Lakes Fishery Commission, without acting as a compelling force, helps the jurisdictions respect the spheres of authority by facilitating the implementation of the Joint Strategic Plan. Thus, the existence of a perceived neutral institution to facilitate cooperation is important to federalism in the Great Lakes because it serves as a check against the federal governments from extending their authority into inappropriate areas (i.e., “filling a governance vacuum”).

Despite some strong feelings against federal authority in Great Lakes fishery management (particularly on the U.S. side), the federal and non-federal officials generally trust each other, respect the lines of authority, rely on each others' resources, and work synergistically to achieve their goals. In this sense, the Joint Strategic Plan process resembles what Scheberle (2004) describes as the desirable "pulling-together-and-synergistic" relationship. Participant observation and a review of two major cases of cooperative management—the *Fish and Wildlife Restoration Act* and lake trout restoration in Lake Superior—provide evidence for active, synergistic, and trusting relationships between federal and non-federal officials. Participants believe these working relationships will continue so long as the federal officials do not go beyond their sphere of responsibility.

Managers suspect federal intrusion and rely on the plan to ease the tension

The very existence of different levels of government, coupled with the possibility of federal intrusion into non-federal authority, creates inherent tensions, and such tensions are present in Denise Scheberle's analysis of federalism cases. Tension is also reflected in non-federal suspicion that the U.S. federal government (particularly the Fish and Wildlife Service) wishes to expand its authority over Great Lakes fisheries. A mechanism like the Joint Strategic Plan, which establishes a process for engagement and delineates how participants are expected to behave, helps all participants focus on shared goals rather than on fending off jurisdictional intrusion.

As chapter 1 has demonstrated, for much of the basin's history, the non-federal governments were outwardly hostile toward federal encroachment on their management authority. Also, fearing the erosion of their individual sovereign rights, the jurisdictions resisted establishing a mechanism to work together to achieve their shared goals. A binational treaty to impose regulations was out of the question, an interstate compact was too intrusive and would have required federal approval (which was also out of the question), and interstate conferences

were much talk and little action, as such action would have required individual state and provincial legislatures to impose unwanted regulations to suit the needs of the other jurisdictions. As chapter 1 notes, the Joint Strategic Plan itself was partially motivated by the fear of federal intrusion and the need to protect non-federal authority. Even with the plan, both countries' federal governments possess enough authority to make a case for heightened involvement in Great Lakes fishery management, and non-federal fishery managers are aware of that fact. These feelings of insecurity over authority, and the need to preserve independence, are deeply ingrained in the culture of Great Lakes fishery management and such feelings emerged during the interviews with participants.

During the interviews, non-federal participants continually asserted that they have the primary management responsibility over Great Lakes fisheries. They volunteered this assertion frequently enough as to give it an air of defensiveness, indicating that they suspected federal intrusion. A few participants (particularly U.S. participants) stated outright that they believe the U.S. Fish and Wildlife Service is waiting in the wings to take over fishery management, and some non-federal managers expressed visceral hostility to *any* federal presence in the Great Lakes (“get the feds the hell out!” said one). Such extreme sentiments, however, were rare. More typical was the sentiment expressed by a long-serving state manager: “There is a lot of conflict sometimes because they [the federal government] think they have more authority than they do.” Added a state colleague: “the [U.S.] Fish and Wildlife Service always struck me as kind of standing on the outside of the window with its nose pressed to the glass, desperately wanting to get inside, and the states quite determined to make sure they did not.”

Some state fishery managers harbor these views about the federal government because they see their U.S. Fish and Wildlife Service counterparts as meddlesome or working against the state interests. They view federal officials as having the luxury of being able to involve themselves in fisheries without having to be accountable to local constituents or legislators. For instance, many state participants noted that while state officials are in the field meeting with

stakeholders and explaining state regulatory action (often to hostile crowds), the federal officials are talking to stakeholders, legislators, and the media, second-guessing state management decisions, trying to divert the direction of policy, or simply being pushy. A technical committee member, who has public outreach responsibilities, captures the sentiment:

They [the federal agencies] are out there promoting some program where it is either counter to what we want to do or the timelines do not work with what we want to do. And it's just like we have enough people taking shots at us we don't need you making more work for us.

Added a now-retired senior state manager,

The feds always tried to influence us. It was one thing going to a meeting to argue. But they would start going out into the countryside and giving talks to sportsmen's clubs [to urge the state DNR to do something]. . . . Then, of course, if [it] goes wrong, they could run back to their labs and hide and we would have to live with the stakeholders.

U.S. federal officials, for their part, understand why their non-federal colleagues fear federal preemption: federal authority in Great Lakes fisheries could be significant should the federal governments choose to be involved. Indeed, each of the four U.S. federal officials interviewed for this research expressed some need to be sensitive to the appearance of federal intrusion into state affairs. While the participants cited many federal laws and the federal treaty-making power as power enough for the federal government to take a leading role in Great Lakes fishery management, they each took pains to assuage concerns about potential federal usurpation. They were quick to point out that the federal government has chosen explicitly not to take full advantage of its authority and added that the current arrangements are agreeable. As well, no federal official, even when speaking in absolute confidentiality, hinted at an interest in assuming state management authority. Said a federal official:

I think that this is one area of the country where collaborative management is working about as well as it ever could I think that the federal government deliberately elected not to pursue all of the authority that it has with respect to fisheries. That's been a conscious decision made at the highest levels of federal government here in the basin and I think that it's been a wise choice.

Ontario participants rarely expressed fear over Canadian federal intrusion into provincial management authority. While the provincial governments exercise primary management

authority just like the states and U.S. tribes, the provincial managers do not seem concerned about the Canadian Department of Fisheries and Oceans wanting to upset the balance. Because the federal and provincial governments must always negotiate agreements to carry out major or overlapping authorities, the tension between the provincial and federal governments in Canada is not based so much on a fear of preemption as it is on a continual need to come to agreement. Indeed, one senior manager from Ontario noted that the federal government was rarely a consideration in his decision-making process largely because, as discussed in chapter 1, the effective Canada-Ontario Fisheries Agreement spells out the relationship between the province and the federal government. Overall, provincial fishery managers seem less concerned about the federal-non-federal relationship than their state counterparts because the agreement successfully keeps the arrangements clear and, as such, Ontario officials have minimal reason to be suspicious of their federal counterparts.

While non-federal managers are concerned about federal intrusion, they view the Joint Strategic Plan as helping to prevent such intrusion into their affairs. By maintaining the Joint Strategic Plan, members believe they remove a major argument in favor of heightened federal authority in Great Lakes fishery management, as the plan creates a mechanism for coordination that the federal governments might otherwise feel compelled to fulfill. Said a state fishery manager,

If kids in the sandbox can't work it out together, then teachers have to come over and lay down some law . . . [I]f we as states don't use that structure to address [interjurisdictional] problems, then we risk a loss of the management authority.

When asked whether this potential federal stick motivated action at the lake committee level, the manager replied: "It motivates me." It motivates many other lake committee participants as well.

Another state fishery manager made the direct connection between the lake committee process and keeping the spheres of authority distinct. He stressed that because some federal agencies are signatory to the Joint Strategic Plan, they agree to keep the arrangements as they are. Said the manager:

All of the federal agencies—everybody—signed off on this thing [the Joint Strategic Plan], and it carries a lot of weight. I have had conversations with some of the federal people and they assure me that all the way up through the top there is complete buy in to states having authority to manage and the federal partnership and commitment to the process.

Other non-federal managers observe that because some federal laws and agreements mention the Joint Strategic Plan or the lake committees by name, the federal government not only acknowledges, *de facto*, the plan's legitimacy, but accepts the relationships that the plan helped establish. The 1998 and 2006 *Great Lakes Fish and Wildlife Restoration Acts* (U.S. Congress 2006; USGPO 1998), the *Water Resources Development Act of 2000* (USGPO 2000), and the Michigan-federal-tribal agreement (United States District Court 2000) for fisheries all mention the Joint Strategic Plan, and many believe that in doing so, the laws and agreements recognize how the Joint Strategic Plan keeps the spheres clear.

Preventing federal intrusion into state authority (commonly called “creeping federalism”) is indeed a major virtue of the plan, according to the participants. The plan, they say, was a breakthrough in helping to assuage the constant fears of federal intrusion by creating a process—that all participants agreed to—for cooperative management and, therefore, articulating management authority. If the federal agencies were to attempt to assert a higher level of authority than was articulated in the plan, the other signatories could ask the agency why it was doing something counter to what it agreed to. This situation actually occurred in the late 1990s when a regional bureaucrat from the U.S. Fish and Wildlife Service circulated a white paper (later published as Busch 2003) challenging the Joint Strategic Plan's legality and questioning the federal government's secondary role in Great Lakes management. This assertion prompted some concern among the states that the service was planning to expand its sphere, contrary to the Joint Strategic Plan. The service, in Washington, quickly responded that the employee's white paper

in no way represent[ed] Service thinking or policy As a signatory to the Joint Strategic Plan for Management of Great Lakes Fisheries, the Service firmly supports the spirit and intent of this landmark agreement that serves as the model for addressing complex, multiple jurisdiction natural resource issues. The Service remains committed and bound by the agreement (Bolton 1998).

Evolving federal participation in a non-federal process: The U.S. Great Lakes Fish and Wildlife Restoration Act

The U.S. *Great Lakes Fish and Wildlife Restoration Act* provides an illustration of how the U.S. federal government and the U.S. non-federal governments use the Joint Strategic Plan process to forge a synergistic, working relationship that respects the accepted spheres of influence. The act is a major authority for the U.S. Fish and Wildlife Service's activities in the Great Lakes basin. Congress passed the act originally in 1990 and reauthorized it in 1998 and 2006. Non-federal agencies heavily criticized the original act of 1990 for duplicating non-federal management authority, creating unnecessary federal fisheries offices and staff capacity, and failing to recognize the well-established authority of the non-federal management agencies. In stark contrast, the 1998 reauthorization established a collegial, effective process for cooperative federalism *through the Joint Strategic Plan*. The 2006 reauthorization, however, envisioned more federal leadership, placing more responsibility in the federal government to lead the restoration process while offering more federal dollars—dollars that require a non-federal cost-share—for restoration. The act is a prime example of how the federal Fish and Wildlife Service has operated in the Great Lakes basin since 1990 and how it has interacted with the non-federal fishery managers.

The mandate of the original (1990) version of the act was threefold. First, the act required the U.S. Fish and Wildlife Service to evaluate the status of the fishery and evaluate the effectiveness of interagency management plans. Second, the act directed the service to produce fishery management and rehabilitation proposals and recommendations from that evaluation. The proposals were to include action plans for cooperative restoration of depleted fish stocks, planning and technical assistance for non-federal and Great Lakes Fishery Commission initiatives, measures to restore and improve fishery resources, habitat initiatives, and research plans, among other things. Third, the act authorized the service to establish several offices so that

it could interact with the non-federal entities, the commission, and outside interests (USGPO 1990).

Advocates of the 1990 act were convinced that the authorization was needed to allow the service to fulfill its fisheries assessment duties on the Great Lakes and to be more active in coordinating fisheries activities. Said Congressman Henry Nowak of New York, the bill's chief sponsor,

We do not have an adequate federal program to carry out basic assessment and management work that is necessary to sustain the largest fresh water system in the world . . . This bill would engage the Fish and Wildlife Service as a full partner in a cooperative interagency and international effort to clean up and responsibly manage the Great Lakes ecosystem" (Nowak 1990, p. 3).

Representative Robert Davis of Michigan, a co-sponsor of the legislation, added that the service, among other agencies, "has not been given adequate funding to address existing problems or put programs in place to prevent new ones" and that the bill was designed to direct more restoration dollars to the Great Lakes (Davis 1990, p. 2). Constance Harriman, Assistant Secretary for Fish, Wildlife, and Parks for the Department of Interior added that the U.S. Fish and Wildlife Service was eager to conduct a study of Great Lakes fishery resources and make management recommendations, but that the service needed the funds to do so (Harriman 1990). Bruce Schupp, chief of fisheries for the State of New York also testified in support of the act because he believed the legislation would lead to more resources for fisheries research "to complement the management activities of the state and provincial fishery management agencies" (Schupp 1990, p. 46).

Despite the belief that the legislation would improve the service's capacity to conduct research and assessment, however, the 1990 act also gave the service some ability to duplicate effort, perhaps seriously upsetting the federal-non-federal relationship by suggesting it was appropriate for it to produce sweeping recommendations, develop action plans, and establish offices to implement its will. Moreover, the act duplicated many Joint Strategic Plan functions. For instance, the act directed the service to "encourage cooperative conservation" and evaluate

the “adequacy, effectiveness, and consistency” of multi-agency fisheries plans while the plan, similarly, committed the federal and non-federal signatories to work together to produce state of the lake reports and fish community objectives (Fetterolf and Krueger 1990; Krueger 1995; USGPO 1990). Another major concern about the act was that it granted an inordinate amount of authority to the service, thus opening the door for the service to meddle in non-federal management affairs with little value added. For example, the act granted the service authority to restore and maintain fish populations and to protect and restore fish habitat, functions that the non-federal entities delivered, though not exclusively. The act also authorized the service to develop action plans for fishery management and granted them the capacity (through offices and staff) to carry them out. Finally, the act applied only to activities of the United States, ignoring the needs and possibilities for collaboration with Canada.

During the hearing leading up to the passage of this act, Carlos Fetterolf, then executive secretary of the Great Lakes Fishery Commission, and Charles Krueger, then chairman of the commission, testified that they had one overriding concern: that the act

could be interpreted as duplicating the duties and responsibilities of the Great Lakes Fishery Commission [in carrying out its research mandate and in facilitating the Joint Strategic Plan] . . . The commission’s cooperators [i.e., state, provincial, tribal, and federal agencies] work through an infrastructure of [lake] committees . . . We are concerned that the Service will become a competitor, rather than a cooperator as intended by the Parties to the Convention on Great Lakes Fisheries” (Fetterolf and Krueger 1990, p. 7-8).

Fetterolf and Krueger went on to recommend that the act, instead focusing on duplicating existing structures, direct more dollars to the service’s essential needs such as fish stock assessment and research—needs that were being unfulfilled. Thus, while Fetterolf and Krueger had hopes that the act would bolster the service’s ability to deliver on its core mission in the Great Lakes region, they were deeply skeptical about provisions in the legislation that would allow the service to perhaps duplicate what they believed to be an already effective coordinating process—the Joint Strategic Plan.

Optimism that the legislation would provide the service with an influx of resources, plus a perceived need for a major restoration study about Great Lakes fisheries, prevailed and the legislation became law. Supporters clearly focused on the possibility of more funds for the service in the Great Lakes basin. Said Fetterolf, in a post-passage letter about the act to Jim Cady, a member of the commission, “Some states like this legislation (New York). Many others are leery of it, but they like the idea that they will get money for Great Lakes research and assessment, so they seem willing to ride along” (parenthetical reference in original) (Fetterolf 1991). Indeed, the Fish and Wildlife Service, until a departmental reorganization in 1994, was responsible for conducting assessments of the deepwater fish communities,²⁴ particularly the condition of the forage base.²⁵ The assessment information was (and remains) extremely valuable as state, provincial, and tribal managers use the information as the foundation for many of their management decisions. The possibility of more dollars for this essential function was very attractive to many officials in the Great Lakes region and, as is often the case, the expectations of new funds, was apparently enough for people to ignore other, less desirable components of the legislation. Perhaps Congressman Nowak, even while downplaying the potential to upset the federal-non-federal relationship, captures the overall sentiments about this act. Said Nowak:

We do not view this bill as authorizing or encouraging a Federal takeover of fish and wildlife activities in the Great Lakes. To the contrary, the bill provides for a partnership approach. It calls for the Federal Government to undertake cooperative studies and activities in partnership with the states, tribes, Canadians, and other interested parties. . . . Enactment of this legislation will result in an important new Federal/state/tribal partnership and will be a significant step towards the critical goals of conserving, protecting, and restoring the fish and wildlife resources of a vitally important ecosystem. (Nowak 1990, p. 6)

²⁴ The U.S. Geological Survey today performs this assessment function. The laboratory under which the work is performed—the Great Lakes Science Center in Ann Arbor, Michigan—was under the service’s tutelage prior to the 1994 departmental reorganization.

²⁵ The forage base is the foundation of the food web. Forage are small organisms consumed by larger organisms.

The implementation of the 1990 act did in fact cause considerable distress among non-federal fishery managers. Said Fetterolf in his letter, many states are “leery [of the act and] have called me asking what the Service is going to do with all that money and personnel” (Fetterolf 1991). Krueger, in a 1995 statement to the House Resources Committee, expressed similar sentiment:

In authorizing the [Fish and Wildlife Service] Director to develop proposals for implementing [its] recommendations . . . the act allows the Director . . . to develop and implement the recommendations in a unilateral manner. This is in stark contrast to existing processes used by the States, Tribes, and the Province, wherein new fishery management initiatives in the Great Lakes are developed in a consensual manner (Krueger 1995).

The 1990 act indeed represented the service going from “having its nose pressed against the glass, looking in” to gaining the authority and the capacity to enter the long-established non-federal sphere of influence. Why, for instance, would the service be given the authority to develop restoration plans, to rehabilitate fish stocks, and to enhance habitat (and given the authority to establish offices and hire staff) if it did not intend to use it? For senior managers who were active before and after 1990, the restoration act only confirmed their worst fears: that the service wanted to mix up or supersede the non-federal management authority. The Great Lakes Fishery Commission cautioned the service “not to abandon its critical and historical role as it assumes new roles that are, at times, duplicative of the roles of the states and tribes” (Krueger 1995, p. 4).

In 1998, when the time for reauthorization arrived, the non-federal governments demanded a significant change to the top-heavy act, and federal officials who worked on the 1998 reauthorization recalled the pains they took to fix the problems with trust and the hurt relationships caused by the 1990 act. The result of these efforts was a completely different approach. As much as the first iteration of the act duplicated effort and appeared to grant the service more authority than its sphere would allow, the reauthorized act in 1998 was a model for U.S. cooperative federalism. In fact, the entire emphasis of the 1998 reauthorization was less on developing plans, recommendations, and office capacity, and more on using the cooperative Joint

Strategic Plan to carry out fishery restoration. For example, the 1998 act allowed for more money to go to projects than to Fish and Wildlife Service offices and overhead, authorizing \$4.5 million annually to fund restoration initiatives while providing \$3.5 million annually for the service to support its Great Lakes offices (USGPO 1998). More significant was the process to implement the 1998 act. The reauthorization created a “Fish and Wildlife Proposal Review Committee” that operated under the auspices of the Joint Strategic Plan’s Council of Lake Committees. This review committee—comprising state and tribal officials with the service *observing*—would review restoration proposals and make recommendations to the service for funding. The Council of Lake Committees, not the service, would drive the process by requesting restoration proposals, soliciting peer reviews, and making recommendations for projects in light of funds appropriated (USGPO 1998).

The reauthorization helped to assuage feelings that the original act changed the federal-non-federal relationship in favor of the federal government. The fishery commission, for instance, in a 1997 letter to members of the House and Senate during the reauthorization process, noted with pleasure that “the proposed reauthorization bill now draws on existing mechanisms [the Joint Strategic Plan] that facilitate a cooperative, ecosystem-based approach to management of the Great Lakes fishery” (Krueger 1997), and Robert Lange of the New York State Department of Environmental Conservation, then chair of the Council of Lake Committees, wrote to Congress that the act was an “extremely positive model for collaborative decision-making” (Lange 2002). Federal employees were pleased, if not relieved as well, over the newly reauthorized act and the relationship it helped mend with the non-federal partners. They expressed their belief that interactions between the federal government and the non-federal agencies improved markedly since the 1998 reauthorization. The 1998 version solidified the federal-non-federal relationship, stating that both levels of government would be involved in restoration but also recognized the unique non-federal authority by relying on the plan to implement the act. While the federal

managers still sense tension in the relationship, they also expressed their belief during interviews that the relationships are now less tense than before the 1998 version.

The act was again reauthorized in 2006 and now focuses intently on the need for project funding. The lack of funds for projects was a continual issue since the act's reauthorization in 1998. Despite \$4.5 million authorized annually for restoration projects, the Fish and Wildlife Service never requested funds for projects in a federal budget, even while the budget requested dollars for the service's field offices. While Congress has, since 2001, appropriated approximately \$500,000 annually through budget add-ons, the fact that the service did not request funds, particularly given the substantial authorization, has clearly annoyed the non-federal partners and the Great Lakes Fishery Commission. Some argued that the lack of federal leadership was the result of the 1998 act detaching the federal government too much from the process. That is, because implementation was couched in the Joint Strategic Plan's Council of Lake Committees, there was no incentive for the service to expend scarce political capital to request funds for the act.

Two major changes in the 2006 reauthorization attempt to address this implementation problem, though in doing so, the changes move the act from the Joint Strategic Plan process back to the federal government. The first change is a significant increase in the authorized amount for restoration projects. While the 1998 act authorized \$4.5 million annually for projects, the 2006 version authorizes \$16 million annually, including \$6 million for special, regional projects (U.S. Congress 2006). This increase is designed to provide the federal government with a major opportunity to affect restoration in the Great Lakes. The second change moves the management of the project review committee from the Joint Strategic Plan's Council of Lake Committees (as mandated in the 1998 act) to the U.S. Fish and Wildlife Service (U.S. Congress 2006). This proposed movement away from the council is a major change in the federal government's role, considering the 1998 act deliberately chose to house implementation in the Joint Strategic Plan, partially to assuage federalism concerns. Indeed, in light of the non-federal suspicion of federal

intrusion and despite the major gains made in the 1998 act, it is remarkable that the non-federal agencies supported the changes in 2006 as they did. As in 1990, during the passage of the original act, the non-federal managers supported the 2006 version out of hope that the changes would encourage the service to become more engaged in the project funding process. Also, by moving the review committee to the Fish and Wildlife Service, the expectation is that the service will take its leadership responsibility more seriously.

This major change in approach raises two federalism questions that only time will answer. First, will the Fish and Wildlife Service, as it manages the review committee as mandated in the 2006 act, respect the non-federal jurisdictional authorities? One reason the 1998 act placed the review committee under the auspices of the Council of Lake Committees was because the act needed to acknowledge the unique working relationships between the primary non-federal managers and the secondary federal government. The 2006 reauthorization appears to ignore that history and it is uncertain whether the 2006 reauthorization will affect the vertical relationships or the intergovernmental working relations among all levels of government .

Second, with the Fish and Wildlife Service now leading the process, will the service take a more active interest in implementation? That is, will the service propose funds for projects in the federal budget instead of relying on Congress to add what it can to the budget? The state and tribal agencies, by supporting the proposed changes, certainly expect more federal support, though they are taking a significant risk in giving up the process without a clear assurance that the service will make the act a budget priority.

Leveraging resources for synergistic relationships

State and tribal support for the 2006 act reveals another important factor in Great Lakes fishery management: that agencies need to leverage each others' resources for successful policy implementation. Given the history of federalism in Great Lakes fisheries, and given the hard-won gains in the 1998 reauthorization of the act, it is somewhat astonishing that the non-federal

fisheries officials—many of whom have been involved in the Joint Strategic Plan process for years—proposed and advocated the 2006 review committee changes, which seems contrary to their concerns about creeping federalism. However, like in 1990, the major reason the partners accepted a perhaps heightened federal role in Great Lakes fisheries in 2006 was because with that role comes the potential for more federal dollars for fishery restoration. In the minds of fishery managers, the threat of upsetting the spheres and inviting more federal involvement was less important than the opportunities that additional federal resources would bring. After all, the 2006 act still focuses on state and tribal rights by mandating their membership on the proposal review committee and by mandating a non-federal cost-share for projects.

The interviews support the view that non-federal fishery managers depend on participation and resources from their federal counterparts for fisheries policies to be successful. Although participants were far less vocal in their outright support for their federal colleagues' contributions than expressing their concern about creeping federalism, when participants did mention their federal colleagues, it was almost entirely positive, indicating appreciation for the federal contributions to the process. On the one hand, managers are concerned about a heightened federal presence, mostly a presence that would restrict state management authority. This possibility of coercive federalism has long been resisted. On the other hand, the non-federal managers respect, trust, and at times need their federal counterparts for policies to be successful. This reflects an appreciation for cooperative federalism. Clearly, tensions between levels of government exist in Great Lakes fishery management and a governance mechanism—in this case, the Joint Strategic Plan—can help the participants from both levels of government work together to achieve shared policy goals.

The interviews alone do not fully illustrate this tension because the U.S. participants could rarely bring themselves to express overt support for federal officials, possibly because they did not want to even suggest inviting a larger role. However, the researcher's observations (see methodology, Appendix A) of technical committee meetings and an analysis of federal

contributions to Joint Strategic Plan-related documents (e.g., fishery objectives, state-of-the-lake reports) indicate that the federal-non-federal relationship is important, positive, and synergistic. Thus, while the non-federal managers are watchful for federal intrusion, they simultaneously rely on the federal partners for scientific, technical, and financial assistance.

A former U.S. federal participant in the technical committee process provides an overview of how the federal participants view their role. The members of the technical committee

recognized the ecosystem approach, and everybody brought to the table their portion, the assignment that they had done. There was rough but fairly effective coordination. . . . Everybody had a role. [What is] interesting, of course is the federal role: there was no lake committee representation. The only representation was on the technical committees, because [the process] really was designed around the states who are the managers. So we were not managers per se. We were very cognizant of saying we are providing the research, we will provide the information to help the managers.

Another U.S. federal official added: “I am in the management assistance program, which sort of means we are heavy into the lake trout production, and propagating lake trout for restoration fits very well into national and federal mandates.” The federal participants in the Joint Strategic Plan process—particularly Fisheries and Oceans Canada, U.S. Fish and Wildlife Service, and U.S. Geological Survey officials at the technical committee level—have a clear understanding of what they contribute and where they fit into the process.

The non-federal participants expressed some appreciation for the federal involvement in the technical committee process, though, again, not as openly as they expressed concern over usurpation of non-federal authority. The federal participants, when discussing the federal role, almost always framed their comments in terms of the federal government supporting their activities. One long-serving participant in the lake committee process, after expressing vehement concerns about creeping federalism, conceded that the U.S. Fish and Wildlife Service’s involvement in the technical committee process “eventually became the foundation for successful lake trout restoration initiatives.” Additionally, more than one technical committee member observed that the federal agencies shine in this process when they stick to what they do best:

support shared initiatives. Other non-federal participants view the federal role as supportive, helping the jurisdictions to achieve what they might not otherwise have the resources to achieve.

A state fishery manager captures this sentiment:

I think the federal government jurisdictions are pretty much a tool to help us manage better. They provide us with the forage data that we need . . . [and t]hey provide us some very important information that we need to run our models for the Great Lakes. And I think it kind of encapsulates their role, as helping us manage, not making decisions. And that is the way I think it should remain. I think it has evolved to that over a period of time. And it is getting to a better comfort level than I think it was 10-15 years ago.

While Joint Strategic Plan process provides some insights into participants' feelings about federal involvement, participants' behavior and output better illustrate the relationship. The technical committees are where the federal agencies work most closely and most directly with the non-federal agencies. Non-federal agencies regulate harvest to protect native and stocked fish and they stock recreational fish. The U.S. Geological Survey assesses the state of the food web and the service works to rehabilitate native fish species. The Great Lakes Fishery Commission, in partnership with its federal partners, delivers sea lamprey control; sea lamprey control supports native fish stocking, as the native fish would not survive the sea lamprey predation if the lampreys were not controlled. Likewise, all agencies need information about the status of the food web (i.e., the small fish that are eaten by the larger fish) to know how many fish to stock or how many can be harvested. The success of each activity is dependent on each level of government doing its job.

The federal technical committee members operate just like any other member, bringing data to the table, discussing theories, and inserting ideas into fishery plans. Of the several technical committee meetings the researcher attended, no hint of angst existed about improper federal intrusion into Great Lakes fishery management. On the contrary, the technical committee members relied on the federal participants to fulfill their obligations and bring forward their resources, consistent with their sphere of influence. For example, during a Lake Superior Technical Committee meeting, the participants stressed the need for each agency—including the

federal agencies—to collect data properly. During other technical committee meetings, federal representatives from both Canada and the United States reported at length about their sea lamprey control efforts, and U.S. federal representatives reported on their involvement in environmental meetings. Not only was it apparent that the technical committee members knew their respective spheres, but all of the members expected the others to deliver on their commitments.

More telling, perhaps, is the use of the lake committee and technical committee process to develop comprehensive reports, action plans, and fishery objectives for the lakes. These objectives are written by the fishery managers for the fishery managers. They contain detailed discussions about who is responsible for which activities and when the activities should be accomplished (see chapter 2 and Appendix D). It is apparent in many of the plans that the federal and non-federal efforts are complementary and synergistic. That is, not only do the plans rely on each level of government to participate where it is most appropriate, but the plans often acknowledge, if not just tacitly, that without the involvement of all levels of government, the plans would not be successful. Likewise, the fishery literature, often the foundation for the plans and reports, is heavily dependent on contributions from federal officials.

The main criticism of the federal government in the technical committee process comes when the federal officials fail to deliver on their promises. For example, one important federal function is to report on the status of the forage base. The U.S. federal government²⁶ has been responsible since at least the 1920s for conducting this research and, since the 1960s, reporting it to the lake committees. All agencies use these data as the foundation for their stocking and harvest decisions. The U.S. Geological Survey's ability to deliver the research eroded badly during the 1990s due to budget cuts and the fact that the agency did not make the work a priority

²⁶ This deepwater assessment function has been under the auspices of the Department of Interior's research laboratory, located in Ann Arbor, Michigan, first under the Bureau of Commercial Fisheries, then under the U.S. Fish and Wildlife Service, and today under the U.S. Geological Survey. This is also the same function that was so strongly supported during the 1990 authorization of the *Fish and Wildlife Restoration Act*, discussed above in the case study.

(Anonymous 2003). Interview participants—and a report from a blue ribbon panel (Anonymous 2003)—reported that this program reduction caused anger and disappointment from non-federal agencies, exacerbated by the fact that the geological survey continued to express an overly optimistic (some felt dishonest) view of its capabilities despite the fact that everybody knew they were exaggerating. Reflecting on the value of the U.S. Geological Survey’s work, an official from Ontario noted “This whole [U.S. Geological Survey] thing has been frustrating for a long time. [The lack of assessment data] has caused a lot of grief within the technical committee, no question.” The non-federal fishery managers considered this loss of federal capacity to be so devastating that they—through the Council of Lake Committees—launched a massive effort, beginning in 2001, to persuade the U.S. Geological Survey and Congress to devote more resources to the program or move it to another federal agency.

Overall, although the non-federal participants in the lake committee process are not shy about expressing their distaste for federal authority, it would be erroneous to conclude that the federal officials do not play a key role in the Joint Strategic Plan or that the non-federal managers do not appreciate federal involvement. While these opinions might appear two-faced or disingenuous, they instead reflect the stresses and emotions inherent to cooperative federalism. Lake committee participants tolerate (and actually rely on) federal agency input so long as the federal agencies contribute in ways that are consistent with shared objectives and the accepted federal sphere of influence. In this regard, the Joint Strategic Plan helps maintain the federal-non-federal relationship in the Great Lakes basin by helping to delineate each level of government’s responsibilities (resembling dual federalism) and helping to facilitate the integration of federal and non-federal fishery programs (resembling cooperative federalism).

A perceived neutral institution can help keep spheres of authority clear

The Joint Strategic Plan is a tool to delineate spheres of authority and to remind officials at federal and non-federal levels of government of their accepted roles. Since the plan does not

implement itself, a third party—the Great Lakes Fishery Commission—provides the non-federal governments with some confidence that a check against federal intrusion exists. That is, by facilitating the Joint Strategic Plan in a way that is seen as neutral, the fishery commission helps facilitate cooperative federalism. The ongoing role that the commission plays in making the plan function is consistent with the commission's historical role in affecting cooperation. As chapter 1 has argued, the jurisdictions, being independent and jealous of their sovereignty, were unable and unwilling to cooperate, as such cooperation would have weakened their independence. The formation of the non-regulatory fishery commission created an institution that did not threaten non-federal independence while at the same time created enough of a force to persuade hitherto uncooperative jurisdictions to work together.

The Great Lakes Fishery Commission is the closest thing to an overarching body for Great Lakes fishery governance. As such, do Joint Strategic Plan participants view the commission with the same suspicion as they do the federal authorities? Generally, no, but not unequivocally. The non-federal jurisdictions requested that the commission implement the Joint Strategic Plan by convening the meetings and publishing their reports, though the jurisdictions remain cautious about the commission overstepping its bounds. In the minds of the participants, the commission makes the Joint Strategic Plan work so long as the commission facilitates cooperation and does not force direct action. Although the commission has a basinwide scope, at the treaty level, participants generally accept the commission's role because the commission's mandate under the treaty is extremely narrow, thus limiting its sphere. The plan originated under the commission's umbrella and the plan essentially appropriated the commission's lake committee process. Participants see the Joint Strategic Plan process as heavily dependent on the commission's willingness to maintain a process—and the bounds of authority—that they all agreed to.

Participants see the value of the commission's involvement in its willingness to be an honest broker and to stay out of fishery management (beyond its mandate to manage sea

lampreys). “It’s nice to have the commission as being the happy broker,” said one retired provincial official. “I think of the commission as an overall coordinator,” added a state official. Said a manager from Ontario,

Really, people laugh about facilitation. And where is the value in that? There’s a lot of value in that, because if it’s about people and people aren’t dealing responsibly with each other and trying to reach consensus, and if there are [not] processes to force the people together, it wouldn’t happen.

Added a tribal participant, the role of the commission is to be “facilitator and information developer, leveling the playing field, getting people together, keeping people on task and on vision, and providing support for the right decisions to be made.” Said another senior state manager, iterating how he explained the commission’s role to new managers, the commission “will organize the effort to see an initiative completed. They are working for you [the state]. You are not working for them, it is your process.”

Participants continually cautioned, however, that while they appreciate the commission, there still exists the potential for problems, particularly if the commission were to get out in front of the management agencies on a fishery matter. Said a technical committee member from Ontario:

If [the commission] become[s] regulatory, then it is antagonistic. And I think we have got enough of that. We have got enough institutions, countries, and various jurisdictions: federal, provincial, state. We have enough mandates running into each other. We need the [commission] as an umbrella organization that can try and coordinate and knock down barriers and not create their own regulatory barriers.

Thus, as with the federal agencies on the Great Lakes, the non-federal agencies do view commission authority with suspicion. They invite the commission’s role in the Joint Strategic Plan so long as the commission acts as a neutral facilitator (not a regulator) and serves as a persuader (not a compelling authority). Participants see the commission as maintaining relationships without being a dominant force, though they remain vigilant to unwarranted meddling in their affairs and continually caution the commission not to go beyond its authority.

Lake trout restoration in Lake Superior: Pulling together for a multijurisdictional, multi-generational effort to restore a major fishery

Lake trout restoration in Lake Superior is the poster child of a multijurisdictional, multi-generational effort to rehabilitate a key native species, and work to restore this species illustrates how the Joint Strategic Plan process recognizes the spheres of authority and facilitates synergy and leveraging of resources among all levels of government. The restoration effort is a case study about federal and non-federal relationships and about how the jurisdictions exercised the intergovernmental relations necessary to carry out their work strategically, over a long period of time, on a lakewide basis. Lake trout restoration began in the 1940s with regular, report-like interactions among the jurisdictions. After the Joint Strategic Plan, the effort evolved into intensive, restoration-plan-driven work through the lake committee process. The lake trout rehabilitation effort has tested the binational, federal, provincial, state, and tribal willingness on Lake Superior to work together over a long period of time to reach biologically difficult goals. Rehabilitation has depended on several independent jurisdictions working together to develop restoration objectives, to agree on how to reach those objectives, and to commit to policies—through their own agencies—to further the objectives. This case study investigates two elements that are particularly illuminating to federalism: the consensus among the fishery managers about how lake trout could be rehabilitated and the process they chose to achieve their goals.



Figure 3-1: Lake trout. Photo: M. Gaden.

Lake trout, a key native species, are well-suited to life in the Great Lakes (Scott and Crossman 1973). The species is a top predator in the food web and fills a unique ecological niche by inhabiting the deep, cold waters of the lake. Lake trout helped support aboriginal populations and was the foundation for tribal and commercial fisheries afterwards (Hansen 1999; Lawrie and Rahrer 1973). By the late 1800s, improved fishing methods and better ways to bring the fish to market facilitated a rapid growth in the lake trout commercial fishery (Bogue 2000; Hansen 1999). The commercial lake trout yield peaked at 7 million pounds in 1903, fell to around 4 million pounds by 1913, and then held steady until around 1950 (Baldwin et al. 1979). After 1950, harvest declined severely, falling rapidly from more than 4.5 million pounds that year to only 371,000 pounds in 1961 (Baldwin et al. 1979; Pycha and King 1975), prompting a commercial fishery closure in 1962. The literature suggests several causes for this disaster. Hile, Eschmeyer, and Lunger (1950, p. 280) observed that the lake trout fisheries of lakes Michigan and Huron were wiped out by the sea lamprey invasion of the mid-1930s and warned that as sea lampreys became more abundant in Lake Superior, the lake trout fishery would be in “awful danger of early destruction” there as well. Other factors have included overfishing, intentional and unintentional introductions of species, changes in the food web composition, chemical pollution, and spawning habitat loss caused by dams in rivers or debris on open-lake spawning beds (Eshenroder 1987; Hansen 1999; Hile et al. 1950; Jensen 1978; Krueger and Ebener 2004; Zint et al. 1995).

Lake trout management in Lake Superior has long been a federal and non-federal matter. Historically, the non-federal jurisdictions did little to coordinate their management activities and instead imposed commercial fishing restrictions and angler harvest limits to suit their individual needs or political circumstances. Uniform fishery regulations were proposed many times from the late 1800s and on, but being the purview of non-federal governments, such regulations were never imposed because the jurisdictions were either unwilling or unable to agree on regulations (Bogue 2000). The jurisdictions were also unwilling to cede regulatory authority to the federal

governments or to a bi-national institution (Fetterolf 1980). The federal governments, for decades, were involved in monitoring the state of the fishery and commercial harvest. They were also involved in rehabilitation, particularly from the 1940s onward.

In the 1940s, even before the lake trout collapse of the early 1960s, the jurisdictions did understand that lake trout needed rehabilitation. They acknowledged that management would be based on three primary activities: stocking to build up lake trout numbers, sea lamprey control to reduce predation, and harvest control to reduce human-induced mortality. Early efforts to undertake the three restoration activities were ad hoc; agencies met informally to inform each other about such things as individual lake trout management actions (including their commercial and sport regulations), licensing, lake trout egg collection (to serve the hatcheries), stocking schedules, sea lamprey predation, and fish marking (Anonymous 1946). The Lake Superior Committee minutes from 1965 through 1980 record regular discussions about lake trout, routine agency updates about individual management activities, and considerable interest in where the federally-reared lake trout would be stocked. The minutes, however, reveal little discussion about



Figure 3-2: Sea lamprey mouth. Sea lampreys prey on fish, particularly lake trout, and control is a prerequisite for lake trout restoration. Photo: T. Lawrence.

long-term rehabilitation needs, goals, or plans. Consequently, the lake trout rehabilitation program during this period received far less attention and scrutiny than it needed (Eshenroder et al. 1984). “By the end of the 1970s, it was evident that the original goals of establishing self-reproducing stocks of lake trout in the Great Lakes might never be met without some substantial changes in management” (Eshenroder 1987, p. 310). Indeed, in 1977, the federal and non-federal agency officials acknowledged that it would be “essential that they interact in developing common management goals and objectives for future management of each stock of common concern in the Great Lakes” (GLFC 1977d).

A retired senior manager from one of the states, reflecting back on the early days of the restoration effort, noted that before the Joint Strategic Plan, “we all approached lake trout rehabilitation in a different [manner]; we all had our own ideas about what would work.” What they needed was a cohesive process to invite the individual federal and non-federal agencies to assess what each could bring to the table and then assign the tasks needed to achieve success. Instead of having a compelling authority (e.g., a regulatory federal government or a bi-national institution) that would force action on lake trout restoration, the agencies wanted a way to integrate and align agency activities and to facilitate the intergovernmental relations needed to restore lake trout. The Joint Strategic Plan—signed in 1981—was the impetus to integrate the restoration activities. To the extent that pre-plan efforts were ad hoc, informative, halting, and irregular, the plan served to drive the agencies toward a lakewide initiative to achieve restoration goals. The plan used lake committees as its mechanism for action. In 1982, the year after the plan was signed, the Lake Superior Committee established a technical committee to focus on lake trout rehabilitation and the Great Lakes Fishery Commission called for the committee to develop a clear lake trout restoration plan that was to include goals, policies, and criteria for declaring stocks “restored” (Thomson 1982).

The resulting restoration plan—produced in 1986—changed the way agencies approached restoration. “Cooperation and concurrent action by all regulatory agencies is

essential to the attainment of this objective,” the restoration plan stressed (Lake Superior Lake Trout Technical Committee 1986). For instance, instead of hoping a set formula would ensure an appropriate and equitable distribution of federal hatchery fish (reared by the U.S. Fish and Wildlife Service), state, provincial, tribal, and federal hatcheries, under the restoration plan, would more closely coordinate their respective fish production and more explicitly tie that production to the restoration plan (Lake Superior Lake Trout Technical Committee 1986). The fishery commission—in partnership with Fisheries and Oceans Canada and the U.S. Fish and Wildlife Service—agreed to control sea lampreys consistent with the lake trout restoration objectives to ensure that sea lampreys did not cause high enough fish mortality to undermine restoration. All non-federal agencies agreed to do what was necessary in their waters to regulate the commercial and sport harvest, consistent with the rehabilitation goals (though they stopped short of imposing uniform regulations) to protect the fish long enough for the fish to grow old enough to reproduce. Said a senior state manager, reflecting on the lake committee evolution:

[As the Lake Superior Committee] continued to function, those that were members got to know their roles, what was expected, and what they needed to . . . [do] to commit their agency. [We said] ‘here’s how we’re going to do it’.

Said a senior federal manager from Canada,

I know that the staff and the research staff do go to some of the lake committee meetings because it’s a good way to find out where their research fits in [T]hey have to tie [their work] to issues and priorities, and . . . a good example is the work that we’re doing on lake trout rehabilitation If we were not involved in the lake committees . . . I don’t think we would have ever done that.

A former tribal participant, looking back on how lake trout rehabilitation was handled over the years, added: “The agencies divvied-up the management units. And you have got the feds and the tribes as well as the states doing assessment, all doing it the same way—feeding the information into a common database, so you have got information sharing.”

In 1996, the Lake Superior Committee endorsed a revised edition of the 1986 lake trout restoration plan, which again called upon the agencies to “prudently regulate harvest” (particularly of wild stocks of lake trout), continue stocking, and address other problems such as

habitat and the forage base (Hansen 1996). Table 3-1 summarizes how the lake trout restoration duties were “parceled out” in Lake Superior, consistent with the restoration plan.

LAKE SUPERIOR JURISDICTION	RESPONSIBILITY
Province, states, tribes (non-federal) Michigan Minnesota Ontario Tribes (individually and collectively through the Chippewa-Ottawa Resource Authority and the Great Lakes Indian Fish and Wildlife Commission) Wisconsin	<ul style="list-style-type: none"> • Regulate lake trout harvest within their boundaries • Conduct lake trout assessment • Rear and stock lake trout • Protect and restore habitat • Conduct law enforcement • Meet as the Lake Superior Committee and Lake Superior Technical Committee
Fisheries and Oceans Canada (federal)	<ul style="list-style-type: none"> • Conduct sea lamprey control in partnership with the Great Lakes Fishery Commission • Protect and restore fish habitat • Conduct fisheries research • Participate in the Lake Superior Technical Committee
Great Lakes Fishery Commission (bi-national)	<ul style="list-style-type: none"> • Control sea lampreys • Convene lake committee and technical committee meetings • Publish restoration plans and fish community objectives • Fund fisheries research in support of lake trout restoration • Participate in the Lake Superior Technical Committee
U.S. Fish and Wildlife Service (federal)	<ul style="list-style-type: none"> • Rear and stock lake trout, consistent with the restoration plan • Protect habitat • Participate in the Lake Superior Technical Committee • Conduct sea lamprey control in partnership with the Great Lakes Fishery Commission
U.S. Geological Survey, Biological Resources Division (federal)	<ul style="list-style-type: none"> • Conduct essential forage base research • Maintain a long-term data set on Lake Superior fish stocks • Help evaluate lake trout restoration • Participate in the Lake Superior Technical Committee

Table 3-1. Responsibilities of the jurisdictions involved in lake trout restoration on Lake Superior.

In Lake Superior, the lake trout restoration effort—began in the 1940s—has seen success: in 1996, the agencies marked a “major victory” in fisheries restoration by declaring lake trout to be self-sustaining in most areas of Lake Superior, allowing them to cease stocking in many locations (Lake Superior Committee). They further cut lake trout stocking in 2004 and 2005 in the remaining areas of Lake Superior such that almost no lake trout stocking occurs today. The strength of wild lake trout came about because agencies remained committed to the plan and each contributed to its implementation. The commission reduced sea lamprey abundance, the federal agencies stocked fish to bolster the fishery, and the non-federal agencies issued prudent regulations to limit human-induced mortality. Although the individual jurisdictions’ regulations are still not completely harmonized, the Lake Superior Committee has

helped the agencies gear the regulations to be consistent with the lake trout rehabilitation plan and to prevent sport, commercial, and tribal fishers from over-harvesting lake trout (Hansen 1999). Fishery managers and the literature attribute the success to sound science and a multijurisdictional commitment—over the long run—to get the job done. As a long-time participant summarizes,

Oh, I think the Joint Strategic Plan impact has been tremendous. I think that there's no question that we wouldn't have rehabilitated [lake trout in] Lake Superior without the Joint Strategic Plan and the commitment to . . . sea lamprey control, the commitment to reductions in harvest that were agreements among all the states and . . . the commitment to stocking. So I think that the development of fish community objectives and the fact that the agencies are working together has [been] wonderfully beneficial . . . in terms of management of fisheries in the Great Lakes. I think for the first time you actually had the agencies sitting down and working collectively to say this is how we see the fish communities in the future. This is the goal we're working toward or the target we're working toward. And what we're starting to see now is the implementation of fisheries management plans, saying 'these are the steps we're going to take to get us there.'

“PULLING TOGETHER”: SCHEBERLE’S MODEL AND THE GREAT LAKES FISHERY REGIME

Scheberle’s model for environmental federalism deals with cases involving an unequal relationship between levels of government. In her cases, the federal government often has some ability to coerce or encourage state participation; such authority is found in the enabling statute. Scheberle stresses that despite the federal government’s leverage in some situations, implementation can vary considerably depending on trust, involvement, and specific implementation factors. She notes that the federal government is often able to fall back on its powers and resources to affect the relationship, though she also adds that the federal role is not always immediately preemptive and that the federal agencies are, at times, reluctant to take aggressive action. Nevertheless, the statute enabling the program often defines the powers of the federal government and specifically allows federal leadership. Federalism in environmental policy, in Scheberle’s analysis, has elements of both cooperative and coercive federalism. Her model identifies relationships in this situation that range from synergistic to avoidance.

Scheberle's model applies to Great Lakes fishery management, despite the absence of an authorizing statute and despite the clear non-federal dominance. In the Great Lakes, as in her cases, trust, level of activity, and specific implementation factors indeed relate to how well the levels of government work together. Beyond her model, Great Lakes management is not reliant on a federal statute to define the relationship; history and court cases have generally delineated the spheres of responsibility. Instead of having a statute that establishes an implementation structure, the Great Lakes jurisdictions use the Joint Strategic Plan to help delineate each participant's role and to help guide the interactions, and use the Great Lakes Fishery Commission as a neutral facilitator. Instead of relying on federal resources and a federal stick to ensure implementation, the Great Lakes jurisdictions use the Joint Strategic Plan to identify what resources are needed and who is able to provide them; they rely on the strategies they develop together to ensure implementation. The Joint Strategic Plan process is thus more than an example of Scheberle's "pulling together and synergistic" relationship, it is an example of how such a relationship can emerge when federalism is reversed; when the non-federal governments have primacy in management. It illustrates the need for and the use of an institution like the Joint Strategic Plan to provide a non-traditional regime in the absence of the overarching authority or top-down structure evident in Scheberle's cases.

The Great Lakes regime, when applied to Scheberle's typology model, most resembles the "pulling together and synergistic" type of working relationship, the most desirable level of cooperation. This relationship comes about because *high trust plus high interaction equals synergy and pulling together*. Consider, first, the trust portion of the equation. At first glance, trust might appear to be quite low in Great Lakes fishery management. The interviews illustrate considerable mistrust in the minds of the non-federal managers that the federal agencies (particularly the U.S. Fish and Wildlife Service) wish to stay within their sphere. This is not a completely unwarranted fear given the constitutional powers of the federal governments, the existence of strong federal environmental laws in both countries, and plentiful federal resources.

Moreover, the non-federal reaction to the first iteration of the *Fish and Wildlife Restoration Act of 1990* illustrates a general suspicion of the federal government and a lack of trust that the federal governments want to stay within their sphere of authority. The participants, however, use the Joint Strategic Plan as a way to assuage their concerns. This plan provides a working arrangement for all levels of government, thereby buffering against federal intrusion and precluding a heightened Great Lakes Fishery Commission involvement. Moreover, the federal governments have signed the plan, indicating their acceptance of the structure

This mistrust about federal intrusion is not the same, however, as mistrust of federal activities or personnel. That is, for trust to be low in Scheberle's model, the non-federal fishery managers would have to mistrust *any* federal involvement in fisheries. This is clearly not the case, and it illustrates the basic paradox in the minds of Great Lakes fishery managers. On the one hand, non-federal managers value their autonomy and desire to keep the federal governments out of their affairs. On the other hand, not only do the fishery managers rely on federal involvement, but the success of many initiatives depends on the federal governments contributing to the effort. In the lake trout case, the federal role is to support non-federal management activities, contribute consistent with the federal sphere, and support the shared restoration goals. The lake trout case study illustrates how the agencies trust each other to deliver on their commitments and rely on the federal contributions to the larger effort. Likewise, the *Fish and Wildlife Restoration Act* shows where trust has grown, as the act has allowed for federal involvement in meaningful ways. At least from 1998 through 2006, the act was couched in a cooperative process, led by the Council of Lake Committees, that depended on both levels of government for its implementation. The non-federal managers generally trust their federal colleagues so long as they stay within their sphere. The fact that the 2006 act shifts the process to the U.S. Fish and Wildlife Service while increasing project authorization, and the fact that Joint Strategic Plan state members not only proposed this change but supported it actively, suggests that they do trust the service and rely on it for scientific, technical, and financial assistance. The

risk, of course, is that this change will allow the federal government to become more coercive once they control the process, particularly if the act brings with it significantly more resources.

Trust is also heightened because the federal government does not have an automatic leveraging stick over the non-federal governments. In Great Lakes fishery management, the non-federal entities have primary authority and the federal agencies support non-federal actions. Scheberle's model, on the other hand, considers programs where the enabling statutes allow the federal government to enforce, regulate, or take the lead if states do not act. Scheberle's model, thus, is based on some degree of an underlying threat of federal enforcement or preemption should the circumstances warrant it, giving federal authorities a leveraging stick the states do not have. This affects trust, says Scheberle (2004, p. 204), as "trust is hard to come by, if only because of oversight orientations . . .". In the Great Lakes, U.S. federal statutes do not enable state and tribal fishery management. In Canada, while the fishery is managed on paper through the federal *Fisheries Act*, Ontario's will is reflected in the act rather than the federal government dictating Ontario's activities. Although lake trout restoration depends heavily on federal participation, the restoration plan was carried out in the absence of a federal "stick;" no overarching authority compelled action, rather, each entity helped produce and then execute a shared plan. The fact that fishery management oversight does not automatically shift to the federal governments helps the non-federal managers trust their federal colleagues, knowing that the federal government cannot easily usurp state authority.

On the involvement side of Scheberle's model, participation by all the agencies—federal and non-federal alike—is quite high and necessary. All federal and non-federal agencies have signed the Joint Strategic Plan and have committed themselves to the process. The process demands regular interactions, ongoing research and data collection, and the development of fishery plans, reports, and objectives. The lake committee and technical committee meetings generate the synergy needed to drive this process and the agencies come to the table with their resources and authority to contribute to their shared management initiatives. Recall, for instance,

the cooperative process established by the second and third iterations of the *Fish and Wildlife Restoration Act*, or all agencies' high level of involvement over the course of more than five decades in the lake trout restoration effort. The interviews and participant observations indeed indicate that the Joint Strategic Plan regime involves all agencies in appropriate ways and that the interactions are constant, sophisticated, and productive.

Together, the two cases also illustrate the inherent tensions between non-federal autonomy and federal involvement. The lake trout restoration case shows that no one agency or level of government has complete authority or ability to implement policies or compel action to restore lake trout in Lake Superior, yet success has depended on implementing a comprehensive, long-term, lakewide restoration effort. To restore lake trout, the agencies—particularly after years of ineffective policies—needed to work together, as the task was too great for any one agency to undertake alone. The agencies used the Joint Strategic Plan process to address the problem on a lakewide, all-jurisdictional level. With the restoration act, the project review committee, when it was under the Council of Lake Committees, also relied on the plan to foster a cooperative and synergistic relationship and integrate the functions of each level of government. Both cases are prime examples of the involvement of both levels of government and cooperative federalism as it exists today in U.S. Great Lakes fishery management.

The second portion of Scheberle's model—the implementation framework—is highly contextual, and many of her framework elements are applicable to the two Joint Strategic Plan case studies. Table 3-2 lists many implementation factors in Scheberle's cases and compares them to implementation factors of the two Great Lakes case studies:

IMPLEMENTATION FACTOR	
In Scheberle's Case Studies	In Joint Strategic Plan Case Studies
A federal law is passed that requires some level of federal leadership or oversight.	<p>A federal law did not initiate lake trout restoration.</p> <p>The first restoration act, with federal “command and control,” changed to implementation within an existing non-federal process, the Joint Strategic Plan, after protests from the non-federal governments. Realities of Great Lakes fishery management prevailed.</p>
States implement federal laws.	State and tribal governments do not require a federal law to authorize their day-to-day fishery management. Ontario’s regulations are promulgated under the federal <i>Fisheries Act</i> , consistent with tradition and contradictory constitutional provisions, but the <i>Fisheries Act</i> reflects Ontario’s will and, thus, is more procedural than substantive. On both sides of the border the federal and non-federal agencies work together and individually to implement shared priorities.
Officials respond to changes in organizational, technical, and political environments.	Same response, though officials also respond to natural conditions, science, migratory fish, etc.
Implementing agencies remain concerned about accountability.	Same.
Statutory language is a key factor in how implementation occurs.	<p>Specific legislative mandates are not present in the lake trout case. Regulations are not specified in the lake trout restoration plan, rather, are left up to the individual entities and are a means to an end.</p> <p>Legislation only set into motion a process in the restoration act case. Regulations are not part of the restoration act.</p>
Federal authorities have more resources, which might give them power over the non-federal entities. Programs, however, are re-shaped by the non-federal entities.	<p>In the lake trout restoration case, the availability of resources did not necessarily translate into power. Respecting authority and the roles of the jurisdictions were the important factors. The lake trout restoration plan was produced collectively by federal and non-federal entities, so the danger of having the issue re-shaped by other entities was not an issue.</p> <p>In the restoration act case, the federal government provided the majority of resources, but the process precluded role usurpation.</p> <p>In both cases, all participants generally recognized that everyone had something to bring to the table, and achievement of shared objectives would not have been possible without contributions from all.</p>
Bargaining among the participants is “an inevitable part of the implementation process.”	Bargaining was less an issue in these case studies as was getting all entities to contribute the resources necessary to achieve shared objectives.

IMPLEMENTATION FACTOR	
In Scheberle's Case Studies	In Joint Strategic Plan Case Studies
"Street level" bureaucrats are important, as their values, choices, attitudes, etc. make the difference.	The officials who led the development of the Joint Strategic Plan, who began the cultural change that occurred after it was signed, and who today maintain positive evolution set the tone for behavior and the standard for expertise that has developed into the culture of cooperation that exists today in Great Lakes fishery management.
"Heroes," those who innovate, often make the difference in successful implementation.	Same.

Table 3-2: Implementation factors of Scheberle's case studies compared to the Joint Strategic Plan case studies.

Many of Scheberle's implementation factors are also on the minds of Great Lakes fishery managers and are factors of the two Joint Strategic Plan case studies. Accountability, individual leadership, innovation, and politics are likely to be universal influences in implementing any natural resource policy, and the Joint Strategic Plan cases are no exception. The Joint Strategic Plan's implementation factors diverge from Scheberle's factors in two major ways. First, factors relating to federal coercion are nearly non-existent in Great Lakes fishery management. While the managers often fear federal intrusion, the specific federal ability to compel non-federal action is quite minimal. Second, the availability of federal resources is far less a driving force in Great Lakes management than it is in Scheberle's cases, as the non-federal governments have departments, ministries, or other natural resource bureaus, and funding mechanisms exist for their management activities. Nevertheless, resources are always scarce, and the fishery managers clearly want more federal resources whenever possible. More important to the Great Lakes cases is each agency following through on what it promised. In the case of lake trout, the important issue was what commitment and resources each jurisdiction brought to the table to fulfill the shared restoration plan objectives. The implementation of the *Fish and Wildlife Restoration Act* was predicated on federal willingness to provide resources, but equally important to this act was maintaining the collegial process that respected the spheres of authority.

CONCLUSION

Semi-structured interviews, participant observation, meeting documents, and the lake trout and restoration act cases have shown that federalism is an integral component of fishery management on the shared Great Lakes. Federalism influences significantly the on-going interactions among the government units, and non-federal managers, particularly on the U.S. side, are conflicted over the relationship. On the one hand, managers are intensely protective of their sovereign right to manage their fisheries (a subject discussed in greater detail in chapter 4), so much so that they are constantly on the lookout for federal intrusion. On the other hand, the managers realize that the federal governments play an important supporting role in Great Lakes fishery management and, in fact, the success of many fishery initiatives depends on federal involvement. They do welcome (and rely on) cooperative federalism, with each level doing its part and respecting the roles of the others. The Joint Strategic Plan helps keep the lines of authority clear and helps facilitate synergistic interactions. The Great Lakes Fishery Commission, in managing the plan's process, is seen as the honest broker needed to keep the relationships clear. The Joint Strategic Plan resembles Scheberle's "pulling together and synergistic" typology because trust exists and interactions occur because they are right and natural, not because federal statutes mandate or coerce such relations.

This "pulling together and synergistic" relationship is theoretically significant on three levels. First, the Joint Strategic Plan serves as a mechanism to delineate and gain acceptance of the many independent authorities in the Canadian and U.S. federal systems, in the absence of top-down authority. Through the plan, the federal governments, like the non-federal agencies recognize the responsibilities of each level of government and, in doing so, generally stay within their bounds. Unlike Scheberle's model, federal oversight or preemption is not automatic or immediate, yet the relationships are relatively clear. Second, the Joint Strategic Plan recognizes that various entities bring resources to management and, therefore, creates a process whereby all federal and non-federal agencies can coordinate their activities. The fishery objectives,

restoration plans, and other research publications are shared products of federal and non-federal fishery managers. Thus, all entities are involved in both the development and implementation of many management initiatives, and plans implicitly and explicitly describe the federal and non-federal involvement and depend on all participants doing their share. Instead of continually focusing on fending off federal intrusion, managers work through the plan to identify shared goals and to achieve them. Managers transcend coercive federalism and move toward cooperative federalism. Third, the collegial regime facilitates synergy and pulling together among different levels of government because it heightens trust and interactions. The non-federal governments are confident that the federal agencies are going to do what they say, the plans commit all of the agencies to a course of action, and the Great Lakes Fishery Commission, by being a neutral facilitator, instills confidence in the participants that the process will move forward as the participants expect and accept.

One element of coercive federalism is the ability of the federal government to force non-federal behavior through coercion or resources. Such ability could bind the non-federal governments to a course of action and could affect implementation. In the case of the Joint Strategic Plan, however, the regime is non-binding and serves the needs of equal, independent governments. This dissertation now turns to a discussion of the nature of binding and non-binding agreements and outlines how the plan, as a non-binding agreement, addresses implementation issues.

CHAPTER 4

**WHY A NON-BINDING AGREEMENT
FOR COOPERATIVE GREAT LAKES FISHERY MANAGEMENT**

Abstract

Multijurisdictional agreements are usually designed to prompt or compel certain behavior among the signatory members. Agreements come in many forms and in varying degrees of strength. Some are binding and some are not. This chapter investigates the pros and cons of binding and non-binding agreements, why Joint Strategic Plan members prefer a non-binding agreement for the Great Lakes, and whether non-binding agreements can enhance implementation in the absence of binding enforcement provisions. Based on literature and the results of semi-structured interviews, this chapter argues that a non-binding fisheries agreement is most appropriate for the Great Lakes region because members must preserve jurisdictional autonomy, policies must be flexible, and members wish to work together to promote ambitious policies rather than to constrain behavior. The Joint Strategic Plan was designed to respond to those needs. Participants also prefer a non-binding agreement like the plan because it contains meaningful mechanisms to enhance the chances of implementation, negating the need for an intrusive binding agreement.

In 1925, long before “ecosystem management” came of age, future Supreme Court Justice Felix Frankfurter and his colleague James Landis observed that natural resources create their own boundaries, independent of political borders. “Regions, like the Southwest clustering about the Colorado River, or the States dependent upon the Delaware for water, are less than the nation and are greater than any one State” (1925, p. 707). States, they said, would have to come up with creative ways to share and protect such multijurisdictional natural resources. This reality creates unique governance issues because political jurisdictions are usually not congruent with the natural resources they govern. Frankfurter and Landis could very well have been talking about the Great Lakes. Eight states, the Province of Ontario, and several U.S. tribes manage the lakes’ fisheries, and proper management requires the jurisdictions to coordinate their work. As chapter

It has demonstrated, the region's jurisdictions have lived with the dilemma of being less than nation and greater than any one state since the days of European colonization. Many proposals to create a formal, overarching agreement to manage the fishery at the regional level were rejected (Gallagher et al. 1942) until one, the *Convention on Great Lakes Fisheries*, was approved because it did not intrude on state management authority (Fetterolf 1980). It was not until the early 1980s, though, that the jurisdictions created a non-binding, regional arrangement—*A Joint Strategic Plan for Management of Great Lakes Fisheries*—to help them work together strategically. Being less than nation and greater than any one state, and being leery of losing sovereignty, the sub-national jurisdictions opted for a basinwide non-binding agreement to institutionalize on-going cooperation.

Multilateral agreements, established to help jurisdictions address regional issues, come in many forms, and each is designed to suit the parties' particular needs. Some forms are more formal and binding than others. Frankfurter and Landis, for example highlighted the possibilities of the interstate compact, a formal, binding contract among states. Treaties among nations, somewhat like compacts, are also binding. Other types of agreement are less formal or binding. Administrative agreements, for instance, are a way for jurisdictions to harmonize their laws or policies. All types, whether binding or otherwise, require the parties to comply with and implement what they agree to. Thus, the agreement is usually designed to compel behavior and ensure that participants implement it.

This chapter helps explain the motivations behind why the Great Lakes jurisdictions rely on the non-binding Joint Strategic Plan to coordinate their management activities. It investigates their reasons for eschewing a binding agreement while still expecting the plan to help them comply with and implement what they agree to. Because multijurisdictional agreements are usually designed to prompt or compel certain behavior among the signatory members, this chapter asks: *Under what circumstances are non-binding agreements preferable to binding agreements? Why do Joint Strategic Plan members prefer a non-binding agreement and how do*

participants use the agreement to enhance the likelihood that policies developed under it will be implemented? To investigate these questions, this chapter relies on the literature and data from sixty-two semi-structured interviews with plan participants (Appendix A).

Literature about agreements suggests that non-binding agreements allow for flexibility and more-ambitious policies than binding agreements, which rely on clearly defined bounds of action as a strategy to define behavior. Non-binding agreements depend on the goodwill of members for implementation, as they tend to lack the enforcement mechanisms often found in binding agreements. Non-binding agreements also preserve sovereignty and independence. Non-binding agreements, thus, are more appropriate than binding agreements when conditions change frequently, making flexibility important; when participants seek progressive, cutting edge policies rather than the most basic policy to which they could all agree; when compliance and implementation can still occur without a compelling force; and when members are concerned about preserving independence.

In the Great Lakes region, participants believe multijurisdictional governance can be fulfilled with a non-binding agreement because members must be flexible in their response to fluctuating natural conditions. The participants believe a binding agreement would limit (not improve) cooperation by being too inflexible and constraining. Moreover, because participants direct conflict toward cooperation rather than competition, they believe a process that focuses on seeking and advancing shared goals is more valuable than a process that constrains behavior, even though a binding process might enhance compliance. Above all, members are well aware that historical and political realities in the region are such that, with diffuse political authority and guarded independence, a binding agreement would be out of the question. While the members acknowledge that the non-binding Joint Strategic Plan does not compel action, they do believe it does change behavior—they believe it contains meaningful mechanisms to foster cooperation, thus heightening the chances that the shared policies will be implemented. Also, the participants

believe the Great Lakes Fishery Commission's role as process-facilitator is enough to keep them committed to their decisions without a binding force.

SOVEREIGNTY, INSTITUTIONAL ARRANGEMENTS, AND MULTIJURISDICTIONAL AGREEMENTS

Managing the global environment revolves around issues of national sovereignty, institutions to facilitate governance, and multilateral agreements that compel participation and compliance (Soroos 1999; Vogler 2000). Sovereign nations, being independent, have control over matters within their authority. However, because many natural resources extend beyond borders, and since one nation's actions could affect another's, managing multijurisdictional or global natural resources requires cooperation among independent entities. The mechanism typically comes in the form of a multilateral agreement among sovereign nations, often bolstered by an institution (e.g., a commission) that facilitates or compels cooperation. This chapter draws upon both international and regionally focused literature to establish how sovereignty affects independent jurisdictional behavior and how agreements and institutions help jurisdictions work together to achieve their shared goals. This review of international environmental agreements and compliance is necessary and appropriate for two reasons. First, as chapter 1 has argued, the states, Ontario, and the U.S. tribes have relatively autonomous authority to manage Great Lakes fisheries; they exercise considerable sovereignty over their waters. Therefore, the non-federal entities on the Great Lakes behave somewhat like nations in a global setting. Second, as Zimmerman (2002) has pointed out, except for discussions about interstate compacts, a paucity of academic literature exists about formal and informal agreements among state governments or between non-federal governments of different countries. The literature about the behavior of nations serves as a suitable substitute in the absence of literature specific to multijurisdictional agreements at the non-federal level.

Sovereignty

A “sovereign” government has defined territory, defined population, autonomy, governmental powers, a legal identity, and fiscal independence (Holloway 1972). Sovereignty has two basic elements: the government’s ability to control its own domestic activities and its ability to interact with other sovereigns on an equally autonomous footing (Haas and Sundgren 1990). More simply, sovereignty allows governments to pursue their own interests (Weiss 1999). On the international level, says Young (1994, p. 121), “States [nations] are territorially based units that are jurisdictionally equal; each of them can appeal to the principle of sovereignty as a barrier to intervention in its domestic affairs in the name of collective goals or values.” A nation’s sovereignty and its ability to exercise its will is limited by such things as its ability to defend itself from the encroachments of other nations, its ability to expend resources to encroach upon the sovereignty of others, or its willingness to give up some sovereignty to achieve a collective goal.

As chapter 1 has argued, state, U.S. tribal, and Canadian provincial governments, in both nations’ federal systems, are sovereign within their sphere of authority. The U.S. constitution grants explicit, enumerated powers to Congress (Article I, § 8,) and reserves all other powers to the states (the Tenth Amendment) (Vile 1973; Zimmerman 1992). The states were thus established to be strong and sovereign, as was the federal government, with federal authority confined to enumerated powers (Vile 1961). Native American sovereignty is also well-established. Tribal authority, in its most basic form, is rooted in the 1832 Supreme Court decision *Worcester v. Georgia* (Peters [1832] 1901), where the court affirmed that an Indian tribe is a political power with authority of self-governance (Cohen 1988). In Canada, the British North America Act (BNA, its constitution) created a federal system with a partition of powers between the central and provincial governments. Sovereign authority (a.k.a., the “Crown”) is present in both the national and provincial legislatures. Each level of government, within its sphere of enumerated or reserved powers, is sovereign (Lower 1958; Smith 2004). The BNA enumerates

provincial (§ 92) and federal (§ 91) powers and leaves un-enumerated powers to the federal government (Smith 2004; Vile 1973). Court cases in the late 1800s and the early 1900s strengthened provincial sovereignty by first establishing the sovereign authority of the provinces and then significantly whittling away at the federal powers (Lower 1958). Non-federal Great Lakes governments have a long history of guarding and exercising their sovereignty over their fisheries.

Given their sovereignty over fisheries, how free are provinces, states, and U.S. tribes to work with each other and with foreign governments? At first glance, strong federal powers would appear to preclude non-federal involvement in foreign or cross-border activities. Certainly, in both Canada and the United States, federal authority over international, interstate, or interprovincial matters is strong. Both nations' constitutions grant treaty-making powers to the federal governments. In Canada, while the BNA grants sovereignty to both the federal and provincial governments, purists point out that the basic tenets of international governance demand that the central government speak for Canada and, thus, that provinces be limited in their ability to enter into agreements with foreign governments (Martin 1968). In the U.S., the Supreme Court case *Missouri v. Holland* established that federal treaty power could preempt state power (Knaebel 1920; Moore 1965), thus granting the U.S. federal government the ability to have a strong influence over a state authority. Moreover, since the BNA and the U.S. constitution grant the federal governments the trust responsibility toward the tribes, the federal governments have some ability to limit direct tribal interactions with other governments.

Notwithstanding federal dominance in foreign affairs and intergovernmental issues, however, and while the treaty power is strong and supreme, foreign matters are not necessarily *exclusive* to the federal governments. For instance, while the BNA suggests that the federal government, by virtue of its treaty power, take the lead in foreign affairs, the BNA does not expressly prohibit provincial involvement in foreign agreements. The provinces are often called upon to implement treaties to which the federal government agrees (Kennett 1997; Rutan 1971),

and because provinces retain authority over their enumerated powers, provinces have considerable leeway to enter into foreign agreements over issues within their domain (Rutan 1971). The BNA is silent in addressing whether or how provinces can enter into agreements (Rabe 1997), though it is generally settled that provinces can freely enter into agreements with each other and with foreign governments, so long as the agreement pertains to a provincial authority (Rutan 1971).

In the United States, while the constitution prohibits states from entering into interstate compacts, treaties, or alliances with foreign nations without the consent of Congress, state governments in fact are involved routinely in interstate and foreign issues. The absence of Congressional consent, a treaty, or a domestic statute does not preclude states from entering into agreements with each other or with foreign entities. The U.S. Supreme Court, in the 1893 case *Tennessee v. Virginia*, ruled that interstate or state-foreign agreements could be valid without Congressional consent so long as the agreement relates to a state matter and does not encroach upon the federal government's rights and responsibilities (Davis 1893; Goldsmith 1997; Killian and Beck 1987; Zimmerman and Wendell 1951; Zimmerman and Wendell 1976; Zimmerman 2002). Thus, while the constitution calls for Congressional consent for multilateral agreements or alliances, such consent is actually not always necessary. As Ytreberg (p. 831) said,

The articles inhibiting any treaty, confederation, or alliance between the states without the consent of Congress were intended to prevent any union of two or more states having a tendency to break up or weaken the league between the whole; they were not designed to prevent arrangements between adjoining states to facilitate the free intercourse of their citizens or remove barriers to peace and prosperity.

In the Great Lakes region, the non-federal governments exercise sovereign control over their fisheries, including migratory fishes. Because the state and provincial boundaries extend to the international border (Bogue 2000; Piper 1967), and because tribal fishing areas are defined by treaties (Busiahn 1985; Flanagan 2000; Zorn 1989), jurisdictional authorities are usually clear. Each jurisdiction formulates and executes its own policies in its own waters, illustrating that a jurisdiction will be motivated, ultimately, by its legal needs and political desires (Francis and

Regier 1995). Non-federal governments are free to enter into agreements so long as the agreements do not intrude on federal authorities, disrupt the political balance among non-federal governments or nations, or are superseded by legitimate federal action such as a treaty. Just how bound the non-federal governments wish to be in their agreements, however, depends on the issue at hand and the participants' political desires.

Binding and non-binding agreements and compliance

Although multijurisdictional agreements and arrangements take many forms, essentially two types of arrangement exist: those that bind the participants and those that do not.

Compliance with and implementation of either type of environmental agreement is, of course, an important element of multijurisdictional cooperation, and the literature distinguishes between binding and non-binding agreements in how they achieve compliance.

Governments have many options for *binding* arrangements to achieve their policy goals. The most common way for U.S. states to enter into a binding arrangement is through the use of an interstate compact, which the U.S. Constitution authorizes. (The BNA mentions no commensurate institution.) Compacts are legally binding contractual arrangements (Frankfurter and Landis 1925; Zimmerman and Wendell 1951; Zimmerman and Wendell 1976). Because each member state's legislature must approve the compact, the compact is considered statute in each signatory state and is, therefore, binding with the force of law (Zimmerman and Wendell 1976). Interstate compacts are attractive because they are clear in what they do and they create a formal process; such agreements are not entered into lightly. Another factor motivating states to enter into compacts is that such an agreement usually authorizes an institution (such as a commission) to ensure implementation (Donahue 1987).

Beyond the interstate compact, there are other types of binding arrangements. On the international level, treaties are the strongest, most legalistic way nations cooperate. They are enforceable through international law and often are supported by commissions or secretariats to

facilitate compliance. On a regional level, arrangements like “federal-non-federal agreements” (for example, the Canada-Ontario agreement, a formal arrangement addressing issues of shared authority between the Canadian federal government and the Province of Ontario) and “federal-state commissions” (an arrangement with legal status between the federal government and states), serve to bind the participants (Donahue 1987).

Non-binding arrangements among sovereign governments—whether the governments be nations or non-federal governments—also are common. Non-binding arrangements come in many forms and have varying levels of formality (Elazar 1969; Weiss 1999; Zimmerman and Wendell 1951; Zimmerman 2002). Routinely, governments discuss shared matters with each other and seek, in less-formal ways, to harmonize regulations, share information, and establish reciprocal practices. In a comprehensive study of Great Lakes institutions, Donahue (1987) provided a taxonomy of arrangements and analyzed the strengths and weaknesses of each agreement type. Typically, said Donahue, jurisdictions that wish to work together, in a non-binding way and on a regional level, have several options. These options could be exclusive to non-federal jurisdictions, could involve federal and non-federal jurisdictions, or even could involve states and foreign governments (Donahue 1987). The “interstate council or commission,” for example, while established formally through an agreement or through legislation, typically vests the council or commission with “soft” management authority, related to coordinating policies and persuading compliance (Donahue 1987). Similarly, the “basin interagency committee” is typically a less-formal version of the interstate council, serving as a forum for information exchange or for coordinating disparate management plans into a unified plan (Donahue 1987). Other non-binding arrangements include such things as informal interstate agreements, conferences among government officials, reciprocal legislation, uniform laws, verbal agreements, interstate commissions, and regional councils (Anderson 1953; Donahue 1987; Zimmerman 2002).

Binding and non-binding agreements each have inherent advantages, disadvantages, and compliance issues, and their formation depends on the unique circumstances on hand and what participants hope to accomplish. At one level, binding agreements may present a higher stature and could reduce transaction costs, as on-going bargaining is often unnecessary after parties reach an agreement (Abbott and Snidal 2000). Another attribute of a binding agreement is that compliance is often high. Participants only sign binding agreements they know they can comply with (Birnie and Boyle 2002; Victor 1998); parties are less likely to sign the agreement if they could not comply with it, as they would not want their sovereignty limited against their will. As a consequence, binding agreements tend to focus on the “lowest common denominator,” the least ambitious agreement that will attract the maximum number of participants (Axelrod and Vig 1999; Crossen 2004; Soroos 1999). Indeed, “high compliance comes at a cost,” says Victor (1997, p. 243). “Conservative commitments do not much push the real capabilities and willingness of societies to change their behavior. . .”

Being contractual, a binding agreement might also enhance the chances that the signatories will comply with it because the agreement can be enforced (Raustiala and Victor 1998; Victor 1997; Weiss 1999; Zimmerman 2002). However, despite being binding, enforcement is not automatic. Many times, enforcement measures tend to be meaningless, as many types of coercive measures—like war, sanctions, or legal action—are wholly impractical for routine enforcement, as they require significant political and economic costs (Chayes and Handler-Chayes 1995) to invoke. As such, members rarely use a binding agreement’s enforcement measures and routine compliance is either ignored or left up to each participant (Bjorkbom 1988).

Non-binding agreements are often more flexible in dealing with compliance, generally rely on the participant’s consensus, and are more ambitious because the signatories are more likely to push the envelope if they know they will not be held, legally, to the agreement (Raustiala and Victor 1998; Victor 1997). Compliance is heightened when all participants think the process

is fair (Franck 1995; Ostrom 1990), when a party's reputation is at stake (Guzman 2002), when external pressures become too great, and when it serves the domestic interests (Faure and Lefevre 1999). Compliance with non-binding agreements is reduced when the agreement contradicts domestic interests, when it is not clear how to comply, when it contradicts other agreements, when it runs contrary to cultural traditions, or when members are unable to comply (e.g., for budgetary reasons) (Faure and Lefevre 1999). Donohue (1987), though not distinguishing between binding and non-binding agreements, notes that "informal" arrangements can be more flexible and dialogue-focused than "formal" arrangements. After a study of environmental agreements, Victor (1997, p. 245) draws a similar conclusion: "states [nations] appear to be more willing to adopt clear and ambitious commitments when these commitments are codified in nonbinding form," as such agreements can prompt members to go beyond what is on paper, can lead to more enlightened discussions, and can be flexible enough to adapt to changing needs or participants.

A major problem with binding agreements is that they rely on parties to relinquish some of their sovereignty, something independent entities are loath to do. With interstate compacts, for instance, the agreement is a binding contract and because the compact supersedes regular state statutes, it has the potential to reduce state autonomy (Ridgeway 1971). Non-binding agreements, on the other hand, are at times desirable precisely because they do not require nations or non-federal governments to give up their sovereignty. Sovereignty is jealously guarded—regardless of the level of government—and non-binding arrangements honor such sentiments by focusing on collective opportunities rather than on constraining sovereign activities.

Likewise, one of the most important issues relating to compliance and implementation is whether each of the sovereign participants has the will to implement an agreement once members make a decision (Jacobson and Weiss 1998; Martin and Simmons 1998; Victor et al. 1998; Young 1994). Implementation becomes more challenging if the people who make the agreement (e.g., negotiators from an executive branch of government) are reliant on others (e.g., legislators,

through such acts as appropriations or regulations) to implement the agreement. As Jacobson and Weiss (1998, p. 661) observe, “governments cannot ensure that national performance will conform with international commitments.” Rabe (1997) makes a similar observation in the context of implementing regional agreements among non-federal actors. He says implementing multi-state efforts depends on the members’ “goodwill” to pursue the goal. Rabe understands this as an implementation issue as “states and provinces vary enormously in both their degree of commitment and their demonstrated capacity to pursue goals consistent with ecosystem management principles” (Rabe 1997, p. 425). Thus, relying on the individual states to implement is dubious given their often inconsistent capabilities to live up to commitments.

Non-binding agreements may be less able than binding agreements to raise an issue’s profile, thus lowering the perceived urgency to address the problems at hand (Miles 2002). Moreover, non-binding agreements are often costly to implement as they require continual support and evolution if they are to be meaningful, and such a process requires on-going dialogue, meetings, consensus-based negotiations, strong commitment to process, devotion of time, and a willingness to exert energy to change policies or adapt to changing conditions (Victor 1997).

Overall, the literature presents the importance of sovereignty in explaining behavior, the importance of institutions in facilitating agreements, and the pros and cons of binding and non-binding agreements. In the Great Lakes region, the sovereign entities have the ability to interact with each other as they see fit and to establish any institution—binding or otherwise—to facilitate their cooperation. This chapter now turns to a discussion about the Great Lakes and why the jurisdictions opted for a non-binding agreement, the Joint Strategic Plan.

WHY A NON-BINDING PLAN FOR THE GREAT LAKES FISHERY

The Great Lakes fishery management regime relies on a non-binding agreement, the Joint Strategic Plan, to guide cross-jurisdictional cooperation. Based on an understanding of the history of Great Lakes fishery management (see chapter 1), and reflective of the semi-structured interviews with Joint Strategic Plan participants (see Appendix A), members believe that a binding agreement would be unsuitable for Great Lakes fishery governance. In fact, when asked whether they believe a binding agreement would improve the process, only one participant (out of sixty-two interviewed) thought a binding agreement would increase agency commitment to the agreement.²⁷ All other participants categorically rejected the idea of a binding agreement for a variety of reasons. Consistent with the literature, a non-binding agreement is attractive for the Great Lakes (1) when participants guard their sovereignty and independence strongly, (2) when flexibility is important, helping managers focus on issues that go beyond the lowest common policy to which members can agree, and (3) when mechanisms exist that can heighten compliance with the non-binding agreement. These three factors are present in Great Lakes fishery governance and help explain the desirability of a non-binding agreement for Great Lakes fishery management.

Sovereignty and independence are supreme

Nothing automatically prohibits provinces, states, and U.S. tribes from entering into any type of fisheries agreement (binding or otherwise) and being sovereign, these entities are relatively free to establish the type of agreement that best suits their needs. Notwithstanding federal dominance in foreign affairs and some intergovernmental issues, the literature makes it clear that non-federal governments are able to enter into agreements with each other, so long as

²⁷ This participant was most versed in Lake Erie management. Around the time of the interview, the agencies on Lake Erie had just endured a particularly tense challenge to the agreed-to walleye quota (the subject of chapter 5's case study). This participant's beliefs might reflect frustration over the unwillingness to adhere to the hard-won harvest agreement.

the agreement does not intrude on federal rights and responsibilities; federal involvement is not inherently required for inter-state/inter-provincial and international affairs. A non-binding agreement like the Joint Strategic Plan is particularly appropriate when the participants want to preserve their independence. The plan is not a specific management plan containing, say, binding management regulations, rather it created a process for cooperation. Signatories never intended the plan to be a substitute for, or an abdication of, individual state management authorities. Moreover, the federal governments participate in the plan, giving it *de facto* sanction.

As chapter 1 argues, jurisdictional independence is a reality in Great Lakes fishery management; such independence accounts for the nature of the Joint Strategic Plan. Not only are the non-federal jurisdictions legally responsible for managing their fisheries, they are also capable of doing so, though they need a mechanism for cross-border cooperation. The interjurisdictional governance void caused problems when the non-federal entities were reluctant to coordinate their activities, as was the case until the mid-twentieth century. Strong feelings of independence also explains the non-federal unwillingness to cede authority to an overarching jurisdiction. Indeed, two fisheries treaties—one in 1908 and one in 1946—failed because the non-federal governments were unwilling to surrender their management authority to the federal governments or to a binational commission (Looney 1955; Swift 1955). The non-federal governments were also unwilling to create a lasting structure by themselves. In 1942, the International Board of Inquiry dismissed outright the idea of an interstate compact for Great Lakes fisheries because such an agreement would be large-scale, would involve each state's legislature, and, by virtue of being a binding agreement, would be inflexible and unwieldy (Gallagher et al. 1942). The board concluded "it would appear that negotiations and ratification of a compact is filled with so many pitfalls that is it no wonder that it has been so infrequently used to bring about solution of our interstate fishery problems" (Gallagher et al. 1942, p. 38). Because of these sentiments of sovereignty and independence, jurisdictions continually rejected binding agreements to deal with cross-border fishery issues.

The sentiments of fishery officials during the development of the Joint Strategic Plan in the late 1970s illustrate the intent to protect their authority. First, the non-federal entities asked the Great Lakes Fishery Commission to develop a process for coordinated fishery management because they did not want the U.S. federal government or the federally dominant Great Lakes Basin Commission leading the process. They also feared federal involvement through the paradigm-shifting *Magnuson Act*. While they knew they needed to do something to avoid a *Magnuson Act* regional council, the non-federal entities also soundly rejected the U.S. Fish and Wildlife Service or the basin commission developing the structure because, in the words of commissioner Fred Fry, “since the states and province have the responsibility for exploiting the resources they therefore have the responsibility for the management plan” (GLFC 1978a). They wanted to avoid anything that might appear to intrude on non-federal management authority.

Second, beyond protecting from federal intrusion, the plan would respect their individual sovereignty and independence. Letters from 1978, from the non-federal governments, illustrate the intended character of the multijurisdictional fisheries plan. In a letter to the jurisdictions, the Great Lakes Fishery Commission summarized the nature of the plan as it addressed the issues of sovereignty and independence:

First, a word about the Commission's choice of the words ‘Strategic Plan.’ This is a plan that will act as an umbrella. It should be a plan derived from your concepts of what needs to be done to develop fish management objectives or programs in the Great Lakes. It will not be a plan to dictate how these goals should be obtained’ The implementation portion can be incorporated in individual state and provincial fish management plans. It is in the development of these goals and opinions that your agencies’ commitment and involvement is needed to insure a usable Strategic Great Lakes Fishery Management Plan [emphasis in original] (GLFC 1978d, p. 13).

Ralph Able from Pennsylvania noted that such a plan needed to be strategic, not operational, so as not to preempt states’ rights, and Mike Conlin of Illinois added that the primary concern would be whether such a plan would limit state management options (i.e., limit state sovereignty) (GLFC 1978a). The agencies completed and signed the Joint Strategic Plan in 1981 and the plan itself is quite clear about where true authority lies: “from the start, the plan recognized the constitutional

and other legal responsibilities of the management agencies to manage their respective fishery resources” (GLFC 1981a, p. 1).

Today, participants appear to respect and understand the reasons why the Joint Strategic Plan is non-binding. The interview participants, when asked about their opinions of binding and non-binding agreements, dismissed a binding agreement as simply unfeasible given agencies would never agree to something that would usurp their sovereignty. A state manager captures this common sentiment: “There is no overarching authority here that has a legal framework to trump the individual authorities of the agencies.” Observed a manager from Ontario, “Management authority . . . is currently vested in various agencies.” A colleague from a large state added concisely, “What, really, can another jurisdiction say to you about what you can and cannot do?” The Joint Strategic Plan members remain independent and the plan’s success depends on how willing the province, the states, and the tribes are to adhere to the agreement. This shows that participants understand each jurisdiction’s independent ability to manage its own affairs; interviewees were quick to dismiss any idea of a binding agreement, citing that such an agreement, as one put it, “would never happen.” The Joint Strategic Plan itself states as much in the introduction and participants are mindful of that reality.

Fishery management needs flexibility

Non-binding agreements are more desirable than binding agreements when participants seek to be flexible rather than committed to a specific course of action. Great Lakes fishery management requires flexibility because fishery policies must evolve as fish populations ebb and flow, as political pressures come and go, and as natural conditions change. Regulations react to the needs of the fishery, stocking and harvest levels are tied to changes in the forage base, rehabilitation strategies are altered as scientists learn what works and what does not, and managers are often moved by internal politics. Fisheries management practices, in other words,

change as better knowledge becomes available and as managers react to ecosystem and political changes.

As chapter 1 discussed, early concepts of the plan were not strategic, they were operational. The Great Lakes Basin Commission, which proposed the idea for a fishery plan, expected the plan to outline the specific steps that agencies would agree to to manage the fishery. Such a plan would have entailed the development of fishery objectives and specific plans for how those objectives would be met. The agencies would have been expected to take the steps necessary to adhere to the established plan. Many of the early attempts at cooperation—even as late as the 1940s—were aimed at gaining agreement among the jurisdictions to install identical fishery regulations in each of the states and the province. This approach was rejected and, in the late 1970s, while the jurisdictions agreed that a fishery plan would be beneficial, they were still quite dubious of any approach that was proscriptive, as such an approach would have been unnecessarily constraining and less reflective of the protean nature of fisheries. Instead, the jurisdictions saw the benefits of establishing a strategic plan that could set in motion a process of ongoing scientific discovery and deliberation capable of changing with the needs of the fishery (GLFC 1978a). A non-binding, strategic plan would be flexible. A binding, operational plan would not.

Fishery managers, today, acknowledge the importance of a flexible plan and connect such flexibility with the non-binding nature of the Joint Strategic Plan. Several interview participants expressed their belief that a non-binding fisheries agreement is superior for the Great Lakes because it allows the members to address any issue they find important. Because the plan does not attempt to lock jurisdictions into a specific course of action, lake committee and technical committee members say they are able to use their best judgment and to be innovative in their approach to shared policies. Said an Ontario manager, “once [a firm, specific agreement] is signed, sealed, and delivered, there is no wiggle room. . . . Battles [would] be even more intense than they are now.” A non-binding agreement like the plan allows the members to be flexible,

relatively free from superiors who may not be comfortable with innovation had there been a binding agreement without wiggle room.

Moreover, a few participants observed that a binding agreement would be simply unnecessary for what they use the lake committee process to achieve. The agencies do not need to be bound in a legal sense to what they develop through the lake committee process because the issues themselves are not wholly conducive to a binding agreement. For example, with the important exception of the Lake Erie Committee (see chapter 5), the lake committees do not use the process to establish common harvest quotas. They might use the process to come to a shared understanding of the lake's biology and the management practices needed to sustain the resource, but they do not use the process to determine a quota to which adherence is mandatory. Said a tribal member, "in the upper lakes, we haven't [had to deal with] the most difficult issue of all, and that's allocation. . . . That is where the rubber hits the road." Instead, the lake committees are set up to deal with issues like rehabilitation plans, articulating shared goals, balancing interests, and keeping everyone within their sphere of authority. The process depends on proactive scientific understanding, planning, creative thinking, flexibility, and a constant application of new information to changing conditions for its success rather than on having an enforcement mechanism to ensure that members adhere to the agreement. In other words, the plan is designed to focus more on shared needs and goals and less on how to hold the jurisdictions to specific, delineated provisions.

Finally, members believe that a binding agreement would be undesirable for Great Lakes fishery management because such an agreement would be weak and based on the lowest common denominator to which the agencies could agree. Said a senior state manager, who is intimately involved in other multijurisdictional agreements, binding agreements "can force people to comply [with] the minimum standards, whereas they might voluntarily choose to do something better than that. [With a binding agreement, t]hey know that they can't be forced to do something better and they can always explain doing the minimum to their constituents." A Canadian participant,

reflecting on other strong agreements, noted that such agreements are “wishy-washy,” and an academician who is also versed in agreements noted that “as soon as binding elements get set, they are either too general or they are too rigid [and, thus are] . . . less workable.” As one Ontario manager noted simply, “sometimes, the more teeth you give something the less effective it becomes.”

As a non-binding agreement, the Joint Strategic Plan was intended to create a process capable of staying on top of changing conditions in the Great Lakes basin. To do so, the plan relies on an ongoing process to maintain continual ecosystem monitoring, to develop new and improved management plans, and to advance science in areas where members believe research is needed. The process is designed to allow members the ability to react quickly to the fishery’s needs and to help them focus on their shared goals, rather than on forcing behavior. A binding agreement, on the other hand, would allow for less flexibility because the provisions of the plan, being enforceable, would be more concrete.

Compliance is enforced by peers and overseen by a neutral third party

As a non-binding agreement, the Joint Strategic Plan is only as effective as the agencies’ willingness to implement it. That is, nothing in the agreement compels agencies in a legal way to adhere to the plan nor are there provisions mandating notification if a jurisdiction chooses to drop out of the agreement. The members recognize that each jurisdiction has its own mix of politics and regulations that make each jurisdiction’s fisheries management different. “I remember in our dealings we always tried to make sure that our colleagues understood that if we had to go back and change the regulations that there was this [internal] process that we had to go through. [The state] process had a life of its own,” said a state manager, an observation several participants echoed. “You can’t get around it,” added another. In other words, participants know that no matter what the Joint Strategic Plan says or no matter what they come up with through the process, the agreement can only be so binding. Because of this reality, the lake committee

members know that they must work together to develop shared policies and they must promote those policies internally when they return to their home jurisdiction. Said a member of the Lake Superior Committee,

I think anything that a state management agency wants to do they can do in spite of the Joint Strategic Plan. I mean, the state entities have voluntarily agreed to go through this plan but we are all run by political animals. [W]e can make the case to do what is biologically sound, we can make the case to follow what is in the Joint Strategic Plan, but it ultimately comes down to what our political masters are going to dictate.

Said an official from the Great Lakes Fishery Commission: “The agreement can’t hold if the political will of the agency isn’t going to stand behind it or if the stakeholders are going to raise such a stink.” These sentiments about implementation internally, within a jurisdiction, are important for two reasons. First, they indicate that the participants recognize and appreciate their jurisdiction’s sovereignty. That is, no matter what the lake committee process develops, an individual agency has the final discretionary authority. Second, successful policies depend on the home jurisdiction’s will and capacity to implement the policies. Thus, compliance with and effectiveness of the agreement is a function of how willing the jurisdictions are to go along with what they produce.

While the literature suggests that binding agreements enjoy higher compliance than non-binding agreements, such is the case simply because members are more likely to sign agreements they know they can adhere to, which are agreements that usually reflect the lowest common denominator. However, an agreement that enjoys a high degree of support, commitment, and sense of ownership by the members, and that has built-in structures like regular meetings, strong relationships, and a strategic process, can also assure the members that implementation is likely. The non-binding Joint Strategic Plan reflects the Great Lakes region’s characteristics—there exists a process for regular interactions, an epistemic community that coerces and rewards participants, and a reliance on consensus to better convince participants that the policies need implementation. Rabe (1997) notes that many non-binding agreements that address basinwide environmental issues are hamstrung by the need for the entities to take individual action to

implement. However, relying on members' goodwill is precisely what the plan-framers intended. They were preoccupied with protecting state and provincial (and later, tribal) sovereignty and the plan itself reflects that desire. The plan's purpose was not to force agencies to adhere to fishery management plans through a top-down process, rather, it was to develop science, share information, and articulate shared goals so that the individual non-federal governments could align their policies in common ways. The strategy was that if the science, goals, and plans came from the members themselves, through a consensus-based process, there would be a heightened incentive to comply.

Despite implementation challenges, participants do believe that the non-binding Joint Strategic Plan can address compliance. While they believe the plan does not compel unwilling action (as might a binding agreement), they do feel it contains ample strategies to facilitate cooperation, thus allowing the participants to achieve their goals without a more heavy-handed agreement that might constrain flexibility or creativity. Interviewees were asked whether they believe the Joint Strategic Plan has ever forced or compelled them to act in a certain way. The responses are nuanced and reflect differences in how participants define "compel." One of the most common responses—irrespective of jurisdiction—is similar to the response from a state manager: "I can't think of examples where [the plan] forced us to do something we didn't want to do." Participants' feelings about whether the Joint Strategic Plan has ever compelled them to do anything generally corroborate their belief that agencies are sovereign and have the final say on implementation.

While members do not believe they are forced to do something against their will, they do feel very strongly that the plan has compelled them to do things that they might not otherwise have done. When asked for instances where the plan has changed their behavior, participants were often unable to identify specific examples. They stated instead that they simply knew that the Joint Strategic Plan process itself affected their thinking beyond the perspective of their own agency, stating that the plan offered them a different viewpoint and a motivation to find common

ground. In a few cases, participants could recall instances where one jurisdiction wanted to stock a certain species of fish, but when the issue was discussed through the lake committee and technical committee process, such stocking proved to be less attractive. A broadening of thinking occurs because a small group of managers in a particular jurisdiction interact with a much larger group of peers, which leads to fresh thinking outside of the particular agency's culture, resulting in refined ideas and improved positions. In this regard, the plan has, in soft, persuasive ways, compelled a change in mindset and behavior. For example, members note that the plan has compelled them to "take other jurisdictions into account before they take actions that could affect the whole system," has "forced a lot of people to re-think what they were doing," and has prompted members "to think about things and to make some changes."

Joint Strategic Plan participants pointed out, however, that rethinking their actions, tempering activities, or compromising with other agencies is not the same as forcing unwilling action. They believe this because they view their behavioral change in the context of the shared fishery objectives that they develop together. In other words, while the participants believe the plan has compelled rethinking and behavioral change, they do not believe anything has been forced upon them. Rather, for lake committee activities to be successful, members must stay committed to what they develop jointly; members rely on forces besides a binding agreement to "compel" them to adhere to what they decide. These implementation forces include following a regular process (i.e., lake committees), a feeling of ownership in the plan, and decision by consensus. As one technical committee member observed tellingly, we feel compelled to stick to the plan "because we have been involved so much in drafting [the policies]."

Members indeed have a sense of ownership in the plan, which could lessen the need for a binding agreement. The discussions that take place under the plan, in the words of one technical committee member, are "us versus us." Observed a long-serving federal employee, "you can't make anybody show up to the lake committee meetings. The fact that they show up should tell you a lot." Said one technical committee member,

I don't know of anybody in life who is always happy when someone else comes in and tells them what the decision is. I think we all want to be a part of [the decision-making process]. . . . But you know what? When you realize you have to reach a decision and you find out that the level of commitment is extremely high, you do it.

A now-retired senior state manager added that he preferred, the plan to other agreements “because it originates from the parties; it is not imposed.” The managers understand that no higher force compels cooperation, rather, cooperation occurs because the members are vested in the plan's products.

The sense of ownership is deeply related to this non-binding agreement's most fundamental strategy: decision by consensus. Consensus occurs after members express all viewpoints and when no participant objects to the opinion (GLFC 1997a). Participants generally have a shared understanding of what consensus means, a shared understanding that has developed from past experiences in lake committees. They recognize that consensus does not mean unanimity or universal happiness. Rather, in the words of a Great Lakes Fishery Commission participant, “consensus to me means everybody agrees or chooses not to disagree.” Said a tribal member, with consensus, “people are satisfied enough . . . that they don't fuss anymore.” Said an academic participant, consensus means “I'm not happy but I'll go along.” Consensus, the members observe, happens when the group clearly articulates goals, when there is sound information and science, when there is a clear rationale for ideas and decisions, when the members come to the table in good faith, and when there is a willingness to adjust, adapt, and compromise their positions on issues. Participants say consensus is threatened when people do not have the authority to commit, when arguments are poorly supported, when a perception exists that a member is not acting in good faith, when people are inflexible in their positions, and when agencies are just too far apart on issues. Consensus is more than a definition of a decision-making process. It is a mindset that develops over time as members become more involved in the process. It is a way of doing business that emerged out of the jurisdictions' history of information

sharing, coming together as equals, participating voluntarily, and preserving jurisdictional autonomy.

Joint Strategic Plan members are aware of why consensus is important and how it relates to the plan's implementation. Members emphasized many elements of consensus that make them feel somewhat bound to the decision that arises from it. For instance, they feel professionally accountable to their peers (to the epistemic community discussed in chapter 2) and believe that breaking consensus (or being too obstructionist if the group is near consensus) is unprofessional. Members are also aware that reaching consensus helps prevent agencies from taking unilateral action. Said one participant from a large state, without consensus, "each jurisdiction would do its own thing." Said another, without consensus, "nothing would happen." Consensus reflects the members' work and sentiments, and because they feel they own the plan, members generally have a lessened incentive to break consensus willingly, as they would be contravening their own opinions and flouting the community's conventions.

Members readily admit that implementing lake committee decisions is a challenge because of internal resistance within their home agency, a lack of resources, and other variables. They acknowledge these implementation challenges and, thus, are tolerant and understanding if fellow members have implementation problems. Said a technical committee member, reflecting on struggles over the years to put into affect what the committee developed, if implementation did not occur quickly or as intended, "there wouldn't be any hostilities or accusations or finger pointing like that. Everybody was usually pretty much in the same boat." Or, as a senior state manager conceded, "I think there is just a general understanding that there are some things we can control and other things we can't control. So I think we just shake our heads and move on. What else are you going to do?" The most important thing, they say, is a desire to implement their decisions in good faith. Participants become upset when a lake committee or technical committee member agrees to something with no authority to do so or agrees knowing it is

impossible to implement back home. Members will understand if another member acknowledges up front a decision cannot be implemented.

Another reason participants reject the idea of a binding agreement is that they believe the Great Lakes Fishery Commission serves as an alternative—albeit a soft, neutral substitute—for an overarching authority with responsibility to bind the entities. The commission, they believe, is neutral enough to facilitate the process and gently pressure the agencies into implementing their agreements. In general, participants expect the commission to push them along, but not so forcefully that the commission upsets the basin’s spheres of authority. This means that the commission is expected to facilitate the process and to help the agencies learn about and address issues of concern. This understanding of the fishery commission's involvement in the Joint Strategic Plan is consistent with the history of Great Lakes fishery management and the reasons for accepting the commission in the first place, as discussed in chapter 1. Participants generally agree that the role of the commission is “to facilitate professional, appropriate standards of behavior of individuals participating in the process.” This means, said a senior state official, that the commission is asked to “create the appropriate level of support where it’s easier for [the lake committee members] to do the right thing than it is the wrong thing.” To create that atmosphere, Joint Strategic Plan participants very much expect the commission to make sure the meetings take place, to help them keep the data flowing, to retain an institutional memory (e.g., prepare minutes), to serve as an honest broker, and to stay neutral. Said one lake committee member, the commission’s job is to “provide the prodding to the follow up; [to] gently nudge people along.”

The commission’s involvement in cooperative processes, while encouraged in its enabling treaty, are based more on a mutual understanding between the commission and the other jurisdictions than on any legal provisions. Like the federal agencies that do not retain primary management authority on the lakes, the commission walks a fine line between facilitating and meddling in others’ affairs. During the interviews, commissioners and staff noted several times that they are sensitive to overstepping the bounds of the commission’s authority while at the same

time trying to actively facilitate the plan process proactively. The dilemma that the commission faces is trying to be involved enough in the process to encourage the development and implementation of proactive, shared policies yet detached enough so that the commission itself is not the only entity compelling the participants to rethink their policies. The fact that the commission is the only basinwide fishery entity on the lakes makes it naturally prone to overstepping its bounds or even having the jurisdictions expect too much from the commission if their home authorities are reluctant to act. One former commission member described his understanding of the commission's role:

I know that there were times when different jurisdictions wanted the commission to act as a tribunal, act as an intra-constitutional, an intra-treaty entity. . . . And [the commission] has resisted that. And I think one of the reasons why they have resisted it is . . .because it would compromise their [the Joint Strategic Plan participants'] success and extra-constitutional consensus. It would. Soon as they did that they would be compromised.

The commission would likely be made aware of when the line between facilitation and interference in others' affairs has been crossed. Said a long-serving lake committee member, "facilitating is one thing . . . but don't push them [the agencies] too much because it wouldn't take long for talk to start on the street that 'man, they're into everything; they're going to take over the Great Lakes.'" Said another: "One concern I have heard from [our lake manager] over and over again," said a senior state official, "is how much the commission drives the agenda rather than really having the CLC [Council of Lake Committees] or the lake committees themselves take responsibility for driving what they are doing." Said another manager, "I think it's a mistake when the commission becomes an obvious advocate of specific fishery management strategies. . . . [and there is] the danger that they're stepping into an arena where they have no responsibility." The non-federal entities are leery of any outside authority meddling in their affairs, and just as the jurisdictions become infuriated when the federal governments intrude (see chapter 3), they are also guarded about the Great Lakes Fishery Commission's role in management.

Over the long term, if the commission were to be perceived as continually overstepping its role as facilitator, the lake committee process would likely break down. Members would grow reluctant to participate in commission-facilitated meetings and, instead, either not work cooperatively or establish processes outside of the Joint Strategic Plan to cooperate. The commission, in the eyes of non-federal agencies, would likely be viewed with the same suspicion as the federal agencies. The process would devolve from trustful and synergistic to contentious. Members would be forced to focus more on their relationship with the commission and on protecting their authority than on seeking and implementing shared policies.

CONCLUSION

Natural resources routinely transcend political boundaries, and the tools available to facilitate collective action—treaties, interstate compacts, informal interstate agreements, conferences, shared understandings—are numerous. Each type of agreement has its own benefits, drawbacks, and ability to bind the participants. Members decide on the type of agreement and its binding nature based on their circumstances and needs. The literature notes that non-binding agreements can be more flexible and ambitious than binding agreements, but that compliance and implementation will be a struggle. Participants who desire to protect their independence and sovereignty will turn toward a non-binding agreement more readily than a binding agreement. In the Great Lakes region, a non-binding agreement is suitable because fishery management requires flexibility, because participants desire a strategic and progressive approach that identifies shared goals, and because institutions and norms exist to nurture compliance without a heavy-handed entity or agreement to bind their activities. Participants also recognize that jurisdictional independence essentially precludes a binding approach.

The Great Lakes are unique in that the non-federal governments, together, manage an international resource. Paraphrasing Frankfurter and Landis (1925), the jurisdictions long ago recognized that they were smaller than nation and greater than any one jurisdiction and twenty-

five years ago, established a formal process—tailored to suit their needs—to together manage fisheries. While these non-federal entities guard their own independence and sovereignty jealously, they are also quite aware that independence and sovereignty means that one jurisdiction's actions affect everybody. They chose a consensus-based, non-binding agreement because they felt it would maximize collaborative action while still respecting jurisdictional sovereignty. The managers who participate in the process today have not deviated from those sentiments.

The interviews demonstrated that, on the one hand, Joint Strategic Plan members believe they must work together to develop and achieve their shared goals, while on the other hand, they are aware that much of the success of their deliberations depend on the individual will of their home jurisdiction to implement their decisions. In the Joint Strategic Plan's case, members dismiss outright the idea that the plan binds their jurisdiction, but participants do point to the fact that it changes behavior and contains elements that heighten the chances that members will take the non-binding agreement seriously. These elements include the on-going, consensus-based process itself and a sense of ownership in the plan. A sense of ownership, aided by the consensus-based nature of the agreement motivates the members to adhere to the plan, lessening the need for a binding agreement. A neutral third party, the commission, helps keep the process moving and instills confidence that some entity is keeping the process fair and the members true to their word. In essence, the members, through the Joint Strategic Plan, have acknowledged that some entity needs to be present to coordinate the process and that a soft force is all that is needed to make it work.

This dissertation has thus far presented how jurisdictional independence affected the history of Great Lakes fishery management and how the independent entities, recognizing the need for coordinated action, have used the Joint Strategic Plan to foster relationship-based collective action, to ease federalism tensions, and to cooperate through a non-binding approach. This dissertation now turns to a case study—the Lake Erie Committee's struggle in 2004 to establish a total allowable catch for walleye—and discusses how the plan helped the committee overcome serious contention while still adhering to a non-binding agreement.

CHAPTER 5

WALLEYE WOES

The 2004 dispute over walleye total allowable catch in Lake Erie and how the Joint Strategic Plan addresses conflict

Abstract

Walleye management can be contentious on Lake Erie because the fish is valuable economically to both Canada and the U.S. and because harvest methods vary markedly between the two nations. Unlike the other lake committees, the Lake Erie Committee uses the Joint Strategic Plan process to establish harvest quotas, known as total allowable catch (TAC). Most of the time, the Lake Erie Committee can agree on and adhere to an annual walleye TAC. However, the committee failed to maintain consensus on the 2004 TAC after consensus was achieved and announced. The committee could not resolve the dispute on its own and, in late 2003, invoked the Joint Strategic Plan's dispute provisions, a rare occurrence. This chapter asks: *What is the mechanism for dealing with conflict when there are no binding enforcement provisions? How did the participants understand the walleye dispute as it occurred? How did the non-binding plan help the committee members resolve their dispute?* This chapter argues that the concept of consensus, the existence of an epistemic community of scientists, and other factors are critical to building the trusting relationships necessary to make the TAC process function. Moreover, the plan, though mostly designed to facilitate non-distributional policies, nevertheless can address distributional issues like TACs, despite being non-binding. Members believe the plan's dispute resolution mechanisms can help them address serious contention.

Wheatley, Ontario, at the base of the famous Point Pelee, is a busy commercial fishing port on Lake Erie. The city was built on the economics associated with the fishery, particularly walleye, and large commercial companies like Omstead Foods and Presteve Foods run a fleet of boats, operate fish processing equipment, and employ hundreds of workers. Walleye ("pickerel" to many Canadians) is big business and each year, commercial operators send millions of pounds of the fish to processing plants for filleting, packing, and shipping to market. During the

twentieth century and today, Wheatley has prospered and suffered with the vicissitudes of Lake Erie’s fishery resources. Commercial Walleye landings in Ontario waters of Lake Erie have ranged from a high of 4.5 million fish in 1996 to a low of just 157,000 fish in 1976. In 2005, the harvest was 3 million fish (Lake Erie Walleye Task Group 2006). Wheatley’s story is played out across nearly a dozen other commercial fishing communities along Ontario’s Lake Erie coast.

Across the lake, in Port Clinton, Ohio, walleye is also big—so big, in fact, it has reached cult status. Each New Year’s Eve, the town celebrates “Walleye Madness,” a festival that includes singing the *Walleye Blues*, dancing the *Wallarena* (Port Clinton’s version of the *Macarena*), and reading the Mayor’s “Walleye Proclamation.” Restaurants serve walleye chowder, walleye sandwiches, walleye cinnamon chips, walleye popcorn, and even a local wine—Walleye White—bottled especially for the occasion. Walleye Madness reaches a fever



Figure 5-1: Commercial fishing vessels, Wheatley, Ontario (Photo: M. Gaden).

pitch when Wylie the Walleye, a 20-foot, 600-pound fiberglass fish drops from the sky (figure 5-2) in a countdown to midnight with the crowd chanting “give me a ‘W,’ give me a ‘Y,’ give me a ‘L,’ give me an ‘I,’ give me an ‘E.’” While recreational fishing in towns like Port Clinton is down from its peak in the early 1990s, the fishery still attracts hundreds of thousands of tourists each year to Michigan, Ohio, Pennsylvania, and New York and supports a lucrative charter fishing industry in those states.

This tale of two cities illustrates how enormously important walleye is to the people of Ontario and the four states that border Lake Erie, though in starkly different ways. In Canada, walleye is fished almost exclusively commercially. Commercial fishers seek small, young walleye and desire generous and stable abundances that support their investments in boats and processing equipment. In the United States, with the exception of a single commercial fisher in Pennsylvania who harvests around 200 walleye a year, anglers fish walleye exclusively recreationally.²⁸ While recreational fishers, too, desire abundant fish, they favor a quality fishing experience based on older and larger fish. Provincial and state governments manage walleye, and because hatchery programs are not used to support walleye stocks, management tools are limited to habitat protection, habitat restoration, and prudent harvest regulation through annual quotas. Commercial and recreational harvest quotas are adjusted annually based on the species’ natural changes in abundance.

Provincial and state managers use the Lake Erie Committee to manage walleye on a lakewide basis. The committee and its Walleye Task Group gather and digest scientific data, develop walleye management plans, and use those plans and data to determine the annual harvest quotas, known as *total allowable catch*, or TAC.²⁹ Like other lake committees, the Lake Erie

²⁸ Michigan, Ohio, and New York do have commercial fisheries for other species.

²⁹ New York and Pennsylvania are not part of the TAC, as their walleye fisheries are a fraction of those of the other jurisdictions on Lake Erie. New York and Pennsylvania do, however, participate actively in the TAC process, as their data contribute to the overall understanding of the fishery and decisions over TACs do affect them.

Committee members use the process to reach consensus and they agree to adhere to their decisions when they bring them forward to their own agencies. While these are normal functions for all lake committees, developing a TAC is not. Walleye TACs on Lake Erie are needed because of harvest pressures on this naturally occurring stock of fish.

Lake Erie state and provincial managers face considerable challenges in managing walleye because of its high profile, the different types of exploitation, and the natural fluctuations in the stock's abundance. Observed one long-serving participant in Great Lakes fishery management, "Lake Erie seems to be the hotbed of disputes. Although problems exist on the other lakes, they don't seem to boil up to the surface quite the way they do on Lake Erie." Said another, "there is no good time to be chair of the Lake Erie Committee." Nevertheless, the Joint Strategic Plan, most of the time, can and does help the Lake Erie Committee members come to



Figure 5-2: Wylie the Walleye drops from the sky at the stroke of midnight, New Year's Eve in Port Clinton, Ohio. (Photo courtesy Port Clinton Times Herald).

consensus on and adhere to an annual TAC. The members participate in the process in good faith, invest considerable time and energy into science, and are usually able to reach a TAC agreement. Usually, but not always. In 2003, the process to establish the 2004 TAC broke down such that the plan's dispute resolution provisions were invoked for only the second time in the plan's history.

The committee's behavior as it grappled with this dispute is a case study of how the non-binding, consensus-based Joint Strategic Plan handles the toughest of situations—allocation. Not only was the committee under the deadline to establish a TAC for the coming year, but the members had to contend with broken consensus, lost trust among members, strained relationships, conflicting goals, constituent pressures, and differing opinions about science. This chapter asks: *What is the mechanism for dealing with conflict when there are no binding enforcement provisions? How did the participants understand the walleye dispute as it occurred? How did the non-binding plan help the committee members resolve their dispute?* In addressing these questions, this chapter does not set out to determine which side was correct in the dispute nor does it assess whether the TAC decisions were appropriate. The Province of Ontario acknowledged that it precipitated the dispute by breaking the committee's original consensus to cut the TAC forty to sixty percent and, thus, this chapter takes Ontario's actions as the starting point. It focuses on how the Canadian and American jurisdictions perceived and responded to the situation.

To address this case study's questions, this chapter relies primarily on data from semi-structured interviews conducted for the larger research project about the Joint Strategic Plan (see Appendix A). Coincidentally, the walleye dispute unfolded shortly after the research project began. All five Lake Erie Committee members and several other officials from Ontario and the states were interviewed and were asked specific questions about the dispute; this chapter draws primarily from their responses. In addition, two Walleye Task Group (a technical subcommittee

of the Lake Erie Committee) members were interviewed³⁰ along, with several academicians and Great Lakes Fishery Commission commissioners and staff. The researcher reviewed public and confidential documents and participated in public and non-public Lake Erie Committee meetings, including Lake Erie Committee executive meetings and the dispute resolution session.

Confidential documents and emails referenced in this chapter are used with permission.

The dispute occurred because, in the words of one participant, “not everyone did what they said they would do.” The two major (and somewhat related) reasons for the broken consensus were (1) differences between the Americans and the Canadians in their respective tolerances for risk and (2) considerable pressure by the Ontario commercial fishing industry for Ontario to revisit the 2004 TAC decision (and the threat of a formal challenge to Ontario’s TAC regulations if Ontario did not revisit the decision). These pressures and risk perceptions created an “us versus them” division among the committee members, with the Americans strongly wishing to adhere to the original TAC decision and the Canadians interested in revisiting it. This polarization emerged even though the jurisdictions together collected and interpreted the science and developed overarching strategies for Lake Erie walleye management. The chapter argues that consensus is essential for reaching the TAC and strict implementation is critical to the Lake Erie Committee process if members, politicians, and constituents are to believe the TAC is fair. The process breaks down when consensus is ignored, when members detract from the agreed-to

³⁰ A limitation of this chapter may be that only two Walleye Task Group member were interviewed. This small number of participants is not intended to suggest that the task group’s role in this dispute was unimportant. On the contrary, the task group’s sentiments were important because the group’s work heavily influenced Lake Erie Committee decisions and Lake Erie Committee members’ arguments during the dispute. Only two Walleye Task Group member were interviewed because this case study (and, thus, the importance of understanding the sentiments of Walleye Task Group members) had not fully emerged at the time the researcher selected participants for the larger project and, thus, the researcher was not sensitive to the need to include more participants from this population. While the sentiments of Lake Erie Committee members were derived directly from interviews, the researcher was able to gain a reasonable understanding of the role and views of Walleye Task Group members by consulting their annual reports and other committee documents including the Coordinated Percid Management Strategy and the Walleye Management Plan. These documents remain critical to the annual TAC process and were instrumental in guiding the committee during the 2004 dispute. Further research into this case would be enhanced by in-depth interviews with Walleye Task Group members.

committee procedures, and when members violate the norms of the epistemic community.

Relationships become weakened as trust deteriorates and members become less interested in accommodating other members' needs.

The dispute over the 2004 TAC tested the limits of the non-binding Joint Strategic Plan. While the process to develop the 2004 TAC did lead to broken consensus, lost trust, hard feelings, and third-party mediation, the Joint Strategic Plan process did allow the participants, eventually, to agree on a TAC and avoid total stalemate. The non-binding plan was able to facilitate agreement in this difficult situation because of several design principles. First, the plan contains a dispute resolution process, which outlined how members could manage disagreements. Second, the plan relies on a perceived-neutral third party—the Great Lakes Fishery Commission—to help the members achieve what they might not otherwise be able to achieve on their own. Third, by relying on consensus, science, and strategic objectives the members develop together, the plan helps the members themselves answer their own questions, leaving little debate over the issues, as the data and plans are of and for the committee members. Finally, the plan, being non-binding, is designed to be flexible, allowing the members the ability to alter their decisions as-needed instead of being rigidly bound. This flexibility helps new consensus emerge and heightens the chances that members will comply. Importantly, members remain convinced that the Joint Strategic Plan is robust enough to deal with such a challenge effectively and they remain committed to interjurisdictional management through the plan. In the aftermath of this dispute, the Lake Erie Committee is going through a healing process and members say they have learned from the experience.

BEYOND THE USUAL LAKE COMMITTEE PROCESS: USING THE PLAN TO SET TACS

In many respects, the Lake Erie Committee operates just like the other lake committees. The committee serves as a forum for the managers to meet regularly, to share information, to reach consensus on science, and to develop shared objectives. The Lake Erie Committee

facilitates intergovernmental relations and because shared fish community objectives and rehabilitation plans guide their work, members feel obligated to adhere to their agreements and implement them, though the agreements are non-binding in any legal sense. Like the other lake committees, the members also use the process to know one another, to come to an understanding, and to implement shared policies while still respecting each jurisdiction's autonomy and independence.

The Lake Erie Committee, however, differs from the other lake committees in remarkable ways. While other lake committees manage shared, natural fish stocks, and while the others must balance competing interests, no other committee involves itself in distributional politics to the level of the Lake Erie Committee; the committee comes to a shared agreement, annually, over harvest quotas. For instance, while issues on Lake Michigan over Chinook salmon are certainly complex and require consensus on science and management (e.g., stocking levels), sport fishers do not compete with commercial fishers over salmon, as the salmon are fished almost exclusively recreationally.³¹ Moreover, because the species is stocked, managers do not need to set a TAC, as their stocking decisions affect abundances more so than lakewide harvest decisions. The Lake Erie Committee, on the other hand, must manage naturally sustaining walleye stocks over which commercial and sport fishers compete. Since the 1970s, when the agencies decided to manage walleye under a quota system (Berkes and Pocock 1987), the agencies have had to work together to come to an agreement on that quota, and the Lake Erie agencies use the Joint Strategic Plan's framework as their mechanism to negotiate.

Individual agency sovereignty is a major issue with the Lake Erie Committee. As chapter 1 has shown, the jurisdictions have a history of independence, creating an inherently parochial and uncooperative situation. Agencies on Lake Erie have the ability to license their fishery and exploit the resource as they see fit. Chapter 4 has noted that such independence means

³¹ Some tribal fishers opt to keep salmon.

jurisdictions have the ability to do what they please and, as such, implementation of a non-binding agreement like the Joint Strategic Plan is dependent on goodwill and other mechanisms like consensus to enhance the chances of compliance. Setting a TAC is thus a challenge because of competing uses of the same fish stocks (e.g., commercial versus sport harvest; preference for younger versus older fish), differing agency goals, and the strong need for all agencies to implement the agreement once it is reached. In the case of Lake Erie, unlike the other lake committees, self-interest is often framed in protecting the particular needs of the jurisdictions and ensuring the jurisdiction receives the appropriate allotment of fish, though self-interest also appears in the form of pleasing constituents—the Canadians tend to advocate commercial needs and the Americans to support recreational needs. Said an American Lake Erie Committee member,

at a minimum, you have two very differing agendas. Those very different agendas [affect] how the resource gets allocated, how it gets used and . . . how we interpret the data. . . . Our philosophies are not dissimilar . . . but these different agendas tend to change our individual risk analysis and our individual comfort levels.

Indeed, if the TAC is conservative, some Canadian stakeholders and politicians generally criticize the managers for not taking full advantage of the resource (“What do you want to do, fill up the lake with fish?” a politician once asked an Ontario manager). If the TAC is liberal, the managers often fear they are not protecting the stocks from bad times and some American stakeholders and politicians generally complain that the fishery is being given away to the Canadian commercial fishers.

However, self-interest, driven by exploitation pressures, is far from the only thing motivating Lake Erie Committee members. They are also aware that walleye, being natural stocks that fluctuate, must be protected at times and conserved for the future. In this case, self-interest is also framed in terms of resource conservation (at least long enough to allow the fish to reproduce). The process to determine the TAC, thus, begins with science and an understanding of what needs to be done to protect and sustain the fishery. The Lake Erie Committee has a Walleye

Task Group—like a technical committee, made up of biologists and experts at the field level—which is responsible for collecting data annually on the status of walleye stocks in Lake Erie, using data and modeling to estimate the size of the walleye stock, developing a risk assessment analysis tool, and producing a recommended annual harvest level for the Lake Erie Committee’s consideration (Lake Erie Committee 2004c; Lake Erie Walleye Task Group 2006). The Lake Erie Committee members expect the Walleye Task Group members to remain objective and to do their work free from constituent pressures and social considerations.³² Say the Terms of Reference, “the Walleye Task Group maintains objectivity through emphasis on a scientific approach . . . [and] is dedicated to employing the best science in order to support international management of walleye on Lake Erie” (Lake Erie Committee 2004c). The Walleye Task Group is expected to develop as pure an understanding of the resource as possible so that the lake committee can later factor in the social considerations. All jurisdictions on Lake Erie (including New York and Pennsylvania, which are not part of the TAC) have members on the Walleye Task Group.

With information from the Walleye Task Group in hand, the Lake Erie Committee members bargain over an annual TAC. This bargaining process is necessary for three primary reasons. First, bargaining is necessary simply because the jurisdictions share (and, thus, compete over) the walleye stocks. Thus, without a TAC, exploitation would be chaotic and potentially ruinous. Said a Lake Erie Committee member, without the process, “it would be much more of a free for all, with everybody trying to get everything they could so that somebody else didn’t get

³² Lake Erie Committee members stressed that they try hard to keep the political and social issues away from the Walleye Task Group. “I have told them we want to keep the [technical committees] pure in the scientific arena,” said a state lake committee member, “and that it is not for you [the Walleye Task Group member] to get into management issues.” Despite these good intentions, however, the lake committee and the technical committee members do not always believe the technical committees operate free from outside pressures. Said a technical committee member, with a bit of sarcasm, “we try to stay out of [politics, but] it’s a sanctimonious attitude to try to keep the technical committee pure—a bunch of virgins running out there.” “We all bring certain biases to whatever issue,” said an Ontario lake committee member, and a state colleague added that if anybody looks you in the eye and says “I just do science . . . [he] is lying or [he] lives in a cocoon somewhere.”

it.” Second, members believe the process is needed to create a sense of fairness. “Perceptions are important,” said a Great Lakes Fishery Commission official, and a state member added (perhaps with a bit of optimism), “our recreational anglers are willing to accept anything we come up with so long as it relates to what everyone else is doing and that it contributes to the well-being of the lake.” Third, and related to fairness, Lake Erie managers use the process to bolster their decisions and to make them more defensible with politicians and constituents. Said one member,

That is one of my challenges: . . . appeas[ing] the politicians . . . [I need to tell them] we have this shared resource and that is why it is important that we are dealing back and forth. And yes, sometimes the quotas may not [be as the politicians wish] but it is still better than working on our own. And that is what I sell to them.

Said another member, “the Lake Erie Committee gives me the high ground when I talk with my constituents.”

The Lake Erie Committee, like the other lake committees, relies on strong relationships to build trust, and on consensus as the foundation for its management decisions. Relationships in Lake Erie are important because members need to trust one another and believe that negotiations



Figure 5-3: Steve Gray, Director of Fish and Wildlife, State of Ohio (right) and charter captain Jerry Abele, Headhunter Charters, fishing walleye during the Governor's Fish Ohio Day 2006. (Photo courtesy L. Fletcher, Ottawa County Visitor's Bureau.)

are done in good faith. Participants must care about future interactions for the process to work. Consensus is critical because members are aware that each jurisdiction is independent and has the potential to harvest in ways that would deny benefits to the other jurisdictions. Thus, the jurisdictions need to come to an understanding amongst themselves. Consensus occurs after all viewpoints are heard, when a shared understanding emerges, and when members reach a point when they all accept—or at least can live with—the decision (GLFC 1997a). Consensus does not mean complete unanimity but it does mean that all members accept the decision to the degree that they will support and adhere to it. As outlined in chapter 4, a consensus-based process, based on strong relationships, helps develop policies that are perceived as fair, more defensible, and more likely to be implemented in the absence of a compelling authority because they reflect the true attitudes of the members. Breaking consensus undermines trust with colleagues and jeopardizes the relationships that are critical to the Joint Strategic Plan process. Moreover, because the members collect, share, and interpret the data together, and because they develop management plans, breaking consensus breaks one's word to one's colleagues and is contrary to one's own data and opinions.

Members use the Lake Erie Committee to come to consensus on data needs and interpretation, management plans and objectives, and the TAC. Strategies like the Coordinated Percid Management Strategy (Lake Erie committee 2003a), the Walleye Management Plan (Locke et al. 2005), and Lake Erie Fish Community Objectives (Ryan et al. 2003) reflect the group's consensus and communicate the agencies' management objectives. As chapter 2 has stressed, development of plans is a key feature of collective action because the process allows for positive interactions and the product reflects the consensus of the participants. Despite personal relationships among members, despite a regular process for interactions, and despite written management plans, reaching consensus on annual TACs is a considerable challenge, given the competing interests.

LAKE ERIE WALLEYE EXPLOITATION, 1920s TO THE PRESENT

While walleye has always been a high-value commercial species on Lake Erie, it has not always been near the top of the list in terms of fish production. Of the top ten commercial species in Lake Erie, walleye, until around the 1940s, ranked ninth in landings, just ahead of channel catfish (Baldwin et al. 1979; Nepszy 1999). As important commercial species such as lake trout, ciscoes, and blue pike collapsed after the 1920s (due to overfishing, habitat loss, and degraded water quality) harvest shifted to other species like walleye, yellow perch, and smelt. From the 1940s to around 1960, walleye was extremely abundant and the mainstay of the Lake Erie commercial fishery (Parsons 1970), with harvest peaking in 1956 at 6975 tons. After 1960, however, the fishery crashed, falling to 267 tons in 1962 and bottoming out in 1969 at only 161 tons (Baldwin et al. 1979; Hatch et al. 1987). Scientists blame this fast and severe decline primarily on overexploitation, in addition to competition with invasive species, habitat loss, and pollution (Hatch et al. 1987; Knight 1997; Koonce et al. 1996; Regier et al. 1969; Schneider and Leach 1977).

Until the early 1950s, American commercial fishers harvested approximately eighty percent of the walleye in Lake Erie (Parsons 1970). Between the 1940s and the mid-1950s, Canadians made significant investments in commercial fishing equipment, boats, and fish-processing infrastructure, leading to an increase of about eight-fold in its walleye harvest while the American exploitation rate stayed about the same. Thus, by the mid-1950s, Canada was harvesting approximately thirty percent more walleye than the Americans (Parsons 1970). This level of exploitation from both countries contributed to the walleye collapse of the late 1960s (Schneider and Leach 1977). During this period, neither the Canadian nor the U.S. jurisdictions imposed harvest quotas on commercial walleye fishing.

In 1970, just when people thought things could not be any worse for walleye, the Ontario Water Resources Commission discovered dangerously high levels of mercury in walleye flesh,

prompting the American and Canadian governments to close the commercial fishery entirely and prompting Michigan and Ontario to prohibit sport anglers from possessing walleye (Hatch et al. 1987; Knight 1997). In 1972, as mercury declined, Ontario, given its major investments in commercial fishing, re-opened its commercial walleye fisheries. Also during this period, sport fishing for walleye began to grow in popularity and all jurisdictions re-opened their sport fisheries. With larger sport fishing populations in the states compared to Ontario, sport fishing interests grew and successfully shifted state management focus away from commercial fishing (Hushak et al. 1986; Hushak et al. 1988). Because of the new emphasis on sport fishing, Ohio and Michigan opted not to re-open their commercial walleye fisheries after the mercury crisis.³³ All state jurisdictions on Lake Erie instead focused on supporting a burgeoning (and economically important) sport fishery; walleye were officially declared a game fish in Ohio in 1984 (Hushak et al. 1986).

Walleye management changed markedly after the dual crises of collapse and mercury contamination, particularly as water quality improvements and eased exploitation pressures (because of closed fisheries) gave managers a chance to rehabilitate the stocks. In 1973, after a multijurisdictional walleye meeting, the provincial and state agencies created the Scientific Protocol Committee “to evaluate walleye population dynamics and develop forecasts of abundance” (Hatch et al. 1987, p. 16). This committee—which became the Lake Erie Committee’s Standing Technical Committee and which evolved into the present-day Walleye Task Group—was responsible for developing a new TAC regime. This TAC regime began in 1975 and Michigan, Ohio, and Ontario agreed on quotas based on each jurisdictions’ surface area (Hatch et al. 1987; Knight 1997). Then, as today, each of the three jurisdictions in the TAC area remains responsible for implementing the TAC and retains the right to allocate the harvest between sport and commercial fishing as it sees fit. Since the TACs began in 1975, given the

³³ Though other species are still fished commercially in those states.

major investments in commercial fishing and the low sport fishing population, Ontario has allocated most of its harvest to commercial fishing. Michigan and Ohio, given the large sport fishing interests, have allocated all of their share to sport fishing. Today, New York's and Pennsylvania's walleye fisheries are also exclusively recreational.³⁴

The management changes of the 1970s not only set the stage for the current management regime but also contributed to a dramatic walleye recovery. Quotas did much to limit walleye mortality (Koonce et al. 1996) and improved water quality and habitat contributed to walleye survival (Knight 1997). The walleye fishery also benefited from strong year-class recruitment³⁵ in the mid-1970s and the mid-1980s such that by the late-1980s, walleye abundance was estimated to be around 80 million fish, many orders of magnitude higher than the early 1970s (Lake Erie Walleye Task Group 2006). The recovery of the 1970s and the booming walleye fishery in the 1980s precipitated major investments in Canadian commercial fishing and prompted a surge in American sport fishing. Sport fishing increased from approximately 100,000 fish³⁶ harvested in 1974 to more than 3 million by 1982 (Hushak et al. 1986). To take advantage of the prosperous sport fishery, a charter fishing industry expanded rapidly on Lake Erie, peaking at more than 1,200 licensed charter captains in 1990 in Ohio alone (Lichtkoppler and Hushak 2001).

After the mid-1980s, however, walleye again experienced a serious decline such that by 1996, walleye abundances were at less than 20 million fish, near the low numbers of the 1970s. Biologists on the Walleye Task Group attributed this sharp drop to recruitment failures for several years in the 1990s due to fewer fish being available to reproduce. Major changes in the Lake Erie ecosystem also occurred at this time, most notably the disruption in the food web caused by

³⁴ With the exception of a single commercial fisher in Pennsylvania who harvests an extremely small number of walleye, approximately 200 fish, for local sale

³⁵ The annual hatch of new fish.

³⁶ After the quota management system began in the 1970s, managers moved from establishing walleye harvest in weight to setting TACs by number of fish

invasive species (Lake Erie committee 2003a), which also likely contributed to this ebb in walleye abundance. The interest in sport fishing waned accordingly such that the number of charter fishing operators fell by nearly forty percent (Kuehn et al. 2005; Lichtkoppler and Hushak 2001).

The decline in walleye abundance became increasingly disconcerting to Lake Erie Committee members by the late 1990s, particularly because the fishery had become so important economically and socially to Canadians and Americans. Commercial fishers had invested millions of dollars in boats, staff, and processing equipment, and sport anglers had devoted considerable resources to establishing charter fishing businesses. (Even with the reduced number of charter fishers, recreational angling was still strong.) The provincial and state governments also benefited from royalties and license sales. Constituent groups in both countries became better organized and more powerful politically, particularly as they took a more active interest in the Lake Erie Committee's TAC-setting process. In Canada, the Ontario Commercial Fisheries' Association grew in stature during the 1980s and 1990s as it hired professional staff and lobbied government. In the U.S., fishing clubs and organizations—most notably the Lake Erie Charterboat Association—closely followed state management activities and have been vocal with Lake Erie managers and politicians.

The sharp slide in the walleye fishery in the 1990s made everyone uneasy and prompted managers to think more strategically about their management actions. As such, the Lake Erie Committee announced in March, 2000, that it would produce with the help of the Walleye Task Group, a three-year Coordinated Percid Management Strategy to guide walleye (and yellow perch) rehabilitation in Lake Erie.³⁷ The goal was to set appropriate TACs that would stabilize the fishery's age structure (i.e., avoid an over-reliance on one or a few year classes), prevent wild

³⁷ Elements of the Coordinated Percid Management Strategy were developed in 2000 and served to guide the Lake Erie Committee's decisions. However, the actual management strategy document was not published until 2003, a fact that was not lost on the constituent groups (particularly the Ontario commercial fishers) who wished to see the strategy that was guiding Lake Erie Committee decisions.

fluctuations in walleye numbers, and restore the fishery. Management decisions, including TACs, would be weighed against the Coordinated Percid Management Strategy. The strategy said that TAC decisions would be made to prevent the lakewide abundance of two-year-old and older walleye from falling below nineteen million fish, a threshold designed to protect the younger fish from harvest to improve the chances they would grow old enough to reproduce (Lake Erie Committee 2000; Lake Erie committee 2003a; Lake Erie Walleye Task Group 2006). The Coordinated Percid Management Strategy ended in 2003 and was replaced in 2005 with the Walleye Management Plan, a plan also developed by the Lake Erie Committee with the help of the Walleye Task Group. The management plan stayed the course set by the management strategy by maintaining the nineteen-million-fish-threshold, though it also significantly refined the criteria for setting TACs. The management plan is based on the broad Lake Erie Fish Community Objectives published in 2003 (Ryan et al. 2003. See also Appendix D). Thus, like other lake committees, the Lake Erie Committee relies on plans and objectives to guide its management decisions.

THE 2004 TAC DISPUTE AND WHY LAKE ERIE COMMITTEE MEMBERS BELIEVE IT OCCURRED

The Lake Erie Committee's process to establish TACs usually leads to consensus and the individual agencies usually implement what they agree to. Normally, the Joint Strategic Plan helps the members develop a TAC because the Lake Erie Committee process is well-established. Members have ample opportunities to develop relationships, trust exists, the committee provides the Walleye Task Group with the resources to do its job, members rely on consensus-based plans and objectives to guide their decisions, and members realize the alternative to reaching a decision is chaos. In 2003, however, the process to establish the 2004 walleye TAC broke down to the degree that the Lake Erie Committee declared itself at an impasse and requested the Great Lakes Fishery Commission facilitate third-party mediation, as permitted under the Joint Strategic Plan. This chapter does not attempt to determine who was right and who was wrong in the dispute nor

does it evaluate the appropriateness of the final resolution. Instead, this chapter presents how those who participated in the Lake Erie Committee process during the time of the dispute perceived the situation and how they expected the Joint Strategic Plan to help them resolve it. Because Ontario acknowledged it broke consensus (and, thus, precipitated the events of 2003 and 2004), this chapter outlines Ontario's arguments and discusses how the states reacted to them.

What led to the dispute?

Poor walleye recruitment during the 1990s and early 2000s resulted in a severely reduced fishery. Provisions of the Coordinated Percid Management Strategy thus called for conservative TACs to rebuild the stressed walleye stocks. In 1998, the TAC was at a near-high level of just over 10 million fish, even though walleye abundances were estimated to be near a 20-year low of 20 million fish (figures 5-4 and 5-5) (Lake Erie Walleye Task Group 2006). This situation prompted the Lake Erie Committee to reduce the 1999 TAC to 9 million fish and to further reduce it to 7.7 million fish in 2000. Leading up to (and during) the late 1990s, weak or below-average walleye hatches suggested that walleye abundances approaching the mid-1980s high of 70 million fish in the lake would be very unlikely in ensuing years. In fact, in July, 2000, the committee announced it was taking action to "halt any further decline" in walleye abundances which would, starting with the 2001 fishing season, entail "substantial changes to the walleye harvest strategy by . . . setting more conservative Total Allowable Catch (TAC)" (Lake Erie Committee 2000). In 2001, the committee slashed the TAC to 3.4 million fish (a fifty-nine percent cut from the previous year) and agreed to "not go higher than 3.4 million fish [per year] over the next three years . . ." (Lake Erie Committee 2001). Said the committee, the TAC could go even lower after the Coordinated Percid Management Strategy expired in 2003 if spawning remained poor.

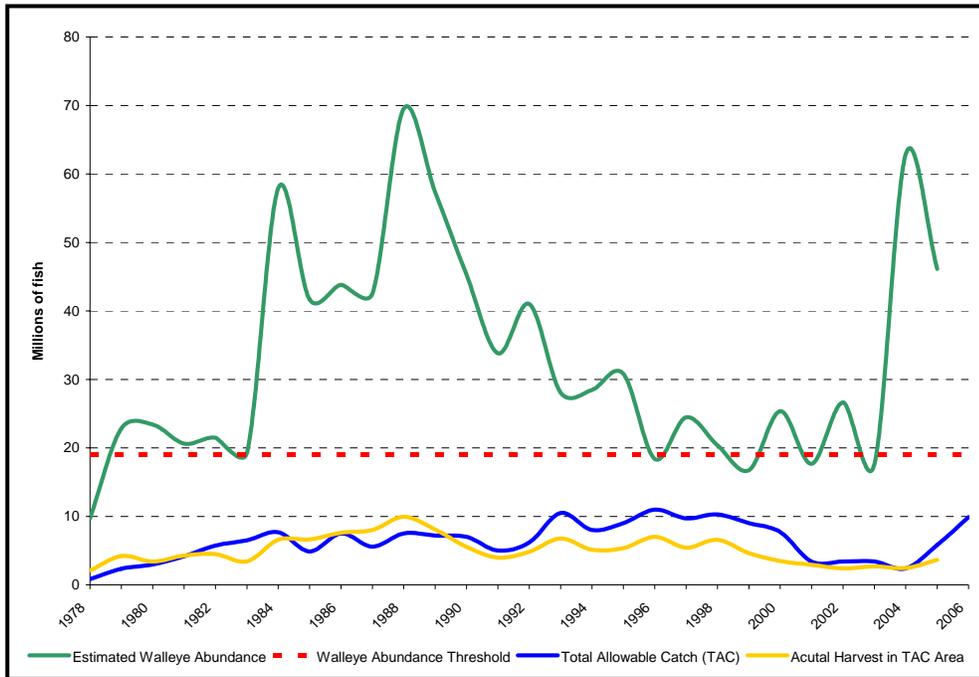


Figure 5-4: Lake Erie estimated walleye abundance, walleye abundance threshold, TAC, and actual harvest in TAC area (Michigan, Ontario, and Ohio), 1978-2006. All data in millions of fish. Figure: M. Gaden. Data Source: Lake Erie Walleye Task Group, 2006.

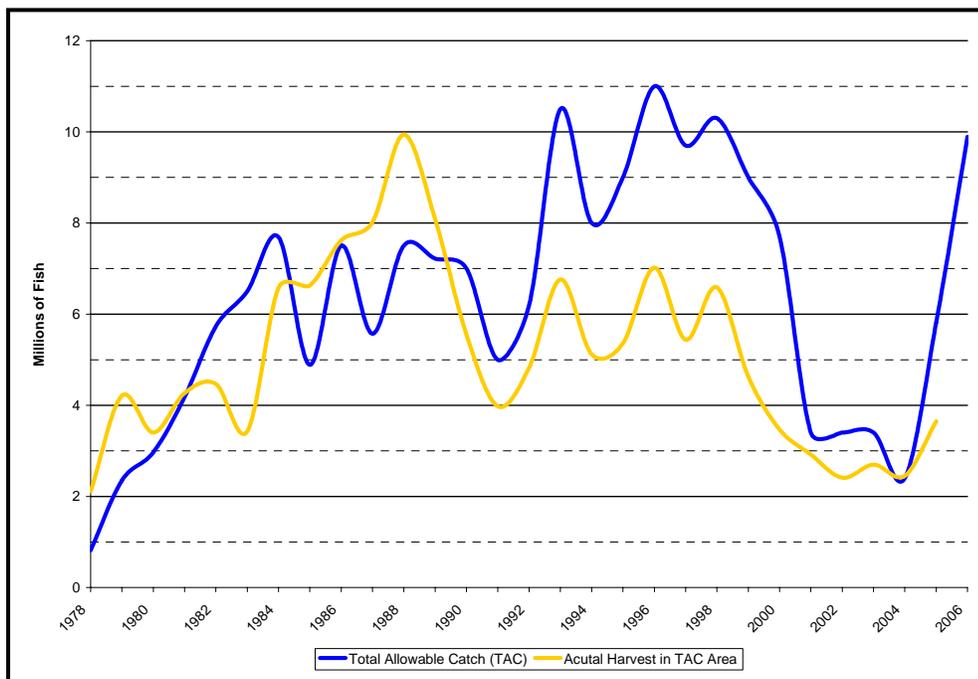


Figure 5-5: Lake Erie walleye TAC and actual harvest in TAC area (Michigan, Ontario, and Ohio), 1978-2006. Same data as figure 5-1, but different scale. All data in millions of fish. Figure: M. Gaden. Data Source: Lake Erie Walleye Task Group, 2006.

Poor it remained and the Walleye Task Group, in March, 2003, recommended that the Lake Erie Committee reduce the 2004 TAC “below the 3.4 million ceiling agreed upon by the [committee] as part of the [Coordinated Percid Management Strategy].” In fact, the Walleye Task Group, using the nineteen-million two-year-old-plus fish threshold as a benchmark, noted scenarios where the 2004 TAC would have to be cut to as few as 0.8 million fish (a sixty-seven percent cut from the 2001-2003 TAC), just to ensure “the minimum [population] level required to prevent further declines” (Lake Erie Walleye Task Group 2003, p. 135). As such, the Walleye Task Group encouraged the committee “to advise stakeholders that the [Recommended Allowable Harvest] for 2004 will be considerably below 3.4 million fish” (Lake Erie Committee 2003b, p. 135). The Lake Erie Committee took this advice and, noting no improvement in walleye hatches or abundances, announced in April, 2003 that the 2004 TAC would be cut by forty to sixty percent from the 2001-2003 annual TAC (Lake Erie Committee 2003b). Some committee members, in fact, would liked to have reduced the TAC starting in 2003 but instead agreed to stay the course of the Coordinated Percid Management Strategy. One reason they did not change the 2003 TAC was because the states needed a year-long lead-time to change their sport regulations (e.g., bag limits, seasons, size limits). Thus, it would have been unfair to ask Ontario to cut its commercial TAC—as it could have done immediately—without a commensurate change in American regulations. As it stood, the members were comfortable with delaying the TAC reduction until 2004 because all members consented to reducing the 2004 TAC by forty to sixty percent, a level they believed would protect the fishery. With this reduction, the TAC would fall from 3.4 million fish in 2003 to as few as 1.4 million fish in 2004. During a meeting of March 25, 2003—the day before the committee would announce the 2004 TAC-cut publicly—the committee engaged in a lively discussion, *in camera*, to ensure everyone was clear about their decision and to draft the public announcement line-by-line. The committee members were well aware of the momentousness of the decision. Members who were interviewed for this

research reported they walked out of that meeting believing they had reached consensus on the forty to sixty percent reduction for 2004.

Noting the year-long lead time the state agencies needed to change fishing regulations, the group agreed to meet in June, 2003, to discuss the steps their individual agencies would take to implement the 2004 reduction. Ontario, having the ability to issue regulations just prior to a commercial fishing season as a “condition of license,” did not require the same lead time as the states. However, such lead time was seen as beneficial, as it would give Ontario the chance to advise its industry to prepare for the substantial cut. During the period between the March, 2003 TAC announcement and the June meeting, the members went back to their jurisdictions and began taking the steps necessary to implement the agreed-to TAC reduction for 2004—the members met with stakeholders, discussed the consensus opinion, and argued the case. By the time the June meeting occurred, the state members, believing the committee’s consensus opinion, had begun to change their fishing regulations (action from which it was difficult to retreat) to implement the TAC reduction. All jurisdictions reported receiving pointed comments from their stakeholders.

During the June, 2003 meeting, however, Ontario informed the states of its intention to reduce its commercial TAC by only twenty percent (half the reduction Ontario agreed to in March) and to institute a commercial fishing closure from January to 15 May to protect spawning stocks. Ontario argued that upon reflection and based on its information, such actions would be more beneficial to the walleye stocks than a forty to sixty percent TAC reduction. Ontario believed its proposal to reduce commercial harvest by twenty percent and to close the season from January to May 15 would be sufficient to protect the fishery, and in a June, 2003 letter to the Lake Erie Committee chair, Ontario noted “We believe that walleye population growth is being limited primarily by poor recruitment and not only by exploitation and that deep cuts to the already small harvest will not be relevant.” Thus, Ontario, by June, was arguing that the

recommended actions—to cut the TAC in order to strengthen the fishery—was unnecessarily risk-averse would in fact do little to improve recruitment.

Ontario also argued that new scientific information warranted a new look at the March, 2003 consensus decision. Preliminary reports from the Walleye Task Group (not available in March, 2003) indicated that the 2003 walleye hatch would be very large, suggesting that good times were ahead for Lake Erie. Ontario interpreted those data to mean that a forty to sixty percent TAC reduction would be too conservative. (The 2003 hatch was indeed, as one member put it, “off the scale;” by far the largest hatch in decades.) Ontario thus believed that the committee’s March decision was premature; the committee had decided to reduce the 2004 TAC substantially in the absence of relevant information. Ontario, during discussions in February, 2004, stated that the Walleye Task Group science that underpinned the March, 2003 consensus, was difficult to justify and “arbitrary.” Therefore, it was perfectly reasonable to revisit the decision.

Moreover, Ontario argued, the states, in its estimation, were not adhering to the TAC decision anyway. In a September, 2003 letter to the committee chair, Ontario stated that “if all [state] proposals [for how they will adhere to the 2004 TAC decision] are taken at face value, no jurisdiction is currently achieving a 40% harvest reduction.” Ontario believed that Michigan’s regulation changes would amount to a twenty-seven percent reduction in harvest and Ohio’s changes in only a five percent reduction in harvest. Ontario pointed out that its twenty percent reduction was similar to what the states were proposing and that no jurisdiction was taking action to achieve a forty to sixty percent reduction.

The state lake committee members were stunned that Ontario would break the consensus in June after the TAC decision was crafted so carefully, after it was announced publicly in March, and after the states had taken steps to implement the decision. The states vehemently disagreed with Ontario’s arguments. Said one lake committee member in an email,

It was clear [after the June, 2003 meeting] that the [Ontario] viewpoint on how to best rehabilitate walleye stocks and associated fisheries in Lake Erie is not in concert with a TAC of 1.4 to 2.0 million fish [the forty to sixty percent cut].

Said another state member in an email:

I was caught off-guard at our [June, 2003] meeting by the proposal put forth by [Ontario] to modify Ontario's walleye harvest strategy in 2004. . . . [W]e had a consensus agreement in March 2003 to lower the walleye TAC by 40 to 60%.

Ohio and Michigan also took strong exception to Ontario's claim that those states' harvest reductions fell short of the agreed-to TAC cut. Ohio pointed out that it had, for years, harvested far below its TAC—in 2003, for instance, Ohio harvested a little over 1 million walleye, or just sixty percent of its 1.75 million allotment (Lake Erie Fisheries Units 2004; Lake Erie Walleye Task Group 2004). Ohio thus argued it could in fact absorb a forty percent TAC reduction with absolutely no changes in regulations and that Ontario's criticisms about its five percent reduction were groundless. Ohio added that although it did not need to install changes to adhere to the committee's 2004 TAC decision, it planned to reduce its catch limits and increase the minimum size for walleye to take some conservation steps and to show it stood in solidarity with the other members. Michigan also rejected Ontario's claim, pointing out it had a TAC of 0.18 million fish while harvesting 0.13 million fish (Lake Erie Walleye Task Group 2004) or seventy-two percent of its TAC. Michigan increased the size limit for walleye, reduced the daily catch limit, and closed the fishery in April. These measures, they argued, plus the fact that it did not harvest all of its TAC, would amount to a forty percent reduction in harvest.

The Americans also believed Ontario's proposal to reduce harvest by twenty percent would be too little to reach their shared objectives. They reminded Ontario that it had a TAC of 1.47 million fish and actually harvested 1.46 million (Lake Erie Walleye Task Group 2004), or approximately ninety-nine percent of its TAC in 2003. Thus, in order to achieve the desired harvest reductions, Ontario would have to reduce its TAC by at least a full forty percent. Ontario did question the validity of the sport-harvest statistics, observing that while commercial harvest is

calculated precisely (there are port observers and other measures to ensure the accuracy of commercial catch), far more uncertainty exists about sport harvest, as sport harvest data relies almost entirely on the assumption that sport anglers will stay within their bag limits. Thus, Ontario argued, its proposal for a twenty percent cut was reasonable because when Ontario reduces its TAC, the harvest falls by that same amount, as Ontario can control its commercial harvest very precisely. The states could not be so accurate, prompting Ontario to question the states' plans.

What particularly irritated the Americans, however, was Ontario's use of science. "[Ontario] came back to us and tried to argue that [they] had a change of heart because of the data," said an American committee member. Americans indeed believed vehemently that it was inappropriate for Ontario to announce it was abandoning a decision because it thought it had better science, particularly because the committee members—from both sides of the border—developed and interpreted the science together prior to the consensus. American members—members of an epistemic community of scientists and managers—were insulted that Ontario would try to re-interpret the data in a way that they felt was political. Said one state manager,

Let me tell you what caused the most grief to me over this whole thing: to have [Ontario] sit there . . . and mouth technical considerations as being why they did what they did. I mean, just tell us you can't do it. But don't come back and say 'your science is no good,' 'we've got better science,' that 'the assessments were incorrectly done.' Because number one, [Ontario does not] know that. And it's not true. And that bothered me . . . How do you build consensus if folks are blowing that kind of stuff at you?

Americans believed Ontario was under intense pressure from commercial fishing interests and was unable to stomach the criticisms they received from the organized commercial fishing industry after the TAC was announced.³⁸ Said one American during the interviews for this research, reflecting a universal view among American managers, "the only reason I can come

³⁸ The Ontario Commercial Fisheries' Association did make it clear that they believed the 2004 TAC was too conservative and that if Ontario agreed to it, the association would formally challenge it before the Minister of Natural Resources. The association did, in fact, follow through on its notice, as discussed below.

up with [for them breaking consensus] is that their stakeholder group made it very well known that they wouldn't stand for it." The state managers believed Ontario was thus using the strong 2003 year class as a convenient excuse to go back on its commitment. While some in the U.S. acknowledged that the 2003 year class "softened the level of crisis," they also pointed out that one strong year class after a long string of barely average (many below average) year classes did not constitute a recovery. They argued that the fundamental science behind the Coordinated Percid Management Strategy and the committee's decisions was still consistent with their shared goals for Lake Erie. Noted one American,

The truth was, when you sat down and looked at the numbers—think about the [walleye] population dynamics—what we have is an opportunity to protect a strong year class [the 2003 hatch] and then allow that year class to grow and eventually contribute to other year classes . . . And so the argument that they [Ontario] were making—[that] we should use the other information—I would argue we did. We looked at the new information and said 'we're right on the mark. We should be protecting the 2003 year class.'

Beyond rejecting Ontario's claim that the new data necessitated a new decision, Americans were quite disturbed about the manner in which Ontario broke consensus and its perceived lack of respect for the other jurisdictions. The Americans were caught off-guard by Ontario's announcement, which violated the norms of a process that places a high value on trust, openness, and personal relationships. The accepted approach to scientific uncertainty is to work together, through appropriate technical committees, to reach consensus on the science. Said one American member, in an email after the June meeting,

While I have the utmost regard for the scientific competence of Ontario fishery scientists, this perspective [Ontario's new interpretation of the science] must be reviewed via the extant interagency framework (i.e., the [Standing Technical Committee] and Walleye Task Group) before being considered as an alternative to the LEC decision to reduce the TAC by 40%-60%.

Added another,

While I have tried to understand the rationale proposed by [Ontario] . . . [t]his newly proposed approach . . . is clearly a shift from the consensus-based decision making process we have all enjoyed in the past interjurisdictional and international management of these waters.

Americans believed they had an effective process—the Walleye Task Group—to understand the science and that Ontario’s unilateral interpretation of science sidestepped the committee’s procedures.

Overall, the American reaction to Ontario’s claims was negative because they saw Ontario as operating outside of the norms of the Lake Erie Committee. The Joint Strategic Plan process is designed to facilitate joint scientific discovery so that all members can be confident in the information they have and can use that information to affect shared decisions. The Walleye Task Group comprises Canadians and Americans and the group functions as an epistemic community, with members generally sharing an understanding of appropriate scientific protocols. The Lake Erie Committee also functions as an epistemic community, agreeing to base its decisions on the best science available and the group’s consensus. The fact that the participants together reached consensus on the science helped the members spot when their decisions were being ignored for inappropriate reasons. By abandoning a consensus decision because of its singular interpretation of the science, American members believed Ontario tried to argue its case on interpretations that were not accepted by the scientific or management communities. When one or more jurisdictions depart from the community’s norms, the Joint Strategic Plan members know it readily, and the epistemic community served as a check against politicized science.

More consistent with the norms of the Joint Strategic Plan process would have been for Ontario to frame its arguments in terms that everyone could appreciate—implementation challenges. As chapter 4 has argued, implementation of lake committee decisions is always a challenge, and internal forces have the potential to work against shared decisions. Indeed, members know that jurisdictional independence is the reality in Great Lakes fishery management, and it would have been better, Americans argued, if Ontario had confessed it was skewered by its stakeholders and could not implement the commitment. Instead, Ontario, in their view, attacked the very science it helped to generate and support. Said one manager: “If there is better science . . . get it to the table. Don’t come to me after the fact and say ‘my scientists said this.’ Wait a

minute: who stuffed a sock in their mouth during the process?” Said a long-time American observer, “Once you have made a commitment, you can always come back into the arena and say ‘guys, you have got to help me. I am getting killed. I shouldn’t have agreed to this,’ and say ‘how can we work on this together?’ as opposed to coming back and saying the ‘science isn’t good enough.’” Said another observer, if Ontario had just come to us and said “‘We’re sorry, we screwed up. We talked a good show in March 2003 but I can’t deliver. I just need your help to get through this one.’ But [Ontario] didn’t say that.”

Ontario, for its part, was not convinced the Americans would have been helpful regardless of what they argued. Ontario believed the American Lake Erie Committee members were closed-minded, inflexible, and altogether unwilling to make a change in policy, even in light of the new information about the spectacular 2003 hatch. Said an Ontarian:

If I make a decision and I get new information, then I am prepared at any time to revise that decision to reflect that new information, because I think you get a more informed outcome as you get more information. And the LEC [Lake Erie Committee] folks were not interested in looking at anything other than what the consensus decision was in 2003.”

Ontario added:

Every time [Ontario] tried to bring up the fact that [there was new data] and say ‘well, let’s have a look at what you are doing,’ [the answer was] ‘no.’ It certainly was a fair assessment that the four U.S. jurisdictions were more concerned with keeping the consensus agreement than looking at new information and revising what [Ontario] termed a poor decision.

Ontario, in other words, felt the American inflexibility was not only unwarranted given the new information, but was significantly undermining sound management and Ontario’s relationship with its key stakeholders. Ontario saw the Americans as unwilling to take steps to help Ontario ensure defensible policies and implementation. If the Joint Strategic Plan indeed relied so heavily on relationships and goodwill among the members, Ontario wondered, why were the Americans so uninterested in their future relationship with Ontario officials? If the process was designed to allow members to be flexible and to base policies on the best science available, why were the Americans adhering so strongly to decisions based on what Ontario saw as outdated information?

If the plan was designed to heighten the chances the policies would be implemented in the absence of a binding agreement, why were the Americans so unwilling to help Ontario deal with the major implementation challenges? From Ontario's perspective, the Lake Erie Committee process was not serving its needs nor was it helping to build defensible policies.

As Ontario observed, the Americans were, in fact, uninterested in revisiting the decision, partially because they did not believe the "new" science was truly new. They did not believe the 2003 hatch information was compelling enough for the committee to detract from their long-term goal of rebuilding and protecting the fishery, particularly because there was no indication that the 2003 hatch, while strong, would be more than a one-time event. Mostly, however, the Americans saw it as imperative, for the sake of the committee's credibility, to stick with their consensus decision and maintain the process. They felt that Ontario was not interested in long-term relationship-building, rather, was ready to disregard hard-won consensus for short-term political reasons. "It's not a question of recognizing what consensus is," said an American observer, "[Ontario] didn't recognize they were in a consensus-building process."

The Lake Erie Committee held another meeting in August, 2003, to try and reach consensus on a new TAC. In light of the strong 2003 hatch, and to help foster an agreement, the Americans proposed changing the TAC reduction from forty percent to thirty percent. While they had not changed their minds that significant cuts in the TAC needed to occur to protect the fishery (recall, the Walleye Task Group did recommend major reductions), the Americans reported during interviews that they wanted to avoid mediation, primarily because they worried a mediator would be willing to compromise too much and that mediation would suggest it was appropriate to substitute a third party's opinion for real decision-making. Moreover, reliance on mediation, some feared, could unravel the preferred, consensus-based process to develop TACs and allow a third party to usurp their independence. Ontario, confident in its twenty-percent-cut proposal, felt a thirty percent reduction was still too risk-averse and rejected the Americans' counter-offer. On September 24, 2003, Lake Erie Committee chair Rickalon Hoopes of

Pennsylvania wrote to Great Lakes Fishery Commission executive secretary Chris Goddard declaring an impasse over the 2004 TACs and formally requesting that the Joint Strategic Plan's conflict resolution procedures be invoked.

How Lake Erie Committee members expected the Joint Strategic Plan to handle the dispute

The Joint Strategic Plan acknowledges that the normal lake committee process might not be able to settle all issues. The Great Lakes Fishery Commission is expected to lead the dispute-mediation process. The plan gives the commission four options:

If consensus cannot be achieved, a party may (a) request the [Great Lakes Fishery Commission] to arrange/facilitate an information exchange forum, (b) seek advice of existing plan committees, (c) ask the commission to arrange third-party mediation with any resolution being endorsed through the normal plan procedures, and/or (d) ask the commission to arrange a process involving a mutually acceptable third-party intermediary to make a non-binding recommendation (GLFC 1997a).

Only one time prior to 2003 did lake committee members invoke the plan's dispute resolution provisions. In 1992, Ohio and Ontario could not agree over whether yellow perch quotas should be based on each jurisdiction's geographical waters or on historical harvest levels (Mehan 1996). The Joint Strategic Plan, at the time, called upon the Great Lakes Fishery Commission to "hold a hearing and arbitrate differences, report its findings, and make recommendations for resolution to proper agencies" (GLFC 1981a). When the commission began the process to arbitrate the 1992 dispute, the Canadian federal government objected, citing among other things the fact that the commission had an inherent conflict of interest in that Canadian commissioners were also representatives of the parties to the dispute³⁹ (Mehan 1996). The Canadian federal government instead proposed that the two federal governments arbitrate disputes in a binding way, but the U.S. federal government, citing states' rights, rejected the idea. The fear of significant federal

³⁹ One Canadian commissioner is traditionally a representative of the Ontario Ministry of Natural Resources and two commissioners are representatives of the federal Canadian Department of Natural Resources.

involvement in arbitrating the dispute prompted Ohio and Ontario to settle their disagreement without invoking the Joint Strategic Plan's dispute resolution provisions.⁴⁰

Today's dispute resolution provisions, developed in 1997, are different from those used in the 1992 dispute. During discussions leading to the plan's 1997 revision, participants in a workshop noted that the then-existing dispute mechanism was not helpful, primarily because (being binding) it did not respect management authorities, it did not acknowledge jurisdictional sovereignty, and it did not facilitate jurisdictions' trying to solve their problems before going full-force into arbitration (GLFC 1997b). The present-day dispute mechanism focuses on the concept of "mediation" as opposed to "arbitration." *Arbitration* is akin to a ruling from a judge, who would decide who was right and who was wrong. In contrast, *mediation* is way to help the parties themselves come to a decision they can accept (Mehan 1996). In 1997, the members thought a process based on arbitration was inconsistent with the plan and thus changed the plan to its present wording—wording that focuses on helping the participants solve disputes themselves, but with a little help from the commission. It was such a process the Lake Erie Committee invoked in its September 23, 2003 letter to the commission. The members expected the commission to help them re-reach consensus. They did not expect the commission—or any other party for that matter—to assign blame or to provide a ruling on what the TAC should be.

Because the Joint Strategic Plan includes four options for mediation (information exchange, advice from committees, third party mediation with recommendations for lake committee action, and third-party mediation with a recommendation), the fishery commission had some discretion over how it would structure the mediation process. Consistent with the spirit of the plan, the commission wanted to do as much as possible to help the Lake Erie Committee members reach their own settlement quickly—the 2004 fishing season was fast approaching. As such, the commission held a single conflict resolution session in February, 2004. With the

⁴⁰ The literature lacks an accounting of the 1992 dispute. Such an accounting would shed much light on federalism and how the non-federal jurisdictions perceive the involvement of their federal agencies.

consent of the Lake Erie Committee members, the commission asked Burton Ayles, a retired senior official from the Canadian Department of Fisheries and Oceans (and a former commission member), and Mike Conlin, the sitting chief of fisheries for Illinois, to lead the mediation. Neither of these two officials, participants believed, had a vested interest in Lake Erie walleye, both were aware of the 1992 dispute and the process' shortcomings, and both were familiar enough with the Joint Strategic Plan to appreciate the importance of helping the disputants themselves reach consensus. The commission assembled background information in a briefing book and Lake Erie Committee and Walleye Task Group members made presentations during the conflict resolution meeting.

After participants presented their positions and (sometimes pointedly) aired their opinions about each others' views, the mediators attempted to help the group gravitate toward a new consensus. While Ontario and the states did move in the direction of the states' proposal of a thirty percent TAC reduction, Ayles and Conlin reported: "It is with regret that we tell you that, despite some progress towards a consensus, the group failed to reach a final decision." The mediators, however, believed the participants were close enough to agreement that a new consensus could be reached through the regular Lake Erie Committee process. The mediators provided the Lake Erie Committee with a report containing recommendations and, subsequently, the committee met to come to a shared understanding of what the mediators were recommending and to try to reach a new consensus on the 2004 TAC. Members discussed the report, weighed its recommendations against their understanding of the science and what they could implement, and settled on a 2004 TAC of 2.4 million fish, a thirty-percent reduction from 2003 (Lake Erie Committee 2004b). They announced this decision publicly during the regular March Lake Erie Committee meeting. While the Americans still had hoped for the forty-percent reduction (they had, after all, taken regulatory steps to adhere to it and believed the science justified it), the committee was able to accept a thirty-percent reduction based on the strong 2003 hatch and knowing that Ontario would have serious difficulty adhering to a larger cut.

Although the Lake Erie Committee did reach a new consensus on the TAC, Ontario had one more hurdle: the Ontario Commercial Fisheries' Association, believing a thirty percent cut to be too conservative, formally asked the Hon. David Ramsay, Ontario's Minister of Natural Resources, to reject the TAC Ontario agreed to during the lake committee meeting. This appeal illustrates that while the Lake Erie Committee develops a TAC and agrees to implement it, the managers can be overruled by other forces at home. (Though rare, state managers could just as well have had their proposed regulation changes rejected by the home agency or the state legislatures.) The province convened a hearing on July 7, 2004 to hear the commercial fishing industry's complaint. A retired Ontario Deputy Minister, George Tough, chaired the hearing and the researcher attended. During the hearing, the commercial fishing industry argued that the Lake Erie Committee process was dysfunctional. The states were too risk averse in setting the TAC (even the new, less-conservative TAC that emerged after the mediation) and the process allowed the four state jurisdictions to band together and out-manuever Ontario.⁴¹ They also argued that consensus was poorly understood, that the state members were unwilling to even consider Ontario's opinions about the new science, and that the process was too cloaked in secrecy to be credible (Tough 2004). The industry pointed out that it did not have access to basic information from the Lake Erie Committee, and the fact that committee decisions were made without participation from key constituencies led to unreasonable, indefensible policies.

⁴¹ The researcher (Marc Gaden) attended this hearing as a participant-observer, to collect data for this chapter. Gaden also attended at the request of Ontario to provide testimony on behalf of the Great Lakes Fishery Commission about the Joint Strategic Plan process. The hearing officer, however, denied Ontario's request to have Gaden deliver his presentation because Ontario had failed to notify the Ontario Commercial Fisheries' Association that it had requested the presentation. With the consent of the association, the hearing officer did ask Gaden to provide an abbreviated version of his presentation, focusing on the role of consensus in the committee's decision-making process. Given the floor, Gaden used the opportunity also to provide his thoughts about earlier statements that the state managers on the Lake Erie Committee were "closed minded" to any of Ontario's proposals. Gaden pointed out that the state members did in fact agree to revisit the 2003 TAC, to review the scientific data, and to work with Ontario to improve the decision-making process (Tough 2004). The industry was not moved by Gaden's comments, stating it "did not expect this defense of the system; the claim that the system works is a good indication of the problem" (Tough 2004, p. 9). The hearing officer was not impressed either, noting in his conclusions that the state committee members "seemed to have been more concerned about the need to maintain consensus than the legitimacy of reviewing decisions based on new information" (Tough 2004, p. 26).

Industry's arguments resonated with Mr. Tough. Although Mr. Tough observed that Ontario's participation in the multijurisdictional Lake Erie Committee is "essential to successful management of Lake Erie's fisheries," he also noted that the ministry needed to be "concerned about its stakeholders—in this case, the commercial fishing industry" (Tough 2004, p. 23). Mr. Tough believed that the states were indeed inflexible and closed-minded, and, as such, Ontario was faulted for breaking consensus when

nothing at the hearing explained why a new consensus, reflecting faithfully the latest information, could not be reached. The implication in the Ministry's submission seems to be that Ontario had, at some cost to the system and to itself, broken ranks with its sister agencies, and that its views would not prevail (Tough 2004, p. 24).

Mr. Tough informed Minister Ramsay that, in his view, the revised 2004 TAC (a 30% reduction) was too conservative and that the process did not respect Ontario's rights.

Minister Ramsay disagreed with Mr. Tough and upheld Ontario's and the Lake Erie Committee's revised 2004 TAC decision. In a September, 2004 letter to industry (months after the start of the 2004 fishing season), the minister stated he was "satisfied that the Ministry of Natural Resources' (MNR) management of commercial fish licenses [had] been appropriate" (Ramsay 2004). While the Minister did call for improvements in the Lake Erie Committee's process (including making Walleye Task Group data and other products available to industry), he ultimately supported the committee's revised consensus decision and affirmed Ontario would implement the new TAC. The dispute was over.

All participants acknowledge it was a difficult year. Ontario recognized it broke consensus and relationships suffered. The states grappled with how to accommodate Ontario's requests while still preserving the process and adhering to the science. The Walleye Task Group operated under intense pressures while still staying true to its scientific mission. The Great Lakes Fishery Commission had to invent and carry out a legitimate dispute resolution process. The commercial fishing industry was hurt economically by the reductions and fought to become players in what it saw as a non-transparent process. Politicians had to make the hard decisions

and decide whether to support their fishery managers. Overall, the dispute damaged trust and personal relationships, undermined the role of science, and prompted questions about the process' legitimacy.

Although the Lake Erie Committee was able to come to a new consensus agreement that the agencies ultimately supported, the Great Lakes Fishery Commission was concerned about damage to the working relationships; relationships that are so important to the Joint Strategic Plan. In a postscript to the dispute, and perhaps sensing the need for relationship-repair, the commission invited the five Lake Erie Committee members to a dinner meeting in London, Ontario, to conduct a post-mortem on the dispute and to gauge just how damaged the process was. Said one dinner guest,

One of the biggest benefits that came out of the whole mess was after the mediation, the five of us sat down over dinner with [Great Lakes Fishery Commission executive secretary] Chris [Goddard] and we came to a new personal understanding on how we were going to operate to avoid those kinds of mistakes from happening again.

The commission clearly believed that along with the formal conflict resolution process there needed to be attention to the personal relationships.

THE DISPUTE'S IMPACT: THE PARTICIPANTS' PERSPECTIVES

The 2004 walleye dispute illustrates how the circumstances tested the Joint Strategic Plan's ability to foster allocation issues. This section relates this case study to three major concepts of the Joint Strategic Plan, as presented in earlier chapters: the importance of process; the interplay of trust, relationships, and science; and consensus and implementation in a non-binding setting.

Process

Chapter 1 outlined in detail the Joint Strategic Plan's history and intent, demonstrating that for most of the basin's history, cooperation was not forthcoming and parochialism was standard practice. The plan, in 1981, created an on-going cooperative regime and as chapter 2

stressed, the members use the plan as their tool to achieve collective action. This case study illustrates that the Lake Erie jurisdictions, despite a serious challenge to their process, continued to use the plan as it was intended; they adhered to the plan's consensus, accountability, information sharing, and ecosystem management structures. Indeed, they deviated very little from the plan's framework. They met as often as was necessary to reach consensus and they expected the dispute resolution process to help them converge on a consensus opinion. They shared information readily, they relied on data to help them reach their new consensus, they looked at the lake as a whole, and officials used the Walleye Task Group and several unscheduled meetings to share information and keep each other informed. They respected the fact that by signing the plan, they remained accountable to each other. Each jurisdiction, for instance, openly brought forward plans for how they intended to implement the TAC and the members used the process to discuss whether those plans would be sufficient. They recognized, ultimately, that because walleye stocks migrate, they needed to manage the lake as an ecosystem. At no time did the members simply "agree to disagree" and, thus, permit chaotic, parochial policies to result.

Despite their steadfast adherence to the plan, Ontario's broken consensus did expose the fundamental reality that when ecological conditions are stressed (for example, when recruitment of a species is down considerably), managers face allocation decisions that might cause conflict between protecting the resource and satisfying constituent needs and expectations. Moreover, when shared fisheries are highly important to stakeholders for differing reasons (such as commercially important to Ontario and recreationally important to the states) and when management actions affect stakeholders differently (such as imposing size limits, which affects the commercial fishing industry because they prefer smaller fish), stakeholder and political pressures become intense and managers are challenged to balance the competing interests. These realities could result in a breakdown of an effective process like the Joint Strategic Plan when members see other members as ignoring science and ignoring consensus for reasons the community finds unacceptable. Members become less willing to trust, respect, and work with

those other members, thus undermining the relationship-building and other benefits that the Joint Strategic Plan was designed to promote. Indeed, when members agree to something they know they cannot implement, the other members become less willing to be flexible or to accommodate the recalcitrant members.

Previous chapters have pointed out that the Great Lakes Fishery Commission plays a unique role in the Great Lakes setting, and its function in facilitating the 2004 dispute speaks to the commission's larger role in the plan. Chapter 1 argued that the U.S. and Canada were not able to form the commission until they created it in such a way that it would have limited ability to intrude upon non-federal management authority. As a neutral body with few regulatory functions, the management agencies look to the commission to convene their lake committee meetings, to publish plans and objectives, and to do other things to ensure the process continues. Chapters 1, 3, and 4 pointed out that the jurisdictions are comfortable with the commission's role so long as the commission does not overstep its authority and meddle in their affairs. Moreover,



Figure 5-6: The Lake Erie Committee of 2004 (photo March, 2005). L-R: Mike Morencie, Ontario; Bill Culligan, New York; Kurt Newman, Michigan; Roger Knight, Ohio; Chairman Rick Hoopes, Pennsylvania. (Photo: M. Gaden.)

the fact that the commission is there as a “neutral third party,” a “facilitator,” or a keeper of the process lessens the need for a binding agreement, the members say, because the commission remains committed to maintaining the process and mediating (not arbitrating) disputes. The commission helps the agencies implement their plan. The commission’s role (and the members’ opinions of it) in the dispute resolution process appears entirely consistent with sentiments outlined in the previous chapters. The commission’s behavior in mediating the 2004 TAC dispute is similar to the commission’s behavior in implementing the Joint Strategic Plan more broadly—to create the forum for the participants themselves to deal with their issues.

While conflict is expected in Great Lakes fishery management, rarely does it lead to the use of the Joint Strategic Plan’s dispute resolution mechanisms. What implications, if any, do the Lake Erie Committee members believe the dispute had on the plan’s robustness and on the role of the Great Lakes Fishery Commission in facilitating the process? Members believe the plan itself proved to be robust enough to help the Lake Erie Committee get past this dispute. Indeed, the commission’s mediators were clear in their report that while they did not reach a new consensus during the mediated session itself, they believed the Lake Erie Committee process could turn their recommendations into a new consensus decision. Unlike the dispute of 1992, which all agree the plan handled clumsily, the 2004 dispute was settled almost entirely through the plan’s ongoing processes. The commission did little more than keep the jurisdictions talking and provide a safe, neutral place for them to bring the issues forward. In fact, the use of the plan’s dispute mechanisms in and of itself did not seem to cause major concern among the members. Said one participant: “This does *not* demonstrate a broken system. If we cannot agree, we ask for help, they give us help, and we move on. This might not be completely healthy but this is better than doing nothing.” Other members were quick to point out that the mechanism should be used rarely, lest it become a crutch.

The Interplay of Trust, Relationships, and collective action

Chapter 2 investigated how the Joint Strategic Plan is used to minimize the clash between parochialism and collective action in situations where conflict exists. This case study demonstrates that the Joint Strategic Plan is based on relationships and helps create a durable framework for cooperation that leads to trust and more defensible policies. Relationships strengthen the epistemic community, which in turn gently coerces behavior consistent with the community's norms. Relationships are also rewarding for the participants. Chapter 2's literature review stresses that relationships are important to creating a cooperative culture because members need to trust each other and need to care about future interactions. In situations where allocation decisions are present—as is the case in Lake Erie—trust is critical because members need to know, deep down, that everyone is bargaining in good faith. Also, successful collective action breeds ongoing collective action because the more participants benefit from or are coerced into engaging in collective action, the more likely the relationships will grow stronger and lead to more collective action (see figure 2-5).

The broken consensus over the 2004 walleye TAC affected the Lake Erie Committee in several ways relating to chapter 2's conclusions about collective action and why it occurs. In the minds of Lake Erie Committee members, trust was probably the dispute's first and most significant casualty, and the erosion of trust affected their ability to work together and it jeopardized future interactions. Said one observer, "trust is really hard to rebuild once it is broken down." Added a state member, "the bottom line was they [Ontario] didn't do what they said they were going to do [and I am] forever . . . going to be wondering 'OK, we set a TAC, are they going to adhere to it?'"

In the highly charged walleye management arena, with stakeholders on both sides of the border interested in the committee's decisions, managers need to know they can trust their colleagues. This trust is important because members believe a process requiring collective bargaining—such as establishing TACs on Lake Erie walleye—needs to be seen as fair, as

stakeholders and politicians need to know that the agreement did not unduly harm one party over another. Indeed, while stakeholders and politicians might not always agree with the decision, a policy developed through a fair process will make the policies more defensible. If managers cannot trust their colleagues to implement what they agree to, the process will not be seen as fair and their defense of the policies with stakeholders and politicians will be undermined. The committee believes, thus, it is absolutely imperative to speak with a single voice because stakeholders and politicians need to believe that all agencies agree with the decision. Recall, for instance, Ontario's sentiments that the Americans seemed more interested in preserving the process and the consensus decision than taking into account new science. On this point, the Americans appear to agree with Ontario; they did seem very interested in preserving the consensus decision because they had, by June, already taken steps to justify the March decision with their stakeholders and their politicians. Ontario's break with consensus likely reduced Michigan and Ohio's credibility with their stakeholders, who were expecting all members to adhere to their decisions.

The relationships among members of the epistemic community was also an important facet of the dispute. The Americans truly and vehemently disagreed that the science was new, and were quite offended by the manner in which Ontario applied and attacked the data. As chapter 2 has argued, epistemic communities, communities of like-minded individuals, have the ability to spot their colleagues' inconsistent or unreasonable arguments. In the walleye case, the Americans believed Ontario's argument—that the TAC could be more liberal considering the spectacular hatch of 2003—was unconvincing and certainly not relevant to the decision they needed to make for 2004. In other words, members of the epistemic community were put off that Ontario would present scientific arguments they perceived were weak, with the expectation that the community would somehow accept the arguments. Indeed, some American members believed that Ontario was not being truthful with them over their reasoning behind their breaking the consensus.

The 2004 dispute also likely did much to remind the members that decisions must be based on science and that the Walleye Task Group, to the greatest extent possible, must be insulated from social pressures. Said a Lake Erie Committee member, there must be “sound technical and scientific underpinnings for . . . making decisions and in this instance, we departed in remarkable ways from that.” Throughout all stages of the dispute—during the initial setting of the TAC, during the subsequent discussions over Ontario’s counter proposals, during the commission’s mediation, and during the industry’s appeal—Walleye Task Group members were called upon continually to provide their best assessment of the state of the fishery and to explain how they analyzed the data. The Joint Strategic Plan says this is the most credible approach to underpinning policy decisions because a science-based process—in this case, the Walleye Task Group—is inclusive of all jurisdictions and is consensus-based. If the biologists agree on the information—particularly if they collect and interpret it together and produce joint reports, as they do—the lake committee members are armed with the best, most defensible information available upon which to base their decisions.

The strength of the epistemic community and the way it reacted to Ontario’s arguments speaks to another larger issue related to the lake committee process: the politicization of science. Fisheries is politically charged, with vocal constituents and politicians second-guessing managers’ decisions. The fact that the Lake Erie Committee uses the process to establish a TAC—a high-profile exercise wrought with politics—means that this committee is likely to be most affected by political pressures. The epistemic community, in serving as a professional peer-review of managers’ and others’ claims, is able to serve as a bulwark against the politicization of science. The existence of an epistemic community, as illustrated by the Lake Erie Committee’s behavior during the 2004 dispute, provides one explanation for how fishery managers are able to deal with a strong temptation to politicize science.

The interviews also indicate that the members believe the dispute affected relations with each other and, potentially future interactions. Said one American, “we had a great opportunity to

sell and strengthen the interagency relationship and [instead, Ontario] sold us right down the river.” To the Americans, sacrifices needed to be made by all parties, and when one party refused to share the concomitant blame, the others are apt to take them less seriously in future negotiations. To further strain the relationship, Americans believe Ontario used the plan to drive a wedge between the decision and its constituents, not to use the plan to make the decision more defensible. Said an American manager, he believed Ontario was playing to a home audience when it claimed it was “being outweighed by everybody else and just being bullied around. That just confirmed everything I suspected. I couldn’t believe [Ontario] said that.”

From Ontario’s perspective, however, trust was also a major issue. Ontario, after having its proposal in June, 2003 rebuffed, felt that the other committee members were being inflexible and unwilling to accommodate Ontario’s needs. Ontario, as a member of the committee, needed to know that state colleagues would provide the support to make the committee’s work defensible to stakeholders and politicians on both sides of the border. The states, however, were not keen on Ontario’s arguments. Said an Ontario participant,

trust and credibility [are] crucial things, which help make [the Lake Erie Committee] work well together . . . [Right now] there is not a lot of understanding and their credibility and trust was really shot and lost by our side as well . . . There really wasn’t any wherewithal from [the states] to really quantifiably look at what [they] were doing and measure it against what we were doing . . . So there was a lot of trust broken with [Ontario], from that perspective.

Overall, do the committee members believe this dispute irreparably harmed future interactions? American members of the Lake Erie Committee indicated they are ready to get past it all. There are indeed reasons to believe members have learned from this experience. Said one state member,

We have had conference calls since then [and] we are in a healing process now. So, to the extent people follow through with future decisions will depend on how much faith you can put in them and how quickly we can rebuild the trust. I am kind of ready to move to wipe the slate clean and just move forward and get on to the more serious issues of trying to manage the resource. . . . I want to give [Ontario] the benefit of the doubt . . . And any time we have actually set a . . . specific number, they have always adhered to it.

Said another member, noting the differences among the Lake Erie stakeholders, the entire incident helped him better understand others' points of view: "I guess the challenge is recognizing the continued importance of the commercial fishing industry in Canada and the differing values among those fishermen, those anglers, and for what their expectations are out of the resource."

The durable framework and the members' commitment to the process perhaps has made the relationships more durable, a major contributor to why members wish to take collective action. While the members certainly felt somewhat coerced into participating (their agencies, after all, are signatory to the plan) they also strengthened their knowledge of each others' positions and gained a greater understanding of what motivates each other. The fact that they went to great lengths to continue to meet, to keep each other informed, and to reach a new consensus indicates that the members are acutely aware that they must work together again in the future. Even with a divisive dispute, they know they are going to meet again and that they sacrifice future opportunities if they refuse to cooperate. They have grown to care about the relationship, a major factor in collective action.

Consensus and Implementation In a Non-binding Setting

At the heart of implementation in a nonbinding setting is the use of consensus as the plan's foundation, and this dispute brought the issue of consensus in the lake committee process front and center. Chapter 4 argued that members feel more compelled to adhere to a consensus decision because it reflects the opinions of all the members, it prevents unilateral actions, it makes them feel professionally accountable, and it demonstrates good faith. Chapter 4 also demonstrated that lake committee members understand that implementation challenges will always exist. With a non-binding agreement like the Joint Strategic Plan, and with nothing compelling a jurisdiction to implement a decision, committee members understand that the home jurisdiction does, from time-to-time, weaken the implementation of consensus decisions.

Consensus is one way to heighten the chances the policy will be implemented, as consensus reflects the sentiments of the members themselves, and ignoring the consensus not only embarrasses the colleagues who trusted the others, but also undermines what is really one's own position. The Americans believed Ontario should have been up-front with why it was breaking consensus—by admitting it could not implement the decision. Instead, the Americans did not like the fact that Ontario attacked the consensus decision itself—a decision Ontario was fully involved in reaching. The Americans felt this was disingenuous and claimed they would have been much more receptive if Ontario had confessed it could not deliver on a promise.

Ayles and Conlin, in their report from the Great Lakes Fishery Commission's mediation, stated that "based on the sum of actions since its March, 2003 meeting, it is apparent that the concept of consensus is not clearly understood by the LEC" (Ayles and Conlin 2004). Some have interpreted that observation as suggesting it is fiction to believe the committee actually reached a true consensus-based decision, as a process that pits four jurisdictions against one is not a consensus-based process at all; it allows the majority to ignore the minority. The Americans, on the other hand, pointed out that the process is not about voting, it is about allowing all sides to air their issues with the intent of common ground emerging. Besides, nothing stopped any jurisdiction from objecting to anything. In fact, the group did reach consensus in March, 2003 and Ontario, during the July, 2004 appeal of the 2004 TAC, stated "there is no question that Ontario broke the consensus decision of March, 2003." Ayles and Conlin, in their comments that consensus was not well-understood, observed not that members had a differing opinion about whether consensus was reached, rather, they observed that not all members fully appreciated why it was important to adhere to the consensus decision once it was made.

Ontario, for its part, believed consensus was reached, but saw no point in sticking to a consensus agreement that it came to conclude was inequitable, un-implementable, and unsupported by new data. To Ontario, just because everyone agreed to a bad policy did not make the policy sound. It was better to bring new information to the table and revisit the decision than

to continue to adhere to something that it could not defend. Yet, Ontario apparently failed to appreciate how such an approach would be received. The manner by which Ontario attempted to go back on the consensus—and how casually it did so—most certainly affected the Americans’ willingness to entertain Ontario’s new position. In a non-binding agreement that requires commitment and a belief that all members will stay committed to the decision, process is important, and members were clearly surprised when it was broken in the way it was. Said one American Lake Erie Committee member, reflecting on consensus:

We reached it. It was done. And we announced it publicly. We all walked out of there and started our process [to comply with the agreement] and we were as surprised—we were shocked—when Ontario came to the June meeting and announced they weren’t doing what we said. [This was] after we had already met with stakeholders and pushed our process well into the stages that we needed to go through. And we had already started catching flack for what we were planning to do. So that was a very shocking moment and it caused a lot of angst when I went home and had to tell my senior administrators that Ontario wasn’t going to do what they were planning to do.

Ontario, however, believed that the Americans were inflexible and closed-minded to new ideas. This sentiment exposes a major challenge for epistemic communities: the potential for members to grow firm in their opinions and less open to new thinking when they believe a member or an idea is outside of the norms of the community. This ostracizing of Ontario was not healthy for the Lake Erie Committee and might have reflected “group think” at work, a phenomenon whereby members of a group continue to adhere to, or even intensify their own opinions at the expense of outside or unconventional views.

Moreover, Ontario grew to believe that it was being out-numbered on the committee and that no matter what it did, it could not overcome the bias against its interests. Ontario believed that as the dispute wore on, “it was basically . . . four against one—no doubt about it.” How could Ontario have trust and faith in colleagues who were closed-minded to anything it brought forward? “They wouldn’t look at failings of their own; they were just looking at us,” said an observer from Ontario. Moreover, Ontario likely had little ability to overcome the group think of the American members, even though the committee operated by consensus and, thus, offered

even a single member a strong voice. Ontario argued that with four jurisdictions pressing the issue from one perspective, holding out inherently made Ontario look like the recalcitrant party. Ontario's ability to defend the Lake Erie Committee's policies with stakeholders and politicians. Americans, on the other hand, argued that nothing prevented Ontario from disagreeing with the decision in March, 2003 and, in fact, when the process relies on consensus for a decision to occur, a single entity, whether it be Ontario with a large coastline or Pennsylvania with a small coastline, can carry enormous weight. In the end, the process did not increase the decision's defensibility (in fact, it was lowering it) and, Ontario, in particular, was not benefiting from collective action.

Implementation challenges are ever-present, but consensus is a way, in a non-binding setting, to improve the chances that the agreement will be implemented. Consensus and trust are synergistic and often inseparable; consensus cannot emerge without trust and trust helps nurture consensus. Recall the considerable efforts the committee went through, during the March, 2003 executive session, to make sure they all agreed to the forty to sixty percent TAC reduction and then to craft a public statement that made the decision clear. The consensus was a statement of commitment and intent. With that statement, said one member, we had a "specter of public revelation, and such public revelation is intended to make it clear to everyone the intent to implement the decision." As chapter 4 argued, in the absence of a force that compels agencies to adhere to their agreements, they are left with almost nothing else except publicly stating their intent. Thus, if consensus is broken and trust is lost, not only are members flouting the policies they agreed to, but the discord is apparent publicly, which embarrasses members and makes implementation more difficult. The trust that took years to build becomes fragile and can evaporate quickly when decisions are not respected. Members become less willing to trust their colleagues in the future, further harming collective action. Thus, while trust and consensus are synergistic in a positive way, they are also synergistic in a negative way.

CONCLUSION

Conflicts in Great Lakes fishery management are common. Conflicts that invoke the Joint Strategic Plan's dispute resolution processes are rare. Only twice in the plan's twenty-five-year history have agencies asked for mediation; both times the dispute involved TACs in Lake Erie. The 2004 dispute provides a useful case study about how agencies behave when shared fish stocks are at low abundances, when constituent pressures are high, when consensus breaks down, and when trust and interactions are stressed. The dispute occurred because Ontario broke consensus. How the participants handled this deviation from normal procedures illustrates that loss of trust and jeopardized future interactions did weigh heavily on participants' minds. Members appear to have gained a higher appreciation for the importance of reaching and respecting consensus. They were clearly interested in handling the issue themselves through continued interactions. In this case, while Ontario and its commercial stakeholders fought for a higher quota, politicians in both countries ultimately respected the committee's new consensus.

The Joint Strategic Plan process is designed to blunt the temptations for jurisdictions to use science to justify actions that are not-so-defensible. The plan acknowledges that jurisdictions will be tempted to politicize or ignore science to suit their needs. By creating a process demanding joint scientific discovery and consensus over the information, the Joint Strategic Plan establishes norms for proper behavior and helps the members spot immediately when other members depart from the agreed-to process. In the case of the dispute over the 2004 walleye TAC, the American members' behavior illustrates an expected reaction to departure from the norms of an epistemic community. Ontario was perceived as basing its judgments not on the science they helped develop and interpret but on political considerations unique to Ontario. While the members know that there will always be unique jurisdictional issues, they agree that members must be up-front with each other about what those issues are rather than agreeing to something and then detracting from it by discrediting the consensus that it was a part of.

The walleye dispute of 2004 illustrates many of the major points of earlier chapters. Trust and future relationships are important to the Lake Erie Committee process. Consensus is necessary because members rely on it to make the policies better and more defensible. The plan remains the mechanism for intergovernmental relations, consensus heightens the chances that the agreement will be implemented, and the Great Lakes Fishery Commission's role is appropriate. In the end, the managers expressed their belief that the plan is capable of handling a significant crisis. Their ability to agree to a new TAC affirmed the members' willingness to rely on the best science available, to work out their problems together, and to manage the fishery in a truly multijurisdictional fashion. That, the members affirm, is what the Joint Strategic Plan is all about.

Despite the relative success of the Joint Strategic Plan process in handling this dispute, however, there are likely deep ramifications that the Lake Erie Committee will have to resolve over time. The loss of trust and the lack of confidence in support from colleagues has the potential to undermine the process over the long term. Trust takes years to build yet can be erased in one incident. Because the plan relies on consensus, trust, relationships, and expectations that everyone will implement what they agree to, and because all of these elements were stressed during the walleye dispute, members of the Lake Erie Committee will likely have to make an extra effort to re-build the working relationships that the process needs to succeed.

In the end, the Lake Erie Committee process will undoubtedly survive and succeed. The members have indicated that, already, they better understand each other and are rebuilding trustful relationships. The fishery commission demonstrated its willingness to help the members reach their own consensus, thus protecting the jurisdictions from having a decision imposed upon them from an external source. Committee members demonstrated a willingness to be flexible (after all, the states did agree by August, 2003, to a thirty percent TAC reduction, though they were motivated by comity and fear that some other political force would impose an even less-protective TAC) and even the commercial fishing industry suggests it has grown more comfortable with the process—now that it has access to data—than it was before the 2004 dispute (Meisenheimer and Reid 2006). If nothing

else, the process will continue because there is no alternative. Beyond the sentiment that “agreeing to disagree is not an option,” perhaps one Lake Erie Committee member summarized it best:

Well, in terms of this process [and how] it was implemented in this particular crisis, my feeling was we had gone as far as we were going to go [through the normal lake committee process]. . . There is no binding arbitration at the end, there is only the understanding that this is the only mechanism—and maybe the only reasonable mechanism—whereby we can work cooperatively to manage a shared resource. And we either worked cooperatively or it doesn’t happen at all. It has to be everybody’s commitment that making it work is preferable to not working at all.

CHAPTER 6

CONCLUSION: DESIGN ELEMENTS OF AND A CONCEPTUAL DIAGRAM FOR GREAT LAKES FISHERY GOVERNANCE

Abstract

This chapter considers the conditions under which the Joint Strategic Plan emerged and asks *What are the key design elements that make the Joint Strategic Plan an appealing institution for regional fisheries governance in the Great Lakes basin?* This chapter identifies four emergent themes from previous chapters as the plan's major elements: (1) respect for jurisdictional independence, (2) the benefits of shared strategies and plans, (3) reliance on science and the work of technical committees, and (4) personal relationships and social interactions. These four themes speak to why the plan functions as a meaningful multijurisdictional governance regime. This chapter concludes with a discussion the plan's applicability to the Great Lakes region and its replicability as an institution for other common pool resources.

Elinor Ostrom's (1990) major work about common pool resources—Governing the Commons—evaluates the success of common-pool-resource institutions. Ostrom identifies the key design features of these institutions and, like others who have written about the commons (e.g., Hardin 1968; Dietz 2002), she acknowledges the inherent conflict over shared resources. Her analysis focuses on overcoming Hardin's (1968) "tragedy of the commons," which occurs because of competition problems. In looking at human behavior and at arrangements to overcome conflict, her study illustrates the types of design principles that heighten the chances that a resource management regime will help the participants use the resource in fair and sustainable ways.

Like Ostrom, this dissertation has considered the Joint Strategic Plan's design and has focused on several of the plan's features that members believe make it function. However, this dissertation departed from Ostrom and like-literature that addressed common pool resources from

a “tragedy of the commons” perspective because the governance institution on the Great Lakes was set up for partially different reasons than Ostrom’s institutions. Ostrom addresses how institutions can facilitate competition in situations of conflict. On the other hand, when agencies on the Great Lakes established the plan, their intent was more to seek and advance shared goals than to overcome competition problems, though the Lake Erie Committee does resemble some elements of Ostrom’s institutions. The plan reflects a self-organization among the Great Lakes basin’s governing entities and, thus, serves the members’ needs. Both Ostrom’s institutions and the Joint Strategic Plan, however, depend on collective action taking place, thus some benefit exists in considering Ostrom’s design principles in the context of Great Lakes fishery governance.

This dissertation has contributed to and expanded literature relating to common pool resources, governance, collective action, federalism, sovereignty, and binding-non-binding agreements. Building upon the literature and based on the conclusions from the previous chapters, this chapter identifies jurisdictional sovereignty, shared plans and goals, science, and relationships as the four major elements of Great Lakes fishery governance that make the Joint Strategic Plan robust and contribute to the plan’s ability to serve the members’ needs. These four elements suggest that the Joint Strategic Plan has endured in the Great Lakes region because it does not intrude on the individual governments’ management authority; because it defines the members’ self-interest in the context of collective action; because it fosters a shared understanding of scientific information, thus deflating disputes over the underpinnings of policy; and because it relies on relationships among the members, heightening the fishery official’s sense of duty to the process and forging partnerships that make collective action happen.

While this dissertation provides hitherto undocumented insights into members’ beliefs about the plan, it does not discuss or evaluate other regional institutions in-depth and, thus, cannot provide a direct comparison between the plan’s regime and other regimes. However, the conceptual framework for Great Lakes fishery governance, identified in this chapter, does permit

some speculation into the Joint Strategic Plan's robustness and whether the design elements could be transferable to other areas where common-pool-resource management is important.

BEYOND OSTROM: EMERGENT THEMES AND A CONCEPTUAL DIAGRAM FOR GREAT LAKES FISHERY GOVERNANCE

The Joint Strategic Plan emerged out of several specific conditions in the Great Lakes region:

- Political authority is diffuse;
- Fishery management authority is vested in non-federal governments;
- Independent non-federal governments possess a strong interest in preserving their autonomy;
- The threat of federal preemption is ever-present, which created a need for the non-federal governments to organize;
- An acceptable third party—the Great Lakes Fishery Commission—is present to help facilitate cooperation; and
- The members share a mutual interest in strategic planning, seeking shared goals, and working to achieve their goals.

The Joint Strategic Plan emerged in the Great Lakes region under these circumstances. The plan contains design features to reflect these conditions and helps the jurisdictions achieve their objectives for organizing.

Elinor Ostrom (1990), in her study about common-pool-resource-governance, focused on facilitating resource allocation and preventing the “tragedy of the commons” as the conditions under which users organize to sustain local, small-scale resources that they share. More-specific conditions relate to the particular circumstances of the resource. Based on her analysis, she was able to identify several institutional design principles present in the successful institutions including the basic right of the members to organize, defined resource and behavior boundaries, collective-choice arrangements, mechanisms to monitor participant behavior, sanctions for violators, and conflict-resolution processes. The purpose of these design principles is to help the members go beyond Hardin's “tragedy of the commons;” to help the participants allocate the resource in ways that are agreeable to participants and that sustain the resource for future use.

In Great Lakes fishery management, Ostrom's design principles are also relevant, though not always for the same reasons as in her analysis. The Joint Strategic Plan process was established largely to promote collective action and to help the agencies identify and work toward their shared goals, and less to facilitate the allocation-type issues so prominent on Ostrom's study. Allocation (appropriation), after all, was and remains the purview of the individual Great Lakes' jurisdictions, and the history presented in chapter 1 illustrates that the independent-minded agencies are not willing to cede that authority. The important exception, as presented in chapter 5, is the Lake Erie Committee, which does use the process to establish a lakewide allocation of fish.⁴² The Joint Strategic Plan seeks to facilitate cooperation on lakewide and basinwide levels, thus many of Ostrom's design principles are indeed present in the plan and contribute to the plan's applicability to the Great Lakes region. The major design principles for common pool resource management, as identified by Ostrom, are compared to the Joint Strategic Plan in table 6-1.

The Joint Strategic Plan contains all of Ostrom's major design principles except for the principle of punishing violators. (The plan, being non-binding and respectful of jurisdictional authority, was not intended to be directly enforceable.) The Joint Strategic Plan, thus, as a governance institution designed to address common pool resources, is consistent with other institutions that Ostrom identifies as successful. This dissertation identifies four additional design elements beyond Ostrom's that reflect the unique characteristics of the Great Lakes and are designed to help the participants take collective action. As evident in previous chapters, those design elements are (1) respecting jurisdictional independence, (2) calling for the development of shared strategies and operational plans, (3) relying on science and technical committees, and (4) fostering personal relationships. In addition to Ostrom's design principles, these four features of the Joint Strategic Plan suggest a conceptual diagram for Great Lakes fishery governance in the

⁴² In some areas, particularly in the upper lakes, lake committee members do use the process to discuss the distribution of federally raised lake trout, which is similar to allocation decisions.

OSTROM'S DESIGN PRINCIPLE	IMPORTANCE TO COMMON POOL RESOURCE MANAGEMENT	RELEVANCE TO THE JOINT STRATEGIC PLAN
Right to self-organize	Appropriators (e.g., citizens) are not challenged by external authorities to organize.	Similar. Non-federal authorities have the right to manage. Federal governments are severely limited in their ability to challenge multijurisdictional organizations.
Defined boundaries	The governance institution defines users' rights and the bounds of those rights.	Similar. Non-federal jurisdictions' boundaries are legally defined and management authorities are known; the plan does not define these elements. Non-federal jurisdictions define the bounds for their own appropriators (e.g., sport, commercial, tribal fishers).
Collective choice arrangements	Those who follow the governance rules can modify the rules.	Same. Joint Strategic Plan participants established the arrangement and can alter it to suit their needs.
Monitoring	All users can observe the activities of others and hold them accountable.	Similar. The Joint Strategic Plan process calls for regular reporting and information sharing. This helps the members know what others do.
Appropriate structures to sanction violators	Those who violate the rules can be reprimanded.	Different. The Joint Strategic Plan has no provisions for direct sanctions or enforcement; it relies on rewards and consensus to affect behavior. The epistemic community exerts gentle coercion and serves as a sort of sanctioning force.
Conflict resolution mechanisms	Mechanisms exist—that are perceived as fair—to resolve conflicts.	Same. Mechanisms exist in the Joint Strategic Plan (Great Lakes Fishery Commission mediation) that members believe is appropriate to address disputes.

Table 6-1: Ostrom's (1990) design principles for successful common pool resource management and relevance to the Joint Strategic Plan

multijurisdictional setting (figure 6-1). This concept posits that the Joint Strategic Plan has endured in the Great Lakes region because it does not intrude on the individual governments' management authority; because it defines the members' self-interest in the context of collective action (e.g., shared plans and objectives); because it fosters a shared understanding of scientific information, thus deflating disputes over the underpinnings of policy; and because it relies on relationships among the members, heightening the fishery official's sense of duty to the process and forging partnerships that make collective action happen. Young (1994) says a regime is "robust" when it is able to last and be effective over time, particularly in the face of "disruptive changes." Given these four major design elements that hold the plan together, how fragile is this process? That is, how much do these design elements contribute to the plan's robustness? This section discusses the four design elements and analyzes the degree to which the element contributes to the robustness of the process.

The basic respect for jurisdictional independence and sovereignty

Because jurisdictions are sovereign and independent, the non-binding nature of the agreement, rooted in consensus, is an essential design element, as it facilitates collective action while still respecting jurisdictional authorities.

After decades of parochial behavior, the sea lamprey crisis of the 1940s and 1950s prompted the jurisdictions to begin cooperating, and the neutral Great Lakes Fishery Commission assuaged their concerns about losing independence by simply convening regular meetings, in a non-threatening setting, for information exchange and other discussions. In the late 1970s, the Joint Strategic Plan was developed to help the jurisdictions interact in more strategic ways while still protecting jurisdictional independence. The plan explicitly stressed it was not intended to supersede any jurisdictional authority or constrain unwilling behavior. The focus instead would be to help the jurisdictions positively seek commonalities and progress toward their shared goals. When the jurisdictions decided on a more strategic plan in the late 1970s, their attitude was

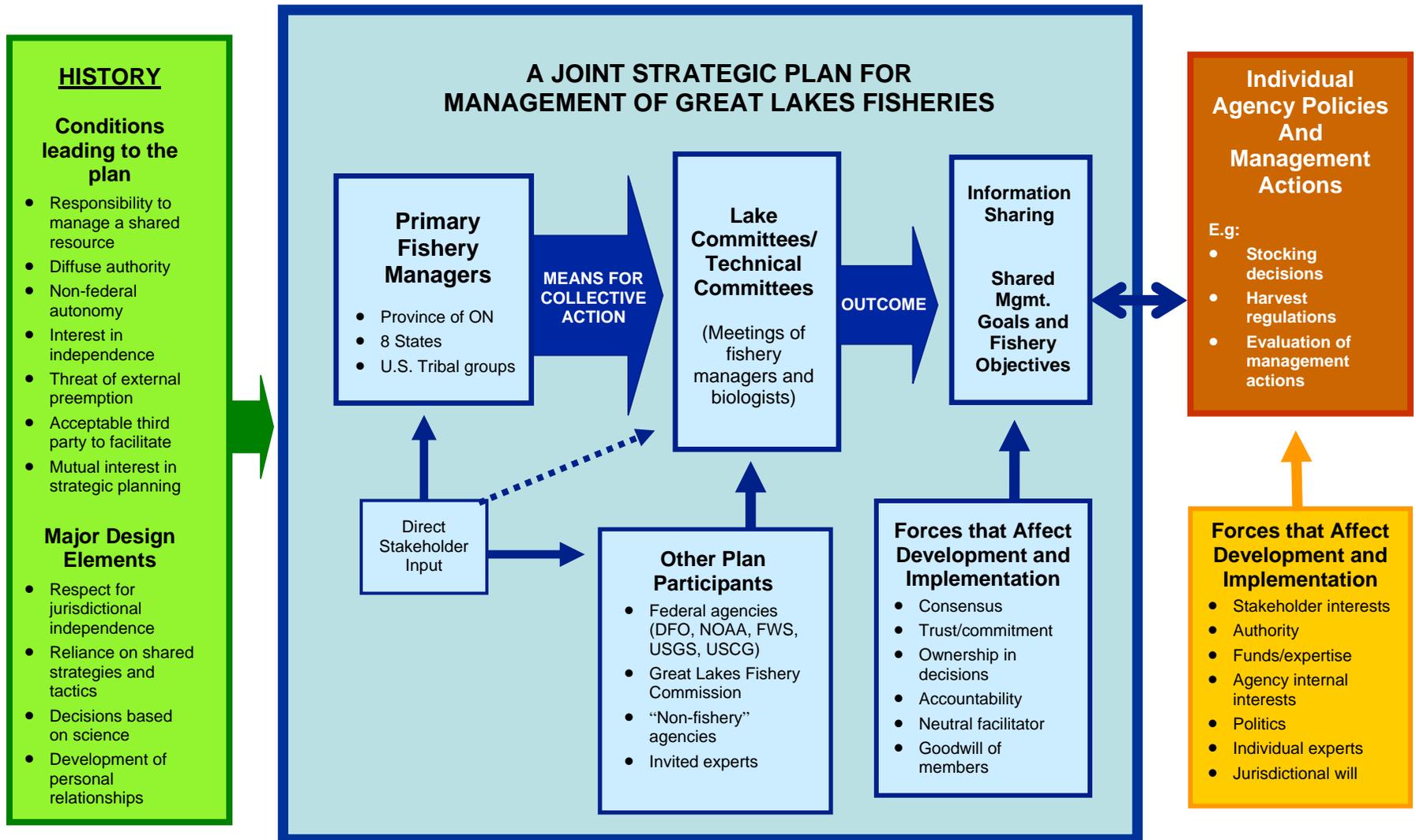


Diagram: M. Gaden

Figure 6-1: The great lakes fishery management regime, with an emphasis on A Joint Strategic Plan for Management of Great Lakes Fisheries

similar to that of the previous eras—do not attempt a plan that would weaken autonomy.

Members were partially motivated to develop the plan out of concern that if they did not create a structure for intergovernmental relations, the federal government—particularly the U.S. federal government—would step in as it was doing in other parts of the country pursuant to the Magnuson Act, and involve itself in Great Lakes fisheries. Members felt that by organizing themselves, the plan would remove an excuse for the federal governments to exercise broad, coordinating authority.

The independence and sovereignty theme emerges quite prominently in this dissertation's previous chapters. Beyond the history presented in chapter 1, chapter 2 demonstrates that collective action does occur, but in ways that respect jurisdictional independence. Members use the lake committee process to share information, decide on tasks and who carries them out, and develop shared plans and objectives. The plan is a process to focus on collective action rather than on how to constrain behavior. Chapter 3 demonstrates that the non-federal jurisdictions use the plan to work collectively and to work with the Canadian and U.S. federal governments. They use the plan, in some respects, to keep the federal governments from intruding on their authority. While the non-federal members (particularly the Americans) do not always believe the federal governments wish to stay within their area of authority, they nevertheless work synergistically with the federal officials to leverage resources and manage the lakes as a whole. Chapter 4 illustrates that members do not want a more structured, binding agreement, as they view binding agreements as unnecessary for what is needed to manage Great Lakes fisheries, limiting, and inconsistent with jurisdictional independence.

Lake committee members (including those on Lake Erie, the extreme case) are motivated to cooperate for reasons beyond being forced in a legal sense to do so. The fact that the plan is rooted in consensus emphasizes that it respects individual authorities. Consensus means that no jurisdiction can be forced to do something it does not want to do. Consensus-based decision-making is as much a process to develop a shared understanding as it is a final product. Indeed,

the process the members went through to reach consensus over the 2004 walleye total allowable catch was as important to them as the total allowable catch that emerged from the process.

Consensus is important because it means the decision comes from the members themselves, not imposed by any higher or outside authority. If the consensus is ignored, the recalcitrant party disrespects his colleagues and flouts the norms of the epistemic community; his colleagues will believe he did not participate in good faith. The recalcitrant party also ignores his own opinion because he helped develop and agreed to the position. Consensus, thus, inherently respects each participant's independence.

The design element of respecting independence helps the Joint Strategic Plan endure because it does not attempt to create an arrangement that disregards the lessons of history. A threat to the Joint Strategic Plan process would be for the members to perceive the plan as encroaching on autonomy, constraining behavior too much, or not helping to keep the federal-non-federal relationship positive. By focusing on helping the jurisdictions understand their shared goals and seeking cooperative approaches to achieving them, rather than on how to constrain behavior, the plan is suitable to the region. This design contributes to the plan's robustness because jurisdictions have proven they are unwilling to cede management authority, and a heavy-handed institution would simply not last, as members would ignore it. The plan makes it clear that authority is still left to the respective jurisdictions. So long as members do not attempt to use the plan to force another jurisdiction to do something it does not want to do, and so long as the federal governments accept the plan as the preferred way of doing business in the Great Lakes region, the plan's structures that promote and draw upon the strengths of jurisdictional independence will contribute significantly to the plan's robustness.

The need for, and benefits of, developing shared strategic and operational plans

Because the members seek to redirect the focus of conflict away from competition and toward shared goals, the plan's mandate that agencies together develop and implement clearly

articulated objectives and plans is a key design element in helping the members achieve their shared goals.

The Joint Strategic Plan places a heavy emphasis on the development of strategies and plans for fishery management. Members report that they participate in the process because they find information sharing and the subsequent development of shared objectives to be valuable to them as they manage fisheries. As chapter 2 has argued, the plan's intent is to create an on-going process for agencies to share information and then to use that information to identify the objectives they share and how they, together and separately, can move toward those objectives. By stressing the joint development of and adherence to plans and objectives, the plan defines self-interest in terms of collective action, not competition. By calling for the development of shared plans and objectives, members use the process to focus on those collective-action-types of output rather than on using the process as way to compete over a finite resource. (The Lake Erie Committee is the exception as it also uses the process to establish allocation quotas.)

Developing shared plans and objectives is a key element of the Great Lakes fishery governance regime because such products focus the members on shared goals, not points of difference or conflict. Such products perpetuate the collaborative process, guide real management decisions, and help the participants articulate those decisions to stakeholders. Consider, first, the re-definition of self-interest. As chapter 2 has demonstrated, members participate in the process because they are gently coerced into working together and rewarded for doing so. By having the goal to produce shared plans and policies, the plan makes it so members see it as consistent with their self-interest to work together. It is in their interest to conform to the norms of the epistemic community; it is in their interest to produce better, more defensible policies; and it is in their interest to be rewarded professionally and personally for working toward shared products. This focus stands in contrast to a regime that might be established, say, to provide a forum for members to engage in direct negotiations over a shared resource. In such a

situation, self-interest would be defined by how much of the resource the manager has allocated to his jurisdiction or whether the manager imposed his jurisdiction's will upon others.

Chapter 1 stressed that the members desired a strategic plan (not an operational plan) partially because they wanted to remain flexible in their response to fishery needs. Chapter 4 argued that Great Lakes fishery management benefits from flexible, ambitious approaches to management rather than a set-in-stone approach that might clearly define action but might be less helpful in addressing ecosystem changes and fluctuating fisheries. The Joint Strategic Plan of 1981 was never intended to be an operational fisheries management plan—such a plan would have been outdated by 1982. One major product that the Joint Strategic Plan calls for are fish community objectives (e.g., Ryan 2003; figure 6-1), objectives that the members on each lake develop together and use to guide their individual management actions. Each of the lake committees has produced fish community objectives and there are many operational plans (e.g., Hansen 1996) to advance those objectives. Also, reliance on shared strategies and plans is related to protecting jurisdictional authority because it helps the jurisdictions together identify areas of agreement, thus sidestepping the possibility that members will feel pressured to adhere to something to which they disagreed. Recognizing that the plan neither compels action nor forces an agency to do something it does not want to do, the members look to what they have in common and develop the policies and initiatives that reflect those common goals.

Chapter 5 presented a case where the Lake Erie Committee, in going beyond the work of the other lake committees by establishing TACs, nevertheless relies on strategies and plans to underpin and bolster its decisions. The Coordinated Percid Management Strategy and the Walleye Management Plan are the two major examples of how the committee uses the Joint Strategic Plan process to develop their objectives and how important the plans are to the Lake Erie Committee. The plans reflect the consensus of the committee and serve as the way to ground the TAC decisions, particularly when the dispute arose. The members could always go back to

the most basic objectives to which they agreed to guide and gauge the appropriateness of decisions.

The design element of mandating shared strategies and objectives helps the Joint Strategic Plan endure because it frames the plan's success in terms of whether the members produced shared objectives and took steps that members all agree help them adhere to the objectives. If the participants agree on the objectives and what needs to be done, working toward those goals and objectives is consistent with the jurisdiction's interest. Producing sound policies, says chapter 2, is rewarding to the members because it helps them manage the fishery properly (on an ecosystem level) and makes the policies more defensible. So long as the plan helps the members produce strategies and plans that add value to fishery management, the plan will be useful to the members. This feature of the plan would be undermined if members did not appreciate the importance of shared objectives, if they did not share information, or if they did not actively contribute to developing shared objectives. Because the Joint Strategic Plan process itself is designed to have members meet regularly, share information, and come to the process with the specific intent of developing such strategies and plans, the continuous need to develop goals and objectives appears to contribute to the plan's robustness.

The reliance on science and the work of technical committees to help the lake committee members make decisions

Because fishery managers require sound data and science to produce better, more defensible policies, the plan's support for on-going development of scientific information and interactions among scientists is a critical design principle contributing to the plan's impact.

Related to the development of strategies and plans is the members' reliance on science, as science underpins the products developed through the process. The Joint Strategic Plan stresses that decisions and strategies must be based on science, and this dissertation has highlighted that members use the plan's processes to direct the technical committees' work and use technical committee information as the basis for their decisions. As Young (1994, p. 101) says, removing

the “veil of uncertainty” through science and knowledge, helps the participants reach agreement. While the plan places great emphasis on science, it also emphasizes that there must be consensus over the science—consensus over the data needs, consensus over how and when to collect the data, and consensus over the meaning of the data.

The Joint Strategic Plan is both a top-down and a bottom-up process. It is top-down in the sense that lake committees, comprising senior fishery managers, charge the technical committees with tasks and make decisions. It is bottom-up in the sense that management decisions, fish community objectives, operational plans, and other lake committee actions depend on the technical committees’ work. Information sharing preceded the plan with the formation of lake committees in the 1960s. The Joint Strategic Plan in 1981 linked information sharing to strategic objectives and plans and, therefore, placed a high value on consensus-based scientific understanding. Chapters 2 and 5 demonstrate that ongoing information sharing, among an epistemic community of like-minded individuals, creates an atmosphere where nonsensical arguments or political biases are easily recognized and exposed. This heightens the chances that the discussions will be based on science, not on other considerations. Moreover, the fact that lake committees are supposed to insulate the technical committees from outside influences demonstrates some interest in basing management decisions on science. However, several participants—including lake committee and technical committee members—expressed their concern that keeping politics and science separate is a significant challenge though still a major goal of the lake committee/technical committee process.

The reliance on science and technical committees is important for two related reasons. First, science provides the information the lake committees need to approve meaningful operational plans. Before the lake committees develop or approve objectives or plans, they often ask the technical committees to provide them with certain information. Recall from chapter 2 how the members use the Joint Strategic Plan process to identify information needs and ask the technical committees to perform tasks to fulfill those needs. The technical committees, for their

part, focus on the charges from lake committees. If the lake committees, say, wish to identify broad goals for stocking or harvest, they will need data to back up their policies and plans. The technical committees fulfill that function.

Second, reliance on science helps make plans and policies more defensible. Lake committee members must consider social needs when they make management decisions, and, sometimes, the social needs are not in consort with scientific realities. If the technical committee members together gather data and come to consensus on what the data are saying, lake committee members have much of the information they need to support their decisions. Recall from chapter 5, for instance, the important role the Walleye Task Group played in supporting the lake committee's decision about the Coordinated Percid Management Strategy and the total allowable catch. The Joint Strategic Plan is designed to heighten scientific exchange by stating explicitly that science must be the foundation of decisions and by calling for regular procedures for members to together share information, discuss data, and develop consensus on the interpretation of the science. A strong epistemic community helps ensure that members adhere to the highest scientific standards.

The design element of reliance on science helps the plan endure because it means that the policies which emerge from the process are based on solid foundations. As such, members come to believe that by participating in the process, there is value added to their deliberations. Not only can the jurisdictions leverage information from each other by meeting and exchanging science, but through the interactions of an epistemic community, members gain a greater understanding of the science by discussing it with trusted and respected peers. The plan's robustness, however, is threatened when participants lose their appreciation for science, when agencies do not devote enough resources to scientific discovery when the epistemic community fosters "group think," or when science-based recommendations are ignored for political reasons. Part of the stress to the walleye TAC process, for instance, as discussed in chapter 5, was the perceived misuse of science. The Americans felt that Ontario was trying to use science inappropriately to justify

political decisions. Also, interview participants acknowledge that when the technical committee process becomes politicized, the process' usefulness comes into question. Thus, while the plan's reliance on science contributes significantly to its robustness, considering the intense political pressures on fishery managers, this element of the process is under continuous assault and has the potential to be fragile.

The critical importance of social interactions and personal relationships in making the process function

Because the success of the plan depends on cooperation and consensus among individuals, ensuring regular social interactions and nurturing personal relationships are a (perhaps the) key design principle of the Joint Strategic Plan.

Perhaps the most important theme to emerge from this research is the strong role of social interactions and personal relationships. The plan roots decisions in consensus and calls for an on-going process to help the managers share information and reach consensus. In doing so, the plan places great emphasis on face-to-face meetings, ongoing interactions, and personal relationships. Without those interactions and relationships, the plan would not work. Thus, people and how they relate to each other are fundamental to the Joint Strategic Plan process. Previous chapters have revealed that cooperation occurs because members are gently coerced and rewarded for doing so. The process encourages members to know one another, as familiarity spawns trust or, at a minimum, an understanding that today's interactions will affect future interactions. The plan is designed to enhance the chances that members will care about the future by helping them benefit professionally from interactions, by creating opportunities for rewarding social interactions, and by helping them avoid future opportunity costs.

Chapter 2 demonstrates that the lake committee process, by facilitating regular interactions among like-minded individuals, greatly broadens Robert Axelrod's (1984) "shadow of the future," making participants care about future interactions and become cognizant of future opportunity costs should they be seen as stubborn, obstructionist, or recalcitrant. By caring about

the future, members are motivated to cooperate, to solve contentious issues amicably, and to facilitate the free-flow of information. Moreover, strong relationships built on trust significantly enhance the chances that shared decisions will be implemented, as members would dread promising colleagues something and then having to face them again after they renege. The failure to appreciate future interactions is one reason why Ontario had such a difficult challenge advancing its position during the dispute over the 2004 walleye total allowable catch. American members believed Ontario was not being honest with them about the rationale behind their breaking consensus. That offended the Americans and undermined their interest in working with Ontario.

This dissertation, in several instances, makes reference to social interactions and after-hours receptions. The process is designed to create opportunities for off-duty relationship-building. Relationship-building is important and the participants generally enjoy seeing one another. They also respect one another professionally. The managers are like-minded and operate as an epistemic community, a community of individuals who speak the same language and understand each others' perspectives. The lake committee members share philosophies, often have common mentors, and were educated in similar biological programs. The lake committee and technical committee meetings are a place for these like-minded individuals to talk science. The meetings and the socials are a time to commiserate over untenable policies or strange politics back home and they are a place to renew acquaintances. Members of this community know when science is not being adhered to, they care about the community, and they are often friendly enough with each other to disagree without jeopardizing future interactions. The social functions and other outings of course make the meetings more enjoyable but they also are a place to discuss issues, float new ideas, and help the members get to know one another better. These interactions are based on strong relationships and such relationships are a key characteristic of the lake committee process.

Relying on relationships as a major design element, however, could be risky and unpredictable. While there is little doubt about the virtues of strong relationships, relationships, being human interactions, are susceptible to collapse if members grow to distrust one another, if members flout the norms of the community, or if members simply do not like one another. Some groups have poor dynamics; a mix of personalities that do not mesh. Does any plan, then, that relies on relationships so fundamentally as the Joint Strategic Plan put its robustness at risk? Certainly. The plan is dependent on people to make it work, and if people do not participate in earnest or do not interact positively, the process becomes fragile.

The plan, however, contains many elements that heighten the chances that relationships will remain strong and positive. The on-going process itself means members meet frequently, giving them ample opportunities to get to know one another and to trust one another. The associated meeting socials are time-honored, enjoyable, and allow for discussions in friendly, relaxed atmospheres. The lake committees and technical committees are elite, epistemic communities, and regular interactions among the esteemed members reinforce the members' willingness to adhere to the norms of the community, building predictability, trust, and accountability. Knowing and trusting one another increases the chances that members will care enough about future relations and cooperate.

Perhaps most relevant to relationships in the Joint Strategic Plan process is precisely the fact that human interactions are fragile. Members are generally sensitive to the consequences of diplomatic missteps or acting in a recalcitrant manner. Not only does such behavior make relationships unpleasant, but members jeopardize future relations and opportunities. Because the Joint Strategic Plan process is voluntary, dependent on the goodwill of all for it to succeed, and could lead to substantial rewards for cooperative relationships, members likely pay extra attention to protecting and building relationships, taking great pains to work well with others. The sheer fragility of a process based on relationships could prompt members to make an extra effort to ensure the relationships flourish. Thus, the inherent fragility of relationships could actually serve

to strengthen relationships as members pay close attention to their interactions. This design element likely contributes significantly to the plan's robustness.

APPLICABILITY TO OTHER AREAS OF GOVERNANCE

Typical with multijurisdictional arrangements, the Joint Strategic Plan reflects the particular conditions of the region to which it applies (figure 6-1). Based on the discussions outlined in previous chapters, several conditions exist under which a Joint Strategic Plan-like institution would be applicable to other regions. Consider, first, the basin's political and jurisdictional realities and how cooperation emerged out of a parochial history. The Great Lakes region is politically diffuse yet the fisheries are shared. Primary management authority occurs at the non-federal level, thus creating a governance vacuum at the cross-border level. Fishery challenges and the need for some uniformity in management regulations was not enough to convince the independent jurisdictions to cooperate. It took the sea lamprey crisis and an organizing entity—the Great Lakes Fishery Commission—to prompt interjurisdictional cooperation. The commission, when it established lake committees in the 1960s, helped the movement toward cooperation because the commission served as a magnet attracting independent jurisdictions and not as an authority compelling unwilling behavior. The plan itself was a response to a possible crisis—federal intrusion—and strategic planning in an environmental era. Again, a neutral third party, the commission, assuaged jurisdictional fears that something was being forced upon them.

The plan's goal was to address conflict, though not necessarily to address allocation-type issues and prevent the "tragedy of the commons." Rather, the plan was designed to nurture positive, ambitious collective action. The plan's founders desired a non-binding approach because they did not want to jeopardize their autonomy and because they recognized that a non-binding agreement would provide a larger payoff—in the form of flexible, ambitious policies—than would a binding agreement, which would produce less ambitious results.

As a governance institution, thus, a Joint Strategic Plan-like structure is most applicable to situations where jurisdictions wish to preserve their autonomy, where they do not need to overcome competitiveness, and where they find it more important to have ambitious, flexible policies than to bind each other to less-ambitious agreements. Such an institution is also particularly applicable when the federal governments are not able to exert preemptive authority and when a neutral institution like the Great Lakes Fishery Commission exists and is willing to facilitate a process without forcing action.

Contingent on a Joint Strategic Plan-like institution's success is the participants' desire to build and maintain relationships. Relationship-building takes time. The Joint Strategic Plan benefited from the fact that lake committees existed for fifteen years before the plan was produced. This pre-existence of a solid, respected, science-based epistemic community helped the plan from the start, as the community developed the plan itself (the lake committee participants were also the people who conceived and wrote the plan) and its members did not have to first establish the relationships needed for them to work together effectively. Although the relationships were less formal before the plan, participants nevertheless for many years had a place to meet, to get to know one another, and to get used to interacting. Thus, the existence of an epistemic community could be a major factor in the successful replication of the Joint Strategic Plan in other areas of multijurisdictional governance.

An epistemic community also enhances the replicability of another major design feature of the plan: decision by consensus. The plan is an agreement of independent equals and is rooted in consensus. Consensus emerges readily in the Joint Strategic Plan process because the plan demands regular interactions and deliberations. Additionally, the relative agreement over information exists because the community of peers shares a basic understanding of the resource, and that understanding is reinforced through meetings, discussions, and participants' interest in adhering to the community's norms. With an epistemic community present, consensus—and the members' willingness to try to reach it—is more forthcoming. The plan's replicability would be

limited if policy makers in a region were not in fundamental agreement over basic tenets of management or if no epistemic community existed to refine thinking or help produce consensus.

The Joint Strategic Plan would also likely be less replicable in situations where the participants interact on an unequal footing. In a situation where unequals interact—such as in systems dominated by federal governments—elements like synergy, trust, relationships, and consensus become skewed. The terms of the relationship are different than the terms outlined in the Joint Strategic Plan. If the goal is to build a cooperative regime, with unequals, the terms must be drafted in a way that either clearly delineates the roles of each of the participants or that empowers the weaker partners and provides bounds for the stronger partners.

While the Joint Strategic Plan is perhaps most replicable in circumstances that do not require a binding agreement (e.g., where the focus is on identifying and advancing shared objectives, where sovereignty and independence are important, where allocation decisions are not the primary focus of the arrangement), the walleye case study in chapter 5 does suggest certain applicability in situations where the parties seek to use the agreement to address allocation issues; issues that typically rely on binding agreements, considering the temptations to cheat and the concomitant need to hold members to the agreement. The Joint Strategic Plan was not designed specifically to guide the allocation of shared resources, but the plan does not preclude its application to such activities either. Like those who use arrangements to seek progressive collective action over shared goals, those who seek to address allocation issues also benefit from regular interactions, information sharing, and trusting relationships, and strategies.

The Joint Strategic Plan lacks enforcement factors that other writers (e.g., Ostrom, 1990) have said are critical to allocation-type regimes. Yet, the Lake Erie Committee successfully uses the plan to facilitate an agreement over allocation; to address competition. It seems the foundation of consensus, science, plans and objectives, and relationships through an epistemic community are enough to help the Lake Erie participants negotiate in good faith and assure them that what they agree to will be implemented. The fact that politicians and others in the home

agency generally do not interfere with the committee's work also helps the process, as the committee members are motivated by the fact that their decisions will be honored; that an external force will not supersede their decisions. If allocation were to be an issue in other lake committees, as it is in Lake Erie, would the Joint Strategic Plan be applicable? It appears so, but probably because there exists a decades-long culture of cooperation in the Great Lakes region and because the participants are used to working with each other in good faith. It is difficult to speculate the extent to which a non-binding process like the Joint Strategic Plan would be replicable in other allocation-type situations, particularly if those situations lack a community of participants who have a history of co-existence and cooperation.

CONCLUSION

The Joint Strategic Plan emerged in 1981 from the unique set of conditions in the Great Lakes region. The many non-federal jurisdictions, each with its own authority to manage, each with a sense of autonomy, and each concerned about preemption of its rights, shunned cooperation for much of the region's management history, but finally managed to cooperate after crisis forced collective action and a neutral third party facilitated it. The jurisdictions desired a process that would help them advance their mutual interest in strategic planning, identify shared goals, and implement common policies.

Like other governance institutions identified in other literature (e.g., Ostrom 1990), the Joint Strategic Plan was designed to suit the members' needs. The plan contains major design elements that reflect the conditions under which it was established and that contribute to the plan's robustness. First, by respecting jurisdictional sovereignty and independence, and by basing the plan on consensus and non-binding goals, the plan is able to function within the realities of the Great Lakes political situation. An agreement that ignored the fact that jurisdictions would not relinquish autonomy or that bound the jurisdictions would be either too weak to be meaningful or ignored. Second, the development and implementation of clearly

articulated objectives and plans helps the agencies focus on their shared goals in flexible and ambitious ways. Such an approach adds value to fishery management because members are able to gain more information than if they acted alone. Third, by relying on science and the technical committees' work, the Joint Strategic Plan improves the quality of its products and makes the decisions better for the resource and more defensible. Finally, social interactions and personal relationships are fundamental to the plan's operations and account for much of the plan's success.

In conditions where sovereignty and independence are important, the plan could be a relevant model for others who wish to establish an institution for multijurisdictional collaboration. Because solid working relationships are critical to making the plan work, the plan's applicability to other regions would be limited if an epistemic community did not exist or needed to emerge. The growth of such a community took decades in the Great Lakes region, though thanks to regular interactions and a commitment to information sharing, a culture of cooperation emerged that allowed the Joint Strategic Plan to further develop in a ready-made collective action regime. Indeed, by the late 1970s, when the members were ready to interact more strategically, the existing culture was conducive to improved collective action.

Today, twenty-five years after it was produced and signed, the Joint Strategic Plan still serves to bridge jurisdictional divides in the politically diffuse Great Lakes region. Managers have used the process to share information, improve their understanding of the resource, and to get to know one another. They have used the process to identify shared goals and visions for the fishery and to develop strategies to reach those goals. They have used the process to develop more defensible policies and to seek new avenues for collective action. Remarkably, the plan is designed to achieve its goals in a voluntary and non-binding fashion. Despite the fact that the plan commits members to more meetings, more research, and more tasks above their already over-extended portfolios, participants value and adhere to the process. Their interest in the agreement remains strong, their appreciation for science is solid, their pledge to produce objectives and plans is ongoing, and they value relationships. The plan is generally robust, owing

mainly to its design principles, is applicable to conditions in the Great Lakes region, and has the potential to be replicable in other regions. Members believe the plan adds value to Great Lakes fishery management and, therefore, approve of the extra effort they must make to work with their colleagues from other jurisdictions.

APPENDIX A

METHODOLOGY AND METHODS

This research is about how and why fishery managers throughout the Great Lakes basin, from many different jurisdictions, interact with each other. It focuses on the managers' participation in *A Joint Strategic Plan for Management of Great Lakes Fisheries*, their tool for multijurisdictional cooperation and asks: *Why do fishery managers take collective action in Great Lakes fishery management and what do fishery managers hope to achieve when they participate in the Joint Strategic Plan?*

This research is qualitative and designed to evaluate the Joint Strategic Plan regime in the context of theories related to cooperation, collective action, federalism, and binding/non-binding institutions. The strategy to reach the goals of this research was to first attain a rich understanding of what this regime means to the people who are a part of it and then to apply that understanding to existing literature and extend hypotheses related to the theory discussed. This design is based on the principles of “interpretive” and “grounded theory” research. Interpretive research is a technique where the researcher enters into a dialogue with the participants to learn what the situation means to them (Lin 2001). Because the fishery managers' participation in the Joint Strategic Plan is voluntary and because the plan is only as successful as the members want it to be, understanding the plan means one must interpret or construct an idea of what the process means to the participants themselves. The research seeks to know, for example, what managers see as the plan's purpose. Therefore, it is most suitable to use qualitative methods to construct a

framework that illustrates these attitudes. Grounded theory is an approach where a researcher develops categories, hypotheses, and theories based on collected data and the literature (Glaser and Strauss 1967; Lin 2001). A grounded theory approach helps the researcher relate his data and hypotheses (developed during the interpretive phase of the research) to literature that might not be suitable enough to serve as the foundation for a “positivist” (theory-driven, hypothesis-testing) approach yet still might be relevant to the project (Glaser and Strauss 1967). A grounded-theory-based analysis helped turn the managers’ feelings about the Joint Strategic Plan into a conceptual illustration of Great Lakes fishery management.

To understand how and why managers participate in the Joint Strategic Plan process, and to understand how the attitudes toward cooperation work in practice, this research relied on four main methods of data collection and analysis: semi-structured interviews, participant observation, case study analysis, and document analysis.

Semi-structured interviews

The purpose of the interviews was to talk one-on-one with those who participate in the Great Lakes fishery management regime. The researcher chose semi-structured interviews over a fixed-form approach, recognizing that each participant would bring a unique perspective to the process and, therefore, should be afforded a free-flowing opportunity to talk about particular issues within his or her interest or area of expertise. A fixed-form interview would have been too rigid.

The participant pool included lake committee members, technical committee members, Great Lakes Fishery Commission members and staff, and people (active or retired) with particular knowledge of the lake committee process (e.g., senior fishery managers, academicians, federal agency personnel). Managers began to formulate the Joint Strategic Plan in 1978, so the researcher reviewed lake committee minutes from 1978 to the present to generate a broad list of individuals active in the fishery management regime through the years. All current and former

lake committee members were included on the list, along with individuals who clearly influenced fishery management (some names appeared regularly, indicating long-standing involvement in management). The researcher also asked key individuals still active in fishery management to provide him with ideas for potential interviewees. After removing deceased or inaccessible individuals, the list contained approximately 175 names. Time and resources permitted 66 interviews.

To narrow the list, the researcher sought participants from each of the jurisdictions and from each of the lakes. Because the number of current lake committee members is small (twenty total), he kept all lake committee members on the list. Several former lake committee members, current and former Great Lakes Fishery Commission members and staff, academicians, and technical committee members were selected based on their expected knowledge of the process, their geographical distribution, and their willingness to participate in the research. To judge whether the potential participant indeed participated meaningfully in the process, the researcher relied on his own familiarity with participants, on references to individuals in minutes, and on expert advice from long-serving Joint Strategic Plan participants. Table A-1 provides details about the participants, the reasons their input was seen as valuable, and the criteria to invite their participation.

Sixty-six individuals were asked to participate in the interviews. No invited participant declined to be interviewed, though four interviews were not conducted for logistical reasons. Twenty-nine percent of the participants were Canadian and 71 percent American, a ratio roughly consistent with the surface area of the Great Lakes in each country (all of Lake Michigan is in the United States). Participants were informed that the interviews would be voluntary and confidential. The researcher attained informed consent from each participant prior to the interview. Participants were asked questions about their professional background, the Joint Strategic Plan's impact, why they attend Joint Strategic Plan meetings, potential changes to the plan, and their philosophy about fishery management. During the interviews, most questions on

Category	Type of Participant	Reason input was valuable	Selection Criteria
Lake Committee Members	Senior fishery managers, appointed to lake committees by parent jurisdiction; primary participants in Joint Strategic Plan process	Provided direct insights into lake committee process; primary participants	All lake committee members selected
Technical Committee Members	Field biologists, researchers, data collectors/analysts; primary participants in Joint Strategic Plan process	Provided insights into cooperation at the field level; peer-to-peer cooperation	Accessibility, jurisdiction, lake they represent, and willingness to participate
Great Lakes Fishery Commission and Staff	Officials from agency responsible for implementing the Joint Strategic Plan	Provided insights into the nature of and reasons for cooperation; observations about sub-national adherence to the plan; institutional knowledge	Knowledge of the process, accessibility, and willingness to participate
People with Particular Knowledge of Lake Committee Process	Officials from agencies not signatory to the Joint Strategic Plan; retirees; academicians; those with particular knowledge of the process	Provided historical insights and insights from knowledgeable outside observers	Knowledge of the process, accessibility, and willingness to participate

Table A-1: Participant pool, reason for input, and selection criteria for interviews.

the list were asked, though not always in the same order or in the same context. Additional questions, suitable to the participant's particular experience, were pursued as probe questions. Appendix B contains the list of interview questions and the list of participants. The first interview was conducted on February 23, 2004 and the last on February 10, 2005. Participants were generally interviewed at their place of business or (in the case of several retirees) at their homes. Two interviews were conducted by telephone. Table A-2 provides details about the sixty-two participants.

All interviews but four were tape recorded. Two declined to be tape recorded and the two telephone interviews, for technical reasons, were not recorded. One of three disinterested third parties transcribed each recorded interview verbatim; the researcher compiled detailed notes about the un-recorded interviews immediately after the interviews occurred.

PARTICIPANTS BY COUNTRY

	Canada	USA
N	18	44
%	29	71

PARTICIPANTS BY JURISDICTION

	Academic	CORA	Fed Canada	Fed U.S.	GLFC	GLIFWC	IL	IN	MI	MN	NY	OH	ON	PA	WI
N	5	2	2	4	6	4	3	1	10	2	4	2	11	2	4
%	8	3	3	6	10	6	5	2	16	3	6	3	18	3	6

PARTICIPANTS BY LAKE

	Lake Superior	Lake Michigan	Lake Huron	Lake Erie	Lake Ontario	More than 1
N	8	10	3	8	4	29
%	13	16	5	13	6	47

PARTICIPANTS BY AFFILIATION*

	LC	TC	Former LC/TC	Senior Manager	GLFC	Fed	Oth
N	20	9	9	8	8	3	5
%	32	15	15	13	13	5	8

Table A-2: Interview participants by country, jurisdiction, lake, and affiliation.

Not all percentages add due to rounding. Abbreviations: CORA=Chippewa-Ottawa Resource Authority; GLIFWC=Great Lakes Indian Fish and Wildlife Commission; GLFC=Great Lakes Fishery Commission; LC=lake committee; TC=technical committee. IL=Illinois, IN=Indiana, MI=Michigan, NY=New York, OH=Ohio, ON=Ontario, PA=Pennsylvania, WI=Wisconsin.

*Some participants have more than one affiliation. For example, some federal participants are also technical committee members. Only one affiliation was chosen for each participant.

Participant observation

Participant observation is about becoming a part of the research setting and observing people as they go about their business (Emerson et al. 1995). Fortunately for a researcher interested in Great Lakes fishery management, the Joint Strategic Plan calls upon participants to meet frequently and share data, develop shared objectives, and socialize. Thus, there were abundant opportunities to observe the plan in action. Lake committees meet in public every March. In addition, the Council of Lake Committees meets twice a year (in April and October) and numerous technical committee and executive meetings occur regularly.

Using participant observation techniques outlined in Emerson, Fretz, and Shaw (1995) the researcher took systematic fieldnotes during most public and non-public lake committee, technical committee, Council of Lake Committees, and related meetings during 2003 through 2005. (As part of his job, the researcher attended Joint Strategic Plan meetings regularly since 1995 but not did not take fieldnotes prior to the University of Michigan's Institutional Review

Board's approval of his research design.) The researcher focused on the meetings' overall tone, personalities, body language, gestures, and other things related to cooperation. Because part of the researcher's occupation is to attend lake committee and related meetings, he had ready access to both open and closed meetings. The researcher attained permission from the chair of each committee to attend non-public meetings for the purposes of this project. While committee members and others were generally aware of his research, there was no indication that the researcher's presence affected the meetings. Many times during the course of the meetings, the researcher was asked to participate normally in his professional capacity. Fieldnotes were written-up as soon as possible after they were taken. The interviews provided a wealth of information about the managers' opinions about cooperation and participant observation provided a level of richness to the research that would not necessarily have emerged through the other methods.

Documents

The Joint Strategic Plan calls for the maintenance of a decision record. As such, a significant amount of materials like management plans and objectives, minutes, reports, white papers, memos, and other documents were available for analysis. The documents provided facts (e.g., specific actions, dates, etc.) and helped illustrate how managers make decisions. Most of the documents were published or were publicly available through local sources.

Data analysis

Interviews, fieldnotes, and documents yielded a considerable amount of data. To make sense of the information and to organize the data into emergent themes, the researcher used computer software ("Nvivo") designed for qualitative research and followed steps to manage data, similar to a process presented by Miles and Huberman (1984). Miles and Huberman suggest that data be coded, analyzed, and developed into a conceptual framework. Data-coding was an on-going process whereby the researcher first read the interview transcripts and fieldnotes

and engaged in what Miles and Huberman call “pattern coding.” Pattern coding is where the researcher looks for broad themes, contexts, and relationships in the data to gain a broad understanding of the information, in its totality.

The next step was to “open code” the information. Through open coding, the researcher went through the interviews and fieldnotes, line by line, and sorted the data by specific theme, idea, and context. Open coding distinguishes between subtle differences in sentiments and themes and, thus, yields a large number of codes. Figure A-1 is a screen image of the code list in Nvivo. Open codes are shown in lowercase (e.g., “builds relationships-understanding,” highlighted) illustrating a few of the many types of themes raised in the data. Any time a participant raised the issue in the context of the code, or any time participant behavior yielded an example of the code’s sentiments, those data were sorted under that code’s heading. As figure A-1 partially illustrates, there was wide range of topics raised during the data collection.

After open coding, the broad codes were consolidated through a process Miles and Huberman call “cluster coding.” Cluster coding is a way to take the particular themes identified through open coding and consolidate them into more general categories. Figure A-1 also illustrates some of the cluster coding of this research. In this figure, all codes relating to respondents’ comments about the impact of the Joint Strategic Plan were analyzed broadly and organized under several categories, shown in all capital letters in figure A-1 (e.g., “AGENCY RELATIONSHIPS, PEOPLE”). Specific comments in the context of accountability, leadership, allowing agencies to keep an eye on each other, building relationships, etc. were clustered under the more general category called “AGENCY RELATIONSHIPS, PEOPLE.” The open coding followed by cluster coding process was repeated throughout the data analysis.

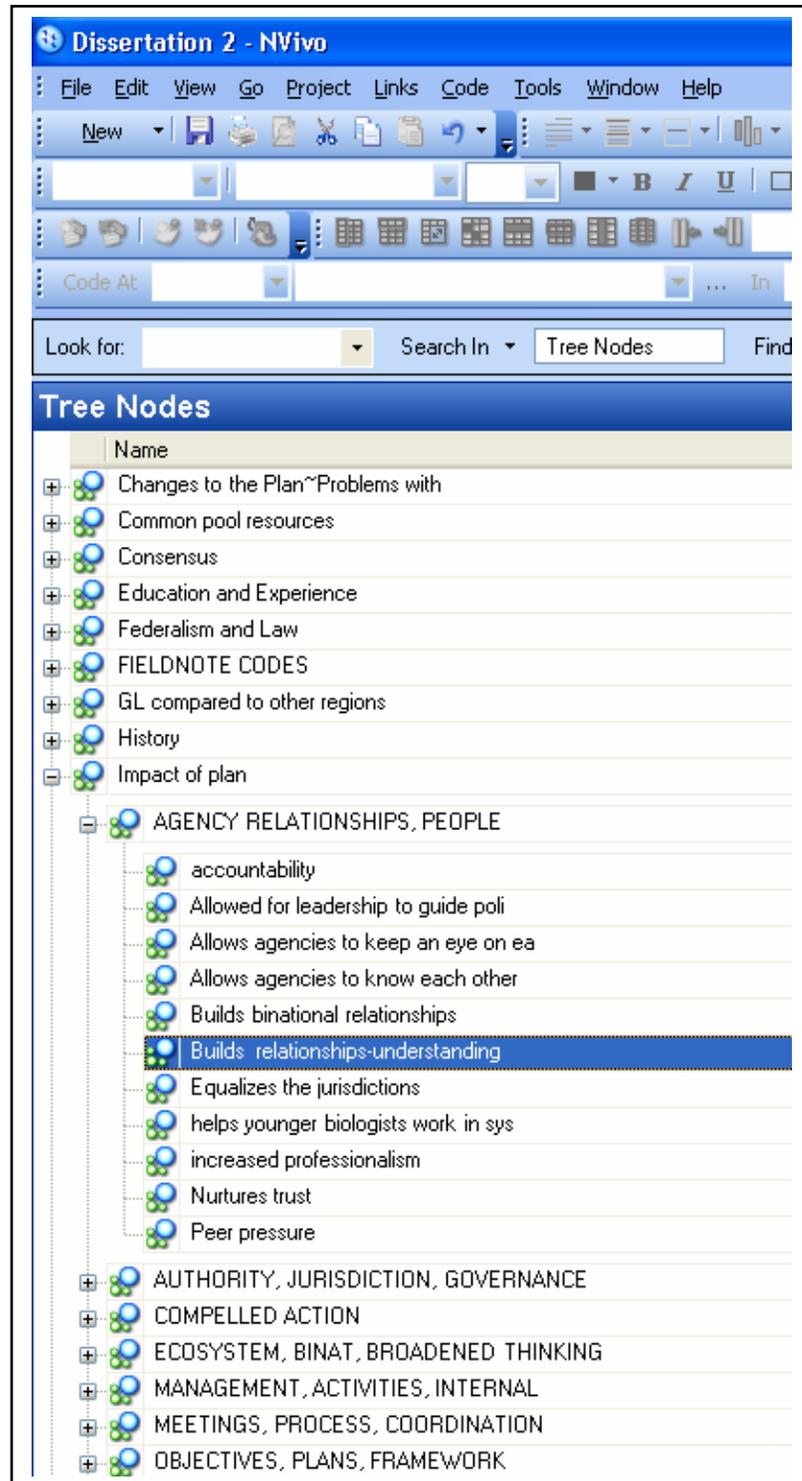


Figure A-1: Nvivo screen image illustrating open coding (codes shown in lowercase) and cluster coding (categories shown in all capital letters).

Case study analysis

Case study analysis, used in chapters 3 and 5, was a helpful method in further understanding the fishery managers' level of commitment to the plan and was a useful descriptive and explanatory tool to put issues into context, particularly in the absence of the ability to manipulate events (Yin 2003). Besides being a broad, single case study about Great Lakes fishery governance under the Joint Strategic Plan, this research also analyzed three specific Great Lakes fishery management cases—the implementation of the *Great Lakes Fish and Wildlife Restoration Act* over three iterations, lake trout restoration in Lake Superior, and Lake Erie walleye management—to understand whether the managers' goals for and commitment to cooperation were reflected in management action. Understanding the reasons for cooperation and then applying that understanding to cases of Great Lakes fishery management helped improve understanding of the process.

Literature

Interview data, participant observation, Joint Strategic Plan documents, and case study analysis helped to build an understanding of Great Lakes fishery management through the Joint Strategic Plan regime. This understanding was applied to and helped extend existing literature. Chapters 2, 3 and 4 each are grounded in separate but related bodies of literature. Chapter 2 addresses how and why participants use the plan to cooperate with each other in Great Lakes fishery management. Literature addressing how and why people cooperate in common-pool-resource-settings was relevant to this chapter. Chapter 3 addresses how participants use the Joint Strategic Plan to delineate federal and non-federal spheres of influence and how they use the plan to achieve intergovernmental relations. Literature discussing Canadian and U.S. federalism, and literature about intergovernmental relations—particularly Scheberle's (2004) model in Federalism and Environmental Policy—was important to this chapter. Chapter 4 addresses the Joint Strategic

Plan as an alternative to a binding agreement. Literature concerning jurisdictional sovereignty, agreements, and institutions further explained the participants' attitudes in this area.

Emergent themes and use of data in narrative

The process of pattern coding, open coding, and cluster coding allowed the researcher to gain a both a specific and general understanding of the data. The cluster coding, for example, helped to show the general context under which participants responded to certain questions posed during the interviews, and with these general categories in mind, and after a broad review of literature, the researcher selected the themes on which to focus in the individual chapters of the dissertation.

Quotations presented in the narrative were selected because they are generally illustrative of the types of responses commonly provided and generally are representative of the participants' sentiments. Miles and Huberman (1984, p. 230) explain how the process of analyzing qualitative data is inherently a subjective process:

Most qualitative researchers work alone in the field. Each is a one-person research machine: defining the problems, doing the sampling, designing the instruments, collecting the information, reducing the information, analyzing it, interpreting it, writing it up. A vertical monopoly. When we read the reports, they are most often heavy on the "what" (the findings, the descriptions) and wafer thin on the "how" (how one got to the "what"). In most cases, we don't read how, exactly, the researcher got from 500 pages of field notes to the main conclusions drawn, and we don't know how much confidence we can place in them. Researchers are not being obtuse. It's just that they have very little that is systematic to draw upon.

The systematic process of coding and the comprehensive treatment of data helped the researcher focus on the important themes of the Joint Strategic Plan process. Quotations chosen are those that provide evidence or illustration of these themes.

Protocols to improve participation, reliability, and validity

Several reliability and validity issues are relevant to this research design. Reliability is whether a measure produces the same results regardless of who measures the data and when the data is measured (Kirk and Miller 1986). This means the measures should yield replicable

results, a major goal of research (King et al. 1994). For qualitative, interpretive research based on participant observation and interviews, gathering reliable data that yields replicable results is difficult because categorizations and conclusions are based generally on the researcher's perception. This reliability issue was mitigated by the fact that interviews were transcribed verbatim and coded and re-coded systematically to categorize the information and to uncover emergent themes. Fieldnotes, of course, were not verbatim. They were a reflection of the researcher's perception of events, and such data are inherently selective and subjective. To increase the chances that the notes accurately reflected the events, the researcher wrote up the notes as soon after the meetings as possible (often alone in a hotel room while others were enjoying the evening's social gathering). The interviews and fieldnotes, thus, are a reasonably accurate reflection of sentiments or events.

Validity is accurate measurement (Kaplan 1964; King et al. 1994); it is, as King *et al* (1994) stress, "measuring what we think we are measuring." The key issue with this research is whether it is valid to develop theories about cooperation in the Great Lakes based on fishery managers' opinions. Because this regime is a product of the fishery managers themselves, it is only as legitimate as they think it is. As noted above, the data presented in the narrative—primarily in the form of quotations from the interviews—were selected based on the extent to which the data illustrated major themes that emerged from the research. While this was a subjective process, the participants interviewed were representative of the fishery managers in the Great Lakes region and, thus, quotations from the interviews have a heightened chance of representing the sentiments of Great Lakes fishery managers than if the participants were not a representative sample. All lake committee members were interviewed; no member as of 2004 was excluded from the interview pool and no member declined to be interviewed.

Other participants (for instance technical committee members, past participants, academicians, Great Lakes Fishery Commission officials) were also interviewed, but not one-

hundred-percent of the possible pool. These individuals were selected by using the criteria discussed above (table A-1). By not choosing those participants at random, a “selection bias” was introduced into the research (Campbell and Stanley 1963; Collier 1995; King et al. 1994), raising the question of whether the sample represents the opinions of non-lake committee members. The literature suggests the approach taken—not relying on random selection to choose interview participants—is methodologically acceptable (Collier 1995; King et al. 1994; Schuman and Kalton 1985) because the individuals were chosen carefully, based on the researchers’ knowledge and on expert advice. By choosing interviewees based on their participation level, their knowledge of the fishery, or their geographic distribution, individuals were chosen who the researcher believed would best address the research questions. This approach helped avoid the risk of losing important interviews because they might not have been part of the random selection. This limited, however, the researcher’s ability to compare the sentiments of different types of participant, as some types of participant (e.g., former lake committee members) might have been underrepresented.

Overall, the interviews illustrated a general consensus in responses, helping to gain an understanding of both the perceptions of a representative group of participants in Great Lakes fishery management and to understand why cooperation persists in this regime.

The small number of case studies limited the number of instances upon which to apply variables such as the existence of the epistemic community, flexibility, adherence to science, and other elements related to the fishery management regime. However, because the Joint Strategic Plan is essentially a single case study, there is little variation on the independent variables. All lake committees adhere to similar processes, for example. What the research loses by not applying these variables to a large number of cases (to attempt to expose variation) it gains in attaining a deep understanding of the Joint Strategic Plan as a case study of multijurisdictional fisheries management. The shorter case studies chosen for this research—the *Fish and Wildlife Restoration Act*, lake trout restoration, and the walleye dispute—were not chosen randomly or designed to test independent variables. Instead, the cases were chosen because they illustrated

well the points drawn from the interviews (in the lake trout and *Fish and Wildlife Restoration Act* cases) and provided an example of a departure from the normal course (in the walleye management case). This method of selecting cases is acceptable because it allows the researcher to give particular and explicit consideration to certain regime characteristics (Agrawal 2002).

This research provides a rich understanding of how and why the Great Lakes fishery management regime functions. The main trade-off for this particular understanding of Great Lakes fisheries is external validity (generalizeability). The research tells much about the Great Lakes process, but, with a different set of participants and different circumstances, it is not clear the extent to which this research could help others understand management where they are. Chapter 6 identifies the conditions under which the Joint Strategic Plan emerged and notes the plan's design principles that allow it to function in the Great Lakes region. The chapter also speculates on the plan's robustness and fragility and its applicability to other regions. This dissertation, however, did not analyze other regimes in other regions, and, thus, is limited in its ability to provide a direct, detailed comparison.

The use of interviews and participant-observation as a research method presented other validity and reliability issues. As an employee of the commission charged with implementing the Joint Strategic Plan, the researcher had tremendous access to the plan's primary participants. Most of the participants knew the researcher (some for many years) and had developed a strong relationship with his employer, the Great Lakes Fishery Commission. This could have introduced into the research a "subject bias" (also called "consequential presence" or "reactive effects"); a bias that occurs when the participants' responses are influenced by how they feel they should be perceived by the researcher (Campbell and Stanley 1963; Emerson et al. 1995; Robson 1999). For example, participants might have felt the need to make the Joint Strategic Plan process sound better than it is to compliment the commission's ability to facilitate the process, to make superiors (who have placed a lot of faith in the plan) look competent and cooperative, or to make the participants appear absolutely committed to the process. In such a situation, the participants'

responses would be affected by to whom they were speaking; a different interviewer—one not affiliated with the commission—would have solicited different responses purely because of how the participant thought he was perceived.

The researcher's particular knowledge probably did much to increase validity, as the researcher's deep understanding of the process and his insider status helped him better understand exactly what the participants were saying and in what context. An outside researcher would have been less capable of understanding the context and, therefore, more limited in understanding what he was hearing. Concerning the reliability threat—whether the subject bias affected the answers—the researcher followed established protocols to assure the participants that their responses would be confidential. Participants were given that assurance in writing, along with an assurance that their names would not be connected to the interviews or used in the final analysis. Participants were also advised that interview recordings would be stored securely and destroyed after the analysis and that they could drop out of the research at any time, though none did. These protocols were designed to solicit honest and open responses and accurate measures, and the researcher had no reason to believe that participants were concerned about confidentiality.

Finally, the researcher attended lake committee meetings and other Joint Strategic Plan events for more than a decade and took fieldnotes for this project over a two-year period. One threat to validity, say Miles and Huberman (Miles and Huberman 1984), is generalizing from events that are not representative of the particular subject being researched. The fact that the researcher was familiar with the process and had observed it over time lessened the chances that his perceptions of interview data or events he observed during only the course of his research were anomalous or unrepresentative of the process. While decisions about which quotations or events from which to generalize was subjective, with his long-standing participation in the process, the researcher was in an improved position to select evidence that he believed was illustrative of the Joint Strategic Plan regime over time instead of representing unique sentiments or occurrences.

APPENDIX B

INTERVIEW QUESTIONS AND LIST OF PARTICIPANTS

I. “Demographic” questions

1. You are currently working in [____]. What was your degree in? How did you get to your position? Where did you go to school? Would you say your education prepared you for your work in the Great Lakes? *What is your current position and how long have you been in it? To whom do you answer in your agency (not a person, but a position)? How long have you been a lake committee member?*
2. What other positions have you held in the Great Lakes region—either with your agency or otherwise?

II. The Great Lakes fishery regime

The purpose of my research is to understand the process of fishery management on the Great Lakes and to gather your thoughts about how the jurisdictions interact. So, I would like to turn now to some questions about the Joint Strategic Plan for Management of Great Lakes Fisheries.

3. What do think the impact of the Joint Strategic Plan has been? Has the Joint Strategic Plan been successful? How would you define success? What types of issues cannot be addressed by the plan?
4. Broadly speaking, what do you hope to achieve by participating in the Joint Strategic Plan's processes, such as lake committee meetings?
5. Do politicians and senior officials in your agency expect you to cooperate with other jurisdictions on the Great Lakes?
6. In what ways, if any, do you approach fishery management on the Great Lakes differently from management that takes place entirely within your jurisdiction?
7. Has the plan ever compelled you take action you might not otherwise have taken? Why did you take the action? What was the management result? *(Do management decisions made in other jurisdictions ever affect how you do your job? How? Ask for case examples for future study.)*
8. Do you respect your colleagues from other jurisdictions? Are other fishery managers at the same professional level as you?

III. Fishery manager's beliefs/concluding questions

9. Do you think an overarching philosophy guides fishery management on the Great Lakes today? (How would you characterize that philosophy Has it changed over time?)
10. Is the prevailing philosophy consistent with your beliefs about how the fishery should be managed? (If not, how do you handle the conflict between the prevailing philosophy and your personal beliefs?)
11. Looking ahead, should the plan stay as it is or be modified? Or, should there be a different approach to Great Lakes fishery management all together? Should the GLFC do anything differently?

INTERVIEW PARTICIPANTS

Gerry Barnhart
Brian Belonger
David Borgeson, Sr.
Brian Breidert
Henry Buffalo, Jr.
Dale Burkett
Tom Busiahn
Gavin Christie
Mike Conlin
John Cooley
Ted Cowan
Bill Culligan
Ken Cullis
Jim Dexter
Margaret Dochoda
Doug Dodge
Mark Ebener
Randy Eshenroder
Carlos Fetterolf
Guy Fleischer
John Gannon

Chris Goddard
Tom Gorenflo
Rich Hess
Steve Hewett
Art Holder
Mark Holey
Rick Hoopes
Bill Horns
Gary Isbell
Doug Jester
Mike Jones
Roger Kenyon
Lee Kernen
Neil Kmiecik
Roger Knight
Joe Koonce
Chuck Krueger
Bob Lange
Steve LaPan
Rob MacGregor
Bill Mattes

David McLeish
Mike Morencie
Tammy Newcomb
Kurt Newman
Henry Regier
Dave Reid
John Robertson
Phil Ryan
Don Schreiner
Steve Scott
Kelley Smith
Phil Smith
Roy Stein
Tom Stewart
John Trimberger
Tom Trudeau
Peter Wallace
Jay Wesley
Jack Wingate
Jim Zorn

APPENDIX C

ELEMENTS OF AND MAJOR CHANGES TO A JOINT STRATEGIC PLAN FOR MANAGEMENT OF GREAT LAKES FISHERIES

TABLE C-1: ELEMENTS OF AND MAJOR CHANGES TO THE JOINT STRATEGIC PLAN
Significant differences in bold

	1981 (Original version)	1997
Shared Goal Statement	To secure fish communities, based on foundations of stable self-sustaining stocks, supplemented by judicious plantings of hatchery-reared fish, and provide from these communities an optimum contribution of fish, fishing opportunities and associated benefits to meet needs identified by society for: wholesome food, recreation, employment and income, and a healthy human environment."	To secure fish communities, based on foundations of stable self-sustaining stocks, supplemented by judicious plantings of hatchery-reared fish, and provide from these communities an optimum contribution of fish, fishing opportunities and associated benefits to meet needs identified by society for: wholesome food, recreation, cultural heritage , employment and income, and a healthy human environment."
Great Lakes Fishery Issues	<ul style="list-style-type: none"> • Lost fishing opportunities • Instability of fish communities (exotic species, over harvest) • Inadequate environment quality (land uses, water uses, atmospheric input) • Competition and conflict among users (allocation among jurisdictions, commercial v sport fishing, native v other users) • Access to the resource 	<ul style="list-style-type: none"> • Lost fishing opportunities. This version emphasized contaminated sediments and long-range transportation of persistent toxic chemicals. • Instability of fish communities (exotic species, over harvest) This version emphasized the increase in the rate of exotics. • Inadequate environment quality (land uses, water uses, atmospheric input) This version emphasized the establishment of common consumption advisories • Competition and conflict among users (allocation among jurisdictions, commercial v sport fishing, native v other users) • Access to the resource • Climate change
Strategies for Great Lakes Fishery Management	<ul style="list-style-type: none"> • Consensus • Accountability • Environmental Management • Management of Information 	<ul style="list-style-type: none"> • Consensus • Accountability • Ecosystem Management (purpose was to emphasize the need for fishery agencies to work with "non-fishery" agencies) • Management of Information
Dispute Resolution Procedures	If consensus cannot be achieved, the GLFC can hold a hearing and arbitrate differences, report its finding, and make recommendations for resolution to proper agencies.	If consensus cannot be achieved, a party may (a) request the GLFC to arrange/facilitate an information exchange forum, (b) seek advice of existing plan committees, (c) ask the commission to arrange third-party mediation with any resolution being endorsed through the normal plan procedures, and/or (d) ask the commission to arrange a process involving a mutually acceptable third-party intermediary to make a non-binding recommendation.
Definition of Consensus	<ul style="list-style-type: none"> • harmony, cooperation, sympathy • group solidarity in sentiment and belief • general agreement • collective opinion • the judgment arrived at by most of those concerned • "emergent consensus": results from a crystallization of opinion after all viewpoints heard. • Consensus has been reached when no party to the negotiation objects to the opinion • Signing of a public document helps ensure adherence to the consensus decisions. 	Same as 1981 version.

	1981 (Original version)	1997
Strategic Procedures	<ol style="list-style-type: none"> 1. Fish community objectives developed, and a means to measure progress 2. Lake Committees identify environmental objectives 3. GLFC create Fish Habitat Advisory Committee 4. Each agency should identify its plans for achieving the fish community and environmental objectives 5. Each fishery agency should notify others of substantive changes in practice 6. If a change in practice affects others, it is subject to negotiation through the lake committees, until consensus is achieved. 7. If consensus cannot be achieved, the GLFC can hold a hearing and arbitrate differences, report its finding, and make recommendations for resolution to proper agencies. 8. Unresolved environmental issues may be referred by the lake committees to the GLFC so that the GLFC can represent the fishery interests before the appropriate bodies (e.g., IJC) 9. Consensus decisions that require action by more than one agency shall be a matter of record. 10. Annual reports of progress toward FCOs shall be made by the lake committees. 11. Each lake committee will prepare a progress report and make recommendations to agencies and the GLFC. 12. GLFC's annual report will include a summary of lake committee actions. 13. The GLFC will coordinate development of data standards, maintain a current inventory, facilitate access to data. 14. Agencies are encouraged to share data with other agencies. 	<ol style="list-style-type: none"> 1. Fish community objectives and a means to measure progress. 2. Each agency should identify its plans for achieving the fish community objectives 3. Each fishery agency should notify others of substantive changes in practice 4. If a change in practice affects others, it is subject to negotiation through the lake committees, until consensus is achieved. 5. If consensus cannot be achieved, a party may (a) request the GLFC to arrange/facilitate an information exchange forum, (b) seek advice of existing plan committees, (c) ask the commission to arrange third-party mediation with any resolution being endorsed through the normal plan procedures, and/or (d) ask the commission to arrange a process involving a mutually acceptable third-party intermediary to make a non-binding recommendation. 6. Lake Committees identify environmental objectives 7. Lake committees will work with LaMPs to develop joint proposals to the GLFC or other organizations to identify environmental needs relative to fishery needs. 8. Unresolved environmental issues may be referred by the lake committees to the GLFC so that the GLFC can represent the fishery interests before the appropriate bodies (e.g., IJC) 9. GLFC will maintain a Habitat Advisory Board 10. Fishery agencies will collectively protect aquatic resources from exotic species 11. The GLFC will coordinate development of data standards, maintain a current inventory, facilitate access to data. 12. The GLFC and the parties will coordinate development and implementation of models for common use 13. All parties are encouraged to maintain databases on the internet. 14. Agencies are encouraged to share data with other agencies. 15. Consensus decisions will be recorded through minutes. 16. Each agency should make annual reports to the lake committees. 17. Each lake committee will make an annual report to the GLFC. Once every 5 years, each lake committee will hold a state of the lake conference and write a report card. 18. GLFC's annual report will include a summary of lake committee actions. 19. All parties must approve changes to the plan or the addition of new members. 20. CGLFA established to ensure accountability, implementation, provide guidance, ensure timely information exchange, etc.
Signatories	<ol style="list-style-type: none"> 1. Fisheries and Oceans Canada 2. Illinois Department of Conservation 3. Indiana Department of Natural Resources 4. Michigan Department of Natural Resources 5. Minnesota Department of Natural Resources 6. National Marine Fisheries Service (NOAA) 7. New York DEC 8. Ohio Department of Natural Resources 9. Ontario Ministry of Natural Resources 10. Pennsylvania Fish Commission 11. U.S. Fish and Wildlife Service 12. Wisconsin Department of Natural Resources 	<ol style="list-style-type: none"> 1. Chippewa-Ottawa Resource Authority—Signed in 1989 2. Fisheries and Oceans Canada 3. Great Lakes Indian Fish and Wildlife Commission—Signed in 1989 4. Illinois Department of Conservation 5. Indiana Department of Natural Resources 6. Michigan Department of Natural Resources 7. Minnesota Department of Natural Resources 8. National Marine Fisheries Service (NOAA) 9. New York DEC 10. Ohio Department of Natural Resources 11. Ontario Ministry of Natural Resources 12. Pennsylvania Fish Commission 13. U.S. Fish and Wildlife Service 14. U.S. Geological Survey 15. Wisconsin Department of Natural Resources

APPENDIX D

SUMMARY OF FISH COMMUNITY OBJECTIVES ALL GREAT LAKES

TABLE D-1: SUMMARY OF FISH COMMUNITY OBJECTIVES—ALL GREAT LAKES

	LAKE SUPERIOR	LAKE HURON	LAKE MICHIGAN	LAKE ERIE	LAKE ONTARIO
Year(s) objectives published	2003 1990	1995	1995	2003	1999 1989
Reference	Horns, W. H., C. R. Bronte, T. R. Busiahn, M. Ebener, R Eshenroder, L., T. Gorenflo, N. Kmiecik, W. Mattes, J. W. Peck, M. Petzold, and D. R. Schreiner. 2003. <i>Fish community objectives for Lake Superior, Special Publication 03-01</i> . Ann Arbor: Great Lakes Fishery Commission.	DesJardine, R.L., T. Gorenflo, R. N. Payne, and J. D. Schrouder. 1995. <i>Fish-Community objectives for Lake Huron, Special publication 95-1</i> . Ann Arbor: Great Lakes Fishery Commission	Eshenroder, R. L., M. E. Holey, T. Gorenflo, and R. D. Clark. 1995. <i>Fish-community objectives for Lake Michigan, Special publication 95-3</i> . Ann Arbor: Great Lakes Fishery Commission.	Ryan, P.A., R. Knight, R. MacGregor, G. Towns, R. Hoopes, and W. Culligan. 2003. <i>Fish-Community goals and objectives for Lake Erie, Special publication 03-02</i> . Ann Arbor: Great Lakes Fishery Commission.	Stewart, T. J., R. E. Lange, S. D. Orsatti, C. P. Schneider, A. Mathers, and M. E. Daniels. 1999. <i>Fish-Community objectives for Lake Ontario, Special publication 99-1</i> . Ann Arbor: Great Lakes Fishery Commission
How broad fish community objectives are reached	<ul style="list-style-type: none"> ▪ Literature review and historical records. ▪ Analysis of quantity and quality of habitat. ▪ Data from lake committee and technical committee members. ▪ Consensus-based discussions among lake committee and technical committee members. ▪ Knowledge and experience of the members. ▪ Data from State-of-the-Lake reports. 	Same	Same	Same	Same. In addition, the Lake Ontario Committee held two workshops to evaluate the human and natural influences on Lake Ontario and the committee held a series of public meetings to gather information related to the objectives. Stakeholder preferences were considered as the fish community objectives were developed.
Stated purpose(s) of the fish community objectives	<ul style="list-style-type: none"> ▪ Promoting a common understanding of how the Lake Superior ecosystem functions. ▪ Providing a unified direction to guide management practices. 	<ul style="list-style-type: none"> ▪ "To provide an umbrella under which management agencies are expected to develop more-specific plans and strategies." 	<ul style="list-style-type: none"> ▪ "[T]o provide a framework for future decision making." ▪ "[To] help define an unified direction and purpose for the multitude of management activities occurring around the lake." 	<ul style="list-style-type: none"> ▪ "[These] goals and objectives will guide the development of strategies and management actions within a framework of sound ecological concepts and basic guiding principles." 	<ul style="list-style-type: none"> ▪ "This document will be used to guide the delivery of [NY and ON's] mandates for managing the fish community and fisheries of Lake Ontario." ▪ To serve as "the starting point for developing more-specific fisheries, habitat, and watershed management plans."
Major emphasis of objectives	<ul style="list-style-type: none"> ▪ Natural reproduction of species. ▪ Habitat protection. ▪ Prevention of new invasive species. 	<ul style="list-style-type: none"> ▪ Top predators ▪ Self-sustaining indigenous and naturalized species. 	<ul style="list-style-type: none"> ▪ Restore and maintain the biological integrity of the resource ▪ Sustainable and ecologically efficient use of the resource. 	<ul style="list-style-type: none"> ▪ The open lake. ▪ "Top-down" (predator) and "bottom-up" (nutrient) forces on the fish communities. 	<ul style="list-style-type: none"> ▪ To balance stakeholder preferences with biological realities.

	LAKE SUPERIOR	LAKE HURON	LAKE MICHIGAN	LAKE ERIE	LAKE ONTARIO
On cooperation amongst the agencies	<ul style="list-style-type: none"> Essential to develop a shared understanding of the fishery and the overall goals and objectives. Specific management strategies to reach the shared objectives, are up to each of the jurisdictions. 	<ul style="list-style-type: none"> Management by consensus is a necessary route to achieve the goals of the Joint Strategic Plan. Stated objectives further commits the individual agencies to protecting and restoring the lake's fisheries. The objectives are the umbrella under which agencies develop their own specific management plans. 	<p>Lake committees are responsible for implementing a consensus approach to fisheries management.</p>	<ul style="list-style-type: none"> The objectives were developed by the Lake Erie Committee. "All agencies should continue the highly successful multijurisdictional, cooperative approach to fisheries management under the [Lake Erie Committee]." Standing technical committees of the Lake Erie Committee should continue to meet the science needs of the Lake Erie Committee. 	<p>It was important to New York and Ontario to together undertake the public consultation processes to develop the fish community objectives.</p>
Significant species of the lake, as noted in the objectives	<ul style="list-style-type: none"> Brook trout Deepwater ciscoes <i>Diporeia</i> (a zooplankter) Lake herring Lake trout ("humper" and siscowet varieties) Lake whitefish <i>Mysis</i> (a zooplankter) Sculpins Sea lamprey (exotic nuisance) Sturgeon 	<ul style="list-style-type: none"> Alewife (naturalized) Bass Burbot Channel catfish Lake Sturgeon Lake trout Northern pike Rainbow smelt (naturalized) Sculpins Sea lamprey (exotic nuisance) Six salmonids (e.g., pacific salmon) (naturalizes) Walleye Whitefish (deepwater ciscoes, herring, lake whitefish) 	<ul style="list-style-type: none"> Alewife (naturalized) Brown trout (naturalized) Burbot Chinook salmon (naturalized) Coho salmon (naturalized) Deepwater ciscoes Deepwater sculpin <i>Diporeia</i> (a zooplankter) Emerald shiner Lake herring Lake trout Lake whitefish <i>Mysis</i> (a zooplankter) Rainbow trout (naturalized) Sturgeon Walleye Yellow perch 	<ul style="list-style-type: none"> <i>Cercopagus</i> (an exotic nuisance zooplankter) Gizzard shad Lake trout Muskellunge Round goby (exotic nuisance) Sea lamprey (exotic nuisance) Smallmouth bass Spiny water flea (an exotic nuisance zooplankter) Sturgeon Walleye White perch (naturalized) Whitefish Yellow perch Zebra mussels (exotic nuisance) 	<ul style="list-style-type: none"> Alewife (exotic nuisance) American eel Atlantic salmon Burbot Deepwater and slimy sculpins Deepwater ciscoes Emerald and spottail shiners Lake herring Lake sturgeon Lake trout Lake Whitefish Northern pike Rainbow smelt (naturalized) Sea lamprey (exotic nuisance) Walleye Yellow perch
On ecosystem management	<p>Attained through on-going dialogue with environmental management agencies.</p>	<ul style="list-style-type: none"> Shift from single species to entire ecosystems. Key issues: stability, balance, sustainability of the fishery. Public advisory committees were "instrumental" in shaping objectives. 	<ul style="list-style-type: none"> "The Joint [Strategic] Plan recognized that the fish community in each lake must be managed as a whole." The Great Lakes Water Quality Agreement calls for the chemical, physical, and biological restoration of the Great Lakes. Linking all three supports "ecosystem integrity." 	<ul style="list-style-type: none"> "The management of Lake Erie fish communities and related fish habitat must consider the entire lake, including continuous rivers, streams, and embayments that provide important spawning and nursery habitat for many fish species that inhabit the open waters of Lake Erie." Great Lakes fisheries management has been shifting from individual fish species to the entire fish community. 	<ul style="list-style-type: none"> The lake must be managed as an ecosystem. Humans are included in the complex interrelationships. The Great Lakes Water Quality Agreement is important to achieving Lake Ontario Fish Community Objectives.

	LAKE SUPERIOR	LAKE HURON	LAKE MICHIGAN	LAKE ERIE	LAKE ONTARIO
Guiding principles	<ul style="list-style-type: none"> ▪ Protect habitat ▪ The productivity of the lake as a whole is limited, thus, single-species management is unrealistic—the entire fishery needs to be managed within the overall bounds of what the lake can support. ▪ Naturalized (non-native species) are a part of the ecosystem and, therefore, will affect fish community objectives. ▪ Prevent further introductions of non-native species. ▪ Fish and fisheries are culturally important. ▪ Unexploited fishes are important. ▪ Citizens have an interest and a role management decisions. ▪ Management decisions should be supported by science. ▪ Management must be coordinated among the agencies; agencies must share information. ▪ There is limited ability to manage fisheries. ▪ Preserve indigenous species and promote genetic diversity. 	<ul style="list-style-type: none"> ▪ Lake must be managed as an ecosystem. ▪ Preserve and restore habitat. ▪ The amount of fish that can be harvested is limited and is determined by things like nutrients, habitat, and ability to respond to exploitation. ▪ Naturally reproducing fish communities based on native fish are more predictable and sustainable. ▪ Non-native species that have become naturalized must be viewed as part of the fish community. ▪ Stocking is essential to restore fisheries. ▪ Rare and endangered species should be safeguarded. ▪ Species diversity contributes to balance and stability. ▪ Genetic diversity is desirable. ▪ Socioeconomic values are a priority in decision-making. ▪ Fisheries are culturally important. ▪ Good management is based on science. 	<ul style="list-style-type: none"> ▪ Recognize the limits on lake productivity. ▪ Preserve and restore fish habitat. ▪ Preserve native species. ▪ Enhance natural reproduction of native and desirable introduced fishes. ▪ Acknowledge the role of planted fish. ▪ Recognize naturalized species. ▪ Adopt the 'genetic stock concept'. ▪ Recognize that fisheries are an important cultural heritage. ▪ Prevent the unintentional introduction of exotic species. ▪ Protect and enhance threatened and endangered species. 	<ul style="list-style-type: none"> ▪ Self sustaining stocks provide the most predictable, sustainable, and cost-effective benefits to society. ▪ Populations (stocks) of fish are the basic unit for conservation; fish stocks should be identified, monitored, and appropriately managed. ▪ Priority should be given to native species where competitive interactions exist. ▪ No non-native animals or plants will be un-intentionally introduced. ▪ Habitat should be preserved and restored. ▪ Rare and endangered species should be preserved. ▪ Naturalized species should be recognized as part of the fish community and managed appropriately. ▪ Species of value to sport and commercial fishers should be harvested on a sustainable basis. ▪ Productivity of the lake is limited and, thus, managers, when making decisions, must recognize that harvest will be affected by the lake's capacity. 	<ul style="list-style-type: none"> ▪ Fish-community objectives must reflect the most-current science available. ▪ Objectives must take stakeholder needs and preferences into account. ▪ Stakeholders contribute vital knowledge to fishery managers in support of decision-making. ▪ Ecosystem management—including the place of humans—is the guiding principle. ▪ Humans only have a limited ability to directly influence the ecosystem. ▪ Managing fish communities requires a long-term perspective. ▪ Protection and rehabilitation of fish communities and habitats is essential. ▪ There are ecological limits to the amount of fish that can be harvested. ▪ Self-sustaining native and naturalized species are most desirable. ▪ Stocked fish contribute to the ecology of the lake and provide fishing opportunities. ▪ It is important to protect and improve native species. ▪ Rare and endangered species should be protected. ▪ Habitat protection and restoration are essential.

	LAKE SUPERIOR	LAKE HURON	LAKE MICHIGAN	LAKE ERIE	LAKE ONTARIO
Specific Objectives	<ul style="list-style-type: none"> ▪ Habitat: achieve no net loss; identifies habitat needs; identifies stresses to habitat, including stresses at specific sites. ▪ Prey species: achieve self-sustaining assemblages of prey species; promote native prey species; limit commercial harvest. ▪ Lake trout: achieve diverse, self-sustaining populations similar to those of the 1940s, with lean lake trout being the dominant form offshore and humpers in eastern waters; prevent predation and overfishing. ▪ Lake whitefish: maintain self-sustaining populations in the range of abundances of 1990-1999. ▪ Walleye: Rehabilitate self-sustaining populations. ▪ Sturgeon: rehabilitate self-sustaining populations; slow excessive sport and commercial harvest; protect habitat; dam removal. ▪ Brook trout: maintain widely distributed populations. ▪ Other naturalized species: manage so that they are compatible with native species. ▪ Sea lamprey: suppress to levels that cause insignificant mortality. ▪ Invasive species: prevent new introductions, prevent the spread, control if possible. ▪ For specific species, broad objectives identified, factors affecting achieving objectives noted, and impediments listed. 	<ul style="list-style-type: none"> ▪ Salmon and trout: sustain a harvest of 2.4 million kg annually; lake trout should be the dominant salmonine. ▪ Walleye and yellow perch: Re-establish or maintain walleye as the dominant cool-water predator and sustain a harvest of .7 million kg. Maintain yellow perch as the dominant nearshore omnivore and sustain a harvest of .5 million kg. ▪ Northern pike and muskellunge: Maintain pike as a prominent predator, protect and enhance the appeal of muskellunge, and sustain a harvest of .1 million kg of these species. ▪ Channel catfish: maintain it as a prominent predator and sustain a harvest of .2 million kg. ▪ Lake Whitefish and ciscoes: Maintain the present diversity of these fish, sustain whitefish harvest at 3.8 million kg, and restore lake herring and deepwater ciscoes. ▪ Sturgeon: increase the abundance so that it is not listed as threatened in U.S. waters; rehabilitate populations in Canada. ▪ Objectives for species diversity, genetic diversity, and habitat. ▪ Prey species: maintain a diversity of species that matches the ability of the lake to sustain prey and that satisfies predator demand. ▪ Sea lamprey: Reduce abundances to allow achievement of fish community objectives; reduce by 75% by 2000 and 90% by 2010. 	<ul style="list-style-type: none"> ▪ Salmon and trout: sustain a harvest of 2.7 to 6.8 million kg, of which 20-25% is lake trout. Establish self-sustaining lake trout populations. Determine what mix of species provides the largest sustainable yield. ▪ Prey species (planktivores): Maintain a diversity of prey species at levels that match predator demand. The goal is a lakewide prey biomass of .5 to .8 billion kg. Do not manage for a single species (e.g., alewife). Native prey species are more desirable than exotic. ▪ Inshore fishery: Maintain self-sustaining stocks of yellow perch, walleye, smallmouth bass, pike, catfish, and panfish. The target annual yield for yellow perch is .9 to 1.8 million kg; for walleye is .1 to .2 million kg. ▪ Benthivore (open-lake fish): Maintain self-sustaining stocks of lake whitefish, round whitefish, sturgeon, suckers, and burbot. The target yield of lake whitefish should be 1.8 to 2.7 million kg. Sturgeon can be enhanced by improving habitat, allowing fish passage past barriers, and promulgating effective regulations. ▪ Sea lamprey: Suppress sea lampreys to levels that allow for the achievement of fish community objectives. ▪ Other: Protect and sustain a diverse community of native fishes. ▪ Physical and Chemical Habitat: Protect and enhance fish habitat; pursue the reduction and elimination of toxic chemicals. 	<ul style="list-style-type: none"> ▪ A balanced, predominantly cool-water fish community; walleye as the top predator; self-sustaining species that occupy diverse habitats and provide valuable fisheries. ▪ A predominantly cold-water community in the deep waters of eastern basin with lake trout and burbot as the key predators. ▪ Ecosystem conditions: Nutrient conditions that favor cool-water organisms. ▪ Yield: Sustainable harvest of 13.6 to 27.3 million kg of highly valued fish. ▪ Habitat: Nearshore habitat that can support high quality fishes like bass, pike, muskellunge, yellow perch, and walleye. ▪ River habitat: Protect and restore stream-spawning stocks of walleye, white bass, sturgeon, and rainbow trout. ▪ Western basin: Sustainable harvests of walleye, yellow perch, bass, etc. ▪ Central basin: Sustainable harvests of walleye, yellow perch, bass, rainbow smelt, rainbow trout, etc. ▪ Eastern basin: Sustainable harvests of walleye, bass, yellow perch, whitefish, rainbow smelt, lake trout, rainbow trout, and other salmonids. ▪ Contaminants: Contaminants at levels that cause no detrimental harm to fish/humans. ▪ Protect rare and endangered species. ▪ Maintain a diversity of forage fish. ▪ Food web: Manage the food web structure to optimize production; recognize the importance of zebra/quagga mussels and mayflies. 	<ul style="list-style-type: none"> ▪ Nearshore: A diversity of self-sustaining native fish characterized by walleye, yellow perch, sturgeon, bass, and American eels. Indicators of success: expansion of walleye range, maintenance of walleye catch rates, bass catch rate of the late 1980s, increased yellow perch, increased sturgeon, and a return of the American eel. ▪ Offshore pelagic: A diversity of salmon and trout, chinook salmon as the top predator, abundant steelhead trout, fishable populations of coho salmon and brown trout, higher populations of Atlantic salmon (with the investigation of self-sustainability), increased wild trout and salmon, and a diverse prey community with the alewife as an important species. Indicators of success: a healthy mix of trout and salmon, salmon and trout catch rates comparable to the early 1990s, high alewife abundances, continued increases in prey species like shiners and sticklebacks. ▪ Offshore benthic: An offshore benthic community with lake trout as the top predator, a growth in the whitefish populations, and rehabilitate prey species. Indicators of success: lake trout rehabilitation, expanded range of whitefish, whitefish catches of the early 1990s, increased catches of burbot, and increased ciscoes and burbot. ▪ Ecosystem objectives: Protect biodiversity, maintain ecosystem function, and reducing contaminant levels.

	LAKE SUPERIOR	LAKE HURON	LAKE MICHIGAN	LAKE ERIE	LAKE ONTARIO
Major changes in the lake/issues of importance noted in the objectives	<ul style="list-style-type: none"> ▪ Fish community reverting to a more natural state. ▪ Lake trout and lake herring recovery. ▪ Invasive species have permanently altered the system. ▪ "Lake Superior is the least altered of the Great Lakes." ▪ Fishery recovering thanks to sea lamprey control, better regulations, stocking, improved herring recruitment, pollution controls, slower habitat destruction, and reforestation. ▪ Lake trout, the major species, recovered to levels where stocking is minimal. ▪ Purposefully introduced non-native species have become naturalized. ▪ Important species need more recovery: sturgeon, walleye, brook trout. 	<ul style="list-style-type: none"> ▪ Un-intentionally introduced species (e.g., sea lamprey) have had an impact. ▪ Smelt and alewife (non-native species) dominate the forage base instead of the native bloater. ▪ Fish community is in transition after large-scale changes of the 1960s (sea lamprey and intentional stocking of non-native species), but is stabilizing and recovering. ▪ Harvest is falling more in line with what the lake can support. ▪ Species introductions have had an impact. ▪ Lake trout are mostly extirpated. ▪ Declines in burbot, lake whitefish, and larger ciscoes. 	<ul style="list-style-type: none"> ▪ A severely disrupted fish community caused by sea lampreys. ▪ The combined effects of fishing, habitat destruction, and introduced species. ▪ Abundance of alewife (an exotic) may have contributed to the extinction of three species of deepwater ciscoes and suppression of native forage fish, and the suppression of native predators. ▪ Plantings of exotic salmonids in the late 1960s provided a put-grow-take sport-fishery and helped control alewives. ▪ Significant die-offs of chinook salmon occurred in the late 1980s. ▪ Exotic species (e.g., zebra mussel, ruffe, round goby) continue to invade and change the fish community. ▪ Many native fish stocks were lost. ▪ Pollution and toxic chemicals are at unacceptable levels. 	<ul style="list-style-type: none"> ▪ Loss of many important native species. ▪ Invasion and spread of exotic species. ▪ Major species significantly impaired include lake trout, sauger, blue pike, lake herring, whitefish, and sturgeon. ▪ Excessive nutrient enrichment (e.g., too much phosphorus) from the 1940s to the 1970s, caused by fertilizers, runoff, sewage and industry, caused eutrophication and increased oxygen depletion. Phosphorus reductions have been successful, though perhaps to the extent of reducing the productivity of the lake. ▪ The invasion of zebra and quagga mussels have caused dramatic changes in the Lake Erie ecosystem. ▪ Mayflies have recovered from near-zero levels of the 1970s, providing a large source of food for fish. 	<ul style="list-style-type: none"> ▪ Water quality has improved in recent decades. ▪ The zebra and quagga mussel invasions have affected the ecosystem. ▪ The biomass of prey fish like alewife and smelt has been reduced by 50%. ▪ Salmon and trout stocking were reduced to balance predator and prey. ▪ Habitat loss, water quality degradation, and invasive species, by the 1960s, contributed to the virtual elimination of large predators. ▪ Fish stocking and sea lamprey control have resulted in improved abundances and diversity of Lake Ontario fishes.
Challenges and impediments to achieving objectives	<ul style="list-style-type: none"> ▪ Commercial fishing (poor regulations, overfishing) ▪ Destruction of habitat, particularly from sawmill operations—debris, waste, and dams—and pollution ▪ Invasive species 	<ul style="list-style-type: none"> ▪ Habitat management ▪ Sea lamprey ▪ Introduced exotic species ▪ Competing demands from the public ▪ Monitoring and research ▪ Stocking 	<ul style="list-style-type: none"> ▪ Habitat features are often beyond human control. ▪ Few options exist to alter fish communities. ▪ Imprecise or invariant affects of management actions. 	<ul style="list-style-type: none"> ▪ Overexploitation ▪ Watershed deforestation ▪ Exotic species ▪ Contaminants ▪ Dams ▪ Deterioration of tributary streams ▪ Nutrient enrichment/reversal of nutrient enrichment 	<ul style="list-style-type: none"> ▪ Invasive species. Alewife predation of desirable fish larvae and eggs and their contribution to fish disease. ▪ Habitat loss. ▪ Water quality degradation. ▪ Nutrients (e.g., phosphorus). ▪ Loss of diversity in the prey base.

	LAKE SUPERIOR	LAKE HURON	LAKE MICHIGAN	LAKE ERIE	LAKE ONTARIO
Tools to achieve objectives	<ul style="list-style-type: none"> Regulate harvest Stock fish Protect and enhance habitat Suppress non-native species Work with environmental agencies 	<ul style="list-style-type: none"> Maintain harvest surveys Evaluate fish community health in terms range, status, and age structures of predators and bottom-dwelling fish. Assess community balance and stability. Determine the dominance of species. Conduct special field surveys. Determine natural reproduction of species. Control sea lampreys. 	<ul style="list-style-type: none"> Measure fish harvest. Establish future harvest expectations. Measure things that relate to ecological integrity. Identify habitat impairments. Restore native species or, if native species and non-native species are incompatible, give priority to native species. Take steps to enhance natural reproduction. Stock fish to restore fisheries, develop spawning populations, and provide fishing opportunities. Prevent exotic species. Develop recovery plans for threatened or endangered species. 	<ul style="list-style-type: none"> Promote an “harmonic community” in Lake Erie to achieve balanced, stable, and predictable fish communities. Harmonic communities are groups of fishes that co-evolved in a way that makes them resistant to change. This suppresses the emergence of undesirable fish communities (like those dominated by invasive species). Maintain the Lake Erie committee. Work closely with environmental and water quality agencies. Improve coordinated assessment capabilities and data sharing. Conduct law enforcement. Ensure that fish harvest is consistent with restoration goals. 	<ul style="list-style-type: none"> Trout and salmon abundance should be maintained to provide quality fishing opportunities without putting excessive predatory pressures on alewives. Characteristics of the trout and salmon fishery will be preserved and alewife abundance maintained—even though this decision may impede progress towards objectives to rehabilitate native species. (“To deliberately harm the highly valued trout and salmon fishery would be irresponsible given the clear preferences of the majority of stakeholders.”)
How these fish community objectives differ from the others	<ul style="list-style-type: none"> This document emphasizes habitat protection and restoration more than the others, mainly because Lake Superior has experienced less habitat loss than the other lakes. The fish communities of Lake Superior have seen success in rehabilitation. The emphasis is often on protecting the gains. 	<ul style="list-style-type: none"> These objectives provide very specific harvest targets for each species. These objectives identify factors helping and hindering achievement of objectives. 	<ul style="list-style-type: none"> These objectives provide a more-detailed description of the historical makeup of the fish community of Lake Michigan and ties that to the rationale for the desired fish community. These objectives provide very specific harvest targets, but provides those targets as a range. 	<ul style="list-style-type: none"> The goals and objectives are broader than in other documents and harvest targets for individual species are not provided, as the system is in a state of fluctuation. Lake Erie supports an incredibly productive sport and commercial fishery for walleye and yellow perch, and objectives are reflective of measures necessary to sustain those important fisheries. Lake Erie has been affected by the disruption of the food web caused by invasive species and nutrient (phosphorus) fluctuations. These objectives focus heavily on those bottom-up forces. 	<ul style="list-style-type: none"> These objectives are unique in their particular emphasis on stakeholders and their preferences. These objectives acknowledge the significant differences between scientific assessment of ecological trends and the stakeholder desires. This posed a particular dilemma for the agencies in the development of these objectives.

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